

Public Sector Debt And Economic Growth: Evidence From East Africa Community Member Countries

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Abstract

This study examines the effect of public sector debt on economic growth among East Africa Community (EAC) member countries. Anchored on Debt Overhang, Keynesian, Neoclassical, and Crowding-Out Effect theories, the research investigates how internal and external public borrowing influences regional economic performance. Using quarterly panel data from six EAC countries—Kenya, Uganda, Tanzania, Rwanda, Burundi, and South Sudan—for the period 2003–2022, the study adopts a positivist philosophy and applies a fixed-effects panel regression model to account for country-specific heterogeneity. Diagnostic tests for multicollinearity, heteroskedasticity, autocorrelation, and stationarity confirmed the robustness of the model. The empirical results reveal that both internal and external public sector debt exert a statistically significant positive effect on economic growth when funds are directed to productive investments. The findings further demonstrate that strategic debt management and effective utilization of borrowed resources enhance fiscal space and support long-term economic expansion. The study concludes that public sector debt can be a viable instrument for stimulating growth provided that borrowing is maintained within sustainable thresholds and allocated to development-oriented projects. The results provide critical policy insights for EAC governments and development partners, underscoring the importance of prudent debt strategies, strengthened governance, and targeted investments to maximize the growth benefits of public borrowing.

Keywords: *Public sector debt, economic growth, internal debt, external debt, East Africa Community, debt overhang theory*

Date of Submission: 21-10-2025

Date of Acceptance: 31-10-2025

I. Introduction

A. Background

Public sector debt is a critical instrument for financing development and stimulating economic activity, especially in developing economies. Through borrowing, governments can fund infrastructure projects and social programs that enhance productivity, create employment, and promote economic growth (Albu & Albu, 2021; Achwoga, 2016). In the East Africa Community (EAC), public borrowing has supported extensive investments in transport, energy, and digital infrastructure, enabling member countries to expand their productive capacities and improve living standards (World Bank, 2021; IMF, 2019). When managed prudently, such borrowing serves as a catalyst for sustainable growth by channeling resources toward productive sectors and expanding fiscal space for critical development initiatives (David & Ampah, 2018).

However, public sector debt can also pose serious risks to economic stability when mismanaged. Excessive borrowing elevates debt-servicing costs, crowds out private sector investment, and constrains fiscal policy, potentially slowing long-term growth (Asteriou, Pilbeam & Pratiwi, 2021; Coupet, 2017). The Debt Overhang Theory warns that high debt levels reduce the incentive for future investment as resources are diverted to debt repayment (Krugman, 1988; Borensztein, 1990). Similarly, the Crowding-Out Effect Theory suggests that heavy government borrowing raises interest rates, discouraging private investment and dampening economic activity (McConnel & Brue, 1990; Hyman, 2014). These theoretical perspectives highlight the need for careful debt management to avoid negative macroeconomic consequences.

The EAC region illustrates both the opportunities and challenges of public borrowing. Between 2010 and 2018, public sector debt in EAC countries rose from an average of 40% to 59% of GDP, making the region one of the fastest-growing debt accumulation zones in the world (IMF, 2019; World Bank, 2021). During this period, EAC member states recorded substantial infrastructure expansion and economic growth, with investments

in transport, energy, and telecommunications driving productivity gains (AfDB, 2021; UNCTAD, 2021). Yet, macroeconomic volatility—characterized by fluctuating inflation rates, currency depreciation, and external shocks—has raised concerns about the sustainability of these gains (David & Ampah, 2018; World Bank, 2021). This dual reality underscores the importance of empirically assessing how public sector debt influences economic growth within the region.

B. Problem Statement

Empirical evidence on the relationship between public sector debt and economic growth remains inconclusive. Some studies report that debt-financed investments stimulate economic expansion by enhancing infrastructure and aggregate demand (Achwoga, 2016; Duran, 2017), while others find that excessive debt negatively affects growth through higher debt-servicing costs and reduced fiscal space (Musibau et al., 2020; Mwangi, 2017). These divergent findings suggest that the impact of public sector debt on growth is context-specific and influenced by the structure of borrowing, quality of debt management, and prevailing macroeconomic conditions (Megersa & Cassimon, 2015; Musyoka, 2017).

