Fiscal Deficit Financing and Unemployment Rate in Nigeria: An Empirical Investigation

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Abstract

This study examines the relationship between fiscal deficits financing and unemployment rate in Nigeria from 1990 to 2022, utilizing time series data from the World Development Indicators and the CBN Statistical Bulletin. The specific objectives are to determine the impact of debt servicing, assess the effect of domestic debt, investigate the influence of external debt, and examine the impact of money supply on the unemployment rate in Nigeria. Data analysis techniques include descriptive statistics, unit root tests, bounds cointegration, the autoregressive distributed lag (ARDL) estimation method, and post-estimation tests. The ADF unit root tests reveal a mix of I(1) and I(0) series, indicating that the variables differ in their levels of integration. The bounds cointegration test confirms a long-term equilibrium relationship among the dependent and independent variables. The ARDL long-run results indicate that debt servicing has a positive but statistically insignificant effect on the unemployment rate; domestic debt has a significant negative relationship with the unemployment rate; external debt has a positive but statistically insignificant effect on unemployment; and money supply has a positive and statistically significant impact on unemployment. Based on these findings, the study concludes that domestic debt positively contributes to reducing unemployment in Nigeria. It is therefore recommended that the government prioritize raising funds through domestic debt markets over external borrowing when financing employment-focused projects. Investments in infrastructure, small business support, and education can create jobs and strengthen the economy's productive base, thereby sustainably lowering unemployment.

Key words: *Debt Servicing, Domestic Debt, External Debt, Money Supply and Unemployment Rate*

INTRODUCTION

The persistent rise in fiscal deficits has become a defining feature of Nigeria's macroeconomic environment, particularly in the face of dwindling government revenue and increasing public expenditure. Fiscal deficit financing – the methods employed by the government to bridge the gap between its revenue and expenditure – has increasingly relied on both domestic and external borrowing. While such fiscal maneuvers are often justified as necessary for stimulating growth and development, their macroeconomic implications especially on unemployment, remain a subject of intense debate and empirical enquiry.

In recent years, Nigeria has faced persistent fiscal deficits and rising public debt levels that pose significant challenges to its macroeconomic stability. Fiscal deficits, particularly those fueled by debt servicing obligations, domestic debt, and external debt, have been linked to economic

performance concerns in developing countries (World Bank, 2021). Nigeria's growing fiscal deficit has led to an increased reliance on both domestic and external borrowing to fund public expenditures, contributing to rising debt servicing costs that drain resources from essential social and economic programs. The Nigerian government's debt servicing expenditures now represent a substantial share of the federal budget, limiting funds for public investment in critical infrastructure, education, and healthcare (CBN, 2022). High levels of debt servicing have constrained fiscal space, limiting the government's ability to mitigate unemployment and promote economic growth (Ezeand and Ogiji, 2023).

Domestic debt is also a central component of Nigeria's fiscal strategy, as the government seeks to mobilize internal resources to finance its budgetary shortfalls (NBS, 2022). Although domestic borrowing can foster short-term economic growth by increasing government expenditure, high levels of domestic debt have been linked to inflationary pressures and reduced private sector credit availability. Domestic debt accumulation can "crowd out" private investment by raising interest rates, which negatively impacts job creation and, consequently, the unemployment rate (Ogbonna and Ikechukwu, 2021). Additionally, the government's reliance on external debt exposes the country to exchange rate volatility and foreign interest rate fluctuations, which can worsen fiscal deficits and further hinder macroeconomic stability. Scholars argue that external debt often increases a nation's vulnerability to external economic shocks, leading to adverse effects on employment levels and overall economic performance (World Bank, 2023).

Another critical factor affecting Nigeria's fiscal deficit and macroeconomic performance is the growth in money supply. Excessive money supply growth has been linked to inflation, depreciation of the exchange rate, and economic instability, which, in turn, can lead to higher unemployment (CBN, 2021). As the Central Bank of Nigeria (CBN) manages monetary policy to support economic growth, it faces the challenge of balancing inflation control with job creation. A rapid increase in money supply may lead to inflationary pressures that reduce purchasing power and increase unemployment. Studies indicate that inflationary pressures linked to fiscal deficits, particularly when exacerbated by excessive money supply, can have destabilizing effects on Nigeria's economy, as households face reduced consumption power and firms encounter rising production costs (Adewale and Adebayo, 2023).

Nigeria's fiscal deficit, driven by debt servicing burdens, domestic and external debt, and changes in money supply, has profound implications for its macroeconomic performance, as evidenced by its high unemployment rates. This relationship has drawn significant interest from researchers and policymakers alike, as Nigeria's economic development is closely tied to the sustainability of its fiscal policies (IMF, 2022). Addressing these issues requires a multifaceted approach that balances fiscal prudence with policies aimed at enhancing job creation and fostering macroeconomic stability.

The growing fiscal deficit in many emerging economies has raised concerns about its impact on macroeconomic performance, particularly as it pertains to unemployment. A fiscal deficit often necessitates government borrowing, leading to debt accumulation.

One of the primary concerns in Nigeria's fiscal policy is the cost of debt servicing. High levels of debt servicing can divert resources away from productive investments and social spending, potentially leading to higher unemployment rates. For instance, a study by the International Monetary Fund (IMF) (2020) suggests that countries with high levels of public debt tend to experience slower economic growth and higher unemployment. This highlights the need to understand the mechanisms through which debt servicing impacts the labor market in Nigeria.

Domestic debt, which is debt owed to creditors within the country, can also have varied effects on the Nigerian economy. On one hand, domestic debt can be a source of financing for government expenditures that stimulate economic activity and reduce unemployment. On the other hand, excessive domestic debt can crowd out private investment, leading to lower economic growth and higher unemployment (Panizza & Presbitero, 2014). This duality necessitates a nuanced analysis of the role of domestic debt in Nigeria's macroeconomic performance.

External debt, or debt owed to foreign creditors, introduces additional complexities in the Nigerian context. High levels of external debt can make the country vulnerable to external shocks and currency fluctuations, which can negatively impact economic stability and employment. Moreover, the need to service external debt can lead to austerity measures that reduce government spending and increase unemployment (Krugman, 1988). Understanding the dynamics of external debt and its impact on the labor market is crucial for formulating effective fiscal policies in Nigeria.

