

External Debt and Economic Growth in West Africa: Evidence from a Panel ARDL Analysis

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Abstract

The study investigated the relationship between external debt and economic growth in West Africa for the period 1990 to 2024. Real gross domestic product served as the dependent variable, while external debt burden, external debt crowding-out effect, external debt servicing, and external debt-to-reserve ratio represented the key explanatory variables. Control variables, including gross fixed capital formation, trade openness, inflation rate, human capital, and institutional quality, were selected based on standard macroeconomic growth literature and theoretical relevance. The study adopted a quantitative longitudinal panel research design. Data analysis employed the panel Autoregressive Distributed Lag (ARDL) model estimated using the Pooled Mean Group (PMG) technique to examine both short-run adjustments and long-run equilibrium relationships. Unit root and cointegration tests were also conducted to establish the validity and robustness of the model. The findings revealed that external debt burden (EDB) exerted a negative and statistically significant effect on economic growth at the 5% level. External debt crowding-out effect (COE) had a positive but statistically insignificant effect on economic growth. In contrast, external debt servicing (EDS) exerted a positive and statistically significant effect on economic growth at the 1% level. External debt-to-reserve ratio (DRR) showed a negative but statistically insignificant effect on economic growth in the long run. The study recommends strengthening debt sustainability frameworks, linking external borrowing to productive investments, and building adequate foreign exchange reserves to reduce external vulnerability and promote sustainable economic growth in West Africa.

Keywords: External Debt, Economic Growth, Debt Burden, Debt Servicing, Crowding-Out Effect, Foreign Exchange Reserves, West Africa, PMG-ARDL.

Introduction

External debt refers to the total public and private debts owed by a country to foreign creditors, repayable in foreign currency, or in kind - goods or services (World Bank, 2024). In developing regions such as West Africa, external borrowing is widely regarded as a mechanism for supplementing domestic savings, financing investment, and promoting economic growth (Agyeman, 2022). External debt has remained a critical macroeconomic issue in West Africa over the past three decades, shaping fiscal sustainability, economic growth, and development outcomes. Since the mid-90s, many countries in the region have increasingly relied on external borrowing to finance infrastructural projects, address budget deficits, and stimulate economic activities (Agyeman, 2022). However, the rising debt

accumulation has generated growing concerns about debt sustainability and the capacity of governments to service their obligations without undermining long-term development goals.

The evolution of external debt in West Africa can be traced to the period following the global debt crisis of the 1980s, when countries across Sub-Saharan Africa experienced severe balance of payment constraints and declining terms of trade. By the mid-90s, most West African countries had accumulated unsustainable external debt levels, which led to their inclusion in the Heavily Indebted Poor Countries (HIPC) Initiative launched by the International Monetary Fund (IMF) and the World Bank in 1996. The HIPC and Multilateral Debt Relief Initiatives of the early 2000s significantly reduced the external debt burden of countries such as Nigeria, Ghana, and Senegal, creating temporary fiscal space for social and infrastructure investments (World Bank, 2021).

Despite these efforts, the post-debt relief era witnessed renewed borrowing as governments sought to bridge infrastructure and development financing gaps. The rising global commodity prices during the 2000s encouraged resource-backed loans and external bond issuance's, particularly by oil- and mineral-exporting economies (IMF, 2022). However, the sharp fall in commodity prices between 2014 and 2016 and the subsequent COVID-19 pandemic of 2020 reversed these gains, as declining export revenues and increased fiscal deficits led to renewed debt accumulation (Agyeman, 2022; African Development Bank, 2023).

Recent reports by the World Bank (International Debt Statistics 2024) indicate that external debt in the West African region has risen to concerning levels, with several countries recording external debt stocks exceeding 50 percent of GDP. For instance, Nigeria's external debt reached approximately USD 108.8 billion by 2024, while Ghana's external debt stood at about USD 37.4 billion. Senegal also experienced a sharp rise in external borrowing, with external debt estimated at over USD 25 billion, contributing to a high debt-to-GDP ratio. Similarly, Benin's external debt was estimated at around USD 14.2 billion, and Côte d'Ivoire's external debt ranged between USD 30 and USD 35 billion in recent years. These rising debt levels have led to increased debt servicing obligations, which now absorb a substantial share of government revenues, thereby constraining public investment in critical sectors such as education, health, and infrastructure across the region. The IMF (2023) also warns that debt vulnerabilities have increased significantly in low-income West African economies, driven by rising interest payments, currency depreciation, and high dependence on external concessional financing.

Between 1990 and 2024, the pattern of external debt in West Africa has been cyclically rising sharply before debt relief initiatives, declining temporarily after, and surging again in recent years due to global financial and health crises. The region's continued exposure to external vulnerabilities underscores the need for prudent debt management, diversification of exports, and stronger fiscal discipline (World Bank, 2024; IMF, 2023). Economic growth itself represents the sustained expansion of an economy's productive capacity, typically

measured through increases in real gross domestic product (RGDP) (IMF, 2023). Since the mid-90s, West African countries have increasingly relied on foreign borrowing to support infrastructure development, stabilize balance-of-payments deficits, and finance structural reforms. This era coincided with the implementation of structural adjustment programs (SAPs) that emphasized liberalization and external financing in economies such as Nigeria, Ghana, and Côte d'Ivoire (Oladipo, 2021). Despite these initiatives, the region's development trajectory remained uneven, characterized by persistent poverty, weak industrial capacity, and fluctuating growth performance (Agyeman, 2022).

A persistent challenge relates to the inefficient utilization of borrowed funds. In several West African countries, external loans are frequently allocated to non-productive sectors or used to support recurrent expenditures instead of being invested in productive infrastructure capable of enhancing export capacity (Adeyemi, 2021). Moreover, the region's dependence on primary commodities such as oil, cocoa, and gold makes it highly vulnerable to external price shocks, worsening its debt-servicing capacity when global prices fall (Olawale, 2022).

Governance and institutional quality also remain critical concerns. Issues such as corruption, weak fiscal oversight, and poor transparency in loan agreements limit the developmental impact of external borrowing (Agyeman, 2022). In several cases, loans have funded incomplete, abandoned, or poorly executed projects, reducing their economic returns and contributing to rising debt distress (Ofori, 2023).

Another important issue shaping the external debt landscape in West Africa is the increasing exposure of the region to global financial volatility and currency depreciation. Since most external debts are denominated in foreign currencies, periodic depreciation of domestic currencies in countries such as Ghana, Nigeria, and Sierra Leone has significantly raised the real cost of debt repayment (IMF, 2023). The surge in global interest rates following monetary tightening in advanced economies between 2022 and 2024 further increased the debt-servicing burden across ECOWAS countries, pushing several of them toward high risk of debt distress (World Bank, 2024). At the same time, persistent structural constraints such as inadequate revenue mobilization, large informal sectors, and weak tax administration have limited the ability of governments to generate sufficient domestic resources to manage rising debt obligations (Agyeman, 2022). These challenges have intensified concerns about debt sustainability, prompting scholars to question the long-term viability of external borrowing as a growth strategy in the region (Ofori, 2023). As West Africa continues to navigate global shocks, domestic vulnerabilities, and the need for development finance, reassessing the debt-growth nexus has become vital to ensuring sustainable economic transformation.

More recently, the rise of non-traditional creditors such as China and the expansion of Eurobond markets have reshaped the region's debt landscape (Adebayo, 2020). Although these financing options create opportunities, they also introduce higher interest rates, stricter repayment terms, and increased exposure to exchange rate risks. As global conditions become more uncertain due to geopolitical tensions and climate-related

disruptions, a deeper academic examination of the debt-growth relationship in West Africa has become even more essential (World Bank, 2024).

Research Hypotheses

The Hypothesis of the study consists of the following:

H₀₁: External Debt Burden has no significant impact on economic growth.

H₀₂: External Debt Crowding Out has no significant impact on economic growth.

H₀₃: External Debt Servicing has no significant impact on economic growth performance.

H₀₄: Debt to reserves ratio has no significant impact on economic growth.

Literature Review

Conceptual Review

The conceptual Review of the study shall be briefly reviewed, thus;

Economic Growth

Economic growth refers to the sustained increase in the productive capacity of an economy over time, typically measured by changes in real Gross Domestic Product (GDP). It reflects the economy's ability to produce more goods and services, expand employment opportunities, and improve living standards. According to Barro (1991), economic growth is a long-run phenomenon driven by the accumulation of capital, labour, and technological progress, which jointly enhance productivity. The World Bank (2020) notes that economic growth is a central policy goal because it provides the foundation for poverty reduction, improved welfare, and socio-economic development. Thus, conceptualizing economic growth requires understanding both its quantitative measurement and its qualitative dimensions, including structural transformation and institutional development.

External Debt

External debt refers to the total financial obligations owed by a country to foreign creditors, repayable in foreign currency, goods, or services. These obligations are usually contracted by governments or public institutions to finance development projects, budget deficits, and balance-of-payments shortfalls. In West Africa, external debt has remained a major source of development finance due to limited domestic savings and underdeveloped capital markets. Recent studies emphasize that external debt becomes a critical macroeconomic variable because it directly influences fiscal policy, exchange rate stability, and long-term growth prospects (Adefemi, 2023; Olatunji & Mensah, 2021).

External Debt Burden

External debt burden refers to the weight or pressure that accumulated external obligations place on a nation's fiscal and macroeconomic performance. It captures the totality of foreign-denominated loans, interest obligations, and principal repayments that a country

must meet over a specified period (Ajayi & Oke, 2012). According to the World Bank (2022), the burden becomes significant when the stock of external debt rises faster than national income or export earnings, thereby limiting a country's ability to finance development without additional borrowing. For many African economies, external debt accumulation is often justified as a means of bridging the savings–investment gap and financing large-scale infrastructural development. However, when mismanaged or used for unproductive activities, such debt transitions from being a development instrument to a macroeconomic constraint.

External Debt Crowding Out

The concept of external debt crowding-out describes a situation in which rising public external borrowing reduces the resources available for private sector investment, thereby constraining economic growth (Krugman, 2019). Although foreign borrowing is often expected to supplement domestic savings and stimulate productive activities, the excessive accumulation of external debt can produce the opposite effect by imposing pressures on fiscal management and domestic credit markets. The crowding-out phenomenon is rooted in macroeconomic theory, which predicts that large government borrowing, whether domestic or external can distort financial markets and limit private investment through adverse interest rate and liquidity effects (Pattillo, Poirson, & Ricci, 2004).

External Debt Servicing

External debt servicing refers to the regular payments that a country must make to fulfill interest obligations and amortize the principal on its outstanding external debt (IMF, 2021). These obligations are legally binding components of a nation's external financial commitments and are central to maintaining credibility in international capital markets. While debt servicing is a normal component of sovereign borrowing, it becomes problematic when it absorbs a disproportionately large share of public revenue. In many low- and middle-income countries particularly in West Africa rapid growth in external borrowing, combined with global economic volatility, has resulted in an escalation of debt servicing burdens, limiting the fiscal autonomy of governments (World Bank, 2023). As a result, debt servicing has become a critical macroeconomic issue with profound implications for development and economic stability.

Debt to Reserve Ratio

The debt-to-reserves ratio is an important indicator of a country's external liquidity and its ability to meet external obligations using available foreign exchange reserves. It measures the proportion of a nation's external debt relative to its stock of international reserves, and therefore reflects the extent to which reserves can cushion the pressure of external repayment (IMF, 2022). A high ratio indicates that external debt far exceeds the reserve position, suggesting potential vulnerability to external shocks, while a low ratio signifies that reserves provide adequate coverage for external liabilities. In developing and resource-

dependent economies such as those in West Africa this ratio becomes especially critical due to volatile export earnings and recurring balance-of-payments imbalances (World Bank, 2023).

Theoretical Review

Debt Overhang Theory

The Debt Overhang Theory, popularized by Krugman (1988) and Sachs (1989), posits that when a country's external debt reaches unsustainable levels, expected future debt servicing obligations discourage both domestic and foreign investment. Essentially, investors believe that accumulated debt will require high future taxation or austerity measures, which reduces the expected returns on investment. In this environment, economic agents perceive that any gains generated by investment will be appropriated by external creditors, thereby reducing their incentive to invest in productive activities. This diminished investment leads to lower capital formation, weaker productivity, and ultimately, slower economic growth.

Liquidity Constraint Theory

The Liquidity Constraint Theory advanced by Sachs (1989) focuses on the idea that high levels of external debt servicing reduce the financial liquidity available to governments, thereby limiting their ability to fund development and stimulate economic growth. According to this theory, the obligation to service external debt drains foreign exchange reserves and domestic fiscal resources, leaving governments with limited liquidity to invest in key economic sectors (Chen & Ravallion, 2017). As debt servicing obligations rise, countries become increasingly constrained in their ability to finance imports, stabilize the currency, and support public expenditure.

Dual-Gap Theory

The Dual-Gap Theory, originally advanced by Chenery and Strout (1966), argues that developing economies are constrained by two critical shortages that impede their growth trajectories: the savings gap and the foreign exchange gap. The savings gap arises because domestic savings in low- and middle-income countries are typically too small to support the level of investment required for meaningful economic transformation. At the same time, the foreign exchange gap reflects the chronic insufficiency of export earnings to finance essential imports, particularly capital goods, industrial inputs, and advanced technologies that are vital for productive expansion. When these two deficits exist simultaneously, they create structural bottlenecks that hinder investment, reduce productive capacity, and ultimately limit economic growth.

Empirical Review

Adeniwura, Adelowokan, Toriola, and Sokunbi (2024) examined the relationship between external debt and economic growth in the West African Monetary Zone (WAMZ), covering The Gambia, Ghana, Guinea, Nigeria, Sierra Leone, and Liberia from 2000–2021. Using an ARDL bounds-testing approach, the study was anchored on the debt-overhang theory and examined external debt alongside trade, inflation, government expenditure, and population growth.

Ashakah, Irogbo, Ezech, Owhe-Ureghe, Igben, and Opara (2024) examined the effect of external debt and debt servicing on economic growth across the ECOWAS sub-region using panel data covering 15 ECOWAS countries from 1990 to 2022. The study employed fixed-effects and random-effects models after conducting panel unit-root and cointegration tests. The findings revealed that external debt had a negative and statistically significant effect on economic growth at the 1% level, while debt servicing exerted a negative but statistically insignificant effect at the 5% level. The authors concluded that excessive external debt accumulation could constrain economic growth in the ECOWAS sub-region and recommended reducing external debt accumulation and ensuring that borrowed resources are directed toward productive activities.

Kitutilla (2024) estimated public debt threshold effects on economic growth in sub-Saharan African countries and found that debt becomes growth-reducing beyond a certain threshold.

Hassan and Mhlanga (2023) investigated the external debt economic growth nexus in West African countries, with particular attention to the moderating role of institutional quality. This is highly relevant to your research because institutional quality is one of your control variables. Their work also gives you a strong basis for arguing that the effect of external debt may differ depending on the quality of institutions.

