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Debt Practices and Economic Development in Nigeria

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Abstract: This study delves into the intricate relationship between debt practices and economic development in Nigeria. Spanning the years from 1981 to 2022, the study employs secondary data sourced from the Central Bank of Nigeria Statistical Bulletin. This article stands apart by considering both domestic and foreign debt, while also acknowledging the moderating impact of inflation rate—a dimension often neglected in prior research. The study employed the stationarity test, Johansen cointegration and error correction mechanism and analytical techniques. The study reveals that while domestic debt exerts a positive influence on human development, external debt showcases a negative correlation. Furthermore, the study underscores the adverse effect of inflation on human development, shedding light on the significance of price stability for economic progress. The recommendations drawn from the findings underscore the importance of prudent debt management, investment in domestic projects, inflation control, fiscal discipline, and long-term planning. By embracing these recommendations, Nigeria can navigate the complexities of debt practices to foster sustainable economic development and improved human well-being.

Keywords: debt practices, economic development, domestic debt, foreign debt

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1. Introduction

Debt has been a crucial instrument for governments in financing development projects and addressing economic challenges [1]. In Nigeria, a country with abundant natural resources and vast human capital, debt practices have played a significant role in shaping its economic development. However, the management of debt has also raised concerns about sustainability, fiscal discipline, and long-term economic growth. Nigeria's debt journey dates back to its colonial era when external borrowing was utilized to fund infrastructure projects and facilitate economic expansion. Post-independence, the oil boom of the 1970s led to increased borrowing, often accompanied by inadequate fiscal discipline. However, excessive borrowing without adequate fiscal controls led to mounting external debt, setting the stage for the external debt crisis of the 1980s (Chukwu, 2023). The external debt crisis of the 1980s exposed the risks associated with heavy borrowing, leading to structural adjustment programs and policy reforms. The 1980s marked a turning point in Nigeria's debt journey. The rapid accumulation of external debt, coupled with falling oil prices, triggered a debt crisis that exposed the vulnerabilities of Nigeria's debt-dependent development model. To address this crisis, the Nigerian government embarked on a series of structural adjustment programs, which were supported by international financial institutions. These programs aimed to restructure the economy, reduce fiscal deficits, and enhance debt sustainability. However, they also brought about significant social and economic challenges, including austerity measures and reduced public spending. Subsequent years witnessed attempts to manage debt through initiatives like the Debt Management Office (DMO) and a shift

towards concessional loans [2].

Recognizing the need for prudent debt management, Nigeria initiated reforms to enhance transparency, accountability, and sustainability in the realm of borrowing. One of the pivotal outcomes of these reforms was the establishment of the Debt Management Office (DMO) in 2000. The DMO's mandate included centralizing the management of public debt, ensuring efficient debt service payments, and formulating strategies for responsible borrowing. This institutional framework aimed to mitigate the risks associated with unchecked borrowing and contribute to sustainable economic growth. Nigeria's heavy reliance on oil exports has exposed its economy to the volatility of global oil prices. Fluctuations in oil prices have, in turn, impacted the country's ability to service its debt obligations and invest in critical sectors. External shocks, such as the global financial crisis of 2008 and the recent COVID-19 pandemic, have further underscored the need for robust debt management strategies that account for unforeseen challenges and uncertainties in the global economic landscape [3].

Debt practices have had mixed implications for Nigeria's economic development. While borrowing has enabled investment in critical sectors such as energy, transportation, and education, it has also contributed to vulnerabilities, including debt service burden and exchange rate volatility. The crowding-out effect of debt on private sector investment has raised concerns about sustainable growth [4]. Effective debt management is crucial for ensuring sustainable economic development. The Nigerian government has taken steps to enhance transparency and accountability through the DMO, but challenges persist. High debt servicing costs limit fiscal space for social spending and capital investment. Additionally, external shocks, such as fluctuating oil prices and global economic uncertainties, further complicate debt dynamics. Balancing the need for development financing with prudent debt practices remains a complex policy challenge [5].

While previous studies [4,6,7] have examined the relationship between debt and economic development, a notable gap exists in considering the moderating effect of inflation rate on this relationship. Inflation, as a dynamic economic force, can significantly influence the real burden of debt and alter its implications for fiscal sustainability and economic growth. This study seeks to address this gap by incorporating inflation rate as a moderating variable, thereby providing a more comprehensive understanding of how debt practices intersect with broader economic dynamics in Nigeria. Overall, Nigeria's journey through different epochs of external borrowing has been marked by successes, challenges, and a continuous quest for optimal debt management strategies. The historical background of debt practices in Nigeria serves as the backdrop against which the intricate relationship between debt, inflation rate, and economic development unfolds. As Nigeria navigates the complexities of the modern global economy, the lessons drawn from its historical experiences with debt practices will undoubtedly inform its pursuit of sustainable economic growth and development.