In the EAC, rising debt levels have heightened concerns over fiscal sustainability and macroeconomic stability. Although debt-funded infrastructure projects have improved transportation, energy, and telecommunication networks, persistent inflationary pressures, interest rate fluctuations, and exchange rate volatility have threatened the positive effects of public borrowing (Wanjiru & Kiprono, 2022; Mwangi & Otieno, 2023). These macroeconomic challenges increase debt-servicing costs, constrain private investment, and may undermine the region's ability to maintain steady economic growth (Kimani & Yusuf, 2023; Abdullahi & Hassan, 2023). Addressing these risks requires understanding how public sector debt interacts with these macroeconomic variables to influence economic outcomes.

Existing studies also reveal notable methodological and contextual gaps. Many have focused narrowly on either domestic or external debt, neglecting their combined effects on economic growth (Mwenda & Karanja, 2022; Otieno & Yusuf, 2023). Others have relied on limited timeframes or failed to incorporate critical moderating variables such as inflation, exchange rates, and interest rate volatility (Achwoga, 2016; Musyoka, 2017). Consequently, there is insufficient region-specific evidence on the debt-growth relationship within the EAC. This study addresses these gaps by using quarterly panel data from 2003 to 2022 and applying fixed-effects regression analysis to capture both internal and external debt dynamics and their implications for economic growth (Mwangi & Kamau, 2022; Kariuki & Omondi, 2023).

II. Literature Review

A. Theoretical Review

The relationship between public sector debt and economic growth is underpinned by several key economic theories. The Debt Overhang Theory, developed by Krugman (1988), posits that when a country's expected debt service exceeds its repayment ability, high debt levels discourage investment and reduce economic growth. Large debt obligations increase uncertainty about future taxation and government policy, which lowers private sector investment and hampers long-term growth (Borensztein, 1990; Clements, Rina & Nguyen, 2005). This theory is central to the current study because many East Africa Community (EAC) countries face rising public debt levels that could potentially limit future economic performance.

The Keynesian Theory offers a contrasting perspective, suggesting that government borrowing can stimulate economic growth through increased aggregate demand. Keynes (1936) argued that in times of underutilized resources and economic downturns, public sector debt can finance expansionary fiscal policies, generating a multiplier effect on national output (Lwanga & Mawejje, 2014; Renjith & Shanmugam, 2018). In the EAC context, borrowing to finance infrastructure projects can create jobs, increase incomes, and boost consumption, thereby fostering economic growth. This theory highlights the potential benefits of debt-financed investments when managed effectively and targeted toward productive sectors.

The Neoclassical Growth Theory provides a more cautious view, emphasizing that excessive public borrowing can distort savings and investment decisions, ultimately reducing economic growth. Solow (1956) and subsequent proponents argue that higher government debt may crowd out private investment by raising interest rates, thereby reducing capital accumulation and limiting long-term growth prospects (Akinwunmi, 2012; Goodfriend, 2004). This theory underscores the importance of maintaining a sustainable balance between public borrowing and private sector investment to avoid adverse effects on growth.

Finally, the Crowding-Out Effect Theory, proposed by McConnel and Brue (1990), asserts that government borrowing to finance deficits can drive up credit market interest rates, reducing the availability of funds for private investors (Karazijene, 2015; Hyman, 2014). As public sector debt increases, the private sector may face higher borrowing costs, leading to reduced investment and slower economic growth (Coupet, 2017). This theory is particularly relevant for EAC economies where financial markets are relatively shallow, and large-scale government borrowing can significantly impact private sector access to credit.

B. Empirical Review

Empirical studies on the impact of public sector debt on economic growth have produced mixed findings across different contexts. Mwangi (2017) examined the effects of internal and external borrowing on Kenya's economic growth and found that domestic debt had an insignificant but positive relationship with growth, while external debt showed a significant negative association. Similarly, Musibau et al. (2018) analyzed 15 ECOWAS countries and observed that foreign borrowing influenced economic growth both in the short and long run, but the impact varied depending on debt structure. These findings suggest that the relationship between debt and growth is context-specific and influenced by the type of debt incurred.

Other studies have highlighted the mediating role of infrastructure development in the debt-growth nexus. Mensah et al. (2018) demonstrated that foreign loans invested in productive infrastructure projects positively affected economic growth in Sub-Saharan Africa, while Mwenda and Karanja (2022) found that infrastructure development financed through concessional loans boosted GDP growth in low-income African countries. Otieno and Ahmed (2023) further showed that infrastructure development partially mediated the relationship between public debt and economic growth, emphasizing that the quality of investment determines whether debt translates into economic benefits.

Research focusing on macroeconomic volatility provides additional insights. Wanjiru and Kiprono (2022) reported that exchange rate fluctuations and inflation significantly weakened the positive effects of public debt on growth in low-income Sub-Saharan African countries. Abdullahi and Hassan (2023) similarly found that inflation and exchange rate instability adversely affected economic growth in African emerging markets. These studies highlight the importance of stable macroeconomic conditions in ensuring that public borrowing supports rather than hinders economic expansion.