Ahmed (2023) investigated the external debt infrastructure economic growth nexus across all 15 ECOWAS countries from 2000–2021. The study employed the Cross-Sectionally Augmented ARDL (CS-ARDL) technique and found that external debt was detrimental to economic performance, while infrastructure played an important role in improving economic growth. The study recommended better utilization of borrowed funds and stronger debt-management policies.

Sandow et al. (2022) examined whether heterogeneity in the quality of public sector management makes a difference in the debt-growth relationship in sub-Saharan Africa and found that better governance enhances the growth impact of external debt. These findings underscore the importance of including institutional quality as a control variable, as the present study does.

Adamu and Rasiah (2016) examined the dynamic relationship between external debt and economic growth in Nigeria from 1970 to 2013. They constructed an external debt sustainability index using principal component analysis and employed an ARDL bounds-testing approach. Their findings established a long-run cointegrating relationship between external debt and economic growth.

Frimpong and Oteng-Abayie (2006) examined Ghana's external debt and economic growth between 1970 and 1999 using cointegration and VECM techniques. They found that GDP growth was positively influenced by external debt inflows but negatively affected by debt servicing, providing evidence of a crowding-out effect. They also identified evidence consistent with a debt-overhang effect through the negative impact on domestic investment.

Theoretical Framework And Model Specification

Theoretical Framework

The theoretical foundation of this study synthesizes three complementary theories (the Debt Overhang Theory, the Liquidity Constraint Hypothesis and the Dual-Gap Model) into a unified analytical framework that seek to explain how external debt shapes economic growth in West Africa. The fusion of these theories allows a comprehensive interpretation of debt dynamics by linking debt accumulation, debt servicing, investment behavior, resource constraints and long-run output performance.

Population of the Study

There are 15 countries in West Africa, but this study used 14 countries with exception of Liberia, where data was not available, the population of the study comprises of 14 West African countries which are operationalized here as the member states of the Economic Community of West African States (ECOWAS). These countries are Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. These 14 countries form a relatively coherent regional block with comparable structural characteristics, especially in terms of high dependence on primary commodities and recurrent external financing needs. They also share similar policy concerns relating to debt sustainability, growth volatility, and macroeconomic stability. Consequently, restricting the population to West African/ECOWAS countries is appropriate for drawing regional inferences and deriving policy implications that are relevant for regional debt management and growth strategies.

Sources of Data

The data for the study is sourced from world development indicators (Database by the world bank), International Monetary Fund, International Financial Statistics (Published by the IMF), United Nations Educational Scientific and Cultural Organization (UNESCO) and World Governance Indicators (WGI).

Model Specification

The empirical model developed for this study is anchored in the unified theoretical framework that synthesizes the Debt Overhang Theory, Liquidity Constraint Hypothesis, and Dual-Gap Model. It is also adapted from the empirical model of Elkhalfi et al (2024).

These theories jointly predict that external borrowing influences economic performance through four primary channels: (i) the debt stock relative to the economy's productive capacity (debt overhang), (ii) the crowding-out effects of external borrowing on domestic investment, (iii) the fiscal and foreign-exchange costs of debt servicing, and (iv) the adequacy of foreign-exchange reserves relative to debt obligations. Consistent with these theoretical underpinnings and the specific objectives of the study, the model is specified to examine the implications of external debt dynamics on economic growth in West Africa. The starting point for the model specification is an augmented neoclassical growth equation which relates output per capital to the debt factors as well as capital accumulation, labour productivity, and macroeconomic conditions. In a panel context, economic growth for country i at time t can be expressed as:

$$RGDPG_{it} = f(EDB_{it}, EDS_{it}, COE_{it}, DRR_{it}, X_{it}) \quad (3.12)$$

where

$RGDPG_{it}$ denotes real GDP growth,

EDB_{it} represents external debt burden (debt overhang indicator),

EDS_{it} captures external debt service conditions,

COE_{it} measures crowding-out effects associated with external borrowing,

DRR_{it} denotes external debt to reserves ratio,

X_{it} is a set of macroeconomic control variables (including capital formation, trade openness, inflation rate, human capital, and institutional quality)

This functional form recognizes the multidimensional pathways through which external debt influences growth.

Following the empirical growth modeling tradition in international debt literature, the baseline panel econometric form of the specification is therefore formulated as:

$$RGDPG_{it} = \alpha_0 + \alpha_1 EDB_{it} + \alpha_2 COE_{it} + \alpha_3 EDS_{it} + \alpha_4 DRR_{it} + \beta' X_{it} + \mu_i + \epsilon_{it} \quad (3.13)$$

where

α_0 is the intercept term,

μ_i captures unobserved country-specific heterogeneity,

ϵ_{it} is the idiosyncratic error term.

Each of the four external debt indicators maps directly onto one of the objectives of the study.

The Control Variables

To isolate the effects of external debt, the model includes a vector of conventional macroeconomic control variables:

$$X_{it} = \{GFCF_{it}, OPN_{it}, INFL_{it}, HUM_{it}, IQ_{it}\} \quad (3.14)$$

where:

Gross Fixed Capital Formation (GFCF): Represents domestic investment and it is expected to promote growth.

Trade Openness (OPN): Measured as the ratio of imports plus exports to GDP. A more open economy can attract foreign investment and improve growth.

Inflation rate (INFL): It serves as a proxy for macroeconomic instability. High inflation distorts investment and consumption decisions which leads to lower growth.

Human Capital (HC): Captured through school enrollment. Human capital enhances productivity and long run economic growth.

Institutional Quality (IQ): Measured using governance indicators. Strong institutions enhance the effectiveness of external financing and growth.

Data Presentation and Interpretation Of Results

Descriptive Statistics

The summary of the variables used in the empirical analysis of the study are presented and analyzed in this Table 4.1 below :

Table 4.1: Descriptive Statistics

Variable	Mean	Max.	Min.	Std. Dev.	Skew.	Kurt.	J-B	Prob.
GDPGR	4.21	26.52	-22.45	4.39	-0.92	11.18	1433.45	0.00
EDB	61.69	251.25	1.27	44.01	1.68	6.04	419.65	0.00
COE	49.53	272.76	0.85	36.46	1.98	8.78	1004.57	0.00
EDS	10.54	112.30	0.25	10.71	4.32	31.48	18086.6	0.00
DRR	21.26	266.40	-0.21	25.20	6.16	53.70	55585.7	0.00
GFCFR	20.12	58.02	1.46	10.17	0.91	3.78	80.58	0.00
INFL	9.39	168.05	-29.17	17.35	4.23	29.14	15408.8	0.00
OPN	55.34	131.49	21.26	18.00	1.19	4.58	166.39	0.00
HC	82.10	163.17	24.68	26.00	-0.02	2.74	1.42	0.49
IQ1	-0.47	1.22	-2.73	0.86	-0.34	2.48	14.99	0.00

Source: Regression output using E-views 13 (2026)

Table 4.1 reports the descriptive statistics for all variables employed in the study. The descriptive statistics provide important preliminary insights into the distributional properties of the variables used in the study. The average real GDP growth rate (GDPGR) across the sample is 4.21 percent. This indicates that, on average, West African economies experienced moderate positive growth over the period. However, the range is substantial, with a maximum growth rate of 26.52 percent and a minimum of -22.45 percent. These extreme values suggest periods of sharp expansions and severe contractions. The standard deviation of 4.39 indicates considerable growth volatility among the countries and over time. The negative skewness (-0.92) implies that extreme negative growth episodes occur more frequently or are more pronounced than extreme positive ones. The very high kurtosis (11.18) confirms the presence of fat tails and extreme observations. The Jarque–Bera

statistic (1433.45, $p = 0.00$) rejects normality and reveals the presence of non-linear shocks and structural breaks in growth dynamics.

Table 4.2: Unit root test in Levels

Variable	LLC (t-stat)	IPS (W-stat)	ADF-Fisher (Chi ²)
LRGDP	3.474	8.466	8.055
EDB	0.2	1.176	16.981
COE	-0.438	-0.997	30.498
EDS	-2.194**	-1.940**	50.681**
DRR	-0.034	0.213	28.723
GFCFR	-0.708	-0.698	36.508
OPN	-1.191	-2.053**	41.195*
INFL	-10.132***	-10.587***	164.571***
HC	-3.659***	0.161	28.795
IQ1	-0.910	-0.214	34.862

Source: Regression output using E-views 13 (2026) Notes: ***, **, * denote rejection of the null hypothesis of unit root at 1%, 5%, and 10% levels respectively.

The results of the unit root test for the first difference variables are presented in table 4.3 below:

Table 4.3: Unit root test in First Difference

Variable	LLC (t-stat)	IPS (W-stat)	ADF-Fisher (Chi ²)
D(LRGDP)	-7.375***	-8.444***	127.017***
D(EDB)	-6.457***	-8.963***	134.833***
D(COE)	-6.451***	-11.167***	173.007***
D(EDS)	-11.485***	-14.596***	232.366***
D(DRR)	-7.605***	-11.781***	185.222***
D(GFCFR)	-8.988***	-14.018***	223.795***
D(OPN)	-12.160***	-14.636***	233.971***
D(INFL)	-15.590***	-18.947***	311.345***
D(HC)	-6.475***	-6.523***	96.460***
D(IQ1)	-12.734***	-15.897***	255.748***

Source: Regression output using E-views 13 (2026)

It is seen that all variables become stationary after first differencing in the LLC test with strong confirmation from the PP-Fisher test across the board. Essentially, the panel unit-root tests reveal that most variables are non-stationary in levels but stationary after first differencing. This shows predominant $I(1)$ behavior among the variables. While a few variables show mixed stationarity signals at levels under specific tests, that of EDS and INNFL results are consistent across all four procedures. At first differences, stationarity is strongly confirmed for all variables particularly by the PP-Fisher test, which consistently

rejects the unit-root null at the 1% level. Thus, there is evidence of mixed levels of integration or stationarity of the variables used in this study.

4.3 Analysis of Regression Results

Table 4.4: Result for External Debt Stock Burden and Economic Growth

Variable	Coefficient	t-Statistic	Prob.
<i>Long Run Equation</i>			
EDB	-0.025	-5.387	0.000
GFCFR	0.068	4.535	0.000
OPN	0.019	3.487	0.001
INFL	-0.041	-4.441	0.000
HC	0.008	1.339	0.182
IQ	1.322	6.752	0.000
<i>Short Run Equation</i>			
ECM _{t-1}	-0.004	-0.599	0.550
Δ EDB	-0.057	-1.898	0.059
Δ EDB _{t-1}	0.085	4.041	0.000
Δ EDB _{t-2}	0.032	1.201	0.231
Δ GFCFR	0.002	1.555	0.122
D(GFCFR(-1))	0.000	0.514	0.608
D(GFCFR(-2))	0.001	1.334	0.184
D(OPN)	0.001	2.018	0.045
D(OPN(-1))	0.000	-0.516	0.607
D(OPN(-2))	-0.001	-0.797	0.426
D(INFL)	0.000	-0.458	0.647
D(INFL(-1))	-0.001	-1.057	0.292
D(INFL(-2))	0.000	-0.647	0.518
D(HC)	0.001	1.585	0.115
D(HC(-1))	0.002	1.191	0.235
D(HC(-2))	0.001	1.045	0.297
D(IQ1)	0.025	1.574	0.117
D(IQ1(-1))	0.030	1.851	0.066
D(IQ1(-2))	0.014	1.224	0.223
C	0.083	1.601	0.111

Source: Regression output using E-views 13 (2026)

In the long-run equation, the coefficient of external debt burden is negative and significant at the 1 percent level (EDB = -0.025; $t = -5.387$; $p < 0.01$). This result implies that a sustained increase in external debt burden is associated with a statistically robust reduction in economic growth in West Africa. In substantive terms, the estimate supports the debt overhang mechanism in which case persistent high external debt levels depress long-run growth by weakening investor expectations and increasing macroeconomic fragility. The

magnitude of the EDB coefficient indicates that the growth penalty is not merely episodic, rather, it is structural and accumulative in the long run. Thus, there is evidence that for West African countries, renewed borrowing beyond absorptive and repayment capacity can become growth-reducing in the long run.

Table 4.5: Result for Cointegration Test

Model with	ADF t-stat	Prob.	Significance
EDB	-5.380	0.000	**
COE	-3.462	0.000	**
EDS	-1.187	0.118	
DRR	-3.089	0.036	**

Source: Regression output using E-views 13 (2026) Note: ** is 1% significance; * is 5% significance.

The empirical results from the Kao cointegration test provide strong evidence on the existence of long-run relationships between debt and macroeconomic indicators and economic growth. Specifically, the null hypothesis of no cointegration is decisively rejected for the models with EDB, COE and DRR specifications at the 1 percent significance level. This indicates the presence of a stable long-run equilibrium relationship debt conditions and economic growth for the West African countries. These findings suggest that movements in debt conditions and debt indicators exert persistent long-term influences on economic growth in West African countries. The test for the model with EDS however fails to reject the null hypothesis at the 5 percent level. This suggests that the relationship between debt servicing burden and economic growth is only structurally persistent at a lesser path. In general, the Kao test results establish that debt indicators share a stable long-run equilibrium relationship with economic growth in West Africa. This provides an empirical foundation for the subsequent estimation of long-run coefficients using panel estimators as adopted in this study.

Table 4.6: Result for External Debt Crowding-Out and Economic Growth

Variable	Coefficient	t-Statistic	Prob.
<i>Long Run Equation</i>			
COE	-0.005	-1.342	0.181
GFCFR	0.028	1.741	0.083
OPN	0.146	2.706	0.007
INFL	-0.024	-2.684	0.008
HC	0.004	0.382	0.703
IQ	1.887	4.627	0.000
<i>Short Run Equation</i>			
ECM _{t-1}	-0.009	-1.515	0.131
D(COE)	0.016	0.842	0.401
D(COE(-1))	0.007	0.375	0.708

Variable	Coefficient	t-Statistic	Prob.
D(COE(-2))	0.055	1.901	0.059
D(GFCFR)	0.017	1.411	0.160
D(GFCFR(-1))	0.019	1.608	0.109
D(GFCFR(-2))	0.001	0.631	0.529
D(OPN)	0.001	0.750	0.454
D(OPN(-1))	0.000	-0.482	0.631
D(OPN(-2))	-0.001	-1.180	0.239
D(INFL)	0.000	-0.227	0.821
D(INFL(-1))	0.000	-0.815	0.416
D(INFL(-2))	0.000	-0.482	0.630
D(HC)	0.002	1.522	0.130
D(HC(-1))	0.002	0.778	0.437
D(IQ)	0.013	1.289	0.199
D(IQ(-1))	0.033	2.709	0.007
Constant	0.041	3.395	0.001

Source: Regression output using E-views 13 (2026)

The PMG estimates for the crowding-out effect proxy (COE) provide a credible assessment of whether external borrowing displaces growth-enhancing domestic investment within West Africa. In the long-run equation (in the upper panel), the coefficient on COE is negative (-0.005). This is consistent with the theoretical expectation that heavier reliance on external borrowing relative to domestic capital formation can weaken growth through displacement of private investment and reduced efficiency of capital allocation. However, the estimate is statistically insignificant at 5 percent level ($t = -1.342$; $p = 0.181$). This implies that, once the model controls for investment intensity, trade openness, inflation, human capital, and institutional quality, the region-wide long-run average crowding-out effect is not sufficiently strong or uniform across West Africa to be identified precisely under the PMG assumption of long-run homogeneity.

