African Journal of Emerging Issues
Peer reviewed | Double blind | Interdisciplinary

African Journal of Emerging Issues (AJOEI)
Online ISSN: 2663 - 9335
Available at: https://ajoeijournals.org

FINANCE & ACCOUNTING

# EXTERNAL DEBT SUSTAINABILITY AND DEBT DYNAMICS: THE CASE OF KENYA

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**Publication Date: December 2024**

## ABSTRACT

**Purpose of Study:** This study examines the sustainability and dynamics of Kenya's external debt, utilizing the International Monetary Fund (IMF)-World Bank Debt Sustainability Framework (DSF) alongside empirical estimations of a fiscal reaction function. The analysis explores the evolution and structure of Kenya's external debt and evaluates its sustainability based on recent debt sustainability analyses (DSA) conducted by the Kenyan government. Data were collected from sources such as the World Bank, IMF, Central Bank of Kenya, and the Kenyan National Treasury.

**Problem Statement:** Public debt, particularly in sub-Saharan Africa, has become an increasing concern, with Kenya facing a rising external debt burden driven by large infrastructure projects and the need to finance budget deficits. The DSA reveals that while the present value of Kenya's debt-to-GDP ratio remains within the threshold, the debt service-to-exports ratio exceeds recommended limits, indicating pressure on export earnings. However, projections suggest gradual improvements in debt sustainability, with the debt-to-GDP ratio expected to significantly decrease by 2042.

**Results:** Empirical results from Kenya's fiscal reaction function underscore the critical role of past fiscal balances. For public debt, lagged fiscal balances significantly and positively influence current fiscal balances, with stronger effects observed in models accounting for policy changes. The results also suggest that while public debt ratios are generally positive, their impact is statistically weak. For external debt, lagged fiscal balances similarly demonstrate a robust positive influence, whereas the external debt-to-GDP ratio has a limited and insignificant impact. The output gap's effect varies, highlighting mixed sensitivity to economic performance across models. The Ordinary Least Squares (OLS) models generally show better explanatory power than the Generalized Method of Moments (GMM) models, emphasizing broader economic factors' role in fiscal dynamics.

**Conclusion:** These findings suggest that Kenya's fiscal policy is responsive to past performance, underlining the importance of fiscal discipline for debt sustainability. Despite current high debt

levels, long-term projections point to improved debt sustainability, contingent upon fiscal consolidation and the rationalization of capital spending. The study recommends that the government prioritize prudent debt management, favor concessional financing with favorable terms, and adopt a balanced borrowing strategy to mitigate the risks associated with debt accumulation.

**Keywords:** *External Debt, Public Debt, Debt Sustainability Analyses, Fiscal Reaction Function, Fiscal Balances, Debt Sustainability Framework, Debt Accumulation*

## INTRODUCTION

Africa's rising public debt, particularly in the Sub-Saharan region, has become a major concern. With 22 countries in Sub-Saharan Africa at high risk of external debt distress or already in distress, these elevated debt levels threaten the economic growth of low- and middle-income countries, potentially undoing years of development progress if not managed effectively. According to the World Bank (2024), Sub-Saharan African countries' total external debt stock reached approximately $1.14 trillion at the end of 2022. The rising debt levels have been attributed to several factors, including the economic impact of the COVID-19 pandemic, a slowdown in global trade, the increased frequency and intensity of extreme weather events, conflict and instability, commodity price volatility, weak governance, corruption, and inefficient public spending.

The IMF's Regional Economic Outlook for Sub-Saharan Africa, October 2023, provides an updated assessment of the debt situation indicating that the average public debt-to-GDP ratio in the region is estimated to be around 56.8% as of 2023. While the exact number of countries classified as being in debt distress or at high risk of debt distress is not explicitly stated in the IMF report, the World Bank estimates this to be around 22 countries. The IMF emphasizes the need for comprehensive debt resolution strategies, including debt restructuring and reforms to improve debt transparency and sustainability.

The external debt situation in Kenya, just like a majority of countries in Sub-Saharan Africa, has been a cause for concern in recent years, with the country's debt levels steadily increasing. According to the World Bank (2024), Kenya's external debt stock stood at $41.6 billion as of 2022, marking a significant increase from $27.3 billion in 2017. This rise in external debt has been attributed to the country's expanding infrastructure projects, such as the Standard Gauge Railway (SGR), and the need to finance budget deficits, exacerbated by external shocks like the COVID-19 pandemic and currency fluctuations. The Central Bank of Kenya's Annual Report for the fiscal year 2022/2023 highlights the gravity of the situation. The report indicates that Kenya's external debt as a percentage of GDP rose from 27.6% in 2017 to 39.6% in 2022. Moreover, the debt service-to-exports ratio, which measures the country's ability to service its debt through export earnings, increased from 19.5% in 2017 to 28.9% in 2022. These figures point to the growing burden of external debt on Kenya's economy and raise concerns about the country's long-term debt sustainability (Central Bank of Kenya, 2023).

The debt sustainability analysis (DSA) for Kenya, conducted by the IMF and World Bank in January 2024, provides an updated assessment of the country's debt situation. While the overall public debt reached 67.4% of GDP in FY2022/23, with a present value of 58.8% of GDP, some factors could potentially improve debt dynamics over the medium term. The fiscal consolidation measures under the program with the IMF are expected to bring the debt levels to more prudent

levels in the coming years, with the debt-to-GDP ratio projected to decline to 60.7% by FY2026/27. Additionally, the outlook for the present value of the external debt-to-exports ratio has improved. However, the improvement in the external debt service-to-exports ratio is expected to be more gradual. Despite these positive developments, Kenya's overall and external risk ratings for debt distress remain high, highlighting the need for continued prudent debt management and fiscal discipline.