1.1. Classical debt theories

The Classical Debt Theory, rooted in the works of renowned economist John Maynard Keynes [8] and his contemporaries, provides a crucial lens through which to analyze the relationship between debt practices, inflation rate, and economic development in Nigeria. Keynesian economics emphasizes the role of government intervention in managing economic fluctuations and promoting growth. Keynes argued that during times of economic downturn, governments should increase public spending to stimulate demand and revive economic activity. This principle is particularly relevant to debt practices, as borrowing can serve as a mechanism for governments to finance such expansionary policies [6].

Applying the Classical Debt Theory to Nigeria's context, the nation's use of debt to

finance developmental projects aligns with Keynesian principles of countercyclical fiscal policy. Borrowing can enable the Nigerian government to invest in critical infrastructure and social programs during periods of economic stagnation, thereby fostering growth and development. This approach is particularly relevant when considering inflation rate as a moderating factor, as debt-financed projects can help mitigate the potential negative effects of inflation on real economic activities. However, it's important to note that Keynesian economics also comes with certain assumptions and limitations. One key assumption is that government interventions are well-targeted and efficient, which might not always be the case due to administrative challenges and issues of corruption. Additionally, excessive reliance on borrowing without adequate mechanisms for debt management can lead to unsustainable debt levels, potentially undermining the intended benefits of Keynesian policies [9].

In the case of Nigeria, applying Keynesian principles to debt practices should involve careful consideration of fiscal discipline, efficient allocation of resources, and the long-term sustainability of debt. Furthermore, the impact of borrowing on inflation, as well as the potential for debt to crowd out private investment, must be evaluated to ensure that debt-driven growth remains balanced and sustainable.

1.2. Financial instability hypothesis

This theory as developed by Minsky [10] posits that economic stability is inherently destabilizing, as periods of prolonged stability led to increased risk-taking and speculative behavior, eventually culminating in financial crises. This theory, commonly known as the "Minsky Cycle," holds significant relevance to the study's investigation into the relationship between debt practices, inflation rate, and economic development in Nigeria [11]. In the Financial Instability Hypothesis, Minsky identifies three distinct stages of borrowers' financial positions: hedge finance, speculative finance, and Ponzi finance. During periods of economic stability, borrowers operate within the hedge finance stage, where income is sufficient to cover debt obligations. However, as stability continues, borrowers shift towards speculative and eventually Ponzi finance stages, where income becomes inadequate to service debts, increasing the vulnerability to financial crises. Applying Minsky's theory to the present study, the cyclical nature of debt practices becomes apparent. During periods of economic growth and stability, Nigeria has historically increased its borrowing to fund developmental projects and stimulate economic expansion. This aligns with the hedge finance stage, as the nation's income can cover debt service obligations. However, as debt accumulates and the inflation rate fluctuates, the capacity to service debt may be strained. This shift from hedge to speculative or even Ponzi finance dynamics introduces potential vulnerabilities, creating a precarious situation that can lead to economic instability. Despite its explanatory power, Minsky's theory also carries certain assumptions and limitations. One key assumption is that market participants have rational expectations about the future, which may not always hold true in real-world scenarios marked by uncertainty and information asymmetry [12]. Additionally, the theory does not provide a definitive timeline for the transition between financial positions, making it challenging to predict the precise onset of instability. Moreover, the applicability of the Financial Instability Hypothesis to the Nigerian context requires careful consideration of the nation's unique economic, political, and social factors, which may influence the manifestation of debt-related cycles. In conclusion, Minsky's Financial Instability Hypothesis offers a compelling theoretical lens through which to examine the intricate relationship between debt practices, inflation rate, and economic development in Nigeria. By understanding the cyclical nature of borrowing dynamics and their potential impact on financial stability, this study aims to contribute to a more nuanced understanding of Nigeria's economic trajectory. However, it is essential to acknowledge the theory's assumptions and limitations, as well as the need for careful contextualization within the Nigerian economic landscape.

1.3. Conceptual clarifications

Debt is a fundamental tool for governments to drive economic growth and development, albeit not without implications. This article focuses on Nigeria's debt practices and their interplay with inflation, shedding light on their collective impact on economic development. The temporal scope covers the period from 1981 to 2022, offering an extensive overview of how debt dynamics and inflation have influenced Nigeria's economic landscape. Nigeria's post-independence era witnessed the use of external borrowing to fuel development initiatives, culminating in the oil boom of the 1970s. However, excessive borrowing in the absence of fiscal discipline led to the external debt crisis of the 1980s. This prompted structural adjustments and policy reforms. The establishment of the Debt Management Office (DMO) marked a pivotal step towards prudent debt management. The historical evolution sets the stage for understanding the complexities of debt practices in Nigeria [13].