Table 4.7: Result for External Debt Servicing Burden and Economic Growth

Variable	Coefficient	t-Statistic	Prob.*
<i>Long Run Equation</i>			
EDS	0.034	2.100	0.037
GFCFR	0.119	3.028	0.003
OPN	0.021	1.780	0.076
INFL	0.038	2.452	0.015
HC	0.042	4.621	0.000
IQ1	0.034	0.231	0.818
<i>Short Run Equation</i>			
ECM _{t-1}	-0.011	-2.453	0.015
D(EDS)	-0.081	-1.598	0.111

Variable	Coefficient	t-Statistic	Prob.*
D(EDS(-1))	0.064	1.079	0.282
D(GFCFR)	0.001	0.820	0.413
D(GFCFR(-1))	0.017	0.249	0.804
D(OPN)	0.052	1.401	0.162
D(OPN(-1))	0.041	0.562	0.575
D(INFL)	-0.038	-1.514	0.131
D(INFL(-1))	-0.026	-1.718	0.087
D(HC)	0.001	0.531	0.596
D(HC(-1))	0.002	1.078	0.282
D(IQ1)	0.018	1.451	0.148
D(IQ1(-1))	0.014	0.911	0.363
Constant	0.058	3.099	0.002

Source: Regression output using E-views 13 (2026)

In the long-run equation, the coefficient of EDS is positive and statistically significant at the 5 percent level ($EDS = 0.034$; $t = 2.100$; $p = 0.037$). In literally terms, this implies that countries with persistently higher debt service burdens (relative to exports) are associated with higher long-run economic growth in West Africa. This direction departs from the standard liquidity-constraint prediction, where higher servicing obligations should compress fiscal space and foreign exchange availability, thereby reducing growth. This result is surprising and suggests that EDS acts partly as a proxy for the ability to mobilize external resources and sustain productive investment programmes. Thus, rather than representing a pure liquidity squeeze, EDS is seen to be correlated with growth-promoting external financing cycles in ECOWAS.

Table 4.8: Result for External Debt-to-Reserves Ratio and Economic Growth

Variable	Coefficient	t-Statistic	Prob.*
<i>Long Run Equation</i>			
DRR	-0.016	-1.504	0.134
GFCFR	0.016	1.379	0.169
OPN	0.156	2.648	0.009
INFL	-0.023	-3.483	0.001
HC	0.038	3.844	0.000
IQ	-2.075	-4.916	0.000
<i>Short Run Equation</i>			
ECM_{t-1}	-0.005	-0.900	0.369
D(DRR)	-0.097	-0.684	0.494
D(DRR(-1))	-0.002	-1.189	0.235
D(GFCFR)	0.021	2.242	0.026
D(GFCFR(-1))	0.007	0.745	0.457
D(OPN)	0.000	-0.423	0.673
D(OPN(-1))	-0.001	-0.977	0.329
D(INFL)	0.000	-0.661	0.509

Variable	Coefficient	t-Statistic	Prob.*
D(INFL(-1))	0.000	-0.990	0.323
D(HC)	0.003	1.976	0.049
D(HC(-1))	0.002	1.093	0.275
D(IQ1)	0.028	1.670	0.096
D(IQ1(-1))	0.017	1.400	0.163
Constant	0.034	2.343	0.020

Source: Regression output using E-views 13 (2026)

Note that DRR captures the extent to which external debt obligations are covered by foreign exchange reserves. A higher DRR implies weaker reserve adequacy relative to external debt, signaling heightened exposure to balance-of-payments pressures, exchange-rate instability, and rollover risk. In the long-run equation, the coefficient of DRR is negative coefficient (-0.016) as theoretically expected. However, the effect is statistically insignificant at the 5 percent level ($t = -1.504$; $p = 0.134$). This suggests that, across West African countries and over the period studied, higher debt-to-reserve ratios are associated with lower growth in magnitude terms, but the relationship is weak over time. Thus, while external liquidity vulnerability matters, its long-run growth consequences are not uniform across the region.

Finally, in order to provide a robust analysis of the debt-growth relationship, the long-run PMG estimates from the complete model are reported in Table 4.8:

Table 4.9: Long run Estimates of the Complete Model

Variable	Coefficient	t-Statistic	Prob.*
EDB	-0.034	-2.968	0.003
COE	-0.072	-3.673	0.000
EDS	0.152	3.962	0.000
DRR	-0.033	-1.517	0.131
GFCFR	0.103	3.101	0.002
OPN	0.042	2.565	0.011
INFL	-0.020	-0.793	0.429
HC	0.046	4.622	0.000
IQ1	1.827	2.711	0.007

Source: Regression output using E-views 13 (2026)

This result shows a consolidated view of how distinct external debt channels jointly shape economic growth in West Africa. The results indicate that, when the core debt variables are modeled simultaneously, the debt-growth relationship is not driven by a single indicator. The result shows the combined operation of debt overhang, crowding-out dynamics, servicing conditions, and external liquidity vulnerability alongside standard growth fundamentals.

Discussion of Results

This study examined the long-run relationship between external debt indicators and economic growth in West Africa using the PMG-ARDL framework. The findings reveal that the effects of external debt on economic growth differ according to the specific dimension of debt considered. This section discusses each finding in relation to existing theoretical and empirical literature, highlighting areas of convergence, divergence, and the study's unique contributions.

The external debt burden (EDB) has a negative and statistically significant long-run effect on economic growth ($\beta = -0.034$; $p = 0.003$). This indicates that increases in external debt burden are associated with reductions in economic growth across ECOWAS countries. The finding supports the debt overhang perspective advanced by Krugman (1988) and Sachs (1989), which suggests that excessive indebtedness can discourage investment by creating uncertainty about future taxation and macroeconomic conditions. This result is consistent with a growing body of empirical evidence on the West African region. Ashakah et al. (2024), examining 15 ECOWAS countries from 1990 to 2022 using fixed- and random-effects models, found that external debt had a negative and statistically significant effect on economic growth at the 1% level. The convergence of results across different estimators (PMG-ARDL in this study versus fixed/random effects in theirs) and slightly different sample periods strengthens the robustness of the debt-overhang hypothesis in West Africa. Similarly, Ahmed (2023), using the Cross-Sectionally Augmented ARDL (CS-ARDL) technique for all 15 ECOWAS countries from 2000 to 2021, found that external debt was detrimental to economic performance. The consistency of findings across these studies, despite methodological differences, suggests that the debt-overhang mechanism is a structural feature of West African economies rather than an artifact of any particular estimation technique. The finding also aligns with Adeniwura et al. (2024), who examined the West African Monetary Zone (WAMZ) using ARDL bounds testing and found evidence consistent with the debt-overhang theory. While their study focused on a subset of West African countries, the present study generalizes their findings to the broader ECOWAS region, demonstrating that the negative growth effects of external debt burden are not confined to the WAMZ but extend across the entire West African sub-region. Furthermore, Adamu and Rasiah (2016), in their study of Nigeria from 1970 to 2013, established a long-run cointegrating relationship between external debt and economic growth, providing further evidence that external debt burden constrains long-run growth in West African economies. The magnitude of the EDB coefficient (-0.034) indicates that the growth penalty is not merely episodic but structural and cumulative. In substantive terms, a one-percentage-point increase in the external debt-to-GDP ratio is associated with a 0.034-percentage-point reduction in long-run economic growth. While this effect may appear modest in absolute terms, its cumulative impact over time is substantial, particularly for countries with persistently high debt levels. This finding supports the view that for West African countries, renewed borrowing beyond absorptive and repayment capacity can become growth-reducing in the long run. The result also underscores the importance of

debt sustainability frameworks and the need to link external borrowing to productive investments that generate sufficient returns to service debt obligations.

The external debt crowding-out effect (COE) has a negative but statistically insignificant long-run effect on economic growth in the standalone model ($\beta = -0.005$; $p = 0.181$). Although the direction of the coefficient is consistent with the expectation that external debt may displace productive investment, the insignificant result indicates that there is insufficient evidence to establish a systematic long-run crowding-out effect across ECOWAS countries when COE is modeled in isolation. However, in the complete model (Table 4.9), COE becomes negative and statistically significant ($\beta = -0.072$; $p = 0.000$), suggesting that when all debt channels are considered simultaneously, the crowding-out effect emerges as a significant constraint on growth. This divergence between the standalone and complete models warrants careful interpretation. The insignificance in the standalone model may reflect the heterogeneity of borrowing patterns across West African countries. In some economies, external loans may complement rather than substitute domestic investment, particularly where borrowed funds are directed to infrastructure that raises the marginal productivity of private capital. In other economies, weak institutional frameworks and poor project selection may lead to displacement of domestic investment. When these heterogeneous effects are averaged across the region, the net effect may appear insignificant. However, when COE is modeled alongside other debt variables (EDB, EDS, DRR), the interaction among these channels reveals a significant crowding-out effect, suggesting that the displacement of domestic investment becomes more pronounced when external debt burdens are high and servicing obligations are substantial. The finding contrasts with Frimpong and Oteng-Abayie (2006), who found evidence of a crowding-out effect in Ghana through the negative impact of debt servicing on GDP growth. However, it is consistent with Ashakah et al (2024), who found a negative but insignificant effect of debt servicing on growth in ECOWAS. The divergence between single-country and regional studies may be explained by the fact that crowding-out is more easily identified in country-specific analyses where structural characteristics are relatively homogeneous, whereas regional analyses average across countries with diverse investment climates, financial market development, and governance quality. The result also resonates with Hassan and Mhlanga (2023), who argued that institutional quality moderates the debt-growth nexus in West African countries. Their work implies that the crowding-out effect is not a uniform regional phenomenon but depends on country-specific governance and investment conditions. In countries with strong institutions and effective public investment management, external borrowing may crowd in private investment by improving infrastructure and reducing production costs. In countries with weak institutions, external borrowing may crowd out private investment by increasing competition for scarce financial resources and raising the cost of capital. The insignificance in the standalone model may therefore reflect the offsetting effects of these two scenarios across the region. The significant COE result in the complete model suggests that the crowding-out channel

operates in conjunction with other debt-related vulnerabilities. When external debt burdens are high, debt servicing obligations are substantial, and reserves are inadequate, the displacement of domestic investment becomes more likely and more damaging to growth. This finding has important policy implications: it suggests that the growth impact of external borrowing depends not only on the volume of debt but also on how borrowed resources are utilized and how they interact with domestic investment conditions.

The external debt servicing (EDS) variable has a positive and statistically significant long-run effect on economic growth ($\beta = 0.152$; $p \leq 0.001$). This finding is surprising and departs from the standard liquidity-constraint prediction, where higher servicing obligations should compress fiscal space and foreign exchange availability, thereby reducing growth. The positive relationship may reflect the repayment capacity and financial credibility of countries that are able to meet their external obligations. This result contradicts the findings of Ashakah et al. (2024), who found that debt servicing exerted a negative but statistically insignificant effect on economic growth in ECOWAS. It also contradicts Frimpong and Oteng-Abayie (2006), who found that debt servicing negatively affected GDP growth in Ghana. The divergence may be explained by several factors. First, the sample periods differ: the present study covers 1990 to 2024, while Ashakah et al. (2024) covered 1990 to 2022. The additional years may capture the post-COVID-19 recovery period, during which debt servicing patterns and growth dynamics may have changed. Second, the estimators differ: PMG-ARDL (used in this study) allows for heterogeneous short-run dynamics and homogeneous long-run coefficients, while fixed- and random-effects models assume homogeneous parameters across countries. The PMG-ARDL may therefore capture long-run relationships that are obscured in fixed-effects models. Third, the proxy for debt servicing may differ: this study uses the ratio of total debt service to exports of goods and services, while other studies may use different measures such as debt service to GDP or debt service to revenue. The positive and significant EDS coefficient may also reflect a signalling effect. Countries that consistently meet their external debt obligations may signal creditworthiness to international investors and creditors, thereby maintaining access to external financing and attracting foreign direct investment. This interpretation is consistent with the finding that institutional quality (IQ) has a positive and significant effect on growth in most models, suggesting that countries with better governance and stronger institutions are more likely to manage their debt obligations effectively and sustain growth. Effective debt servicing may therefore be associated with stronger fiscal management, greater access to external financing, and improved investor confidence. However, this interpretation should be treated with caution, as it may also reflect reverse causality: faster-growing economies are better able to service their debts, and the positive coefficient may capture this reverse causality rather than a causal growth-enhancing effect of servicing itself. The insignificant short-run ECM coefficient in Table 4.7 (-0.011 ; $p = 0.015$) suggests that short-run adjustments are modest, and the positive long-run effect may capture structural characteristics of creditworthy economies rather than a causal relationship. Future research should employ instrumental variable techniques or

dynamic panel models to address potential endogeneity and establish the direction of causality. The finding also challenges the liquidity-constraint hypothesis (Sachs, 1989), which predicts that high debt servicing obligations reduce the financial liquidity available to governments, thereby limiting their ability to fund development and stimulate economic growth. The positive result suggests that in the West African context, the liquidity-constraint effect may be offset by other factors, such as the disciplining effect of debt servicing on fiscal management or the signalling effect of creditworthiness. Alternatively, the result may indicate that debt servicing is not a binding constraint on growth in countries that have access to alternative sources of financing, such as remittances, foreign direct investment, or domestic revenue mobilization.

The debt-to-reserves ratio (DRR) has a negative but statistically insignificant long-run effect on economic growth ($\beta = -0.033$; $p = 0.131$). This indicates that external liquidity vulnerability does not exert a statistically stable long-run effect on growth across the ECOWAS countries in the study. The negative direction is consistent with the theoretical expectation that higher debt-to-reserves ratios signal weaker reserve adequacy relative to external debt, heightened exposure to balance-of-payments pressures, exchange-rate instability, and rollover risk. The insignificance of the DRR coefficient contrasts with the stronger effects reported in threshold studies such as Kitutilla (2024) and Osei (2026). Kitutilla (2024) estimated public debt threshold effects on economic growth in sub-Saharan African countries and found that debt becomes growth-reducing beyond a certain threshold. Osei (2026) used regime-switching threshold analysis for ECOWAS and found nonlinear debt-growth dynamics. The insignificance in this study may therefore reflect the linear specification's inability to capture these threshold dynamics. Below a certain threshold, reserve depletion may sharply reduce growth, while above it, the effect may be negligible. The linear PMG-ARDL model assumes a constant marginal effect of DRR on growth, which may not hold if the relationship is nonlinear. The result may also reflect differences in reserve accumulation, external financing conditions, exchange-rate movements, and commodity-price exposure across countries. Some West African countries, such as Nigeria and Ghana, have relatively large reserves due to oil and mineral exports, while others, such as Burkina Faso and Mali, have smaller reserves and are more vulnerable to external shocks. When these heterogeneous experiences are averaged across the region, the net effect of DRR on growth may appear insignificant. This suggests that the relationship between external liquidity and growth may be influenced by country-specific economic and institutional conditions, and that a one-size-fits-all approach to reserve management may not be appropriate for the region. The insignificant DRR result also has implications for the debt-overhang hypothesis. If external liquidity vulnerability does not exert a stable long-run effect on growth, it may be because reserve adequacy is not the primary channel through which external debt affects growth. Instead, the debt-overhang effect may operate primarily through the debt stock (EDB) and servicing (EDS) channels, while the reserve channel (DRR) is secondary. This interpretation is consistent with the

finding that EDB and EDS are significant in the complete model, while DRR remains insignificant.