While borrowing is instrumental for financing development projects and addressing short-term fiscal gaps within a country, ensuring debt sustainability is important for safeguarding a country's long-term economic stability and prosperity (Khan, Marimuthu & Lai, 2020). External debt plays an important role in shaping a nation's economic environment, but if not managed prudently, is likely to pose serious risks to financial stability and impede future growth prospects. Borrowing, both by governments and private entities, is an important tool for financing investments critical to achieving sustainable economic growth, as well as for covering short-term imbalances between revenues and expenditures (Chien, Chau, Aldeehani, Huy, Tan & Mohsin, 2022). Debt sustainability is defined as debt-to-GDP ratios that are stationary and mean-reverting (Mehrotra & Sergeyev, 2021). In practical terms, debt is sustainable if increases in this ratio are reverted in the medium and long term. Thus, debt sustainability reduces the risk of default and avoids the negative externalities associated with high debt levels. The risk of default depends on expected future debt levels.

The International Monetary Fund (IMF) and World Bank use a debt-to-GDP ratio of 40% as a benchmark for assessing debt sustainability in developing countries. However, they recognize that no single threshold applies to all countries. The appropriate level of debt depends on various factors, including a country's debt-carrying capacity, the composition of its debt, and its growth prospects. When a nation's debt-to-GDP ratio exceeds the recommended level, it signals potential debt unsustainability or debt distress, increasing the likelihood of struggles in meeting debt service obligations. This can lead to higher borrowing costs, reduced investor confidence, and increased vulnerability to economic shocks (Rahaman & Mahadeo, 2024). The IMF and World Bank conduct Debt Sustainability Analyses (DSAs) to assess debt risks comprehensively. In the context of developed economies, such as those in the European Union, the Maastricht criteria set a higher limit of 60% debt-to-GDP ratio for member states, reflecting their greater capacity to manage debt.

Given this background and the rapidly rising debt accumulation, there is a need to undertake an in-depth analysis of external debt in Kenya and the implications for future sustainability. The main objective of this study is to analyze external debt sustainability and debt dynamics in Kenya. Besides exploratory analysis of the evolution and structure of external debt, debt sustainability will be examined based on the Kenyan government's recent debt sustainability analysis (DSA) using the IMF-World Bank debt sustainability framework (DSF). Additionally, the study will complement the DSA with an empirical estimation of a fiscal reaction function, which is an approach commonly used in the empirical literature to analyze debt sustainability (Dubbert, 2024; Rashied, 2021; Chibi, Chekouri, Benbouziane & Boulila, 2022).

## HISTORICAL BACKGROUND: DEBT AND DEBT RELIEF INITIATIVES IN KENYA

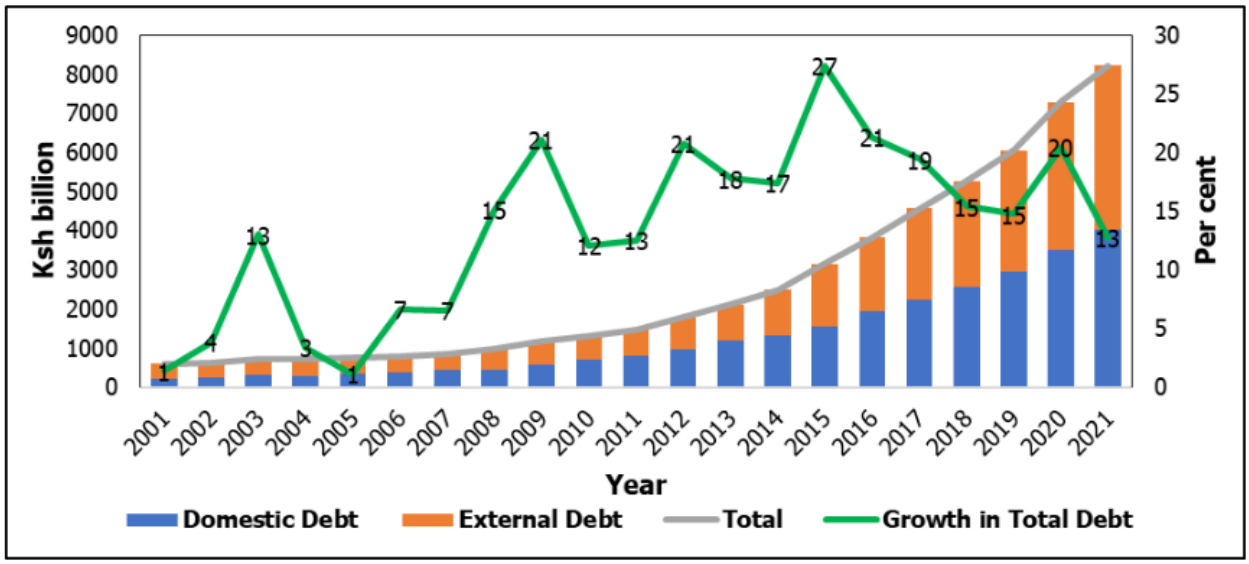
Kenya, like many other African nations, has grappled with a significant external debt burden since its independence. In the early years following independence, the country heavily relied on foreign aid and concessional loans to finance its development agenda and state-owned enterprises. Since gaining independence in 1963, Kenya has grappled with a significant debt burden, accumulating

loans from various sources, including bilateral and multilateral lenders, commercial creditors, and international capital markets (Ochieng, Omanyo, Kiriga & Nato, 2023). The country's debt situation has been shaped by a complex interplay of economic policies, external shocks, and political factors. In the early years after independence, Kenya's debt levels were relatively low, with external debt standing at around $94 million in 1965, equivalent to 7.8% of the country's Gross Domestic Product (GDP).