The money supply, which is the total amount of money available in the Nigerian economy, plays a pivotal role in macroeconomic stability. Monetary policy, through the control of the money supply, can influence interest rates, inflation, and ultimately, employment levels. For example, expansionary monetary policy can lower interest rates, stimulate investment, and reduce unemployment (Friedman, 1968). However, the effectiveness of monetary policy in reducing unemployment depends on various factors, including the state of the economy and the responsiveness of the labor market.

Nigeria has experienced persistent fiscal deficits over the past decades, driven by fluctuating oil revenue, and rising public expenditure and increasing debt obligations. In response, the government has resorted to various deficit financing strategies, including domestic and external borrowing, as well as monetary financing through the central bank. While these measures are intended to stimulate economic activity and reduce unemployment, the country paradoxically continues to face rising a high and rising unemployment rate. According to the national bureau of statistics (2021), the unemployment rate surged to 33.3% in the fourth quarter of 2020, reflecting the economy's inability to generate sufficient employment despite increased public spending. This trend raises critical questions about the efficacy of fiscal deficit financing as a tool for addressing unemployment in Nigeria. It is against this backdrop, that this study examined the effects of debt servicing, domestic debt, external debt and money supply (proxies for fiscal deficit financing) on unemployment rate in Nigeria over the period 1990-2022.

LITERATURE REVIEW
Theoretical Framework
Keynesian Theory of Fiscal Deficit and Employment

The Keynesian Theory of Fiscal Deficit and Employment, developed by British economist John Maynard Keynes in 1936, emphasizes the role of government spending in stabilizing economic cycles, especially during periods of recession or economic stagnation. Keynes argued in The General Theory of Employment, Interest, and Money that governments could stimulate economic growth and reduce unemployment by increasing aggregate demand through fiscal policy measures, particularly deficit spending (Keynes, 1936). The theory was revolutionary at the time, challenging classical economic thought, which suggested that markets would naturally adjust to bring about full employment without government intervention. Keynes's approach relies on several key assumptions, including wage rigidity, price stickiness, and the existence of underutilized resources in the economy.

One of the central tenets of Keynesian theory is the "multiplier effect," which posits that government spending has a magnified impact on the economy because it generates additional income and consumption (Kahn, 1931). For example, an increase in government expenditure creates demand for goods and services, which in turn raises income levels and encourages further spending by households and firms. This cumulative process increases total output, thereby reducing unemployment as businesses expand to meet the rising demand. In Keynesian analysis, fiscal deficits are not inherently negative but rather a necessary response to economic downturns, particularly in the face of weak private sector demand (Keynes, 1936). The theory contends that the government can employ counter-cyclical fiscal policies, increasing spending or cutting taxes in times of low demand to stimulate job creation and support economic recovery.

Keynesian economics also posits that fiscal deficits, when directed towards productive investments like infrastructure and public services, can have lasting positive effects on economic growth and employment levels. This concept aligns with Keynes's belief in government intervention as a tool for addressing high unemployment, especially when private sector investment is insufficient. By focusing on capital projects, the government not only creates immediate jobs but also lays the groundwork for future economic productivity, further sustaining employment (Keynes, 1936). Keynesian theory thus encourages deficit spending, especially during economic slumps, as a mechanism for reducing unemployment and stabilizing the economy in both the short and long term.

Critics of Keynesian theory argue that persistent fiscal deficits can lead to inflationary pressures and rising debt burdens over time. However, Keynes believed that such deficits could be managed by reducing government spending during periods of economic expansion, thereby avoiding potential inflationary spirals (Blinder, 1982). In Keynes's view, a flexible fiscal policy marked by deficit spending in times of economic hardship and surpluses during growth periods allows governments to smooth economic cycles and maintain low unemployment. For economies like those with high levels of domestic and external debt, this approach underscores the importance of targeted government spending on projects that yield productive economic returns. Keynesian fiscal policy remains influential, with modern policymakers often drawing on its principles to justify stimulus spending during economic recessions (Blanchard & Leigh, 2013).

Ricardian Equivalence
The Ricardian Equivalence theorem, originally proposed by David Ricardo in the early 19th century and later formalized by Robert Barro in 1974, suggests that the method of financing government spending whether through taxation or debt does not affect aggregate demand. According to Ricardian Equivalence, rational individuals anticipate that government borrowing today will lead to higher taxes in the future to repay the debt. Consequently, they increase their current savings to offset future tax burdens, resulting in no net effect on consumption, investment, or overall economic output (Barro, 1974). This theoretical framework assumes that consumers are forward-looking, have perfect access to credit markets, and fully account for future tax liabilities when making saving and consumption decisions.

Central to Ricardian Equivalence is the notion that government debt is not perceived as net wealth by the public. Rather, households view it as a deferred tax liability, and as a result, they adjust their behavior to smooth their lifetime consumption in anticipation of future fiscal policy adjustments. Barro's extension of Ricardo's idea rests on several critical assumptions, including the absence of liquidity constraints, intergenerational altruism (where individuals save for their descendants), and the expectation that the government will fully repay its debt without defaulting (Barro, 1974). If

these assumptions hold, then government borrowing would not stimulate the economy or reduce unemployment because any increase in government spending would be offset by an equivalent reduction in private consumption.

In practice, however, the assumptions underlying Ricardian Equivalence are often criticized for being unrealistic. Empirical evidence suggests that individuals may not always behave with perfect foresight or altruism, nor do they always have unrestricted access to credit markets (Bernheim, 1989). For instance, in times of high unemployment and economic uncertainty, consumers may be unable or unwilling to save for future tax liabilities, especially if they are credit-constrained. Consequently, the expansionary effect of deficit-financed government spending may still stimulate demand and lower unemployment in the short run, despite the future tax implications. This critique highlights the limitations of Ricardian Equivalence in real-world applications, where credit constraints and myopic behavior often lead to deviations from theoretical predictions.

For economies with substantial domestic and external debt, Ricardian Equivalence also implies potential limits to fiscal policy's effectiveness as a tool for economic stimulus. If households respond to government debt accumulation by reducing their consumption, fiscal deficits may be less effective in promoting growth and employment. This outcome aligns with Ricardian Equivalence, as any short-term gains from increased government spending could be offset by a decrease in private spending. Nonetheless, many economists argue that, particularly in times of economic slack, fiscal stimulus funded by debt can still be effective in the short term, especially if households do not fully anticipate or internalize the future tax burden (Seater, 1993).