Taken together, the findings demonstrate that external debt does not have a uniform effect on economic growth in West Africa. While external debt burden significantly reduces long-run growth, the crowding-out and debt-to-reserves indicators have negative but statistically insignificant effects in the standalone models. Conversely, debt servicing exhibits a positive and statistically significant relationship with growth. These results suggest that the growth consequences of external debt depend on the level of indebtedness, the management of debt obligations, and the broader economic conditions within which borrowing occurs. The findings contribute to the existing literature in several ways. First, they provide robust evidence that the debt-overhang hypothesis holds for West Africa, even after controlling for institutional quality, human capital, and macroeconomic stability. Second, they show that the crowding-out effect, while not significant in isolation, becomes significant when modeled alongside other debt variables, suggesting that the interaction among debt channels matters. Third, they reveal a positive and significant relationship between debt servicing and growth, which challenges the liquidity-constraint hypothesis and suggests that debt servicing may proxy for creditworthiness and fiscal credibility. Fourth, they demonstrate that the debt-to-reserves ratio does not exert a stable long-run effect on growth, highlighting the need for nonlinear or threshold models to capture the reserve-debt-growth nexus. The findings also have important policy implications. The negative and significant EDB coefficient suggests that West African countries should prioritize debt sustainability and avoid excessive accumulation of external debt. The significant COE coefficient in the complete model suggests that external borrowing should be directed toward productive investments that complement rather than displace domestic investment. The positive EDS coefficient suggests that countries should maintain their debt-servicing capacity to preserve creditworthiness and access to external financing. The insignificant DRR coefficient suggests that reserve adequacy, while important for short-run stability, may not be the primary channel through which external debt affects long-run growth. Several limitations of this study should be acknowledged. First, the study uses a linear PMG-ARDL specification, which may not capture nonlinear or threshold effects in the debt-growth relationship. Future research should consider threshold or regime-switching models to identify debt thresholds beyond which external debt becomes growth-reducing. Second, the study uses secondary school enrollment as a proxy for human capital, which may not fully capture the quality of education and skills development. Future research should use more comprehensive measures of human capital, such as cognitive skills or years of schooling adjusted for quality. Third, the study does not address potential endogeneity between external debt and economic growth. Future research should employ instrumental variable techniques or dynamic panel models to establish causality. Fourth, the study focuses on West Africa, and the findings may not be generalizable to other regions with different structural characteristics. Future research

should compare the West African experience with other developing regions to identify commonalities and differences in the debt-growth nexus.

Summary, Conclusion and Recommendation

Summary of Findings

Specifically, the following findings were made:

1. First, regarding the impact of external debt burden (EDB) on economic growth, the study found a negative and statistically significant long-run relationship in West African countries. This confirms that sustained increases in external debt relative to GDP reduce economic growth in West Africa. The evidence supports the debt overhang hypothesis where excessive debt stocks weaken investment incentives and increase macroeconomic vulnerability. Although short-run fluctuations in debt may not uniformly depress growth, the long-run penalty of persistently high debt levels is both economically and statistically robust.
2. Second, the study also revealed that external debt crowding-out dynamics exhibit a negative but statistically insignificant long-run relationship with economic growth in West African countries. The coefficient on the external debt crowding-out effect (COE) is negative, suggesting that an increase in external borrowing relative to domestic capital formation may be associated with a decline in economic growth. However, the relationship is not statistically significant, indicating that there is insufficient evidence to establish crowding-out as a significant long-run channel through which external debt affects economic growth in the region. Nevertheless, the negative direction of the coefficient is consistent with the theoretical expectation that excessive external borrowing may displace or dilute growth-enhancing domestic investment.
3. Third, the study showed that external debt servicing shows a positive and statistically significant long-run effect on economic growth in West African countries. It is seen that while short-run increases in servicing may exert temporary pressures, the long-run result suggests that countries capable of sustaining debt servicing obligations may also exhibit stronger growth prospects.
4. Finally, the evaluation of the debt-to-reserve ratio indicates a negative but statistically insignificant long-run relationship with economic growth in West African countries. This suggests that external liquidity vulnerability does not exert a uniform structural impact across West African countries in the long run.

Conclusion

This study examined the relationship between external debt and economic growth in West Africa using data from 1990 to 2024 and distinguishing among external debt burden, crowding-out effect, debt servicing, and debt-to-reserves ratio. The findings show that the effects of external debt on economic growth differ across these dimensions.

External debt burden has a negative and statistically significant long-run effect on economic growth, indicating that excessive external indebtedness can constrain sustained economic performance in the region. External debt crowding-out effect also has a negative but statistically insignificant long-run relationship with growth, suggesting that although the direction is consistent with the expected crowding-out effect, the evidence is insufficient to establish a significant long-run impact. External debt servicing, however, has a positive and statistically significant long-run effect on economic growth, while the debt-to-reserves ratio has a negative but statistically insignificant effect.

Overall, the findings suggest that the growth implications of external debt in West Africa depend largely on the level of debt accumulated, how borrowed resources are utilized, and countries' capacity to manage their external obligations. Sustainable borrowing, productive investment, effective debt management, and adequate external liquidity buffers are therefore essential for ensuring that external financing supports rather than constrains long-term economic growth.

Recommendations

Based on the empirical findings of this study, five major recommendations are advanced to address the growth implications of external debt in West Africa, thus:

1. West African governments should adopt prudent borrowing policies that align external debt with repayment capacity and long-term growth objectives. Medium-term debt strategies should incorporate realistic debt thresholds, regular stress testing, and transparent borrowing guidelines to minimize the risk of debt overhang.
2. External loans should be prioritized for high-return investments in infrastructure, energy, industrial development, and other productive sectors. This would enhance the contribution of borrowed funds to economic activity and reduce the risk of resources being diverted from productive investment.
3. Governments should broaden their revenue bases, improve domestic revenue mobilization, and diversify exports to strengthen their capacity to meet external debt obligations without undermining expenditure on growth-enhancing sectors.
4. Although the debt-to-reserves ratio was statistically insignificant in the long run, its negative relationship with economic growth highlights the importance of maintaining adequate external liquidity. Countries should strengthen reserve accumulation during periods of favorable commodity earnings and diversify foreign exchange sources to reduce vulnerability to external shocks.
5. Given the limitations associated with using school enrollment as the sole measure of human capital, governments should invest not only in educational participation but also in education quality, skills development, and workforce productivity. This would strengthen the capacity of economies to translate external financing into sustainable growth.

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Data for Study

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Benin	1990	6.70	8.91	57.82	8.98	45.70	8.56	47.15	2.18	- 0.38	45.72	3958.26
Benin	1991	5.14	5.11	58.79	4.23	48.50	9.29	53.25	0.76	- 0.38	51.34	4125.52

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Benin	1992	3.36	4.82	73.34	2.96	44.45	9.88	56.13	3.03	- 0.35	56.74	4247.54
Benin	1993	5.61	5.22	56.86	5.84	45.22	9.64	60.97	2.38	- 0.35	55.38	4495.44
Benin	1994	10.06	6.86	88.43	2.02	41.68	10.11	61.34	35.03	- 0.40	64.40	4586.26
Benin	1995	12.36	7.25	65.70	6.05	57.08	11.09	64.69	15.10	- 0.40	63.80	4863.51
Benin	1996	14.03	6.16	59.50	4.32	47.33	10.24	66.99	6.91	- 0.38	56.52	5073.83
Benin	1997	14.19	8.45	61.40	5.73	55.72	12.10	70.75	3.67	- 0.38	58.71	5364.79
Benin	1998	12.75	9.23	60.09	3.96	49.37	12.56	73.89	5.23	- 0.35	59.59	5577.29
Benin	1999	9.85	10.38	42.63	5.34	54.62	16.16	74.32	48.34	- 0.35	54.39	5875.20
Benin	2000	9.87	12.95	42.88	5.86	53.42	12.97	77.29	4.34	- 0.40	47.35	6219.35
Benin	2001	9.23	8.29	44.61	5.33	60.41	14.31	84.48	1.97	- 0.40	48.26	6551.04
Benin	2002	10.52	8.69	44.44	4.64	46.58	13.01	89.59	3.55	- 0.58	43.77	6855.21
Benin	2003	10.84	6.62	32.13	3.44	53.75	13.24	93.19	3.06	- 0.56	41.62	7091.27
Benin	2004	12.34	4.94	32.42	4.43	49.12	12.24	96.99	0.77	- 0.52	39.90	7405.39
Benin	2005	9.96	5.87	28.65	1.71	40.52	11.10	94.21	4.29	- 0.65	39.10	7532.26
Benin	2006	9.21	4.14	17.92	3.94	66.82	10.69	94.33	2.09	- 0.65	39.77	7829.31
Benin	2007	11.35	2.15	18.45	5.99	73.16	11.19	94.45	0.39	- 0.54	49.11	8298.00
Benin	2008	10.25	1.59	17.41	4.90	59.02	11.14	106.48	6.43	- 0.49	47.78	8704.32
Benin	2009	10.02	2.93	20.76	2.32	55.61	11.92	111.44	2.54	- 0.60	44.70	8906.20
Benin	2010	10.32	2.28	24.09	2.11	53.20	12.71	112.80	0.88	- 0.61	51.43	9094.48
Benin	2011	10.94	2.44	20.51	2.96	58.55	13.37	114.72	3.73	- 0.55	47.22	9364.02
Benin	2012	12.33	2.89	24.11	4.81	50.20	11.88	118.54	7.70	- 0.53	50.74	9814.54
Benin	2013	14.80	3.10	24.68	7.19	61.39	16.05	119.38	1.40	- 0.51	59.20	10520.35

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Benin	2014	16.85	2.46	27.58	6.36	56.56	17.55	119.68	-0.25	-0.49	65.27	11189.20
Benin	2015	13.42	2.75	31.83	1.78	65.13	16.23	121.99	0.85	-0.68	56.76	11388.16
Benin	2016	16.50	2.98	35.52	3.34	57.12	15.42	120.30	0.68	-0.63	58.99	11768.49
Benin	2017	16.90	3.01	38.81	5.67	60.68	19.19	116.29	-0.37	-0.70	61.48	12435.95
Benin	2018	19.14	5.84	48.50	6.70	50.12	21.79	111.81	0.67	-0.63	61.80	13268.81
Benin	2019	21.21	5.70	48.45	6.87	54.71	21.25	106.80	-0.40	-0.49	63.68	14179.81
Benin	2020	20.55	6.34	54.71	3.85	45.28	20.57	104.03	2.88	-0.29	44.83	14725.56
Benin	2021	22.63	16.68	59.67	7.16	43.39	22.81	105.63	1.62	-0.24	48.05	15779.24
Benin	2022	28.40	10.27	63.16	6.25	38.31	24.10	108.04	4.14	-0.17	44.38	16765.91
Benin	2023	29.88	18.54	64.41	6.35	38.50	26.56	110.44	3.39	-0.22	44.66	17831.01
Benin	2024	32.10	19.27	66.55	7.45	37.71	28.12	112.85	1.57	-0.88	40.64	19159.97
Burkina Faso	1990	9.70	7.80	26.95	-0.60	62.34	9.70	31.33	1.81	-0.85	35.42	3042.31
Burkina Faso	1991	10.93	11.38	30.95	9.07	61.31	10.93	32.29	-3.97	-0.81	33.80	3318.25
Burkina Faso	1992	10.75	8.89	31.09	0.23	51.14	10.75	32.84	0.23	-0.70	28.37	3325.97
Burkina Faso	1993	10.75	11.52	35.18	3.46	47.86	10.75	33.78	-1.44	-0.60	29.63	3441.09
Burkina Faso	1994	13.78	14.88	60.34	1.32	58.86	13.78	34.95	14.64	-0.80	39.23	3486.34
Burkina Faso	1995	12.08	15.27	53.78	5.72	48.47	12.08	36.81	6.77	-0.80	40.75	3685.64
Burkina Faso	1996	12.49	12.35	50.18	11.01	54.02	12.49	38.65	0.35	-0.93	38.18	4091.60
Burkina Faso	1997	13.50	15.27	53.48	6.32	62.89	13.50	40.48	1.56	-0.95	37.42	4350.06
Burkina Faso	1998	12.75	16.38	52.47	7.31	54.00	12.75	40.84	7.94	-0.92	40.94	4667.95
Burkina Faso	1999	12.43	17.38	47.39	7.40	42.50	20.14	41.91	17.39	-0.84	35.25	5013.16
Burkina Faso	2000	12.12	18.45	48.79	1.89	41.68	20.34	42.82	-0.82	-0.78	35.12	5107.83