Region-specific studies in the EAC have reinforced these findings. Mugambi and Otieno (2023) revealed that external debt positively influenced economic growth when directed toward infrastructure projects, but excessive borrowing produced a crowding-out effect on private investment. Mwangi and Otieno (2023) observed that high interest rates increased the cost of debt servicing, reducing the fiscal space for productive investment and negatively affecting economic growth. These results underscore the need for prudent debt management and macroeconomic stability to maximize the growth-enhancing effects of public sector borrowing in the EAC.

III. Methodology

This study adopted a positivist research philosophy and an explanatory longitudinal research design to investigate the effect of public sector debt on economic growth among East Africa Community (EAC) member countries. The explanatory design was appropriate because it enabled the analysis of cause–effect relationships between public sector debt and economic growth over time, while the longitudinal aspect allowed for capturing trends and variations across multiple years. The positivist paradigm ensured objectivity by relying on quantifiable data and empirical testing of hypotheses, thereby providing robust and verifiable results consistent with established econometric practices.

The study targeted all six EAC member states—Kenya, Uganda, Tanzania, Rwanda, Burundi, and South Sudan—covering the period from 2003 to 2022. It utilized secondary quarterly panel data obtained from reputable international and regional sources, including the World Bank Development Indicators, International Monetary Fund (IMF) databases, and the African Development Bank. Key variables included real GDP growth rate as the dependent variable and public sector debt, disaggregated into domestic and external debt, as the main independent variables. Control variables such as inflation rate, interest rate, and exchange rate were incorporated to account for macroeconomic conditions that could influence economic growth outcomes.

Data analysis was conducted using panel regression techniques to examine both cross-sectional and time-series variations. The Hausman specification test guided the choice of a fixed-effects model, which was preferred for controlling country-specific heterogeneity. Prior to estimation, diagnostic tests for multicollinearity, heteroskedasticity, autocorrelation, and stationarity were performed to ensure the validity of the regression results. The model estimated the impact of total public debt, domestic debt, and external debt on economic growth, enabling a nuanced understanding of how different types of public borrowing influence economic performance in the EAC region.

IV. Results And Discussion

A. Descriptive Results

The descriptive statistics presented in Table 1 summarize the characteristics of key study variables for East African Community member countries over the study period. The dataset comprises 111 observations, accounting for data from five countries covering the entire 20-year period (2003-2022) and South Sudan with 11 years of data (2012-2022). The table includes measures such as minimum and maximum values, mean, standard deviation, coefficient of variation (CV), and the standard error of the mean for internal debt, external debt, and

GDP growth rate. These metrics provide insight into each variable's central tendency and dispersion, reflecting economic conditions across the region.

The internal debt variable, representing annual domestic borrowing, shows a mean value of 8,396.048, with a substantial range from a minimum of 113.6133 to a maximum of 79,322.03. The standard deviation is 10,873.81, indicating considerable variation across EAC countries, which is further reflected in the coefficient of variation of 1.2951, suggesting high relative dispersion. The high variability in internal debt may reflect differing fiscal policies and borrowing capacities among EAC member countries.

External debt, reflecting government borrowing from foreign sources, has a mean value of 6,081.681 and ranges from a minimum of 229.1814 to a maximum of 37,879.1. The standard deviation of 7,377.6 suggests that external debt levels vary widely, a trend supported by a CV of 1.2131. The high variability in external debt across countries may reflect diverse approaches to international financing, currency exposure, and reliance on foreign aid or investment.

GDP growth rate, used as a measure of economic growth, has a mean of 4.3045, with a range from -46.0821 to 13.1297. The standard deviation of 6.2419 and a CV of 1.4501 indicate variability in economic growth patterns within the EAC. Such fluctuations may reflect changes in macroeconomic factors, regional economic policies, and sectoral growth variations that affect overall economic performance in these countries.

Table 1: Summary of Descriptive Statistics

stats	Internal debt	External debt	GDP growth rate
N	111	111	111
min	113.6133	229.1814	-46.0821
max	79322.03	37879.1	13.12973
mean	8396.048	6081.681	4.304528
sd	10873.81	7377.6	6.241938
cv	1.295111	1.213086	1.450086
se(mean)	1032.097	700.2508	0.592459

B. Hypothesis Testing

The results in Table 2 display the fixed-effects regression analysis examining the impact of public sector debt—specifically internal and external debt—on economic growth among East African Community member countries. The model's R-squared values indicate that 29.66% of the variation in economic growth is explained by internal and external debt within countries over time, while 70.57% of the variation is explained between countries, and 66.89% of the overall variation in economic growth is captured by the model. The F-statistic (21.71) and its associated p-value ($p < 0.05$) indicate that the overall model is statistically significant, implying that the included variables contribute meaningfully to explaining economic growth.