While Ricardian Equivalence provides an important theoretical perspective on fiscal deficits and their impact on economic performance, it may be more applicable under specific conditions, such as when consumer expectations are highly aligned with future fiscal policy. In cases where consumers are credit-constrained or have a shorter planning horizon, the theory may not hold, allowing for fiscal deficits to positively impact employment and economic output. Thus, while Ricardian Equivalence suggests that fiscal policy may be neutral with regard to aggregate demand, real-world deviations often lead policymakers to consider fiscal stimulus as a viable strategy for reducing unemployment, particularly during economic downturns (Blanchard, 1985).

Monetary Theory

The Monetarist Theory, primarily developed by economist Milton Friedman in the 1950s and 1960s, emphasizes the central role of the money supply in influencing economic activity and stabilizing macroeconomic performance. According to Friedman and the Monetarist school, changes in the money supply are the primary drivers of inflation, economic growth, and employment in the long run (Friedman, 1968). This theory challenges the Keynesian view that fiscal policy is the most effective tool for managing economic cycles, instead asserting that a steady, predictable growth in the money supply is essential for achieving sustainable economic growth and controlling inflation. Monetarism assumes that the economy is inherently stable if the money supply is well-managed, with government intervention primarily through monetary policy rather than fiscal deficit spending.

At the core of Monetarist Theory is the Quantity Theory of Money, formalized as the equation $MV = PQ$, where M represents the money supply, V is the velocity of money, P is the price level, and Q is the quantity of output. Monetarists argue that, in the long run, increases in the money supply (M) primarily influence the price level (P) rather than output (Q), as economic output is determined by real factors such as labor and technology (Friedman, 1963). Consequently, any attempt to stimulate economic growth through excessive money supply growth may initially reduce

unemployment, but this effect is only temporary. Once inflationary expectations adjust, the economy returns to its natural rate of unemployment, with higher inflation as a result. This assumption led to Friedman's concept of the "natural rate of unemployment," which he argued is largely immune to long-term reductions through expansionary monetary policy (Friedman, 1968). In terms of fiscal policy, Monetarists contend that fiscal deficits, if financed by increased money supply, can lead to inflation rather than real economic growth. Friedman (1968) posited that government attempts to reduce unemployment through fiscal deficits and money creation may initially boost economic activity, but as inflation expectations catch up, the stimulative effects wane, leading to a "stagflation" scenario—simultaneous high inflation and unemployment. Monetarist Theory therefore supports a cautious approach to deficit financing, particularly for economies with high levels of domestic and external debt, as the risk of inflation may constrain the effectiveness of fiscal policy in reducing unemployment sustainably. Monetarists advocate for targeting stable monetary growth rates to control inflation and prevent the kind of inflationary pressures that large fiscal deficits can induce when monetized (Friedman, 1968).

Moreover, Monetarism challenges the Keynesian emphasis on government intervention, suggesting that fiscal policy has limited effectiveness due to its impact on aggregate demand being offset by changes in the velocity of money. Instead, Monetarists argue for a rules-based approach to monetary policy, where central banks aim to control inflation through steady money supply growth. In this framework, a well-managed money supply can support stable macroeconomic performance without frequent government intervention. For example, if the government tries to increase spending during a recession by running a fiscal deficit, Monetarists believe this could crowd out private sector spending and reduce the effectiveness of fiscal stimulus on unemployment (Brunner and Meltzer, 1972). This view underscores a preference for predictable, low-inflation monetary environments that foster private sector confidence and sustainable employment growth. While Monetarist Theory provides valuable insights into the risks of inflation and the limits of fiscal policy, it has also faced criticism, particularly regarding its assumptions about money supply control and velocity stability. Empirical studies have shown that velocity is not always stable, especially during economic shocks, and that central banks may struggle to precisely control the money supply (Goodhart, 1989). Despite these limitations, Monetarism's emphasis on inflation control and skepticism toward deficit-financed fiscal expansion has shaped modern economic policy, with central banks worldwide adopting inflation-targeting frameworks that reflect Monetarist principles. In summary, Monetarist Theory offers a compelling argument for prioritizing monetary policy over fiscal deficits to manage inflation and stabilize unemployment in the long run, especially for economies with significant debt servicing obligations and external debt exposure.

Conceptual Review
Concept of Fiscal Deficit
The term "fiscal deficit" refers to when the government spends more money than it receives in a given fiscal year. Borrowing or the injection of new money (hot money) into the economy is used to close the gap between the government's revenue and expenditure profile. The budget deficit can be ascribed to a variety of factors, but it mainly stems from the government's deliberate attempt to stimulate the economy by cutting tax rates or increasing spending. The need may also be a direct result of government inefficiency in the areas of income production (indicating widespread tax evasion, leakages, and so on), as well as wasteful spending resulting from these inefficiencies.

Empirical Literature

Momodu and Monogbe (2017) investigated the lag effect of the previous year's budget deficit on Nigeria's economic performance using Vector Auto Regression (VAR) estimation from 1981 to 2015. Their findings indicated that budget deficits significantly stimulated economic performance. However, the Ordinary Least Squares (OLS) regression results showed a significant but negative relationship between fiscal deficits and economic performance.

Ofurum and Fubara (2022) investigated the impact of public debt on economic development in Nigeria from 1980 to 2019. Using data from the Central Bank of Nigeria (CBN) Statistical Bulletin and employing the Augmented Dickey-Fuller (ADF), Autoregressive Distributed Lag (ARDL), and Granger Causality tests, the study found that foreign debt servicing had a negative but insignificant impact on Nigeria's real GDP. Additionally, external debt did not significantly impact unemployment. The study recommended that the private sector support the government in developing technologies for natural resource exploitation to generate additional revenue, thereby reducing the need for borrowing to finance the budget.

Cahyadin and Ratwianingsih (2020) examined the empirical relationship between external debt, exchange rates, and unemployment in selected ASEAN countries Indonesia, Malaysia, Thailand, and the Philippines over the period 1980–2017. Data were sourced from World Bank publications. The study employed the ARDL-ECM and Granger Causality Test (GCT) to address the research objectives. Findings indicated short-term effects in each empirical model (external debt, exchange rate, and unemployment). Additionally, a stability test demonstrated that the models were precise and stable. The GCT results showed causality among external debt, exchange rate, and unemployment, particularly in Indonesia. Furthermore, the linkages among these variables exhibited co-movement in the selected ASEAN countries.