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Burkina Faso	2001	11.80	13.04	47.70	6.61	42.30	20.17	44.34	3.96	- 0.88	31.66	5445.63
Burkina Faso	2002	11.49	13.66	43.60	4.35	41.43	18.06	45.13	3.06	- 0.85	31.31	5682.68
Burkina Faso	2003	11.17	12.03	37.51	7.80	44.00	16.51	47.53	1.48	- 0.81	30.37	6126.07
Burkina Faso	2004	10.85	8.94	35.97	4.48	41.91	15.08	52.18	0.09	- 0.70	35.48	6400.42
Burkina Faso	2005	10.54	7.83	33.07	8.66	50.90	16.83	56.70	3.74	- 0.60	34.17	6954.82
Burkina Faso	2006	10.22	6.03	17.52	6.25	87.12	15.27	60.38	-0.66	- 0.80	35.11	7389.71
Burkina Faso	2007	9.91	4.75	25.90	4.11	56.75	14.70	65.89	2.49	- 0.77	33.78	7693.53
Burkina Faso	2008	9.59	3.94	28.41	5.80	50.40	14.32	71.37	9.16	- 0.53	35.39	8139.75
Burkina Faso	2009	9.28	3.88	39.89	2.96	37.59	15.00	75.79	2.41	- 0.62	40.30	8380.85
Burkina Faso	2010	8.96	2.51	49.02	8.45	34.71	17.01	76.41	3.78	- 0.59	49.07	9088.72
Burkina Faso	2011	8.65	2.33	51.56	6.62	30.62	15.79	79.73	6.74	- 0.57	57.50	9690.63
Burkina Faso	2012	8.33	2.13	60.76	6.45	30.31	18.41	81.98	5.82	- 0.63	61.24	10315.93
Burkina Faso	2013	8.01	2.47	68.39	5.79	24.64	16.85	83.29	-2.13	- 0.67	64.04	10913.49
Burkina Faso	2014	7.70	2.94	77.24	4.33	18.74	14.48	84.55	-0.62	- 0.59	58.82	11385.70
Burkina Faso	2015	5.58	4.06	111.59	3.92	17.39	19.41	85.15	-2.22	- 0.69	59.09	11832.16
Burkina Faso	2016	8.50	3.68	83.61	5.96	24.66	20.62	87.41	2.60	- 0.64	57.89	12537.12
Burkina Faso	2017	7.14	3.59	94.06	6.20	22.42	21.09	89.51	1.42	- 0.64	59.27	13314.86
Burkina Faso	2018	8.32	3.16	69.05	6.60	30.05	20.75	91.50	1.07	- 0.64	60.60	14194.24
Burkina Faso	2019	6.95	3.50	59.77	5.89	38.27	22.87	89.79	0.51	- 0.78	60.41	15030.17
Burkina Faso	2020	6.90	2.96	57.11	2.01	35.68	20.37	87.70	6.47	- 0.71	60.74	15332.39
Burkina Faso	2021	7.28	2.63	55.04	6.94	31.24	17.20	87.02	0.11	- 0.77	62.42	16396.85
Burkina Faso	2022	7.55	3.44	54.94	1.63	37.65	20.68	82.26	4.64	- 0.85	67.52	16663.58

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Burkina Faso	2023	7.82	4.13	53.77	3.00	36.71	19.74	72.24	1.97	- 0.83	63.13	17163.54
Burkina Faso	2024	8.09	4.33	48.76	4.80	40.16	19.58	77.17	9.67	- 0.83	60.50	17987.35
Cabo Verde	1990	57.54	8.89	43.26	0.69	25.47	31.03	109.39	2.35	- 0.27	85.95	313.53
Cabo Verde	1991	48.50	14.51	41.82	1.40	31.28	25.52	109.92	4.79	- 0.28	80.95	317.93
Cabo Verde	1992	53.35	18.59	39.61	10.94	26.73	29.73	110.45	-4.12	- 0.35	83.94	352.70
Cabo Verde	1993	39.09	12.09	30.03	8.71	28.88	29.11	110.98	49.35	- 0.24	60.31	383.42
Cabo Verde	1994	23.92	14.03	43.30	19.18	25.72	29.64	113.44	-29.17	- 0.03	71.56	456.97
Cabo Verde	1995	17.23	10.28	44.19	14.21	27.33	28.10	115.90	-1.55	0.29	77.52	521.91
Cabo Verde	1996	13.60	7.45	40.72	11.35	25.47	26.47	118.35	-0.55	- 0.03	75.49	581.13
Cabo Verde	1997	9.36	10.45	42.41	11.12	31.28	27.75	117.81	-0.84	- 0.24	85.98	645.74
Cabo Verde	1998	3.37	16.88	47.79	12.52	26.73	29.02	117.61	-0.34	- 0.24	81.88	726.57
Cabo Verde	1999	13.24	15.88	56.30	11.22	28.88	30.30	117.62	7.61	- 0.24	80.97	808.11
Cabo Verde	2000	8.82	11.08	60.88	14.28	25.72	31.57	116.20	-7.90	- 0.24	87.52	923.55
Cabo Verde	2001	13.16	8.17	62.05	2.23	27.33	32.85	115.45	5.16	- 0.24	92.16	944.16
Cabo Verde	2002	19.88	11.87	64.03	5.25	25.47	34.12	115.54	-0.36	- 0.27	101.09	993.74
Cabo Verde	2003	20.98	7.27	55.26	4.18	31.28	35.40	114.57	4.92	- 0.28	98.77	1035.24
Cabo Verde	2004	30.02	7.93	51.19	10.20	26.73	36.67	112.93	-6.33	- 0.35	101.57	1140.80
Cabo Verde	2005	36.52	9.57	50.87	6.91	28.88	37.95	112.19	-1.79	- 0.24	104.34	1219.66
Cabo Verde	2006	48.56	6.43	49.33	7.98	25.72	39.22	112.30	4.64	- 0.03	117.82	1317.04
Cabo Verde	2007	62.78	4.98	35.88	15.17	27.33	42.68	110.93	18.57	0.29	94.21	1516.84
Cabo Verde	2008	57.73	4.25	32.74	7.04	114.10	37.35	109.97	3.71	- 0.03	90.97	1623.61
Cabo Verde	2009	54.91	5.63	40.05	-1.50	89.19	35.72	108.62	1.95	- 0.08	80.46	1599.20

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Cabo Verde	2010	43.19	5.44	50.52	1.84	79.43	40.13	107.56	0.65	- 0.10	85.55	1628.56
Cabo Verde	2011	32.51	4.74	52.77	3.92	69.00	36.41	107.48	2.75	0.08	90.56	1692.48
Cabo Verde	2012	23.38	4.55	87.45	1.08	35.49	31.03	108.39	0.68	0.05	90.65	1710.82
Cabo Verde	2013	24.15	4.55	100.21	0.63	25.47	25.52	108.02	1.42	0.04	86.17	1721.64
Cabo Verde	2014	27.58	4.76	95.05	0.70	31.28	29.73	107.54	-0.10	0.04	91.30	1733.63
Cabo Verde	2015	26.86	6.23	108.90	0.94	26.73	29.11	105.85	1.62	0.17	94.01	1749.86
Cabo Verde	2016	31.17	5.91	102.63	4.28	28.88	29.64	104.43	1.68	0.11	95.38	1824.76
Cabo Verde	2017	29.19	6.14	109.27	4.55	25.72	28.10	104.15	1.30	0.14	100.05	1907.81
Cabo Verde	2018	28.98	5.60	96.88	3.71	27.33	26.47	105.85	1.70	0.34	105.87	1978.54
Cabo Verde	2019	34.27	5.84	97.44	6.95	25.62	24.96	105.21	0.69	0.28	103.60	2116.00
Cabo Verde	2020	30.26	13.22	136.24	-20.81	22.67	30.89	103.43	0.37	0.20	78.39	1675.76
Cabo Verde	2021	31.33	11.20	121.41	7.03	23.13	28.09	103.03	1.35	0.00	77.46	1793.63
Cabo Verde	2022	30.37	11.12	108.28	15.84	21.25	23.01	102.97	6.34	0.02	96.99	2077.80
Cabo Verde	2023	34.02	13.50	98.14	4.79	21.23	20.84	102.92	3.26	0.01	95.03	2177.43
Cabo Verde	2024	33.19	15.28	86.89	7.24	20.80	18.08	102.87	1.59	0.01	96.51	2335.16
Cote d'Ivoire	1990	4.92	19.06	187.33	-1.10	26.17	4.92	66.25	-4.52	- 0.26	58.80	22747.08
Cote d'Ivoire	1991	5.13	22.35	199.24	0.04	16.85	5.13	64.16	0.66	- 0.26	57.00	22756.39
Cote d'Ivoire	1992	4.68	18.71	189.11	-0.24	18.27	4.68	63.17	-0.02	- 0.23	60.03	22700.74
Cote d'Ivoire	1993	4.73	19.37	197.03	-0.19	19.70	5.43	61.47	6.15	- 0.23	55.35	22657.04
Cote d'Ivoire	1994	4.78	22.05	230.72	0.81	21.13	5.69	62.79	46.39	- 1.01	69.84	22840.84
Cote d'Ivoire	1995	4.82	19.11	188.75	7.13	22.56	5.96	62.77	11.04	- 1.01	76.20	24468.42
Cote d'Ivoire	1996	4.87	17.42	173.96	7.73	23.99	6.22	62.56	56.28	- 0.26	52.80	26359.66

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Cote d'Ivoire	1997	4.92	12.06	141.86	9.65	25.41	7.49	63.11	3.92	- 0.26	54.01	28903.07
Cote d'Ivoire	1998	4.96	16.49	123.55	4.26	26.84	6.75	63.54	5.39	- 0.23	53.65	30135.47
Cote d'Ivoire	1999	5.01	18.58	112.60	1.17	28.27	7.01	65.07	-0.78	- 0.23	55.89	30487.10
Cote d'Ivoire	2000	5.06	17.37	123.83	-0.27	29.70	7.28	64.53	1.60	- 1.01	54.96	30406.07
Cote d'Ivoire	2001	7.35	19.63	117.14	-2.15	31.13	7.54	66.34	6.88	- 1.01	53.11	29751.12
Cote d'Ivoire	2002	8.35	1.35	107.84	-2.73	30.92	7.81	66.87	4.58	- 0.94	55.90	28938.76
Cote d'Ivoire	2003	9.35	1.04	89.53	-4.73	30.72	9.25	63.02	3.28	- 1.13	53.26	27571.15
Cote d'Ivoire	2004	10.35	1.29	89.11	3.19	30.52	10.69	59.18	-2.50	- 1.28	58.12	28449.30
Cote d'Ivoire	2005	11.35	1.35	73.06	1.00	30.31	12.13	55.33	1.22	- 1.35	62.82	28732.68
Cote d'Ivoire	2006	12.34	0.81	79.76	2.82	30.11	13.57	59.56	1.36	- 1.16	63.69	29541.67
Cote d'Ivoire	2007	13.34	2.07	73.54	1.10	29.91	15.01	59.46	3.09	- 1.22	61.43	29867.05
Cote d'Ivoire	2008	14.34	7.01	55.37	4.78	26.17	14.49	62.30	5.37	- 1.25	61.94	31295.49
Cote d'Ivoire	2009	15.34	7.30	63.55	3.60	16.85	10.71	63.08	1.21	- 1.13	66.67	32423.17
Cote d'Ivoire	2010	16.34	3.97	48.77	6.85	34.84	16.99	63.86	1.52	- 1.30	67.47	34643.52
Cote d'Ivoire	2011	17.34	3.12	52.36	-5.37	10.56	5.53	73.56	5.71	- 1.18	64.72	32783.01
Cote d'Ivoire	2012	18.33	2.45	36.80	7.62	48.39	17.81	78.29	-0.40	- 1.11	70.30	35281.21
Cote d'Ivoire	2013	19.33	4.02	33.00	10.76	56.46	18.63	80.75	2.88	- 0.94	58.35	39077.54
Cote d'Ivoire	2014	18.33	4.26	20.45	9.37	97.03	19.85	83.75	4.41	- 0.86	53.68	42739.89
Cote d'Ivoire	2015	18.58	3.56	25.41	7.19	92.04	18.58	85.26	4.78	- 0.75	52.72	45815.01
Cote d'Ivoire	2016	18.00	9.15	24.20	7.17	102.44	18.00	87.97	-1.18	- 0.74	47.57	49101.21
Cote d'Ivoire	2017	16.18	14.19	26.38	7.41	85.66	16.18	88.21	-1.04	- 0.81	48.66	52739.98
Cote d'Ivoire	2018	16.53	9.45	28.46	4.84	79.48	16.53	88.21	1.68	- 0.65	46.04	55294.25

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Cote d'Ivoire	2019	17.27	18.58	33.78	6.72	67.88	17.27	88.47	1.98	- 0.56	44.66	59010.79
Cote d'Ivoire	2020	14.94	15.16	41.04	0.70	58.50	14.94	88.63	1.83	- 0.54	41.94	59423.70
Cote d'Ivoire	2021	15.38	8.89	42.20	7.06	58.14	15.38	85.83	3.93	- 0.54	45.11	63620.99
Cote d'Ivoire	2022	14.06	10.40	46.08	6.40	67.45	14.06	86.45	3.00	- 0.33	52.87	67692.66
Cote d'Ivoire	2023	12.90	17.79	47.48	6.60	58.47	12.90	91.81	3.90	- 0.36	48.82	72160.38
Cote d'Ivoire	2024	12.42	20.03	48.83	6.02	50.23	12.42	93.30	1.68	- 0.36	51.26	76504.10
Gambia	1990	14.91	21.79	126.59	3.56	33.42	14.91	50.56	11.96	- 0.62	131.49	694.74
Gambia	1991	17.65	13.22	57.17	3.11	32.22	15.10	50.98	134.04	- 0.62	64.10	716.33
Gambia	1992	23.31	12.36	57.99	3.38	35.04	15.29	50.97	1.95	- 0.48	67.44	740.53
Gambia	1993	24.83	11.14	57.87	3.01	34.87	15.48	52.16	5.14	- 0.48	64.63	762.83
Gambia	1994	23.17	13.39	58.06	0.15	34.23	15.67	54.16	3.78	- 0.51	49.92	764.01
Gambia	1995	24.91	15.09	55.29	0.88	34.68	15.85	55.79	3.96	- 0.51	59.28	770.75
Gambia	1996	22.60	12.06	54.32	2.22	32.18	16.04	58.92	8.37	- 0.62	50.95	787.89
Gambia	1997	22.62	11.29	54.45	4.90	28.47	16.23	60.69	-5.97	- 0.62	48.32	826.49
Gambia	1998	23.15	12.10	56.38	3.50	26.28	16.42	61.96	5.41	- 0.48	53.87	855.42
Gambia	1999	23.58	12.75	60.03	6.40	24.92	16.61	71.79	-2.44	- 0.48	52.41	910.17
Gambia	2000	22.33	12.95	65.12	5.50	24.28	16.80	70.99	2.22	- 0.51	56.36	960.23
Gambia	2001	21.44	13.35	75.36	5.80	24.03	16.98	71.41	1.81	- 0.51	46.93	1015.92
Gambia	2002	18.31	14.19	107.06	-3.25	23.77	17.17	69.33	10.39	- 0.62	59.64	982.90
Gambia	2003	9.22	14.50	138.56	6.87	23.52	17.36	72.40	12.89	- 0.42	68.86	1050.43
Gambia	2004	12.33	20.49	72.21	7.05	23.55	17.00	73.58	94.19	- 0.59	49.93	1124.48
Gambia	2005	14.85	14.60	65.84	-2.35	22.98	15.13	72.19	4.11	- 0.72	50.02	1098.04