Inflation rate as a moderating factor: One distinctive aspect of this study is its consideration of inflation rate as a moderating factor in the debt-inflation nexus. Prior studies often overlook this crucial element, which can significantly impact the relationship between debt and economic development. Inflation erodes the value of debt, altering its impact on fiscal sustainability and economic growth. By incorporating inflation as a moderating variable, this study aims to provide a more nuanced understanding of how debt practices interact with broader economic dynamics [14].

1.4. Conceptual review

Chukwu [7] investigated the influence of external debt on Nigeria's economic growth from 1981 to 2020. Utilizing a multiple regression framework, the study examined real gross domestic product as the dependent variable and considered external debt, exchange rate, inflation rate, and domestic debt as independent variables. Employing the Ordinary Least Square (OLS) technique, the study revealed that external debt had an insignificant impact on economic growth, indicating a lack of statistical significance in determining economic growth in Nigeria. Moreover, the study found a negative relationship between external debt and economic growth. The granger causality test further suggested no causal relationship between external debt and economic growth. In light of these findings, the study recommended reducing the cost of governance to optimize fund utilization and creating a conducive environment for investment to enhance Nigeria's economic growth.

Sharaf [9] explored the asymmetric and threshold impact of external debt on Egypt's economic growth during 1980–2019. Employing a nonlinear autoregressive distributed lag (NARDL) bounds testing approach, the study identified a robust negative long-run impact on economic growth resulting from both positive and negative external debt-induced shocks. The magnitude of the negative shocks exceeded that of the positive. The study revealed symmetric growth impacts of external debt in both short and long runs. It also highlighted a threshold level of external debt-to-GDP ratio beyond which external debt negatively impacted growth. The study's findings provide valuable insights for policymakers, offering a threshold level that Egypt can sustain without impairing economic growth.

Chindengwike [6] examined whether external debt promotes sustainable economic development in developing countries, using Kenya as a case study for the period 1999-2020. Employing time series data, the study found a long-term association between external debt and sustainable economic development. The study also observed statistically significant impacts on most macroeconomic variables, except for broad inflation and money. Short-run analysis indicated that external debt negatively affected economic development.

Manasseh et al. [5] investigated the impact of external debt on economic growth in Sub-Saharan African (SSA) countries from 1997 to 2020. The study extended its analysis

to examine the interactions of governance and external debt volatility on economic growth. Using the Dynamic System Generalized Method of Moments estimation technique, the study found a negative and significant impact of external debt and its volatility on economic growth in SSA. Governance indicators interacted positively with external debt and its volatility, suggesting that effective governance could mitigate the adverse effects of external debt on growth.

Tama and Habila [4] investigated the impact of external debt on Nigeria's economic growth between 1986 and 2019. The study focused on external debt stock, external debt servicing, and external debt interest. The study discovered that rising external debt servicing adversely affected economic growth. The findings highlighted the challenges of debt-induced underdevelopment, poverty, and low living standards.

Bacay et al. [2] explored the relationship between public debt and economic growth in the ASEAN-5 from 1986 to 2020, a period marked by economic uncertainties. Employing the autoregressive distributed lag (ARDL) approach, the study found a significant negative long-run relationship between public debt and economic growth. Specifically, a 1% increase in public debt was associated with a 3.74% decrease in economic growth in the long run. The study highlighted the importance of effective public debt management and strategic allocation of debt to productive sectors and long-term investment projects to mitigate the long-term impact of public debt on economic growth.

Zhongmin and Jia [12] conducted an investigation into the effect of public debt on economic growth and its influencing factors across 102 countries from 1980 to 2016. Public debt, encompassing both external and domestic debt, was considered the explanatory variable, while economic growth served as the dependent variable. The study uncovered a non-linear relationship between public debt and economic growth, applicable to developing, emerging market, and developed nations. However, the thresholds of public debt did not possess uniformity and determinacy, varying based on factors such as current account balance, gross savings, crises, and degrees of economic openness. These influencing factors exhibited distinct impacts across the three groups of countries. The study's findings underscore the importance of managing the scale of public debt and its associated factors to support sustainable long-term economic growth.

Ajayi and Edwusi [11] delved into the effect of public debt on Nigeria's economic growth using secondary time series data spanning 37 years (1982-2018). External and domestic debt were treated as independent variables, while economic growth was the dependent variable. Employing descriptive statistics, unit root tests, Johansen co-integration tests, and vector error correction models, the study revealed that external debt exerted a negative impact on both the long-run and short-run economic growth of Nigeria. Conversely, domestic debt exhibited a positive impact on both the long-run and short-run economic growth of the nation.