Shuaibu et al. (2021) assessed the impact of public debt on inflation and unemployment in Nigeria from 1985 to 2020, using 36 years of annual data and multiple econometric tests. The study applied the Autoregressive Distributed Lag (ARDL) model and the Error Correction Model (ECM) for analysis. Unit root and Granger causality tests were also conducted to evaluate the model's efficacy and predictive capability. Cointegration analysis revealed no relationship between public debt and inflation, but it showed a long-run relationship between public debt and unemployment. The ARDL results indicated that increased public debt raised unemployment, with external debt contributing more to unemployment than domestic debt. Based on these findings, the study recommended reducing public debt, prioritizing domestic borrowing over foreign debt if borrowing is necessary.

Iweoha (2020) examined whether borrowing could alleviate unemployment in Nigeria using time series data from 1981 to 2019. Using the VECM model, the study conducted stationarity and cointegration tests, confirming that all variables were stationary at I(1) and cointegrated. The results indicated an inverse relationship between public debt and unemployment. Further, unemployment was found to Granger-cause government debt and debt servicing, suggesting that public debt has had limited impact on reducing unemployment in Nigeria. While borrowing for critical infrastructure was not discouraged, the study emphasized the need for anti-corruption measures to ensure that borrowed funds are effectively used for visible infrastructure improvements, as public debt may also pose adverse economic effects.

Nwaeke and Korgbeelo (2016) provided empirical evidence on the relationship between deficit financing and selected macroeconomic variables in Nigeria. Their study examined the sources of financing budget deficits, External Loans (EXT), Domestic Banking System (DBS), Non-Bank Public (NBP), and Other Sources (OS) and their impact on selected macroeconomic indicators.

The macroeconomic variables analyzed included economic growth (proxied by real GDP), inflation rate (INFR), and unemployment rate (UNPR). Annual time series data covering 1981–2013 were obtained from the CBN Statistical Bulletin (2013). The study employed the OLS method of multiple regression analysis, using SPSS as the statistical tool. The analysis showed that deficits financed through external loans had an insignificant negative impact on economic growth, while deficits financed through domestic sources (e.g., DBS and NBP) stimulated economic growth in Nigeria. Regardless of the source, deficit financing had no significant effect on inflation. However, domestic sources of financing deficits were found to worsen unemployment in Nigeria. Based on these findings, the study recommended diversifying and expanding Nigeria's revenue base to reduce its vulnerability to oil revenue shocks and avoid reliance on deficit budgeting.

Ogoke and Akujuobi (2023) explored the relationship between external debt and macroeconomic indicators in Nigeria, analyzing time series data from the Central Bank of Nigeria. They used the Statistical Package for Social Sciences (SPSS) and applied the Ordinary Least Squares (OLS) method. Macroeconomic indicators were proxied by real GDP, inflation rate, unemployment rate, and balance of payments, while external debt was proxied by Nigeria's debt to London Club, Multilateral Club, Paris Club, promissory notes, and external debt servicing. The study found that external debt variables explained 68.6% of the variation in the balance of payments, 77.1% of the variation in the unemployment rate, and 78.4% of the variation in the inflation rate. External debt with multilateral, Paris Club, and promissory notes had a negative relationship with inflation, while debt servicing and external debt with London Club creditors had a positive effect on inflation. Based on these findings, the study concluded that external debt significantly affects Nigeria's macroeconomic indicators and recommended its prudent use for macroeconomic improvement.

Elekwa and Onyenama (2022) investigated the impact of disaggregated debt components on unemployment in Nigeria from 1992 to 2020. Using the Autoregressive Distributed Lag (ARDL) method, the study addressed stationarity tests of time series data. The results indicated a highly positive and significant relationship between unemployment and external debt. The study recommended that future public borrowing should prioritize employment generation, establishing a benchmark to ensure that no jobs are endangered where new employment cannot be created.

Okeke and Chukwu (2021) analyzed the effects of monetary policy instruments on unemployment in Nigeria from 1986 to 2018, using secondary data from the Central Bank of Nigeria's Statistical Bulletin. The study applied the Autoregressive Distributed Lag technique and performed unit root and cointegration tests. Results showed that the cash reserve ratio and monetary policy rate positively but insignificantly affected employment, while broad money supply had a positive and significant effect. Conversely, exchange rate and liquidity ratio had a negative and significant impact on employment. The study recommended that monetary policies should create a favorable investment climate, facilitating market-based interest and exchange rates to attract investments and create jobs. It also suggested establishing a low-interest intervention fund to support small and medium enterprises.

Ufoeze et al. (2018) explored the effect of monetary policy on economic growth in Nigeria from 1986 to 2016. The study used GDP as the dependent variable and included explanatory variables like monetary policy rate, money supply, exchange rate, lending rate, and investment. Utilizing the Ordinary Least Squares technique, unit root, and cointegration tests, the study found a long-term relationship among the variables. Results indicated that money supply had a significant positive effect on growth, while exchange rate had a significant negative impact on GDP. Money supply and investment were found to Granger-cause economic growth, and economic growth caused interest rates in Nigeria.

Egbulonu and Amadi (2016) examined the relationship between fiscal policy and unemployment in Nigeria from 1970 to 2013. Data, sourced from the National Bureau of Statistics and Central Bank of Nigeria, included government expenditure, debt stock, tax revenue, and unemployment rate. The study found a negative relationship between fiscal policy tools (government expenditure and debt stock) and unemployment, whereas tax revenue showed a positive relationship with unemployment. The findings also revealed a long-term equilibrium relationship between unemployment and fiscal policy in Nigeria.

Saad and Muhannad (2020) analyzed the relationship between money supply and unemployment, finding an inverse relationship between money supply and unemployment based on standard tests, suggesting that increased money supply reduces unemployment.

Kanberoğlu (2014) investigated the link between unemployment and financial development in Türkiye from 1985 to 2010, using multivariate regression analysis. Results showed that increased private sector loan rates, M2 money supply, and total financial assets were linked to reduced unemployment, while a higher market stock value to GDP ratio was associated with higher unemployment.