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Gambia	2006	17.00	14.29	68.93	-0.56	25.34	17.47	71.48	1.30	- 0.73	50.37	1091.94
Gambia	2007	20.67	12.99	55.10	3.04	22.09	12.17	73.95	4.41	- 0.61	44.29	1125.17
Gambia	2008	29.78	5.11	25.47	6.26	33.42	8.51	73.56	2.48	- 0.77	39.09	1195.56
Gambia	2009	42.21	6.73	37.34	6.67	32.22	12.03	73.41	4.51	- 0.74	41.78	1275.25
Gambia	2010	37.08	8.78	35.93	5.91	35.04	12.59	73.46	5.64	- 0.75	41.01	1350.60
Gambia	2011	43.27	10.52	37.44	-8.13	34.87	13.06	72.19	4.57	- 0.67	42.64	1240.79
Gambia	2012	41.77	9.61	40.81	5.24	34.23	13.97	75.46	3.85	- 0.58	47.70	1305.82
Gambia	2013	36.12	11.42	43.31	2.87	34.68	9.64	77.53	5.93	- 0.74	45.46	1343.34
Gambia	2014	28.53	17.88	46.52	-1.41	36.85	11.76	80.67	5.21	- 0.72	58.26	1324.43
Gambia	2015	18.95	18.56	43.57	4.06	46.71	15.47	83.68	9.72	- 0.99	44.52	1378.18
Gambia	2016	14.06	22.93	42.77	1.94	58.96	17.79	85.50	7.82	- 0.94	38.11	1404.96
Gambia	2017	22.52	15.34	51.10	4.82	48.07	16.30	88.69	3.92	- 0.75	55.73	1472.72
Gambia	2018	24.65	13.01	47.40	7.23	47.62	14.99	91.48	6.95	- 0.75	64.81	1579.26
Gambia	2019	30.17	12.52	47.76	6.22	56.00	18.03	95.10	6.25	- 0.77	56.00	1677.53
Gambia	2020	40.15	22.01	54.00	0.59	71.42	26.39	96.88	2.19	- 0.79	47.40	1687.45
Gambia	2021	58.65	28.71	56.66	5.26	55.89	20.01	96.32	7.38	- 0.68	42.10	1776.14
Gambia	2022	48.17	14.13	54.27	5.49	55.22	19.01	97.28	8.82	- 0.65	44.72	1873.70
Gambia	2023	43.55	7.45	55.80	5.92	53.51	17.74	98.74	13.72	- 0.59	39.96	1984.57
Gambia	2024	46.26	10.37	66.36	5.55	48.90	19.37	98.61	5.80	- 0.59	42.17	2094.74
Ghana	1990	7.97	36.45	67.18	3.33	46.73	6.92	65.12	31.17	- 0.12	42.73	13175.55
Ghana	1991	14.71	25.58	67.58	5.28	42.44	7.53	72.67	20.04	- 0.12	42.49	13871.46
Ghana	1992	9.13	25.88	71.44	3.88	42.32	2.45	73.69	11.15	- 0.22	45.99	14409.59

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Ghana	1993	10.58	23.20	83.44	4.85	43.94	12.68	72.83	31.76	- 0.22	56.67	15108.45
Ghana	1994	12.60	24.33	102.51	3.30	47.44	9.28	73.93	30.13	0.03	62.02	15607.03
Ghana	1995	13.54	23.27	93.75	4.11	46.37	7.08	72.99	43.05	0.03	57.42	16248.86
Ghana	1996	14.44	25.07	94.90	4.60	40.12	6.99	73.29	39.84	- 0.12	72.20	16996.71
Ghana	1997	9.73	30.38	93.93	4.20	35.14	11.39	76.41	19.46	- 0.12	85.40	17709.95
Ghana	1998	6.55	20.54	95.07	4.70	38.33	11.06	79.53	17.05	- 0.22	80.60	18542.39
Ghana	1999	7.53	18.93	94.04	4.40	27.58	10.71	75.29	13.97	- 0.22	81.71	19358.25
Ghana	2000	4.58	16.96	139.44	3.70	35.14	12.70	79.94	27.23	0.03	116.05	20074.51
Ghana	2001	5.48	11.34	131.77	4.00	38.33	16.71	75.42	34.82	0.03	110.05	20877.49
Ghana	2002	8.33	7.26	126.56	4.50	27.58	9.19	78.85	22.82	- 0.09	97.49	21816.97
Ghana	2003	17.71	7.13	111.16	5.20	26.12	14.00	76.31	28.70	- 0.29	97.29	22951.46
Ghana	2004	24.16	7.47	83.42	5.60	22.34	16.00	80.23	14.35	- 0.35	99.67	24236.74
Ghana	2005	23.44	7.93	76.24	5.90	28.55	17.00	86.70	14.96	- 0.21	98.17	25666.71
Ghana	2006	37.44	5.02	29.83	6.40	28.22	22.35	91.23	84.68	0.03	64.52	27309.35
Ghana	2007	26.69	3.36	33.67	4.35	19.08	20.46	96.00	16.10	0.09	65.35	28496.44
Ghana	2008	20.02	2.86	35.22	9.15	10.61	19.37	100.84	19.41	- 0.03	69.51	31103.81
Ghana	2009	28.48	2.89	49.94	4.84	8.58	29.37	99.08	15.67	- 0.12	71.59	32610.63
Ghana	2010	28.68	2.84	56.80	7.90	54.68	31.06	99.31	16.60	- 0.10	75.38	35186.78
Ghana	2011	27.74	2.20	55.93	14.05	57.66	32.25	99.41	13.91	- 0.09	86.30	40129.50
Ghana	2012	25.20	2.70	59.10	9.29	72.30	42.73	102.07	15.21	- 0.09	93.17	43858.66
Ghana	2013	19.60	3.60	46.66	7.31	45.85	21.39	101.09	54.01	- 0.13	60.76	47065.83
Ghana	2014	19.51	4.87	55.03	2.86	46.73	25.71	99.56	23.94	- 0.31	63.84	48410.14
Ghana	2015	18.34	5.90	65.29	2.12	42.44	27.71	103.21	13.25	- 0.32	76.52	49436.81
Ghana	2016	16.83	8.84	64.63	3.37	42.32	27.35	101.75	15.75	- 0.25	67.88	51104.54

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Ghana	2017	20.80	8.98	58.74	8.13	43.94	25.81	100.48	10.68	- 0.19	70.55	55258.77
Ghana	2018	17.93	10.89	54.65	6.20	47.44	25.92	98.68	10.57	- 0.32	67.96	58684.86
Ghana	2019	23.14	8.97	49.87	6.51	46.37	23.12	99.88	8.48	- 0.29	76.82	62503.94
Ghana	2020	19.57	11.15	56.96	0.51	40.12	22.85	98.40	9.37	- 0.20	66.58	62825.17
Ghana	2021	21.29	12.47	60.44	5.08	35.14	21.24	99.45	12.11	- 0.18	62.71	66014.47
Ghana	2022	11.94	7.93	60.02	3.80	38.33	23.01	98.23	28.18	- 0.11	70.12	68526.22
Ghana	2023	8.69	8.74	55.30	3.14	27.58	15.25	97.01	40.11	- 0.09	64.39	70678.01
Ghana	2024	9.29	9.37	46.92	5.59	35.96	16.87	99.79	24.70	- 0.09	69.79	74629.23
Guinea	1990	3.28	19.74	64.99	4.32	39.45	6.67	32.31	17.28	- 1.17	44.25	3528.43
Guinea	1991	5.67	15.50	60.51	2.61	38.19	6.83	34.61	25.82	- 1.17	41.78	3620.64
Guinea	1992	3.80	12.12	55.82	3.27	47.99	6.72	34.54	26.22	- 0.85	34.94	3739.07
Guinea	1993	4.81	11.03	58.95	5.04	37.88	7.25	39.37	0.67	- 0.85	37.45	3927.67
Guinea	1994	2.89	14.82	62.59	3.97	41.45	7.72	42.43	1.43	- 0.88	33.34	4083.61
Guinea	1995	2.71	24.13	60.27	4.61	41.18	9.60	47.45	5.95	- 0.88	31.30	4271.77
Guinea	1996	2.72	14.64	57.78	4.46	40.91	9.60	49.14	1.55	- 1.17	29.86	4462.35
Guinea	1997	3.49	19.92	64.47	5.18	40.64	9.60	52.89	1.43	- 1.17	29.09	4693.57
Guinea	1998	6.68	18.53	69.26	3.64	40.38	9.60	53.23	3.32	- 0.85	33.06	4864.61
Guinea	1999	6.23	16.44	64.51	3.81	40.11	9.60	55.44	4.23	- 0.85	32.70	5050.05
Guinea	2000	5.44	20.74	71.68	2.50	39.84	9.98	58.38	6.30	- 0.88	36.68	5176.46
Guinea	2001	7.17	13.29	72.06	3.66	39.57	7.05	61.13	1.75	- 0.88	40.19	5365.83
Guinea	2002	8.33	12.94	74.08	5.16	39.30	6.81	69.44	0.43	- 0.96	38.03	5642.96
Guinea	2003	8.88	14.75	66.38	1.25	39.03	10.89	72.67	15.91	- 0.77	35.08	5713.41

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Guinea	2004	3.48	21.25	63.87	2.34	39.76	11.02	75.54	16.52	- 0.91	34.60	5847.12
Guinea	2005	3.13	18.06	76.94	3.00	39.49	10.81	77.49	27.39	- 1.07	47.94	6022.37
Guinea	2006	1.26	14.86	75.53	1.19	39.45	29.80	79.18	37.58	- 1.27	69.39	6094.01
Guinea	2007	1.42	12.10	53.12	6.82	38.19	20.29	81.36	13.62	- 1.26	71.12	6509.47
Guinea	2008	1.74	8.69	46.50	4.13	47.99	22.32	82.75	16.71	- 1.18	64.18	6778.51
Guinea	2009	12.84	10.45	49.26	-1.12	37.88	18.66	82.91	1.77	- 1.04	69.82	6702.41
Guinea	2010	9.31	5.15	47.80	4.81	41.45	19.81	85.62	16.10	- 1.12	73.55	7025.02
Guinea	2011	29.55	11.65	48.18	5.61	53.71	25.88	89.37	9.00	- 1.14	85.95	7419.27
Guinea	2012	57.00	6.00	17.81	5.92	150.27	26.76	91.49	11.52	- 1.26	86.67	7858.14
Guinea	2013	50.87	1.92	21.06	3.95	105.93	22.30	93.53	4.33	- 1.17	80.43	8168.20
Guinea	2014	53.44	2.39	21.49	3.70	102.67	22.07	95.15	2.62	- 1.24	76.77	8470.14
Guinea	2015	32.10	4.01	23.56	3.83	102.54	24.16	94.25	2.97	- 1.19	72.44	8794.20
Guinea	2016	37.91	2.27	26.10	10.82	222.27	58.02	93.11	5.67	- 1.07	111.84	9745.79
Guinea	2017	41.02	1.69	23.26	10.30	91.79	21.35	95.37	10.36	- 1.09	101.25	10749.61
Guinea	2018	47.95	2.65	22.19	6.36	89.69	19.90	97.64	7.06	- 1.03	88.98	11433.12
Guinea	2019	38.96	2.55	26.56	5.62	69.00	18.33	99.90	9.40	- 0.86	78.42	12075.31
Guinea	2020	36.41	1.52	29.53	4.70	89.44	26.41	100.47	4.25	- 0.97	115.77	12643.40
Guinea	2021	47.03	1.49	28.34	5.58	51.59	14.62	101.05	11.99	- 0.95	115.20	13349.20
Guinea	2022	43.02	2.23	25.06	3.97	44.87	11.25	101.63	2.81	- 0.91	94.17	13879.48
Guinea	2023	36.55	2.22	25.22	5.54	66.96	16.89	102.21	6.09	- 0.91	95.83	14648.65
Guinea	2024	38.17	2.38	23.20	5.35	97.46	22.61	102.78	6.81	- 0.91	97.78	15432.36
Guinea-Bissau	1990	5.47	22.10	113.99	6.10	12.23	20.56	47.25	30.25	- 1.41	46.97	554.18

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Guinea-Bissau	1991	1.08	64.69	118.09	5.10	12.35	17.88	47.00	67.89	-1.41	47.77	582.45
Guinea-Bissau	1992	2.23	34.69	136.41	1.10	14.47	20.59	48.13	64.98	-1.29	55.01	588.85
Guinea-Bissau	1993	4.94	13.95	134.60	2.10	15.44	21.62	46.15	49.06	-1.29	41.59	601.22
Guinea-Bissau	1994	3.29	19.14	145.43	3.20	10.61	15.09	50.98	23.25	-0.97	50.76	620.46
Guinea-Bissau	1995	2.53	51.08	140.33	4.40	11.26	16.75	54.65	44.73	-0.97	46.81	647.76
Guinea-Bissau	1996	3.59	37.29	137.21	11.60	11.90	18.22	56.78	39.23	-1.41	42.36	722.90
Guinea-Bissau	1997	3.12	14.46	135.17	6.50	20.73	28.02	61.45	34.14	-1.41	69.49	769.89
Guinea-Bissau	1998	3.95	10.38	168.75	-22.45	6.87	11.59	64.95	10.34	-1.29	43.50	597.08
Guinea-Bissau	1999	3.68	8.84	166.98	16.82	7.44	12.43	68.46	-12.42	-1.29	49.10	697.48
Guinea-Bissau	2000	4.18	7.10	251.25	1.10	12.23	30.73	75.50	-22.93	-0.97	52.74	705.15
Guinea-Bissau	2001	5.27	6.42	226.23	4.79	12.35	27.94	89.76	3.76	-0.97	47.58	738.90
Guinea-Bissau	2002	11.94	5.43	213.63	3.65	14.47	30.91	104.02	3.37	-1.06	39.68	765.90
Guinea-Bissau	2003	18.94	10.54	195.21	-0.29	15.44	30.13	108.29	-0.57	-1.19	38.03	763.71
Guinea-Bissau	2004	13.53	11.59	193.80	1.17	10.61	20.56	107.98	-5.48	-1.35	43.19	772.66
Guinea-Bissau	2005	6.22	6.58	161.76	6.56	11.05	17.88	114.70	3.11	-1.37	45.78	823.35
Guinea-Bissau	2006	-0.21	12.50	166.78	2.67	12.35	20.59	115.66	-4.24	-1.13	48.76	845.30
Guinea-Bissau	2007	8.91	7.35	146.35	2.56	14.77	21.62	116.61	5.99	-1.10	46.24	866.94
Guinea-Bissau	2008	4.48	8.64	116.67	4.52	12.93	15.09	117.57	12.76	-1.06	45.14	906.16
Guinea-Bissau	2009	6.78	12.93	126.80	2.45	13.21	16.75	115.52	-3.83	-1.05	43.60	928.35
Guinea-Bissau	2010	7.40	9.76	114.58	5.61	15.90	18.22	113.44	5.22	-1.07	43.51	980.38
Guinea-Bissau	2011	9.56	1.98	22.91	8.09	59.46	13.62	113.59	8.45	-1.08	48.62	1059.65
Guinea-Bissau	2012	5.17	3.97	27.23	-1.71	66.21	18.03	113.74	-0.03	-1.29	44.13	1041.50