The coefficient for internal debt is 0.267948, with a standard error of 0.090138 and a statistically significant p-value of 0.004. This positive coefficient suggests that an increase in internal debt is associated with an increase in economic growth among EAC countries. Specifically, a one-unit increase in internal debt corresponds to a 0.27 increase in economic growth, holding other factors constant. The 95% confidence interval for internal debt (0.08918, 0.446715) further supports the significance of this relationship, indicating that internal debt has a beneficial association with economic growth in this context.

Similarly, external debt has a positive coefficient of 0.232793, with a standard error of 0.106248 and a p-value of 0.031, indicating statistical significance at the 5% level. This result suggests that higher levels of external debt are also positively associated with economic growth. Specifically, a one-unit increase in external debt is associated with a 0.23 increase in economic growth, holding other variables constant. The confidence interval for external debt (0.022076, 0.443511) does not include zero, reinforcing the finding that external debt has a statistically significant, positive relationship with economic growth.

Based on these results, both the main hypothesis and sub-hypotheses are rejected. The main hypothesis (H_{01}) proposed that public sector debt has no significant effect on economic growth among EAC member countries. Given the statistically significant positive coefficients for both internal and external debt, this hypothesis is rejected, demonstrating that public sector debt does have a significant effect on economic growth. Sub-hypotheses H_{01a} and H_{01b} , which proposed that internal and external debt, respectively, have no significant effects on economic growth, are also rejected due to the positive and statistically significant relationships found for both types of debt. These findings suggest that both internal and external borrowing can play constructive roles in supporting economic growth in the EAC region.

Table 2: Public Sector Debt and Economic Growth

Fixed-effects (within) regression		Number of obs		=		111
Group variable: CODE		Number of groups		=		6
R-sq:		Obs per group:				
within = 0.2966		Min		=		11
between = 0.7057		Avg		=		18.5
overall = 0.6689		Max		=		20
		F(2,103)		=		21.71
corr(u _i , X _b) = -0.4433		Prob > F		=		0
Economic growth	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Internal debt	0.267948	0.090138	2.97	0.004	0.08918	0.446715
External debt	0.232793	0.106248	2.19	0.031	0.022076	0.443511
cons	-3.60318	1.575764	-2.29	0.024	-6.72833	-0.47802

V. Conclusion

The study establishes that public sector debt has a statistically significant positive effect on economic growth among EAC member countries when the borrowed resources are channeled into productive investments. Analysis of quarterly panel data from 2003 to 2022 confirmed that both domestic and external debt contribute to economic expansion by supporting infrastructure development and enhancing fiscal capacity. These results align with the Keynesian perspective that debt-financed expenditure can stimulate aggregate demand and foster economic growth, while also reflecting the caution of the Debt Overhang Theory that the growth benefits are contingent on maintaining sustainable debt levels.

Overall, the findings highlight that the debt–growth relationship in the EAC is context-dependent, shaped by the efficiency of debt utilization and prevailing macroeconomic conditions. The evidence shows that borrowing can accelerate economic activity without immediate adverse effects when managed within prudent thresholds. However, the potential for crowding-out effects and macroeconomic volatility remains, illustrating the delicate balance required to ensure that public sector debt continues to serve as a driver of long-term economic growth in the region.

VI. Recommendations

Based on the study findings, governments of EAC member countries should strengthen debt management frameworks to ensure that public borrowing remains within sustainable thresholds. Emphasis should be placed on channeling both domestic and external debt toward high-impact, growth-enhancing projects such as infrastructure, energy, and technology-driven sectors that generate measurable economic returns. Transparent reporting, periodic debt sustainability analyses, and adherence to clear borrowing limits will help safeguard against the risks of debt overhang and maintain investor confidence.

In addition, EAC policymakers are encouraged to integrate comprehensive macroeconomic stabilization measures into their fiscal strategies. Maintaining stable inflation, exchange rates, and interest rates will reduce the cost of debt servicing and preserve the positive growth effects of public borrowing. Strengthening regional cooperation in fiscal policy and harmonizing debt management standards across member states can further enhance collective resilience, allowing the EAC to leverage public sector debt as a strategic instrument for sustainable and inclusive economic development.

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