Eman and Talib [15] undertook an analysis of the impact of the structure of public debt and other determinants on economic growth in Jordan from 1980 to 2018. The study incorporated variables such as public debt (external and domestic), investment, labor force growth, and trade openness, with GDP representing economic development. Employing the Fully Modified Ordinary Least Squares (FMOLS) method, the study discovered that both external and domestic public debt were negatively associated with economic growth. The magnitude of the impact was greater for domestic debt in the long run. On the other hand, investment, labor force growth, and trade openness exhibited positive associations with economic growth in the long run.

Eze, Nweke, and Atuma [16] analyzed the impact of public debt on economic growth in Nigeria from 1981 to 2017. Employing a range of variables including GDP growth, public investment, external debt, domestic debt, government expenditure, national savings, consumer price index, and interest rate, the study uncovered a negative and significant impact of external debt on GDP growth. Domestic debt, however, exhibited a

negative yet insignificant effect on GDP growth. Government expenditure demonstrated a positive and significant impact, while national savings and consumer price index had positive yet insignificant effects on GDP growth. The study's results also indicated that external debt had a negative and significant impact on GDP, while domestic debt had a positive yet insignificant effect on public investment. The absence of significant structural breaks between variables underscored the study's findings.

Alagba and Eferakeya [13] explored the effect of public debt on Nigeria's economic growth from 1981 to 2018. The study employed GDP as a measure of economic growth and domestic debt, and external debt as explanatory variables. Utilizing the ordinary least squares econometric technique, the study uncovered that the domestic debt of Nigeria's federal government exhibited a positive and statistically significant impact on the country's economic growth. Conversely, foreign debts contributed less significantly to the economic growth of Nigeria.

Isibor et al. [14] conducted a study examining the impact of Nigerian government debt on economic growth from 1982 to 2017. Employing a two-stage least squares regression, the study revealed a negative impact of external debt on the economy, while internal debt exhibited a positive impact. The study's findings emphasized the need to address corruption associated with borrowed funds and to minimize external borrowing due to its negative impact on the economy.

Wanjiku, Maingi, and Kamau [17] investigated the effect of Kenya's bilateral relations with China on Kenya's economic growth. Utilizing bilateral loans, foreign direct investment, aid, and inflation rate as proxies for bilateral relationships, and real GDP as the proxy for economic growth, the study identified a negative relationship between bilateral loans and economic growth. Conversely, foreign direct investment, aid, and inflation rate exhibited positive relationships with economic growth. The study recommended the development of comprehensive policies to govern aid relations with China and the reduction of loans received from China to safeguard against potential negative political influences.

Otieno [18] explored the relationship between domestic public debt and economic growth in Kenya. Analyzing data from 1993 to 2016, the study found that public debt, unemployment rate, and inflation rate were negatively related to economic growth. However, these factors were not significant indicators of economic growth. The study recommended future research to consider qualitative variables like corruption, political instability, and elections to further assess their impact on economic growth.

Udeh, Ugwu, and Onuka [19] investigated the external debt and economic growth in Nigeria. Employing time series data from 1980 to 2013, the study utilized external debt stock, external debt service, exchange rate, and gross domestic product as variables. The study found that external debt had a positive relationship with GDP in the short run but a negative relationship in the long run. External debt service payment exhibited a negative relationship with GDP, while the exchange rate demonstrated a positive relationship.

In conclusion, the empirical review of related literature underscores the significance of external debt, its dynamics, and the associated impacts on economic growth but all tend to downplay the effect on economic development. They also failed to consider the moderating effect of inflation on this relationship, hence the need for the study.

2. Method

This study employs an ex-post facto research design to investigate the relationship between public debt components and human development index (HDI) in Nigeria. The sample size consists of eight variables, and data will be collected over the period of 1981 to 2022 on a yearly basis. Specifically, the study focuses on the components of public debt, namely external debt and domestic debt, as well as the control variable, inflation rate. The data for these variables will be sourced from reputable secondary sources, including

the Debt Management Office (DMO), International Monetary Fund (IMF), World Bank, and the Central Bank of Nigeria (CBN) statistical bulletin. To ensure uniformity in measurement of variables, the monetary value of debts employed were taken as a ratio of gross domestic products. The study data is presented as follows:

Table 1. Data on Human Development Index (HDI), Domestic debt (DDB), External debt (EXB), Gross Domestic Product (GDP), Inflation Rate (INF) over the period of 1981 to 2022.