However, the debt situation escalated rapidly in the 1970s and 1980s due to a combination of factors, including the oil crisis, drought, and ambitious development projects (World Bank, 2000). By 1985, Kenya's external debt had soared to $4.9 billion, representing 60.5% of GDP. The government's reliance on external borrowing to finance budget deficits and infrastructural projects contributed significantly to this debt accumulation. The situation worsened in the 1990s, with external debt peaking at $8.3 billion in 1999, accounting for 62.3% of GDP. In response to the mounting debt crisis, Kenya embarked on a series of debt relief initiatives in the late 1990s and early 2000s. In 2000, the country qualified for the Heavily Indebted Poor Countries (HIPC) Initiative, a program designed by the International Monetary Fund (IMF) and the World Bank to provide debt relief to heavily indebted poor countries. Under the HIPC Initiative, Kenya received debt relief amounting to $807 million in net present value terms, reducing its external debt stock to $6.4 billion by 2004.

Despite the HIPC Initiative, Kenya's debt levels remained elevated, prompting the government to seek additional relief through the Multilateral Debt Relief Initiative (MDRI) in 2006. The MDRI provided full debt cancellation from the World Bank, the African Development Bank, and the International Monetary Fund (IMF). As a result, Kenya's external debt stock was significantly reduced. In the aftermath of the debt relief initiatives, Kenya's debt situation improved significantly, with the external debt-to-GDP ratio declining from a high of 62.3% in 1999 to 23.1% in 2010. However, the country's debt levels began to rise again in the subsequent years, driven by increased borrowing for infrastructural projects, such as the Standard Gauge Railway (SGR). By 2020, Kenya's external debt had risen to $37.1 billion, representing 36.2% of GDP. The COVID-19 pandemic further exacerbated Kenya's debt situation, as the government borrowed heavily to mitigate the economic impacts of the crisis. As of June 2023, Kenya's total public debt stood at approximately $72.1 billion, equivalent to 69.6% of GDP. This figure includes external debt of $41.6 billion (39.6% of GDP) and domestic debt of $30.5 billion (29.0% of GDP) (Central Bank of Kenya, 2023). The government has implemented measures to manage the debt burden, including debt restructuring and fiscal consolidation efforts, but the high debt levels remain a significant concern for the country's long-term economic stability.

Kenya’s public debt stock increased by 19.1% from Ksh 8,634.9 billion in FY 2021/22 to Ksh 10,278.7 billion by the end of FY 2022/23. The ratio of domestic debt to external debt shifted from 50:50 in May 2022 to 47:53 in June 2023. As a percentage of GDP, the debt stock increased from 67.7 percent in FY 2021/22 to 70.8 percent in FY 2022/23, partly due to increased investment in infrastructure pursued by the government to boost economic growth and development (National Treasury, 2023).

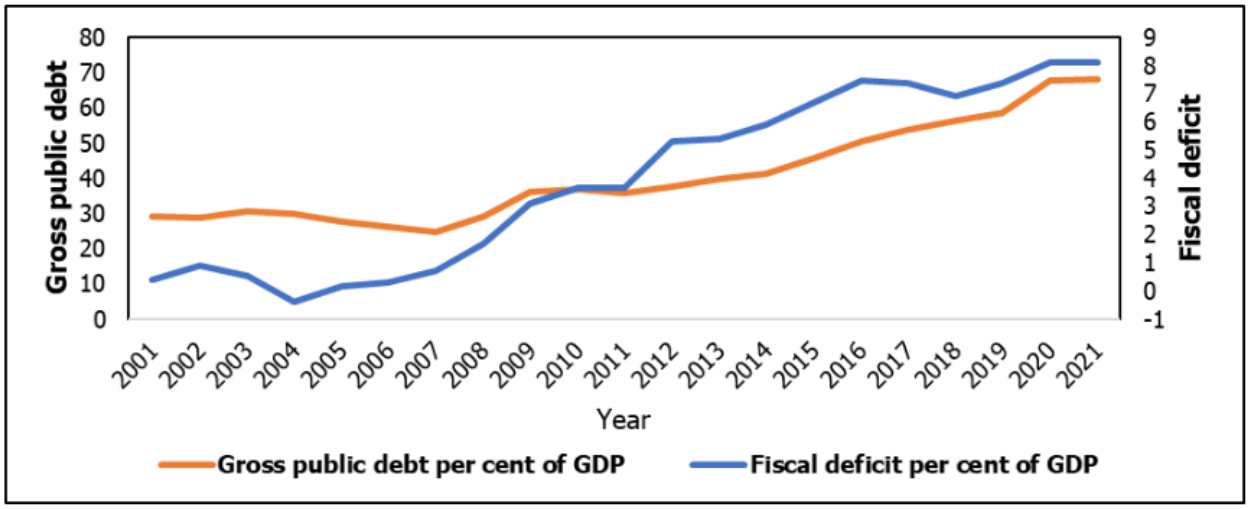



*Source: The National Treasury and Central Bank of Kenya*

**Figure 1: Kenya's Public Debt Stock (Ksh. Billion)**

Exogenous shocks have seen spikes in the growth of public debt. For example, in 2020, Kenya recorded an annual growth in public debt of 20 percent with increased borrowing to cater for the emergencies because of the COVID-19 pandemic. Prior to this, increased borrowing in 2009 when the country was implementing the Economic Stimulus Programme (ESP) following the post-election and global financial crises in 2008 saw the public debt grow by 21 percent. Further, as the country witnessed a severe drought condition in 2011, again the government borrowing increased the public debt by 21 percent in 2012. Government priorities have also led to spikes in the growth of public debt. For example, public debt grew by 27 percent in 2015 as the country issued its first Eurobond in response to growing fiscal pressures as the country transitioned to a devolved system of governance. Further, as the government enhanced infrastructure development, this saw the public debt growth rate average 20.4 percent between 2013 and 2017 compared to 6.2 percent in the period 2003-2007 and 16.4 percent in 2008-2012. During these periods, government development spending as a percentage of GDP averaged 7.0 percent in 2013-2017 compared to 4.2 percent in 2003-2007 and 6.8 percent in 2008-2012.