Literature Gap

Several empirical literatures related to the study on the relationship between fiscal deficits financing and unemployment in Nigeria were reviewed. The review highlighted the significant role fiscal deficits financing play in shaping the employment levels and overall well-being of the country. Although a large body of research has examined the overall relationship between fiscal deficits financing and unemployment rate, none has examined the particular effect of money supply as a proxy of fiscal deficit financing on unemployment rate. Therefore, the inclusion of money supply in the model is considered as filling a gap because money supply, controlled through monetary policy, plays a crucial role in determining economic outcomes. Expansionary monetary policy can lower interest rates, stimulate investment, and reduce unemployment (Friedman, 1968). Secondly, given the mixed results obtained from the works reviewed due to differences in variables used, this study using debt servicing, domestic debt, external debt and money supply as proxies for fiscal deficit financing and unemployment rate to examine the effects of fiscal deficits financing on unemployment rate in Nigeria thereby filling the gap in literature.

3. METHODOLOGY

Research design

This study adopted the *ex-post-facto* research design as it is non-experimental in nature, and investigated effects of the independent variables (measures of fiscal deficits financing) on the dependent variable (unemployment rate) by using existing annual time series data spanning 1985 to 2022, which were sourced from the Central Bank of Nigeria (CBN) statistical bulletin, National Bureau of Statistics (NBS) and the World Bank's development indicators data base.

Model Specification
The Functional forms of the models are thus:
UNEMP = f (DBS, M2, DOMD, EXTD)
        3.1
Stated in linear form gives:
$UNEMP_t = \beta_0 + \beta_1 DBS + \beta_2 M2_t + \beta_3 DOMD_t + \beta_4 EXTD_t + \mu_t$ 3.2
Where;
UNEMP = Unemployment Rate
DBS = Debt servicing
M2 = Money supply
DOMD = Domestic debt
EXTD = External debt
β_0 = constant parameter or the intercept.
$\beta_1 - \beta4$ = are coefficients; μ_1 is the error term; t = represent time.
Formulating the Autoregressive Distributed Lag (ARDL) short and long-run model gives:
$\Delta UEMP_t = \alpha_0 +$
$\sum_{i=1}^{p} \alpha_1 \Delta DBS_{t-1} + \sum_{i=1}^{q} \alpha_2 \Delta M2_{t-1} + \sum_{i=1}^{q} a_3 \Delta DOMD_{t-1} + \sum_{i=1}^{q} a_4 \Delta EXTD_{t-1} + \lambda_1 UNEMP_{t-1} + \lambda_2 DBS_{t-1} + \lambda_3 M2_{t-1} + \lambda_4 DOMD_{t-1} + \lambda_5 EXTD_{t-1} + \varepsilon_{1t}$ 3.3
Where: α_0 = constant parameter to be estimated
        $\alpha_{1-\alpha4}$ = short run parameters
        $\lambda_1 - \lambda_4$ = long-run multipliers
        p = optimal lag for each of the dependent variables
        q = optimal lag of the independent variables
         Δ = first difference operator
        ε_{1t} = error term

A priori Expectation
Based on economic theory, it is anticipated that the coefficients β2 to β4 will be Negative while B1 will be positive. The a priori expectations establish the anticipated signs of the explanatory variables' coefficients in line with economic theory. It is expected that an increase in the variables utilized will negatively influence Unemployment. Therefore, β1>0, β2<0, β3<0, β4<0.

Unit Root Test
As a precondition to time series analysis, the unit root test was conducted using the ADF method to ascertain the stationary process of the series. The results are presented in Table 1

Table 1: ADF unit root test results

Variables	ADF statistics at levels	% critical Value	ADF statistic at 1st difference	% critical value	Order of integration
DBS	0.096	2.98	5.369	2.98	(1)
DOMD	2.492	2.95	3.564	2.96	(1)
EXTD	1.266	2.96	3.905	2.96	(0)
M2	1.037	2.99	4.567	2.96	(1)
UNEMP	4.755	2.99	NA	NA	1(0)

Source: Author's computation from Eviews 12 software

The ADF unit root test results from this study are reported in Table 1, evaluating the stationarity of the time series variables: Debts Servicing (DBS), Domestic Debt (DOMD), External Debt (EXTD), Money Supply (M2), and macroeconomic performance, represented by the Unemployment Rate (UNEMP).

From the table, the ADF statistics at levels reveal that most of the variables are non-stationary at their levels, as their ADF statistics do not exceed the 5% critical value. Specifically, the ADF statistic for Debts Servicing (DBS) is 0.096, for DOMD it is -2.492, EXTD is -1.266 and for M2 it is -1.037, all of which are less than the critical values, indicating non-stationarity at level form. Upon differencing the data, the variables become stationary, confirming that DBS, DOMD, EXTD, and M2 are integrated of order I(1), meaning they require differencing once to achieve stationarity. For instance, DBS's ADF statistic after first differencing is -5.369, and M2's is -6.2, both exceeding the critical values of -3.02 and -2.99, respectively. This implies that their series are non-stationary at levels but become stationary after differencing. On the other hand, Unemployment rate (UNEMP) is stationary at levels with an ADF statistic of –4.755, which exceeds the critical value of -2.99. This suggests that UNEMP is integrated of order I(0), meaning it is already stationary without differencing

Overall, the results show that the variables are mixed integrated, thus, necessitating the application of the bounds cointegration test method.

Bounds Cointegration Test

The bounds cointegration test followed the evidence of mixed integration from the unit root test The results are presented in Table 2.

Table 2: Summary of bounds cointegration test results

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.37146	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's computation from E-views 12 software

Note: K denotes the number of regressors

The results of the bounds cointegration in the table 2 shows that the computed F-statistic (13.37) is greater than the lower bound value of (2.56) and the upper bound critical value of (3.49) at the 5% significance level. This finding necessitates the rejection of the null hypothesis that no long-run relationships exist among the variables at the 5% significance level. Therefore, it follows from the results that unemployment rate has a long-run relationship with the independent variables used. Based on this finding, this study adopted the ARDL method of analysis.