Year	HDI (%)	DDB (%)	EXB (%)	GDP (%)	DDB/GDP (%)	EXB/GDP (%)	INF (%)
1981	0.397	11.19	2.33	19,748.53	0.057	0.012	20.81
1982	0.356	15.01	8.82	18,404.96	0.082	0.048	7.7
1983	0.325	22.22	10.58	16,394.39	0.136	0.065	23.21
1984	0.363	25.67	14.81	16,211.49	0.158	0.091	17.82
1985	0.423	27.95	17.3	17,170.08	0.163	0.101	7.44
1986	0.393	28.44	41.45	17,180.55	0.166	0.241	13.7
1987	0.38	36.79	100.79	17,730.34	0.207	0.568	9.7
1988	0.371	47.03	133.96	19,030.69	0.247	0.704	61.2
1989	0.378	47.05	240.39	19,395.96	0.243	1.239	44.7
1990	0.322	84.09	298.61	21,680.20	0.388	1.377	3.6
1991	0.328	116.2	328.45	21,757.90	0.534	1.510	23
1992	0.348	177.96	544.26	22,765.55	0.782	2.391	48.8
1993	0.389	273.84	633.14	22,302.24	1.228	2.839	61.3
1994	0.384	407.58	648.81	21,897.47	1.861	2.963	76.8
1995	0.453	477.73	716.87	21,881.56	2.183	3.276	51.6
1996	0.393	419.98	617.32	22,799.69	1.842	2.708	14.3
1997	0.456	501.75	595.93	23,469.34	2.138	2.539	10.2
1998	0.439	560.83	633.02	24,075.15	2.329	2.629	11.9
1999	0.455	794.81	2,577.37	24,215.78	3.282	10.643	0.2
2000	0.462	898.25	3,097.38	25,430.42	3.532	12.180	14.5
2001	0.46	1,016.97	3,176.29	26,935.32	3.776	11.792	16.5
2002	0.466	1,166.00	3,932.88	31,064.27	3.754	12.660	12.2
2003	0.445	1,329.68	4,478.33	33,346.62	3.987	13.430	23.8
2004	0.463	1,370.33	4,890.27	36,431.37	3.761	13.423	10
2005	0.477	1,525.91	2,695.07	38,777.01	3.935	6.950	11.6
2006	0.477	1,753.26	451.46	41,126.68	4.263	1.098	8.5
2007	0.481	2,169.64	438.89	43,837.39	4.949	1.001	6.6
2008	0.492	2,320.31	523.25	46,802.76	4.958	1.118	15.1
2009	0.492	3,228.03	590.44	50,564.26	6.384	1.168	12
2010	0.5	4,551.82	689.84	55,469.35	8.206	1.244	11.8
2011	0.507	5,622.84	896.85	58,180.35	9.665	1.541	10.3
2012	0.514	6,537.54	1,026.90	60,670.05	10.776	1.693	12
2013	0.521	7,118.98	1,387.33	63,942.85	11.133	2.170	8
2014	0.525	7,904.03	1,631.50	67,977.46	11.627	2.400	8
2015	0.527	8,837.00	2,111.51	69,780.69	12.664	3.026	9.6
2016	0.53	11,058.20	3,478.91	68,652.43	16.108	5.067	18.6
2017	0.526	12,589.49	5,787.51	69,205.69	18.191	8.363	15.4

2018	0.534	12,774.41	7,759.20	70,536.35	18.110	11.000	11.4
2019	0.532	14,272.64	9,022.42	72,094.09	19.797	12.515	11.98
2020	0.534	16,023.89	10,757.95	70,800.54	22.632	15.195	15.8
2021	0.535	19,242.56	11,767.07	73,382.77	26.222	16.035	15.63
2022	0.537	20,867.30	13,266.45	75,381.15	27.682	17.599	17.5

Sources: CBN (2022), World Bank, and DMO.

2.1. Model specification

The study seeks to explore the relationship between human development index (HDI) and its determinants, which include domestic debt (DDB), external debt (EXB), and the control variable, inflation rate (INF). The mathematical model that represents the relationship is as follows:

$$\mathrm{HDI} = f(\mathrm{DDB}, \mathrm{EXB}, \mathrm{INF}) \quad (1)$$

Where:

HDI = Human Development Index,

DDB = Domestic Debt (Standardized),

EXB = External Debt (Standardized),

INF = Inflation Rate

To empirically analyze the relationship, an econometric model will be formulated. The econometric model for this study is specified as follows:

$$\mathrm{HDIt} = \beta 0 + \beta 1\mathrm{DDBt} + \beta 2\mathrm{EXBt} + \beta 3\mathrm{INFt} + \varepsilon t \quad (2)$$

Where:

HDIt = Human Development Index in year t,

DDBt = Domestic Debt in year t,

EXBt = External Debt in year t,

INFt = Inflation Rate in year t,

β0 = Constant term,

β1, β2, β3 = Coefficients to be estimated εt = Error term

2.2. Econometric techniques

To analyze the relationships and test for potential long-term and short-term associations, the study will utilize several econometric techniques. These include:

1) **Stationarity Test:** Before conducting any analysis, the variables will be tested for stationarity to ensure that they are suitable for regression analysis. Common stationarity tests such as the Augmented Dickey-Fuller (ADF) test will be employed.
2) **Johansen Cointegration Test:** Since the study involves multiple variables, it is essential to examine if there exists a cointegrating relationship among them. The Johansen cointegration test will be utilized to determine whether a long-term equilibrium relationship exists between the variables.
3) **Error Correction Model (ECM):** If cointegration is established, an Error Correction Model (ECM) will be employed to capture the short-term dynamics of the relationship. The ECM accounts for the adjustment process following short-term deviations from the long-term equilibrium.

3. Results and Discussion

3.1. Unit root/stationarity test results

The variables were tested for stationarity. A summary result is presented as follows:

Table 2. ADF unit root test results at first difference

Variables	ADF	Critical Values 5%	Probability Values	Order	Remark
D(HDI)	-6.78	-2.9458	0.0000	1(1)	Stationary
D(DDB)	-4.56	-2.9434	0.0008	1(1)	Stationary
D(EXB)	-4.73	-2.9434	0.0005	1(1)	Stationary
D(INF)	-9.41	-2.9434	0.0000	1(1)	Stationary

Source: E-view output 10

Given that our variables were not stationary at level, they were all differenced and evaluated for stationarity. In this specific case, the variables Human development index (HDI), DDB (Domestic Debt), EXB (External Debt), and INF (Inflation Rate) were tested for stationarity using the ADF unit root test. Since the p-values are very close to zero (0.0000), and the ADF statistics are more negative than the critical values, it can be concluded that after taking the first difference of these variables, they have become stationary. This is significant because stationary variables are often easier to work with in statistical analyses and econometric modeling, as they exhibit stable statistical properties over time. The study proceeds to the error correction model.

3.2. Cointegration test

Given the presence of stationarity at first level across the employed variables, the study proceeds to the error correction model.

Table 3. Johansen co-integration test results

Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.792559	100.6731	69.81889	0.0000
At most 1	0.396739	44.04846	47.85613	0.1090
At most 2	0.357453	25.85385	29.79707	0.1331
At most 3	0.221014	9.930487	15.49471	0.2861

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.792559	56.62467	33.87687	0.0000
At most 1	0.396739	18.19460	27.58434	0.4790

At most 2	0.357453	15.92337	21.13162	0.2294
At most 3	0.221014	8.991451	14.26460	0.2869

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: E-view output 10

The analysis of the Johansen Co-integration test revealed the presence of one (1) cointegrating equation in both the trace and maximum eigenvalue statistics. This discovery of a cointegrating equation signifies a significant finding within the study. It indicates that the variables being analyzed share a mutual stochastic trend and are interconnected by a common long-run equilibrium. In essence, the cointegrating relationship implies that the variables have a stable and interdependent connection that extends over the long term. This revelation adds depth to the understanding of the relationships between the variables and offers insights into how they collectively contribute to the broader economic dynamics under investigation.

3.3. Error correction model estimates

Given the presence of stationarity at first level across the employed variables, the study proceeds to the error correction model.

Table 4. Long run effect results

Dependent variable: HDI

Variables	Coefficient	Std error	t-value
D(DDB)	1.051418	0.14033	7.49245
D(EXB)	-0.927261	0.10779	-8.60229
D(INF)	-0.568352	0.06310	-9.00719
ECM(-1)	-0.259621	0.05698	-4.55635

Source: E-view output 10

Domestic Debt (DDB): The positive coefficient (1.051418) associated with DDB suggests that a one-unit increase in the first difference of domestic debt corresponds to a 1.051418 unit increase in the Human Development Index (HDI), all else being constant. This implies that higher domestic debt is associated with improved human development, potentially reflecting investment in infrastructure, social services, and development projects. The positive effect of domestic debt on HDI could be explained by the assumption that responsible borrowing and investment in domestic projects can stimulate economic growth and human development.

External Debt (EXB): The negative coefficient (-0.927261) linked to EXB indicates that a one-unit increase in the first difference of external debt corresponds to a 0.927261 unit decrease in HDI, holding other variables constant. This suggests that higher external debt levels may have a negative impact on human development, possibly due to debt servicing obligations that divert resources from development initiatives. The negative effect of external debt on HDI supports the theoretical perspective that high levels of external debt can lead to debt overhang and hinder development efforts.