As expected, public debt accumulation is responsive to the fiscal deficit (Figure 2). For example, fiscal deficit as a percentage of GDP increased from 0.05 percent in 2003-2007 to 3.48 percent in 2008-2012 and 6.56 percent in 2013-2017. In 2009, when public debt grew by 21 percent, the fiscal deficit was at 3.12 percent of GDP. Further, when debt grew by 20 percent in 2020, the fiscal deficit was 8.10 percent. Government expenditure has grown at a higher rate compared to total revenue over the years. For example, government expenditure grew by 13.84 percent, 18.89 percent, 15.20 percent, and 9.28 percent for the periods 2003-2007, 2008-2012, 2013-2017 and 2017-2021, respectively. Total revenue grew by 14.51 percent, 13.68 percent, 13.54 percent, and 8.36 percent over the same period, respectively. This has led to an increase in fiscal deficit and in turn, public debt as the government borrowed to finance the deficit (Figure 2).




*Source: World Bank (2022), World Economic Outlook, April 2022*

**Figure 2: Public Debt and Fiscal Deficit, Percent of GDP**

While government borrowing helps to close financing gaps, public debt can be a burden if a significant proportion of revenue is used to service debt. Public debt service as a percent of ordinary revenue has been on a rising trend, peaking at 57 percent in 2019 before declining to 41 percent in 2020 and rising to 50 percent in 2021. Over the same period, annual interest payments as a percentage of ordinary revenue have been on a rising trend to stand at 25 percent in 2019, 28 percent in 2020, and 32 percent in 2021. Principal external debt payments as a percent of ordinary revenue over the same period was 8 percent while interest payment was 7 percent. During the COVID-19 pandemic, Kenya participated in the Debt Service Suspension Initiative (DSSI), joining other countries in January 2021. The purpose of DSSI was to relieve governments from the debt service burden as they responded to the COVID-19 pandemic. Kenya was expected to get external debt service relief of US$ 1,189.5 million.

With the DDSI coming to an end in December 2021, monthly external debt service as a percent of tax revenue saw a significant jump from 9.7 percent in December 2021 to 34.7 percent in January 2022. After that, cumulative external debt service as a percent of total tax revenue averaged 16.6 percent at the end of May 2022. A salient feature of Kenya's external debt is that much of it is denominated in the US dollar. The US dollar-denominated external debt ranged between 68 percent and 70 percent of the total external debt from June 2019 to December 2019, just before the COVID-19 pandemic. It was over 64 percent of the total external debt between January 2020 and December 2021 as shown in Figure 4, and constant at 67 percent of the total external debt between July 2021 and December 2021 (National Treasury). There is, therefore, a risk of an increase in the value of the stock of external debt with the depreciation of the Kenya shilling against the US dollar. Notably, the Kenya shilling depreciated against the US dollar by Ksh 14.05 from Ksh 101.08 in January 2020 to Ksh 115.13 in June 2022. This implies that Kenya will pay more for maturing US dollar-denominated external debt. The National Treasury in the 2022 Medium Term Strategy recognizes the risk of exchange rate depreciation on external debt service.

## RECENT MACROECONOMIC INDICATORS AND THE EVOLUTION OF POST-HIPC DEBT

### Recent Macroeconomic Indicators

Kenya's economy has shown resilience in recent years, with a steady growth rate averaging around 5.5% between 2016 and 2019 (World Bank, 2020). However, the COVID-19 pandemic dealt a serious blow, causing the growth rate to plummet to -0.3% in 2020 (World Bank, 2021). The economy rebounded in 2021, growing by 7.5% (World Bank, 2022), but inflationary pressure and global economic uncertainties have posed challenges. The inflation rate, which stood at 5.8% in 2021, increased to 7.6% in 2022, driven by rising food and fuel prices (Kenya National Bureau of Statistics, 2024). Kenya's fiscal deficit has been a concern, with the government struggling to rein in spending and boost revenue collection. The fiscal deficit stood at 6.2% of GDP in the 2021/2022 fiscal year, slightly lower than the 8.7% recorded in 2020 but still higher than the pre-pandemic levels of around 7% (Central Bank of Kenya, 2023). The public debt-to-GDP ratio has been on an upward trajectory, reaching 69.6% as of June 2023, up from 62.4% in 2019 (Central Bank of Kenya, 2023).

The external sector has also faced challenges, with the current account deficit widening to 5.7% of GDP in 2022, compared to 5.4% in 2021 (Central Bank of Kenya, 2023a). This deficit has been driven by a combination of factors, including a surge in import bills for food and fuel and a slowdown in exports and tourism receipts. The Kenyan shilling has come under pressure, depreciating by around 8% against the US dollar between January and December 2022 (Central Bank of Kenya, 2023b). Kenya reached the completion point of the Heavily Indebted Poor Countries (HIPC) Initiative in 2005, receiving debt relief amounting to $1.4 billion in nominal terms (IMF and World Bank, 2005). However, the country's external debt levels have steadily risen, reaching $41.6 billion in 2022, up from $16.3 billion in 2010 (World Bank, 2024).

The composition of Kenya's external debt has also changed over time, with a growing reliance on commercial borrowing and Eurobonds. However, there has been a recent shift towards more concessional borrowing. As of June 2022, commercial debt accounted for 26.8% of the total external debt, while multilateral debt (from institutions like the World Bank and IMF) stood at 46.3%, and bilateral debt (from individual countries) at 26.6% (National Treasury, 2023). This shift towards a higher share of multilateral debt can be attributed to increased borrowing from institutions like the World Bank and IMF, often at concessional terms with lower interest rates. The Kenyan government has implemented various measures to address the debt situation, including increasing revenue collection, rationalizing expenditure, and exploring debt restructuring options. In 2021, the IMF approved a $2.34 billion extended credit facility and extended fund facility for Kenya to support the country's economic reform program and address debt vulnerabilities (IMF, 2021). However, maintaining fiscal discipline, promoting economic diversification, and addressing structural issues will be crucial for ensuring long-term debt sustainability.