ARDL Model Estimation
Table 3: ARDL short and long run analysis

Short-run results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UNEMP(-1))	0.150926	0.174574	0.864536	0.4361
D(UNEMP(-2))	-1.625662	0.222125	-7.318665	0.0019
D(UNEMP(-3))	4.329329	0.463339	9.343756	0.0007
D(DBS)	0.237732	0.078398	3.032370	0.0387
D(DBS(-1))	-1.652758	0.134781	-12.26253	0.0003
D(DBS(-2))	-0.109069	0.083208	-1.310800	0.2601
D(DBS(-3))	-0.352440	0.060046	-5.869465	0.0042
D(DOMD)	-3.030539	0.321626	-9.422566	0.0007
D(DOMD(-1))	-0.936206	0.223138	-4.195642	0.0137
D(DOMD(-2))	0.571304	0.262558	2.175913	0.0952
D(DOMD(-3))	-6.057203	0.541575	-11.18442	0.0004
D(EXTD)	-0.481387	0.072269	-6.661058	0.0026
D(EXTD(-1))	0.010944	0.068591	0.159551	0.8810
D(EXTD(-2))	0.925406	0.098159	9.427634	0.0007
D(EXTD(-3))	0.242175	0.077916	3.108164	0.0359
D(M2)	0.217849	0.020444	10.65602	0.0004
D(M2(-1))	-0.184735	0.016833	-10.97437	0.0004
D(M2(-2))	-0.166275	0.017404	-9.554071	0.0007
D(M2(-3))	-0.112185	0.012337	-9.093742	0.0008
CointEq(-1)*	-1.168108	0.086941	-13.43558	0.0002

Long-run results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DBS	0.750856	0.573619	1.308982	0.2607
DOMD	-2.675244	0.792362	-3.376290	0.0279
EXTD	0.196914	0.282576	0.696855	0.5243
M2	0.431367	0.127433	3.385050	0.0277
C	12.74975	3.593794	3.547713	0.0238

R^2 = 0.977156; adjusted R^2 = 0.928930

Sources: Researcher Eviews 12 computation

In the short run, the coefficients for the lagged values of the unemployment rate show significant fluctuations. The first lag of unemployment has a coefficient of 0.150926, indicating a slight positive impact on current unemployment when unemployment was higher in the previous period, though this is not statistically significant. The second lag shows a significant negative coefficient

of -1.625662, suggesting that higher unemployment two periods prior tend to decrease current unemployment significantly. In contrast, the third lag has a substantial positive coefficient of 4.329329, indicating a strong rebound effect where higher unemployment three periods prior significantly increases current unemployment.

Debt servicing (DBS) in the short run at the current period shows a positive and statistically significant impact on the unemployment rate, suggesting that a unit increase in debt servicing increases the unemployment rate by 0.237732 units. However, in the first, second, and third lags, debt servicing shows a negative impact, statistically significant only at the first and third lags, implying that a unit increase in debt servicing decreases the unemployment rate by -1.652758, -0.1091, and -0.3524 units, respectively, in the short run. Conversely, the long-run results show that debt servicing has a positive but not statistically significant effect on the unemployment rate in Nigeria, implying that a unit increase in debt servicing would increase unemployment by 0.750856 units in the long run. This result contrasts with findings by Ofurum and Fubara (2022), who observed a negative relationship between debt servicing and unemployment, and it does not align with the Keynesian theory of fiscal deficit and employment, which advocates for government spending to reduce unemployment.

Furthermore, domestic debt (DOMD) in the current period, as well as at the first and third lags, shows a negative and statistically significant impact on the unemployment rate in the short run, suggesting that a unit increase in domestic debt reduces unemployment by -3.030539, -6.0572, and -0.352440 units, respectively. In contrast, at the second lag, domestic debt shows a positive but not statistically significant impact on unemployment, indicating that a unit increase in domestic debt raises unemployment by 0.571304 units in the short run. In the long run, domestic debt has a negative and statistically significant impact on the unemployment rate, suggesting that a unit increase in domestic debt reduces unemployment by -2.675244 units. These findings differ from those of Shuaibu et al. (2021), who found a positive relationship between domestic debt and unemployment, but are consistent with Egbulonu and Amadi (2016), who observed no positive effect of domestic debt on unemployment.

Additionally, external debt (EXTD) in the current period shows a negative and statistically significant effect on the unemployment rate in Nigeria, implying that a unit increase in external debt reduces the unemployment rate by -0.481387 units in the short run. However, in the first, second, and third lags, external debt shows a positive and statistically significant impact on the unemployment rate, though only at the second and third lags. In the long run, external debt has a positive but not statistically significant effect on unemployment, with a unit increase in external debt raising the unemployment rate by 0.196914 units. These results align with the Ricardian Equivalence theorem and the findings of Cahyadin and Ratwianingsih (2020), Shuaibu et al. (2021), and Elekwa and Onyenama (2022), who observed that external debt increases unemployment. However, they diverge from the findings of Nwaeke and Korgbeelo (2016), Iwuoha (2020), and Ofurum and Fubara (2022), who found that external debt negatively influences unemployment.

Finally, in the short run, money supply (M2) in the current period has a positive and statistically significant impact on the unemployment rate, indicating that a unit increase in money supply raises the unemployment rate by 0.217849 units. However, in the first, second, and third lags, money supply shows a negative and statistically significant impact on unemployment, implying that a unit increase in money supply reduces unemployment by -0.184735, -0.166275, and -0.112185 units, respectively. In the long run, money supply has a positive and statistically significant effect on unemployment, increasing the unemployment rate by 0.431367 units. This result is consistent with

the findings of Okeke and Chukwu (2021) and Saad and Muhannad (2020), who found that money supply positively influences unemployment, but contrasts with Kanberoğlu (2014), who found that money supply reduces unemployment.

The error correction term, represented by CointEq(-1), has a coefficient of -1.168108 ($p < 0.01$), indicating a significant and negative adjustment toward long-run equilibrium. This coefficient implies that approximately 116.81% of the disequilibrium from the previous period is corrected in the current period, suggesting a rapid adjustment rate. This high speed of adjustment highlights that any short-term shocks in unemployment caused by changes in fiscal deficit components are quickly brought back in line with the long-term relationship.

The model's R-squared of 0.977156 and adjusted R-squared of 0.928930 demonstrate the high explanatory power of this analysis. The R-squared indicates that nearly 97.72% of the variation in unemployment is explained by the model's predictors, while the adjusted R-squared accounts for the number of predictors and confirms a strong model fit. This high level of explanatory power emphasizes the significance of fiscal deficit indicators in explaining unemployment trends in Nigeria.

Residual Diagnostics Tests

The ARDL residual diagnostics tests for the study "Fiscal Deficit and Macroeconomic performance in Nigeria" provide crucial insights into the model's adequacy and reliability, ensuring the robustness of the econometric analysis

Serial Correlation LM Test

The Breusch-Godfrey test checks for the presence of serial correlation in the residuals of the model.