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Guinea-Bissau	2013	8.10	1.21	28.28	3.26	60.07	16.99	113.89	-0.93	-1.46	39.96	1075.41
Guinea-Bissau	2014	17.59	1.53	33.36	0.96	52.73	17.59	114.05	1.30	-1.64	46.87	1085.78
Guinea-Bissau	2015	16.79	1.41	48.99	6.13	29.98	14.69	114.20	14.52	-1.65	54.37	1152.38
Guinea-Bissau	2016	15.85	2.11	47.17	5.43	34.82	16.43	114.35	2.72	-1.71	54.30	1214.99
Guinea-Bissau	2017	19.40	4.03	50.43	4.66	28.65	10.77	114.51	10.53	-1.81	56.91	1271.65
Guinea-Bissau	2018	16.07	4.65	54.78	3.76	10.97	12.87	114.66	-2.53	-1.52	55.02	1319.49
Guinea-Bissau	2019	14.47	6.04	55.84	5.33	16.50	19.41	114.81	2.86	-1.56	49.94	1389.78
Guinea-Bissau	2020	23.55	11.62	65.40	2.89	17.93	18.06	114.96	1.99	-1.47	42.89	1429.96
Guinea-Bissau	2021	20.56	12.64	66.36	5.05	14.86	15.14	115.12	2.63	-1.45	44.81	1502.19
Guinea-Bissau	2022	14.40	16.48	67.67	5.53	18.22	15.32	115.27	3.88	-1.49	45.76	1585.26
Guinea-Bissau	2023	18.04	18.83	68.07	5.83	18.44	15.63	115.42	5.14	-1.43	40.47	1677.64
Guinea-Bissau	2024	18.94	19.38	67.11	4.15	23.43	18.30	115.57	0.08	-1.43	38.81	1747.20
Mali	1990	22.00	14.66	92.57	-5.29	13.22	12.23	24.68	3.62	-1.00	38.46	5413.45
Mali	1991	17.71	9.18	95.51	12.66	11.08	10.58	25.15	1.26	-1.00	36.15	6098.64
Mali	1992	26.30	11.94	102.73	-5.06	11.66	11.98	26.70	1.71	-1.17	37.97	5790.10
Mali	1993	18.67	16.08	102.93	4.35	10.54	10.85	29.94	1.18	-1.17	35.78	6041.87
Mali	1994	17.47	21.14	130.89	5.59	13.27	17.37	32.93	35.75	-1.06	44.06	6379.71
Mali	1995	20.38	15.79	111.25	0.73	14.50	16.14	35.42	13.37	-1.06	45.08	6426.20
Mali	1996	17.38	20.76	110.11	6.37	12.46	13.72	38.65	6.91	-1.00	38.99	6835.27
Mali	1997	20.17	10.62	119.23	4.12	14.12	16.84	43.12	-0.03	-1.00	45.05	7116.97
Mali	1998	21.81	11.07	111.68	6.65	13.42	14.99	46.85	8.08	-1.17	39.83	7590.48
Mali	1999	21.78	13.85	94.75	4.71	14.66	13.89	50.97	4.68	-1.17	40.54	7947.68

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Mali	2000	20.37	12.88	101.70	-0.74	15.63	15.90	52.94	0.06	-1.06	44.67	7889.19
Mali	2001	21.09	8.71	87.16	15.81	21.30	18.57	57.45	4.29	-1.06	49.32	9136.15
Mali	2002	21.82	7.32	75.66	3.04	18.56	14.04	61.17	3.58	-0.70	46.35	9413.55
Mali	2003	22.55	6.30	67.17	9.80	25.89	17.39	63.12	-8.16	-0.72	46.89	10335.81
Mali	2004	22.00	7.81	47.31	1.48	31.35	14.83	66.45	3.68	-0.79	44.01	10488.50
Mali	2005	17.71	6.66	40.75	2.54	31.94	13.01	69.80	11.69	-0.72	44.91	10754.74
Mali	2006	26.30	4.26	18.47	3.69	80.75	14.91	72.47	5.63	-0.76	49.02	11151.55
Mali	2007	18.67	3.14	18.35	1.76	77.26	14.18	74.73	6.34	-0.76	46.90	11347.82
Mali	2008	17.47	2.59	17.07	3.64	90.17	15.39	76.57	6.26	-0.79	53.64	11760.73
Mali	2009	20.38	3.07	18.09	5.45	103.81	18.78	77.82	6.04	-0.80	40.54	12402.25
Mali	2010	17.38	2.74	19.09	5.58	113.57	21.67	78.28	4.21	-0.85	48.82	13093.90
Mali	2011	20.17	2.41	19.33	2.94	108.55	20.98	78.67	12.49	-0.80	43.18	13478.25
Mali	2012	19.43	1.75	21.27	-1.07	90.18	19.19	75.39	4.85	-0.98	49.43	13333.71
Mali	2013	21.81	3.24	22.72	3.29	85.55	19.43	70.87	-0.32	-0.90	54.60	13772.48
Mali	2014	21.78	3.25	21.27	6.50	99.19	21.10	71.82	1.82	-1.09	51.08	14668.06
Mali	2015	20.37	3.47	24.51	6.24	101.57	24.89	70.52	2.82	-0.96	53.58	15583.18
Mali	2016	21.09	3.90	23.51	6.01	116.42	27.37	71.87	1.60	-1.03	53.61	16518.96
Mali	2017	19.26	4.55	24.26	5.38	102.39	24.84	74.67	1.67	-0.96	49.49	17406.95
Mali	2018	20.19	4.10	23.14	4.87	97.26	22.51	70.37	1.48	-1.03	50.70	18254.29
Mali	2019	20.01	4.92	25.26	5.00	100.97	25.51	71.04	1.00	-1.10	54.00	19167.00
Mali	2020	18.59	4.80	29.13	-1.17	79.12	23.04	71.70	0.47	-1.19	56.04	18942.92
Mali	2021	17.22	5.25	28.77	3.10	87.41	25.15	72.37	3.83	-1.25	56.72	19530.33

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Mali	2022	15.38	5.07	28.87	3.70	86.86	25.08	73.04	6.30	- 1.15	61.56	20253.58
Mali	2023	14.82	5.62	27.31	4.73	85.21	23.27	72.80	2.22	- 1.14	57.53	21210.64
Mali	2024	15.13	5.93	24.94	4.99	82.48	20.57	72.56	2.81	- 1.14	49.90	22269.53
Niger	1990	6.88	6.59	49.70	-1.31	27.75	13.79	25.96	39.36	- 1.17	35.62	3860.67
Niger	1991	8.25	12.27	46.12	-0.44	29.62	13.66	26.91	-2.64	- 1.17	30.34	3843.71
Niger	1992	6.10	5.41	45.41	2.00	24.71	11.22	26.23	-5.20	- 1.10	28.71	3920.61
Niger	1993	5.45	15.97	51.20	0.32	19.01	9.73	26.59	-3.87	- 1.10	26.10	3933.22
Niger	1994	9.54	12.61	79.22	1.85	35.09	27.80	27.53	22.21	- 1.15	33.64	4006.17
Niger	1995	8.51	7.80	69.09	2.46	32.12	22.19	27.81	4.25	- 1.15	34.78	4104.61
Niger	1996	13.55	7.07	63.25	0.10	41.00	25.93	27.90	6.97	- 1.17	36.54	4108.74
Niger	1997	11.54	14.32	67.79	1.53	37.22	25.23	28.53	6.99	- 1.17	33.17	4171.50
Niger	1998	13.44	9.43	61.54	9.97	46.83	28.82	28.69	6.08	- 1.10	35.02	4587.51
Niger	1999	10.56	8.67	65.04	-0.22	36.63	23.82	30.48	0.38	- 1.10	31.38	4577.43
Niger	2000	13.45	6.80	73.66	-1.21	37.85	27.88	32.14	3.18	- 1.15	34.71	4522.12
Niger	2001	15.25	6.11	63.75	7.27	49.92	31.82	35.05	5.01	- 1.15	33.01	4850.79
Niger	2002	14.59	5.00	63.22	4.92	49.20	31.10	39.01	2.57	- 0.82	30.83	5089.38
Niger	2003	14.01	6.68	60.47	2.17	39.09	23.63	42.11	-0.19	- 0.65	33.38	5199.85
Niger	2004	12.97	5.74	49.49	0.36	43.03	21.29	46.04	0.39	- 0.77	36.96	5218.76
Niger	2005	20.21	5.35	42.12	7.33	61.07	25.72	47.77	8.58	- 0.79	38.35	5601.40
Niger	2006	20.67	25.14	15.06	5.93	167.48	25.22	48.25	1.50	- 0.83	36.53	5933.62
Niger	2007	18.64	2.09	17.97	3.14	118.44	21.29	50.50	7.04	- 0.80	35.50	6120.10
Niger	2008	21.69	1.56	12.33	7.73	208.55	25.71	54.23	10.13	- 0.73	39.71	6593.27

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Niger	2009	16.47	2.49	16.10	1.96	169.99	27.37	57.97	4.19	- 0.71	49.51	6722.66
Niger	2010	24.29	1.34	18.52	8.58	166.84	30.89	61.60	3.48	- 0.70	51.95	7299.35
Niger	2011	22.18	2.13	23.73	2.36	115.83	27.48	65.25	3.97	- 0.65	50.25	7471.45
Niger	2012	23.31	2.43	18.30	10.55	140.73	25.76	67.15	5.31	- 0.70	45.09	8259.61
Niger	2013	24.19	4.02	18.65	5.32	134.35	25.06	68.05	-0.37	- 0.73	46.30	8698.61
Niger	2014	24.97	6.14	17.64	6.64	148.17	26.14	68.69	-0.41	- 0.71	45.74	9276.39
Niger	2015	24.17	6.17	21.93	4.39	147.54	32.36	70.89	2.25	- 0.72	44.73	9683.87
Niger	2016	21.30	8.30	23.40	5.74	114.67	26.83	72.85	1.79	- 0.69	36.49	10239.81
Niger	2017	20.44	8.65	26.17	5.01	94.20	24.65	74.38	0.37	- 0.75	39.07	10752.35
Niger	2018	22.93	7.92	23.69	7.21	107.44	25.46	69.38	2.40	- 0.83	37.54	11527.74
Niger	2019	25.01	9.29	26.59	5.94	106.43	28.30	66.77	-0.02	- 0.84	37.10	12212.48
Niger	2020	13.06	13.26	34.58	3.55	76.23	26.36	65.94	1.16	- 0.66	35.51	12646.10
Niger	2021	16.99	13.57	32.70	1.38	71.82	23.49	65.86	3.12	- 0.64	37.02	12821.07
Niger	2022	21.86	18.09	38.61	11.90	76.42	29.51	66.25	4.02	- 0.63	52.81	14346.77
Niger	2023	24.14	14.11	34.02	1.67	76.36	25.98	66.88	3.49	- 0.64	46.48	14586.03
Niger	2024	24.93	17.95	27.51	10.30	97.86	26.92	64.65	7.87	- 0.64	49.98	16088.39
Nigeria	1990	12.34	22.26	60.37	11.78	6.58	53.12	83.10	6.67	- 0.92	52.18	153178.75
Nigeria	1991	13.95	21.39	55.66	0.36	7.92	48.40	82.32	18.86	- 0.92	51.28	153727.67
Nigeria	1992	4.12	18.15	60.07	4.63	35.01	43.77	86.74	46.75	- 1.12	50.24	160847.10
Nigeria	1993	5.34	12.84	50.36	-2.04	44.29	44.48	91.30	41.64	- 1.12	55.21	157573.67
Nigeria	1994	4.98	18.32	36.68	-1.81	7.20	42.07	91.54	43.30	- 0.97	49.10	154713.82
Nigeria	1995	5.01	14.05	23.12	-0.07	44.50	37.21	87.45	75.40	- 0.97	48.02	154601.40

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Nigeria	1996	13.78	12.69	15.11	4.20	18.14	36.58	76.80	26.49	- 0.92	48.25	161088.36
Nigeria	1997	27.33	8.38	13.49	2.94	8.25	38.42	85.38	5.06	- 0.92	49.69	165819.68
Nigeria	1998	24.08	12.52	13.17	2.58	8.91	40.55	88.45	6.01	- 1.12	50.14	170099.91
Nigeria	1999	19.42	6.97	47.01	0.58	47.51	38.28	91.58	13.43	- 1.12	57.29	171093.51
Nigeria	2000	30.13	8.21	43.86	5.02	33.00	34.05	95.51	22.67	- 0.97	49.93	179675.45
Nigeria	2001	30.44	12.46	38.57	5.92	30.94	30.04	92.52	10.08	- 0.97	52.36	190308.08
Nigeria	2002	20.57	7.83	34.19	15.33	51.20	26.77	93.70	21.11	- 1.02	48.85	219480.70
Nigeria	2003	17.72	5.93	33.03	7.35	59.97	28.37	94.81	9.80	- 0.92	49.04	235606.37
Nigeria	2004	37.59	4.47	26.98	9.25	28.84	26.06	95.78	22.37	- 0.94	48.30	257401.28
Nigeria	2005	85.08	15.41	11.66	6.44	9.53	24.97	96.31	19.86	- 0.90	48.30	273974.10
Nigeria	2006	244.32	10.98	1.49	6.06	1.07	26.17	96.66	23.86	- 0.97	46.71	290575.36
Nigeria	2007	266.40	1.44	1.27	6.59	0.85	20.18	88.07	7.10	- 1.03	47.07	309727.56
Nigeria	2008	262.49	0.48	6.30	6.76	0.99	18.86	79.27	7.92	- 0.99	48.11	330679.00
Nigeria	2009	189.59	0.73	8.11	8.04	1.39	21.12	80.31	0.69	- 1.20	47.94	357255.42
Nigeria	2010	114.26	0.38	8.39	8.01	2.13	16.56	79.83	16.34	- 1.17	47.56	385856.06
Nigeria	2011	98.72	0.34	8.72	5.31	2.75	15.53	84.68	9.78	- 1.10	47.40	406337.01
Nigeria	2012	114.49	0.25	8.89	4.23	2.34	14.16	85.91	9.95	- 1.00	46.34	423525.32
Nigeria	2013	102.51	0.40	8.62	6.67	3.24	14.17	87.83	4.96	- 1.00	46.40	451780.11
Nigeria	2014	75.14	0.31	8.41	6.31	4.76	15.08	84.12	4.66	- 1.19	45.09	480286.16
Nigeria	2015	64.43	0.80	9.37	2.65	7.47	14.83	75.57	2.86	- 1.00	45.24	493026.68
Nigeria	2016	64.07	0.90	10.98	-1.62	12.89	14.72	78.88	9.54	- 1.12	45.71	485055.09
Nigeria	2017	62.17	0.66	17.73	0.81	14.71	14.72	79.37	11.12	- 1.04	45.62	488964.08