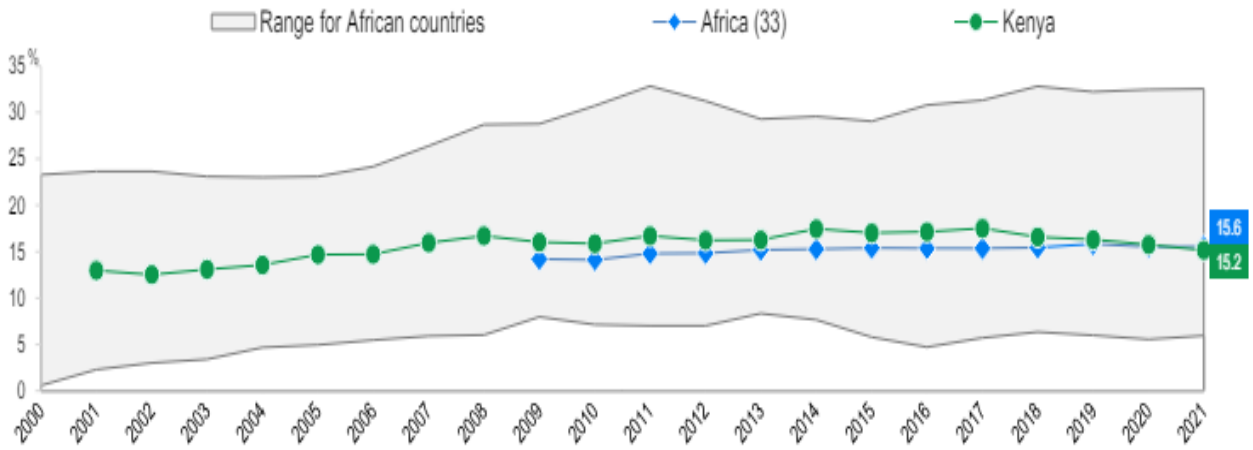



**Figure 3: Kenya's Tax-to-GDP Ratio (2000-2021)**

Kenya's tax revenue as a percentage of GDP has been on a gradual upward trend since the 1980s, albeit with some fluctuations along the way. In the early 1980s, tax revenue as a share of GDP hovered around 16-17%, according to data from the World Bank (2024). This ratio declined to around 15% in the late 1980s and early 1990s, reflecting the economic challenges faced by the country during that period. From the mid-1990s onwards, Kenya embarked on a series of tax reforms to broaden the tax base, improve tax administration, and enhance revenue collection. As a result, tax revenue as a percentage of GDP steadily increased, reaching 19.7% in 2000 and 20.6% in 2005. However, the global financial crisis of 2008-2009 led to a temporary dip, with the ratio falling to 18.8% in 2009. More recently, Kenya's tax-to-GDP ratio has experienced a decline, reaching 15.2% in 2021 (OECD, 2023). However, preliminary estimates suggest a slight improvement to 15.8% in 2022 (IMF, 2023).

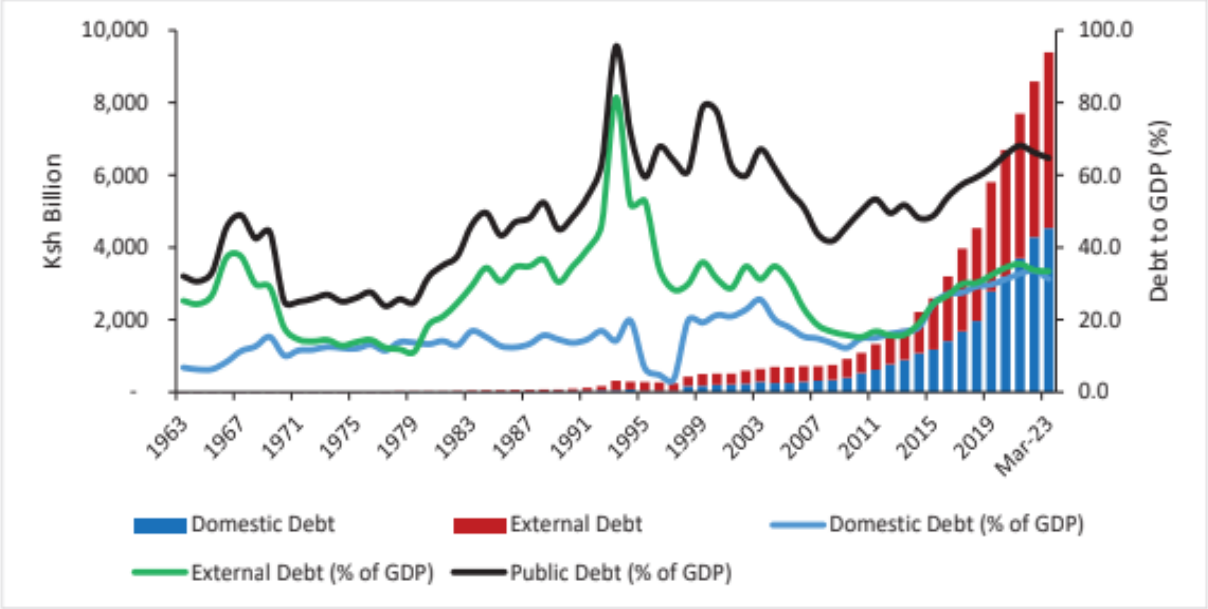
The post-crisis period witnessed a continued upward trajectory, with tax revenue as a share of GDP climbing to 21.2% in 2010 and 22.3% in 2015. This improvement can be attributed to factors such as economic growth, increased formalization of the economy, and ongoing efforts to strengthen tax compliance and administration. According to the International Monetary Fund (IMF), Kenya's tax revenue-to-GDP ratio reached a high of 15.4% in 2019, surpassing the sub-Saharan African average of 15.2% (IMF, 2020). However, the COVID-19 pandemic and its economic repercussions led to a temporary setback, with the tax revenue-to-GDP ratio declining to 15.8% in 2020 (OECD, 2023). The Kenyan government implemented various tax relief measures to support businesses and individuals during the pandemic, which impacted revenue collection. The tax-to-GDP ratio in Kenya decreased by 0.6 percentage points from 15.8% in 2020 to 15.2% in 2021. In comparison, the average for the 33 African countries within the Revenue Statistics in Africa (2023) publication has remained unchanged over the same period and was 15.6% in 2021. Since 2010, the average for the 33 African countries has increased by 1.5 percentage points, from 14.1% in 2010 to 15.6% in 2021. Over the same period, the tax-to-GDP ratio in Kenya has decreased by 0.7 percentage points, from 15.9% to 15.2%. The highest tax-to-GDP ratio reported for Kenya since 2000 was 17.5% in 2017, with the lowest being 12.5% in 2002. More recently, Kenya's tax-to-GDP ratio showed a slight recovery, reaching an estimated 15.8% in 2022, and projected to rise further to 16.1% in 2023 (IMF, 2023).