Table 4: Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.640450	Prob. F(2,2)	0.2747
Obs*R-squared	21.03395	Prob. Chi-Square(2)	0.0000

Source: Author's computation using Eviews12 software

According to the test results, the F-statistic is 2.640450, with a p-value of 0.2747, which is slightly above the common threshold of 0.05. This suggests that there is no evidence of serial correlation at the 5% significance level, but it is borderline. The Obs*R-squared value of 21.03395 with a p-value of 0.0000 indicates that at the chi-square test, serial correlation might still be an issue. Thus, while the F-statistic suggests an acceptable model fit.

4.2.4.2 Heteroskedasticity Test

The Breusch-Pagan-Godfrey test was used to detect heteroskedasticity—non-constant variance in the residuals.

Table 4.2: Breusch-Pagan-Godfrey

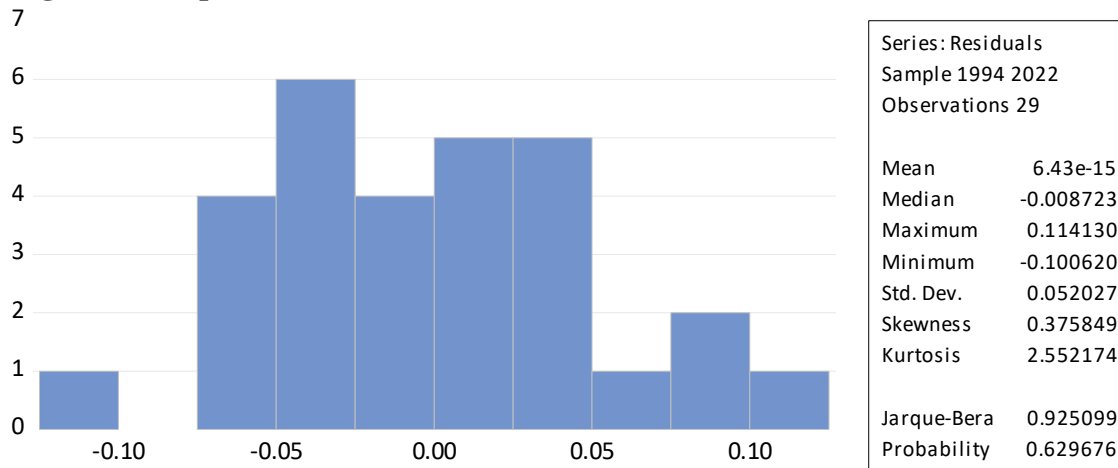|			
F-statistic	1.325965	Prob. F(24,4)	0.4349
Obs*R-squared	25.76187	Prob. Chi-Square(24)	0.3654
Scaled explained SS	0.380375	Prob. Chi-Square(24)	1.0000

Source: Author's computation using Eviews12 software

The heteroskedasticity test results presented in Table 4.6 report an F-statistic of 1.325965 and a p-value of 0.4349, along with an Obs*R-squared value of 25.76187 with a p-value of 0.3654. Given that these p-values are well above conventional significance thresholds, we fail to reject the null hypothesis of homoskedasticity. This result indicates that the variance of the residuals is constant, confirming that heteroskedasticity is not a concern in this model. The absence of heteroskedasticity further implies that the standard errors of the estimates are reliable, and therefore, hypothesis tests conducted on model coefficients are likely valid.

4.2.4.3 Normality Test
The Jarque-Bera test assesses whether the residuals are normally distributed.
Figure 1: Jarque Bera

| Series: Residuals	
Sample 1994 2022	
Observations 29	
Mean	6.43e-15
Median	-0.008723
Maximum	0.114130
Minimum	-0.100620
Std. Dev.	0.052027
Skewness	0.375849
Kurtosis	2.552174
Jarque-Bera	0.925099
Probability	0.629676

Source: Author's computation using Eviews12 software
The Jarque-Bera statistic of 0.925099 with a probability of 0.629676 indicates that the residuals are normally distributed. The high p-value allows us to retain the null hypothesis of normality, confirming that the error terms do not deviate from a normal distribution, which is crucial for the validity of various statistical tests used in the analysis.

Stability Test
The CUSUM plot demonstrates that the cumulative sum of residuals stays within the 5% significance boundaries throughout the sample period from 1990 to 2022. This indicates no structural breaks in the model, suggesting that the relationship between fiscal deficit and macroeconomic performance in Nigeria is stable over the analyzed period.

Figure 4.2: CUSUM
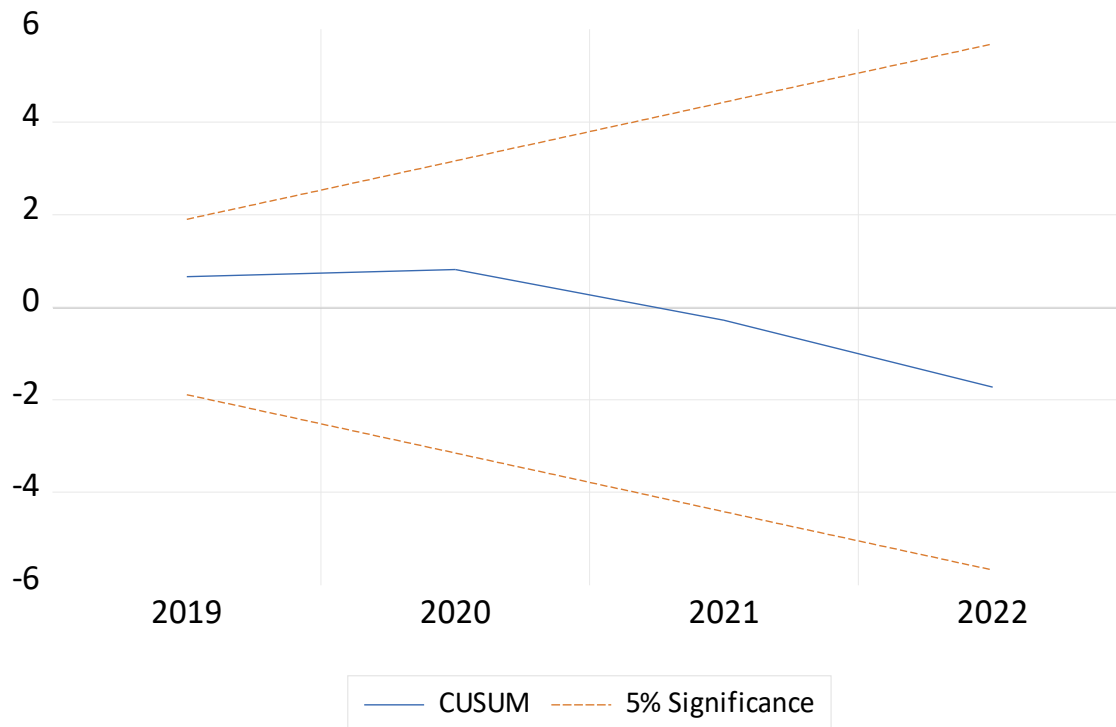
Source: Author's computation using Eviews12 software

Discussion of Findings

The ARDL analysis in this study examines the relationship between fiscal deficit components namely debt servicing (DBS), domestic debt (DOMD), external debt (EXTD), and money supply (M2) and the unemployment rate (UNEMP) in Nigeria. The findings reveal both short-run and long-run effects of these components, with distinct implications for fiscal and monetary policy in addressing unemployment.