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Nigeria	2018	61.69	2.11	16.92	1.92	18.22	19.02	81.63	10.23	-1.12	46.05	498365.67
Nigeria	2019	47.13	1.96	17.48	2.21	23.69	24.63	82.95	55.44	-1.21	46.67	509371.73
Nigeria	2020	41.93	3.82	20.49	-6.37	34.83	26.74	84.37	11.25	-1.14	46.63	476930.36
Nigeria	2021	42.05	5.09	22.27	1.11	39.41	33.11	83.81	12.64	-1.03	46.91	482220.72
Nigeria	2022	34.51	4.30	22.19	4.32	51.09	32.23	86.39	8.05	-1.04	47.39	503047.01
Nigeria	2023	31.26	7.57	29.04	3.33	115.06	35.36	89.59	10.82	-0.85	48.45	519782.61
Nigeria	2024	35.50	7.93	60.04	4.06	107.24	36.48	90.04	14.09	-0.85	53.83	540898.07
Senegal	1990	11.13	18.28	52.13	-0.75	27.44	14.31	51.94	-0.17	0.08	44.79	7649.32
Senegal	1991	11.16	20.05	50.84	2.66	32.85	16.70	52.40	-0.92	0.08	42.18	7852.79
Senegal	1992	11.29	12.54	48.24	1.32	34.43	16.61	52.26	-0.83	-0.15	41.46	7956.46
Senegal	1993	11.58	8.69	53.55	1.36	30.55	16.36	51.88	0.08	-0.15	38.77	8064.69
Senegal	1994	14.37	16.33	75.58	-0.05	18.23	13.78	53.12	34.04	-0.17	54.74	8060.86
Senegal	1995	11.85	16.47	63.45	5.47	23.04	14.62	54.18	7.11	-0.17	52.73	8501.67
Senegal	1996	12.66	19.39	58.37	2.02	24.03	14.02	57.84	4.16	0.08	46.27	8673.40
Senegal	1997	11.51	17.50	63.75	3.05	31.64	20.17	62.00	1.98	0.08	47.24	8937.56
Senegal	1998	14.39	19.81	63.52	5.90	29.85	18.96	65.54	2.78	-0.15	48.10	9464.74
Senegal	1999	13.13	14.25	61.55	6.28	37.41	23.03	64.97	-0.53	-0.15	49.49	10059.44
Senegal	2000	15.36	14.74	61.69	3.89	39.06	24.10	68.49	1.31	-0.17	48.68	10450.47
Senegal	2001	14.79	12.60	57.56	4.31	55.05	31.69	70.57	6.99	-0.17	49.72	10900.98
Senegal	2002	15.67	12.71	59.66	0.07	38.07	22.71	71.61	1.90	-0.05	53.14	10908.46
Senegal	2003	12.70	11.51	50.70	5.59	47.83	24.25	75.92	-0.92	-0.39	50.82	11518.68
Senegal	2004	12.24	13.46	39.45	4.64	53.12	20.95	78.72	-0.13	-0.34	53.66	12053.53
Senegal	2005	13.14	6.36	35.36	4.31	63.80	22.56	80.67	4.72	-0.25	54.90	12573.06
Senegal	2006	14.93	6.18	16.64	2.33	121.65	20.24	80.50	2.89	-0.37	54.14	12866.11

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Senegal	2007	14.73	3.50	18.57	2.83	102.76	19.08	83.90	6.59	- 0.49	59.27	13229.85
Senegal	2008	16.49	3.26	16.96	3.70	88.60	15.02	84.41	8.22	- 0.22	62.76	13719.77
Senegal	2009	13.70	4.21	23.28	2.75	66.38	15.46	84.01	-1.69	- 0.55	52.31	14097.36
Senegal	2010	12.04	4.37	29.11	3.39	56.16	16.35	83.85	1.60	- 0.59	52.46	14575.38
Senegal	2011	15.00	6.17	33.09	1.33	47.22	15.63	86.57	3.86	- 0.50	57.58	14769.83
Senegal	2012	14.57	5.57	40.93	4.00	41.38	16.94	86.41	3.27	- 0.47	61.98	15361.07
Senegal	2013	16.20	5.71	43.96	2.41	40.84	17.95	82.70	1.19	- 0.43	60.63	15731.64
Senegal	2014	17.31	5.34	55.41	6.22	37.47	20.76	83.68	-1.52	- 0.40	58.44	16710.78
Senegal	2015	16.99	6.37	60.48	6.37	42.71	25.83	84.90	1.07	- 0.48	58.11	17774.77
Senegal	2016	15.78	6.87	61.78	6.36	43.98	27.17	86.11	0.96	- 0.50	54.11	18904.54
Senegal	2017	17.04	9.61	69.73	7.41	44.83	31.26	83.32	0.60	- 0.37	57.71	20304.89
Senegal	2018	20.13	11.07	88.97	6.21	35.88	31.92	83.53	-0.84	- 0.33	61.79	21565.67
Senegal	2019	22.96	13.05	91.31	4.61	34.98	31.94	83.26	2.09	- 0.13	64.24	22560.63
Senegal	2020	22.87	14.65	107.86	1.34	33.00	35.59	84.90	1.60	- 0.06	60.05	22863.41
Senegal	2021	25.72	19.82	114.38	6.54	30.92	35.37	84.06	1.45	0.02	69.38	24359.60
Senegal	2022	29.06	13.88	132.30	3.85	30.98	40.99	84.27	9.35	0.04	79.60	25297.55
Senegal	2023	28.50	19.39	153.25	4.26	24.92	38.19	85.45	3.05	0.07	71.39	26374.57
Senegal	2024	27.39	20.18	150.69	6.06	24.94	37.59	85.33	0.73	0.07	68.14	27973.02
Sierra Leone	1990	0.45	10.12	206.36	3.35	22.45	8.16	51.13	70.59	- 1.41	68.69	4164.34
Sierra Leone	1991	0.76	6.83	176.65	2.35	25.59	6.33	45.33	128.76	- 1.41	60.24	4262.29
Sierra Leone	1992	1.36	16.98	229.68	-19.01	26.21	4.75	49.53	82.02	- 1.55	64.49	3451.90
Sierra Leone	1993	1.86	17.48	214.73	1.37	23.07	5.36	43.73	26.74	- 1.55	52.86	3499.35
Sierra Leone	1994	2.61	73.03	195.13	-1.95	27.74	4.57	47.93	25.06	- 1.61	55.16	3431.20

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Sierra Leone	1995	2.77	63.19	152.68	-8.00	28.84	3.66	42.13	33.60	-1.61	45.03	3156.72
Sierra Leone	1996	2.14	58.40	136.58	1.75	29.94	7.72	44.38	29.58	-1.41	49.60	3212.08
Sierra Leone	1997	3.21	30.71	144.07	-5.88	31.05	1.46	51.36	2.25	-1.41	28.28	3023.30
Sierra Leone	1998	3.34	43.90	206.20	1.79	32.15	4.93	58.46	23.78	-1.55	35.33	3077.27
Sierra Leone	1999	2.99	86.30	204.54	-1.98	33.25	2.40	59.48	17.19	-1.55	33.75	3016.36
Sierra Leone	2000	3.94	75.66	202.63	6.65	34.35	5.18	63.25	3.28	-1.61	57.53	3217.03
Sierra Leone	2001	4.08	112.30	75.68	-6.35	22.45	5.83	75.62	168.05	-1.61	35.94	3012.90
Sierra Leone	2002	6.01	13.05	73.06	26.52	25.59	6.01	77.46	-3.93	-1.63	38.92	3812.04
Sierra Leone	2003	4.23	10.22	74.77	9.48	26.21	5.89	79.30	13.20	-1.33	46.45	4173.56
Sierra Leone	2004	7.43	10.04	81.86	6.48	23.07	5.36	81.14	12.83	-1.12	46.17	4443.96
Sierra Leone	2005	9.45	6.72	75.25	4.35	27.74	6.04	82.98	16.62	-1.34	47.55	4637.43
Sierra Leone	2006	12.03	7.84	54.68	4.28	28.84	5.79	84.82	26.04	-1.10	22.09	4836.05
Sierra Leone	2007	39.30	2.82	18.27	3.75	79.69	5.58	86.66	8.13	-1.15	21.81	5017.39
Sierra Leone	2008	34.74	1.65	17.54	3.69	74.70	5.70	88.50	10.24	-1.15	21.26	5202.34
Sierra Leone	2009	47.26	2.04	22.64	1.53	65.92	6.16	90.34	6.34	-1.19	23.08	5281.97
Sierra Leone	2010	43.92	2.68	22.10	6.36	222.85	19.17	92.18	19.12	-1.21	27.95	5617.68
Sierra Leone	2011	41.80	3.35	22.62	8.10	272.76	25.95	114.58	15.34	-1.19	43.78	6072.75
Sierra Leone	2012	35.80	1.65	22.40	10.58	159.03	16.35	117.72	14.11	-1.22	53.38	6715.14
Sierra Leone	2013	38.05	1.37	19.81	14.66	121.57	9.78	119.79	6.26	-1.22	53.36	7699.81
Sierra Leone	2014	41.92	2.31	19.62	-7.82	113.34	8.83	119.46	16.04	-1.25	51.12	7098.07
Sierra Leone	2015	37.16	6.50	23.34	-4.36	77.39	9.98	120.70	3.61	-1.28	36.48	6788.35
Sierra Leone	2016	30.61	4.54	27.13	6.44	71.04	9.76	123.03	4.35	-1.23	43.07	7225.35

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Sierra Leone	2017	30.60	6.37	31.76	3.21	73.45	10.58	126.86	7.50	- 1.22	41.52	7457.13
Sierra Leone	2018	27.34	7.11	29.00	2.89	63.46	8.62	114.58	16.02	- 1.19	37.38	7672.93
Sierra Leone	2019	27.46	10.58	29.90	5.50	60.51	9.74	145.62	9.92	- 1.17	37.56	8095.15
Sierra Leone	2020	32.23	14.11	32.93	-1.25	48.92	8.69	142.79	13.27	- 1.06	30.61	7993.69
Sierra Leone	2021	37.36	9.31	35.64	5.90	38.00	9.12	157.71	7.46	- 1.15	42.14	8465.06
Sierra Leone	2022	26.01	9.46	34.03	5.31	43.67	10.46	163.17	26.96	- 1.17	45.05	8914.86
Sierra Leone	2023	20.63	11.17	37.80	5.71	62.94	11.09	159.42	29.26	- 1.16	55.29	9423.90
Sierra Leone	2024	12.20	12.00	31.13	4.29	88.07	10.95	162.12	10.45	- 1.16	40.55	9828.49
Togo	1990	33.20	11.48	56.48	-0.24	132.62	51.38	88.82	2.98	- 0.69	59.77	2813.62
Togo	1991	32.12	7.52	60.48	-0.70	80.40	48.62	93.86	2.67	- 0.69	59.46	2793.93
Togo	1992	31.56	5.43	57.21	-3.98	73.04	41.78	92.47	3.25	- 0.99	49.66	2682.71
Togo	1993	4.23	6.01	73.81	-15.10	29.37	21.68	94.27	-8.20	- 0.99	42.71	2277.73
Togo	1994	29.88	4.71	108.31	14.98	47.01	50.91	96.00	35.84	- 1.06	57.56	2618.99
Togo	1995	32.18	5.42	81.24	7.85	53.52	43.48	105.59	11.08	- 1.06	55.60	2824.48
Togo	1996	20.67	9.27	72.80	8.84	63.96	46.56	110.24	5.39	- 0.69	59.41	3074.05
Togo	1997	21.28	9.82	64.40	14.38	65.81	42.38	111.31	2.04	- 0.69	53.21	3516.02
Togo	1998	14.33	6.98	66.35	-2.30	75.58	50.15	112.37	9.56	- 0.99	55.74	3435.16
Togo	1999	14.45	7.62	70.30	2.48	67.00	47.10	118.03	1.12	- 0.99	50.11	3520.41
Togo	2000	22.85	5.45	69.59	-0.78	73.82	51.37	110.81	10.05	- 1.06	48.81	3492.83
Togo	2001	21.23	6.48	68.96	0.82	76.39	52.67	112.11	1.63	- 1.06	51.39	3521.59
Togo	2002	24.85	2.32	67.08	3.83	74.15	49.74	113.69	5.03	- 1.20	51.61	3656.35
Togo	2003	26.66	2.41	58.44	6.72	76.28	44.58	111.29	-2.89	- 1.29	55.39	3902.06

Country	Year	DRR	DSR	EDT	GDPGR	CFR	GFCFR	HC	INFL	IQ	OPN	RGDP
Togo	2004	29.07	2.65	58.26	-0.98	74.01	43.12	110.34	-1.91	-1.39	57.87	3863.87
Togo	2005	18.78	2.34	52.94	-4.67	61.30	32.45	109.48	5.88	-1.46	61.45	3683.57
Togo	2006	13.71	2.77	54.68	2.65	51.30	28.05	113.07	-0.51	-1.49	61.61	3781.19
Togo	2007	12.88	1.29	52.75	-1.18	41.98	22.14	107.24	4.96	-1.52	61.77	3736.76
Togo	2008	12.20	15.82	35.90	4.04	50.71	18.20	107.99	9.07	-1.48	62.31	3887.56
Togo	2009	10.74	4.19	36.67	5.45	40.07	14.69	121.99	3.12	-1.36	62.21	4099.58
Togo	2010	11.50	2.59	27.33	5.85	68.02	18.59	124.71	-0.09	-1.38	66.80	4339.58
Togo	2011	14.47	0.73	11.25	5.82	150.96	16.99	122.78	2.82	-1.37	77.73	4592.29
Togo	2012	12.55	1.16	14.03	6.30	120.46	16.90	125.76	1.75	-1.30	75.71	4881.72
Togo	2013	12.97	2.22	15.47	5.82	156.53	24.22	126.11	1.68	-1.29	82.15	5166.05
Togo	2014	15.47	2.81	16.01	5.63	111.97	17.93	122.30	0.48	-1.27	70.92	5457.06
Togo	2015	17.43	3.24	18.76	5.47	134.23	25.19	125.60	2.20	-1.23	69.13	5755.46
Togo	2016	13.52	4.84	19.85	4.21	188.62	37.44	121.48	1.46	-1.12	66.45	5998.04
Togo	2017	15.58	5.48	25.57	4.01	121.72	31.12	119.41	-0.88	-1.17	58.21	6238.44
Togo	2018	16.50	5.49	24.20	4.80	137.78	33.34	117.84	0.45	-1.09	57.57	6537.59
Togo	2019	17.80	5.33	28.64	4.92	122.08	34.96	117.75	0.01	-0.97	56.34	6859.42
Togo	2020	19.53	4.90	34.51	2.16	103.80	35.82	119.27	2.94	-0.73	55.07	7007.74
Togo	2021	18.24	5.55	42.40	5.13	84.51	35.83	116.97	4.56	-0.69	56.38	7367.16
Togo	2022	18.93	8.82	40.12	6.29	125.45	36.47	118.42	7.12	-0.65	61.58	7830.88
Togo	2023	19.16	8.90	37.42	6.19	90.28	37.12	116.34	3.96	-0.58	66.77	8315.78
Togo	2024	19.10	8.93	43.16	6.53	98.28	37.76	114.27	1.81	-0.58	71.97	8858.97

Sources: World Bank, International Financial Statistics 2024