**Trends and Structure of Kenya's Post-HIPC Debt**

Kenya reached the completion point under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative in April 2005, receiving debt relief from bilateral and multilateral creditors. At the time of the HIPC completion point, Kenya's total external debt stock stood at $6.9 billion, which was a significant reduction from the $7.6 billion reported in 2003. In the years following the HIPC debt relief, Kenya's external debt stock continued to grow, though at a slower pace. By 2010, the external debt had increased to $8.8 billion, and by 2015, it had further risen to $16.9 billion. This increase was attributed to various factors, including the country's need for financing for infrastructure projects, budget deficits, and economic development initiatives. However, the pace of external debt accumulation has accelerated in recent years, reaching $37.1 billion in 2020 and $41.6 billion in 2022 (World Bank, 2024). It is estimated to reach $43.5 billion in 2023 (IMF, 2024).

As a share of GDP, public debt took an upward trend from the 1970s but peaked at 95.6 percent of GDP in June 1993. The increase in debt in 1993 is attributed to expansionary fiscal policy and disruption in foreign aid inflows leading to more uptake of foreign debt (IMF, 2023). The decline in the proportion of public debt to GDP between 1999 and 2008 is partly attributed to faster economic growth experienced especially during the implementation of the Economic Recovery Strategy 2003-2007. Public debt as a percentage of GDP has been on an upward trend since 2008, mainly driven by increased borrowing. Additionally, public debt stock has been growing relatively faster than GDP growth between 2008 and 2022. Public debt grew by an average of 18 percent annually between 2008 and 2022 compared to a GDP growth rate of about 4.5 percent per year over the same period. The proportion of external debt to GDP in Kenya followed an upward trajectory, rising from 11 percent in 1979 to a peak of 81.4 percent in 1993, before gradually decreasing to 15.3 percent in 2010. The surge in external debt in 1993 can be attributed to the significant depreciation of the Kenyan shilling against major currencies in which the debts were denominated. In contrast, domestic debt as a share of GDP remained relatively stable, experiencing a modest increase from 6.8 percent in 1963 to 14.8 percent in 2010. However, in the post-2010 period, the share of domestic debt in GDP started to grow steadily, reaching a high of 31.3 percent in March 2023. This suggests a shift in the composition of debt towards a greater reliance on domestic borrowing.

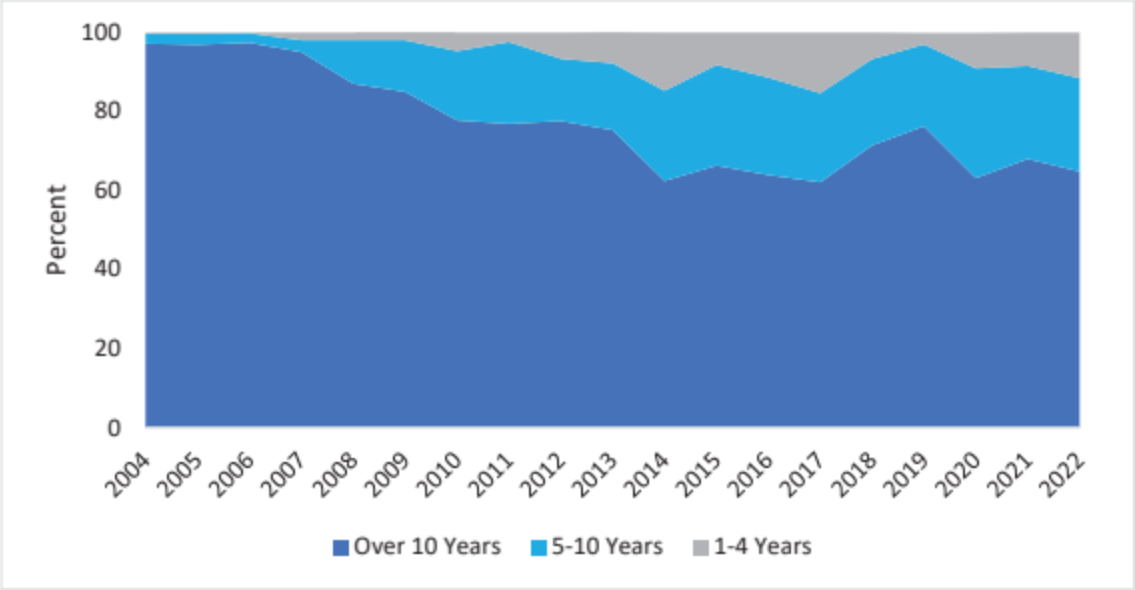
Kenya's gross public debt increased from 45.7% of GDP at the end of 2015 to 67.9% at the end of 2020. This increase reflects high deficits driven by large infrastructure projects and the COVID-19 global shock in 2020 (National Treasury, 2023). While public sector debt was projected to decline gradually after 2022, it has remained elevated, reaching 69.6% of GDP as of June 2023 (Central Bank of Kenya, 2023). Kenya's external public debt at the end of 2020 amounted to 35% of GDP, with about half of the public debt owed to external creditors. Domestic public debt reached 32.4% of GDP at the same time. Most of Kenya's external public debt remains on concessional terms. As of June 2022, multilateral creditors accounted for 46.3%, bilateral creditors for 26.6%, and commercial creditors for 26.8% of the external public debt (National Treasury, 2023). Kenya's debt service-to-revenue ratio has been high, reflecting the maturity of Eurobonds and other debt obligations. The IMF estimates that this ratio reached 57.0% in 2022 (IMF, 2023). Efforts to manage the debt service profile include considering debt management operations to improve the debt service profile and fiscal consolidation measures.