In the short run, debt servicing (DBS) at the current period has a positive and statistically significant impact on the unemployment rate, indicating that a unit increase in debt servicing raises the unemployment rate by 0.237732 units. This immediate effect suggests that rising debt service obligations may constrain economic resources, possibly limiting public investment in employment-generating projects. However, the first, second, and third lags of debt servicing show a negative impact, statistically significant only at the first and third lags. Specifically, a unit increase in debt servicing in these lags reduces unemployment by -1.652758, -0.1091, and -0.3524 units, respectively, in the short run. This suggests that past periods of increased debt servicing may ultimately lower unemployment, possibly due to a lagged stabilization effect as the economy adjusts to prior fiscal commitments. In the long run, however, debt servicing shows a positive but statistically insignificant effect on the unemployment rate, with a unit increase in debt servicing potentially raising unemployment by 0.750856 units. This finding contrasts with Ofurum and Fubara (2022), who observed a negative relationship between debt servicing and unemployment, and it diverges from the Keynesian theory, which argues that government spending, even in the form of debt, reduces unemployment by boosting aggregate demand.

Domestic debt (DOMD) also displays a mixed impact on unemployment. In the short run, at the current period and at the first and third lags, domestic debt shows a negative and statistically

significant effect, implying that a unit increase in domestic debt reduces unemployment by -3.030539, -6.0572, and -0.352440 units, respectively. This reduction in unemployment could reflect domestic debt's role in financing government activities that spur employment. However, at the second lag, domestic debt has a positive but statistically insignificant effect on unemployment, where a unit increase raises the unemployment rate by 0.571304 units. This may indicate that there are circumstances where increased domestic debt financing has neutral or slightly adverse employment effects, perhaps due to crowding out private investment. Long-term results show that domestic debt has a negative and statistically significant impact on unemployment, with a unit increase decreasing the unemployment rate by -2.675244 units, aligning with studies by Egbulonu and Amadi (2016), who found that domestic debt does not worsen unemployment, but differing from Shuaibu et al. (2021), who reported a positive relationship.

External debt (EXTD) further contributes to this complex landscape, showing a negative and statistically significant impact on unemployment in the current period, with a unit increase reducing unemployment by -0.481387 units in the short run. This suggests that external debt may finance projects with immediate employment benefits. However, at the first, second, and third lags, external debt presents a positive and statistically significant effect on unemployment, indicating that prior external debt levels tend to increase unemployment in subsequent periods. Long-term results also show that external debt has a positive but statistically insignificant impact, with a unit increase raising unemployment by 0.196914 units. This aligns with the Ricardian Equivalence theorem, which holds that public debt might not sustainably reduce unemployment, and it matches findings by Cahyadin and Ratwianingsih (2020), Shuaibu et al. (2021), and Elekwa and Onyenama (2022), but contrasts with those by Nwaeke and Korgbeelo (2016) and Ofurum and Fubara (2022), who observed that external debt decreases unemployment.

Lastly, money supply (M2) at the current period shows a positive and statistically significant impact on unemployment, where a unit increase in money supply raises unemployment by 0.217849 units in the short run. This finding could indicate inflationary pressures that hinder real purchasing power and job creation. However, in the first, second, and third lags, money supply has a negative and statistically significant impact on unemployment, implying that a unit increase in money supply reduces unemployment by -0.184735, -0.166275, and -0.112185 units, respectively, as the economy adjusts to increased liquidity. In the long run, money supply has a positive and statistically significant effect on unemployment, with a unit increase raising the unemployment rate by 0.431367 units. This is consistent with Okeke and Chukwu (2021) and Saad and Muhannad (2020), who observed that increased money supply can elevate unemployment through adverse inflationary effects, though it diverges from Kanberoğlu (2014), who found that money supply can reduce unemployment.

CONCLUSION AND RECOMMENDATIONS
Conclusion
This study explores the relationships between fiscal deficits financing and unemployment rate in Nigeria. specifically examining the effects of debt servicing, domestic debt, external debt and money supply on unemployment rate in Nigeria. The findings indicate that both debt servicing, external debt and money supply positively affected unemployment rate, while domestic debt does not affect unemployment rate. Based on these findings, this study concludes that domestic debt is essential for unemployment reduction in Nigerian.

Recommendations

Based on the ARDL analysis, which examines the impact of fiscal deficit financing components on unemployment in Nigeria, here are four specific policy recommendations for the Nigerian government to improve macroeconomic stability and reduce unemployment:

1. the Nigerian government should focus on restructuring its debt to manage its repayment burden more effectively. This can involve negotiating longer repayment terms or lower interest rates with creditors to reduce the annual fiscal strain of debt servicing. By doing so, the government can free up more resources for domestic investments in employment-generating programs rather than on high debt repayments, which may crowd out such initiatives.

2. The government should therefore prioritize raising funds through domestic debt markets over external borrowing when financing employment-focused projects. Investments in infrastructure, small business support, and education can create jobs and strengthen the economy's productive base, thereby lowering unemployment sustainably.

3. The government should be cautious about increasing external borrowing, especially for recurrent expenses. Instead, any new external debt should be limited and strategically allocated to sectors with high potential for job creation and growth, such as manufacturing and renewable energy. This approach ensures that external debt yields economic returns that can offset its potential upward pressure on unemployment.

4. the government and Central Bank of Nigeria should consider policies that carefully manage money supply growth, such as moderate interest rates and targeted credit programs. This approach would help maintain economic stability and curb inflationary tendencies, reducing the likelihood of rising unemployment due to an over-expansionary monetary policy.

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