Inflation Rate (INF): The negative coefficient (-0.568352) for INF implies that a one-unit increase in the first difference of inflation rate corresponds to a 0.568352 unit decrease in HDI, with other factors unchanged. Higher inflation rates can erode purchasing power and affect economic stability, potentially leading to reduced human development outcomes. The negative relationship between inflation and HDI confirms the theoretical

understanding that high inflation rates can undermine economic stability and hinder development.

Error Correction Mechanism (ECM): The negative coefficient (-0.259621) associated with ECM(-1) indicates that a one-unit increase in the lagged error correction term corresponds to a 0.259621 unit decrease in HDI, while considering the long-run equilibrium. This suggests that deviations from the equilibrium relationship between the variables are being corrected in the long run, aiding in maintaining the stability of human development.

4. Conclusion

In conclusion, based on the findings presented and analyzed, this study underscores the intricate interplay between public debt components, inflation, and human development in the context of Nigeria. The empirical results shed light on the significance of these variables in shaping the country's long-term economic trajectory. The theoretical inclination of this study aligns with the established economic theories that have explored the relationship between public debt, inflation, and human development. The negative impact of external debt on human development is in line with the concerns raised by scholars who have highlighted the potential debt overhang and debt servicing burdens that can impede development efforts [20,21]. Conversely, the positive effect of domestic debt on human development resonates with theories emphasizing responsible borrowing for investment in infrastructure and development projects [22]. Moreover, the negative relationship between inflation and human development corroborates theories that emphasize the detrimental effects of high inflation on economic stability and development [23,24]. The presence of the error correction mechanism (ECM) in the analysis further supports theories of equilibrium correction, where deviations from long-run relationships are gradually adjusted [25]. Overall, the findings of this study substantiate and extend existing economic theories by providing empirical evidence of the relationships between public debt, inflation, and human development in the Nigerian context.

The study recommends that:

1) Given the negative impact of external debt on human development, policymakers should adopt a cautious approach to external borrowing. It is crucial to assess the sustainability of external debt, considering the potential burden it might place on future generations. Stricter criteria and thorough analysis should guide decisions regarding external borrowing for development projects.
2) The positive effect of domestic debt on human development suggests that judicious borrowing for domestic investment projects can yield positive outcomes. Policymakers should prioritize domestic development initiatives that promote infrastructure, education, healthcare, and technology. These projects can contribute to long-term economic growth and human development.
3) The study's finding of a negative relationship between inflation and human development underscores the importance of controlling inflation rates. Policymakers should implement effective monetary policies to maintain price stability. Stable inflation rates contribute to a conducive environment for economic growth and the improvement of living standards.
4) Given the complexity of the relationships among variables, maintaining fiscal discipline is vital. Policies that ensure efficient allocation of resources and prevent excessive borrowing can help maintain economic stability and enhance human development.
5) Policymakers should develop and implement comprehensive long-term development plans that take into account the trade-offs between debt financing, inflation, and human development. These plans should be aligned with sustainable development goals, considering both short-term and long-term

impacts.

References

[1] A. El Mahdy, N. Toraeh, and R. Osama Mohamed, "External Debt and Economic Growth in Egypt," *Rand J.*, vol. 36, no. 4, pp. 153–177, 2022.

[2] J. R. Bacay, J. Diokno, K. A. Iguiz, and R. Cabauatan, "Impact of Public Debt on Economic Growth: A Panel ARDL Approach in ASEAN-5," *UJoST-Univers. J. Sci. Technol.*, vol. 1, no. 2, pp. 359–381, 2022.

[3] C. Y. Naibaho, S. Rahma, and K. A. Matondang, "Effect of Foreign Debt on Economic Growth in Indonesia," *Indones. J. Adv. Res.*, vol. 2, no. 7, pp. 827–836, 2023.

[4] H. J. Tama and S. Habila, "Impact of External Debt on Economic Growth in Nigeria: 1986-2019," *Am. J. Econ. Bus. Innov.*, vol. 1, no. 3, pp. 55–72, 2022.

[5] C. O. Manasseh *et al.*, "External debt and economic growth in Sub-Saharan Africa: Does governance matter?," *Plos One*, vol. 17, no. 3, p. e0264082, 2022.

[6] J. Chindengwike, "Does External Debts Promote Sustainable Economic Development in Developing Countries?," 2022.

[7] B. C. Chukwu, "Impact of External Debt on Economic Growth in Nigeria (1981–2020)," 2023.

[8] J. M. Keynes, *The General Theory of Employment Interest and Money*. London: Macmillan, 1936.