*Source: National Treasury*

**Figure 4: Trend of Public Debt Stock**

Kenya's external debt primarily consists of long-term obligations, although there has been a notable shift in the maturity profile over the years. In June 2004, debt with a maturity exceeding 10 years accounted for a significant 97.2 percent. However, by June 2022, this proportion had decreased to 64.8 percent. The share of external loans maturing between 5 and 10 years witnessed an increase from 2.6 percent in June 2004, reaching its highest point at 27.8 percent in 2020 before declining slightly to 23.6 percent in June 2022. In contrast, the proportion of external loans maturing within 4 years experienced fluctuations, standing at 11.6 percent in June 2022. This shift reflects the government's strategic objective of mitigating refinancing risks by elongating the maturity profile of its debt portfolio (National Treasury, 2023).




*Source: National Treasury (Various Issues), Annual Public Debt Report*

**Figure 5: Kenya's External Structure by Maturity**

**Regional Comparison**

Kenya's external debt has been a subject of concern in recent years, with the country's debt burden steadily rising. As of December 2022, Kenya's external debt stood at $41.6 billion, representing a significant portion of the country's GDP (World Bank, 2024). This debt burden has raised questions about the sustainability of Kenya's fiscal policies and its ability to service its external obligations. To better understand the gravity of this situation, it is essential to compare Kenya's external debt with other countries in the East African region and the broader African continent. Within the East African Community (EAC), Kenya's external debt is the highest among member states. According to data from the World Bank (2024), Kenya's external debt accounts for approximately 55.7% of the total external debt of the EAC region. The next highest external debt holder in the region is Tanzania, with $28.1 billion, followed by Uganda with $19.0 billion, and Rwanda with $7.6 billion. These figures point to the disproportionate burden that Kenya bears in terms of external debt within the regional economic bloc. Furthermore, according to the IMF's latest assessment, Kenya's external debt-to-GDP ratio was 39.6% as of December 2022 (IMF, 2024).

Comparing Kenya's external debt to other major economies in Africa, the country ranks among the top countries with the highest external debt levels. According to the World Bank (2024), the top five external debt holders in Africa as of December 2022 are Egypt ($157.8 billion), Nigeria ($108.3 billion), South Africa ($102.3 billion), Angola ($73.9 billion), and Morocco ($69.1 billion). Kenya's external debt stock was $41.6 billion, placing it sixth. While Kenya's external debt is lower than the top five countries, it is significantly higher than many other African nations, indicating the seriousness of the country's debt situation. Furthermore, when analyzing the external debt-to-GDP ratio, a commonly used indicator of a country's debt sustainability, by the end of 2022 Kenya's external debt-to-GDP ratio was approximately 39.6%, surpassing the recommended

threshold of 30% for developing economies (IMF, 2024). This ratio is higher than the average for Sub-Saharan Africa, which was 34.4% in 2022 (IMF, 2023), indicating that Kenya's external debt burden is relatively higher compared to its continental counterparts.

The composition of Kenya's external debt also raises concerns. A significant percentage of the country's external debt is owed to bilateral creditors, primarily China. According to the Kenyan National Treasury (2023), as of June 2022, approximately 64% of Kenya's bilateral debt is owed to China, amounting to $10.6 billion. This high level of indebtedness to a single creditor has sparked debates about the potential consequences of defaulting on these loans and the potential for debt distress. Kenya's external debt situation presents a significant challenge both within the East African region and in the broader African context. The country's external debt-to-GDP ratio, the composition of bilateral debt, and reliance on a single creditor like China further compound concerns about the sustainability of its external debt. Addressing this issue will require prudent fiscal management, economic reforms, and strategic debt restructuring to ensure long-term economic stability and growth.

## EMPIRICAL REVIEW

The impact of public debt on economic growth is a complex and highly debated topic in economics. A study by Yamin et al. (2023) highlighted the lack of consensus among scholars regarding this relationship. While some studies suggest that high levels of public debt can negatively impact economic growth by crowding out private investment and reducing investor confidence, others argue that public debt can have a positive effect in the long run, particularly through the fiscal multiplier effect, where government spending financed by debt stimulates economic activity. Some research even supports the Ricardian Equivalence Hypothesis, which posits that public debt has no impact on economic growth as private savings adjust to offset government borrowing. However, this hypothesis remains controversial. The relationship between public debt and economic growth is not straightforward and varies significantly based on contextual factors such as a country's stage of development, economic policies, and the specific nature of government spending. More recent research emphasizes the importance of considering factors such as the composition of debt (domestic vs. external), the quality of institutions, and the level of financial development (Kourtellos, Stengos, & Tan, 2024; Chudik et al., 2023). Therefore, policymakers need to adopt a prudent and context-specific approach to public debt management, carefully considering the potential trade-offs between short-term stimulus and long-term sustainability (Uctum & Wickens, 2023).