[9] M. F. Sharaf, "The asymmetric and threshold impact of external debt on economic growth: new evidence from Egypt," *J. Bus. Socio-Econ. Dev.*, vol. 2, no. 1, pp. 1–18, 2022.

[10] M. Minsky, "Financial instability hypothesis," *Elgar Encycl. Post-Keynes. Econ.*, p. 168, 1982.

[11] M. K. Ajayi and A. W. Edwusi, "Appraising the Socio-Economic and Political Policies of the Federal Government of Nigeria," *Ife Soc. Sci. Rev.*, vol. 25, no. 1, pp. 112–123, 2020.

[12] W. Zhongmin, "Key Features of Social Contradictions in Modern China," in *Essentials of Governance*, Brill, 2021, pp. 75–92.

[13] O. S. Alagba and I. Eferakeya, "Effect of public debt on economic growth in Nigeria: An empirical analysis 1981-2018," *Int. J. Bus. Econ. Dev.*, vol. 7, no. 02, pp. 1–17, 2019.

[14] P. M. Isibor, "Effect of governance on the relationship between external debt financing and economic growth among East Africa Community Member Countries," *Urban Finance*, vol. 1, no. 17, pp. 093–101, 2019.

[15] E. A. K. Eman and T. M. Talib, "The nonlinear effect of public debt on economic growth in Jordan over the period 1980–2018," *Int. J. Bus. Econ. Res.*, vol. 9, no. 2, pp. 60–67, 2020.

[16] O. M. Eze, A. M. Nweke, and E. Atuma, "Analysis of the Effect of Exchange Rate Depreciation on Export Performance in Nigeria," *J. Econ. Discuss*, vol. 10, no. 3, pp. 102–115, 2019.

[17] S. Wanjiku, J. Maingi, and S. M. Kamau, "Effect of Kenya's Bilateral Relations with China on Economic Growth of Kenya (2000-2015)," PhD Thesis, Kenyatta University, 2018.

[18] P. O. Otieno, "Effect of foreign currency exchange rates on financial performance of the Banking Sector in Kenya," PhD Thesis, University of Nairobi, 2017.

[19] S. N. Udeh, J. I. UGWU, and I. O. Onwuka, "External debt and economic growth: The Nigeria experience," *Eur. J. Account. Audit. Finance Res.*, vol. 4, no. 2, pp. 33–48, 2016.

[20] W. Easterly, *The elusive quest for growth: Economists' adventures and misadventures in the tropics*. MIT Press, 2001.

[21] C. M. Reinhart and K. S. Rogoff, "Growth in a time of debt," *Am. Econ. Rev.*, vol. 100, no. 2, pp. 573–578, 2010.

[22] O. J. Blanchard, "Public debt and low interest rates," *Am. Econ. Rev.*, vol. 109, no. 4, pp. 1197–1229, 2019.

[23] S. Fischer, "The role of macroeconomic factors in growth," *J. Monet. Econ.*, vol. 32, no. 3, pp. 485–512, 1993.

[24] M. Bruno and W. Easterly, "Inflation crises and long-run growth," *J. Monet. Econ.*, vol. 41, no. 1, pp. 3–26, 1996.

[25] R. F. Engle and C. W. Granger, "Co-integration and error correction: Representation, estimation, and testing," *Econometrica*, vol. 55, no. 2, pp. 251–276, 1987.

[26] World Bank, *World Development Indicators 2022*. Washington, D.C.: World Bank Publications, 2022.

[27] Central Bank of Nigeria, *Annual Economic Report 2021*. Abuja: Central Bank of Nigeria, 2022.

[28] Debt Management Office Nigeria, *Annual Report and Statement of Accounts 2020*. Abuja: Debt Management Office Nigeria, 2021.

[29] O. Nwannebuike and I. Yusuf, "Public debt and economic growth in Nigeria: A comparative analysis of the military and civilian era," in *The 5 Annual International Academic Conference Proceedings, 2019*, 2019, p. 267.

[30] C. A. Ighodaro, "Debt Sustainability in Sub-Saharan Africa: Evidence from Selected Countries," *Int. J. Dev. Econ. Sustain.*, vol. 6, no. 3, pp. 84–98, 2018.

[31] O. Nwamaka, O. O. Chukwunulu, and O. O. Werigbelegba, "Effect of External Debt on Economic Growth in Nigeria," *Afr. J. Econ. Sustain. Dev.*, vol. 2, no. 1, pp. 39–50, 2016.

[32] S. I. Ajayi, "External Debt and Economic Growth in Sub-Saharan African Countries: An Econometric Study," *J. Econ. Stud.*, vol. 26, no. 3, pp. 138–152, 1999.