Pradhan and Hiremath (2020) examined changes in the status of external debt and externally induced vulnerability indicators in India. Notably, the size of the external debt of India had increased but was constant, at about 20 percent, as a ratio to GDP. The rise in the external debt was attributed to borrowing by non-government sectors. India’s vulnerability to externalities on reserve adequacy indicators was comparatively low. Yusuf and Mohd (2023) investigated the nonlinear dynamics between public debt and economic growth in Nigeria. The study aimed to explore the asymmetric impacts of public debt on economic growth, particularly in the context of the increased borrowing during the COVID-19 pandemic. Employing the Nonlinear Autoregressive Distributed Lag (NARDL) method to analyze data from 1980 to 2020, the study indicated how different types of debt affect economic growth. The findings revealed that external debt had a significant positive and symmetric impact on economic growth both in the short and long term. Conversely, domestic debt was found to hinder growth asymmetrically in the short term and linearly over the long term. Additionally, debt service payments were observed to support the

debt overhang hypothesis, which states that large debt burdens can stifle economic growth due to high repayment costs.

In Ghana, Asravor, Arthur, Acheampong, Lamptey and Yeboah (2023) investigated the sustainability of Ghana's increasing domestic debt, its impact on the economic growth rate, and the causal relationships between debt and economic growth, amid concerns over the potential stifling effects on private sector development. The study used data sourced from the World Bank and Ghana's Ministry of Finance spanning from 1994 to 2018 and employed an Autoregressive Distributed Lag (ARDL) Model along with cointegration and fully modified regression analyses to explore these dynamics. The empirical findings of the study indicated that the increases in Ghana's domestic debt had a growth-enhancing effect on the economy, contrasting with the growth-inhibiting impact of increased importation. Moreover, the application of fully modified regression and Johansen co-integration tests suggested that the current trajectory of Ghana's domestic debt is sustainable, though marginally. The study concluded that while Ghana's recent path of domestic debt accumulation appears sustainable, it exhibits signs of vulnerability that could pose risks if economic conditions change. The study recommended the implementation of elaborate fiscal policies to enhance domestic revenue generation and rationalization of government spending. Beqiraj, Fedeli, and Forte, (2018) investigated government responses to debt accumulation using panel data for 21 dissimilar Organization for Economic Co-operation and Development (OECD) countries. Variables utilized included cyclically adjusted primary balances, debt-to-GDP ratio, debt-to-potential-GDP ratio, output gap, and an indicator for the business cycle. The study showed a close relationship between debt and structural primary balance, thus reaffirming the conclusion that unrestricted growth in the debt-to-GDP ratio for long periods can be detrimental. Structural primary balance also responded positively to transitory changes in GDP.

In another study, Erick, Rotich, Njoki, Topisia, and Bosibori (2023) analyzed the dual impact of public debt on Kenya's economic growth. The objective of this research was to examine the effects of public debt on Kenya's economic development and to determine if there was an optimal debt level that could cause economic growth without the associated drawbacks. The study used secondary data from the International Monetary Fund, World Bank, Central Bank of Kenya, and Kenya National Bureau of Statistics, covering the period from 2002 to 2020. The study used multivariate regression analysis and a descriptive research design to explore the relationship between public debt and economic growth. The findings revealed that public debt had a negative effect on economic growth, although this relationship proved to be statistically insignificant for the studied period. Specifically, external debt showed a negative but insignificant impact on GDP and a positive but insignificant effect on inflation rates. Conversely, domestic debt exhibited an insignificantly positive impact on GDP and a negative but insignificant effect on inflation. The study concluded that while public debt in Kenya has not shown significant negative effects on economic growth, its overall impact remains slightly negative, suggesting caution in its use. The study recommended that public debt should be considered a last resort for public financing in Kenya, given its overall negative implications for economic growth.

Were and Mollel (2020) examined a cohort of 24 emerging and developing economies in Asia to assess external debt sustainability from 1993 to 2014. The study used the PV methodology to assess whether the external debt of countries which were further grouped into the four regions of South-East, South-West, Central, and the Pacific was sustainable in the long run. External debt was found to be sustainable for all the economies assessed. Bökemeier and Stoian (2018) investigated debt sustainability in ten countries in Eastern and Central Europe by estimating a

fiscal reaction function. The results showed that as of 2015, the debt ratios for Bulgaria and Romania were not sustainable. Moreover, linear trend analysis over 20 years showed volatile debt dynamics for Romania and Latvia. Comparisons between the stable debt ratios and the historical averages indicated debt sustainability for most countries, except Bulgaria in the long run. However unclear results were reported for five countries Slovenia, Czech Republic, Poland, Hungary, and Slovakia indicating limitations of the model employed.

## CONCEPTUAL FRAMEWORK

Evaluating debt sustainability is a complex process, particularly because of the dynamic nature of debt and the multiple factors that affect its accumulation and a country's ability to repay it both in the short and long term. There is no universally accepted definition of sustainable debt, but it is widely agreed that continuously increasing debt is unsustainable. Low or high debt levels alone do not determine debt sustainability in the long run. Various factors must be considered when conceptualizing and assessing public debt sustainability, especially in developing African countries like Kenya. These factors are briefly discussed below.

### Debt Sustainability: A Necessary Condition but Not an End in Itself

From a developmental perspective, borrowing by the government or private entities is a crucial means of financing investments essential for achieving sustainable development goals. The government's role in providing public capital through investments in infrastructure and other public goods is well-acknowledged in development literature. The Keynesian argument suggests that scaling up public investment through government borrowing, while it may lead to an increase in debt ratios in the short run, can stimulate private investment and boost export growth, thereby spurring higher growth in the medium to long-term and eventually reducing debt ratios over time. However, this depends crucially on the efficiency and productivity of public spending and a country's capacity to effectively utilize borrowed funds. While borrowing is essential for development, ensuring debt sustainability is paramount. High debt levels can constrain a country's fiscal space, increase vulnerability to economic shocks, and hinder long-term growth. Therefore, policymakers must prioritize prudent debt management, including seeking concessional financing, promoting debt transparency, and creating an enabling environment for private investment.

At the macro level, the need for government borrowing stems from the standard macroeconomic identity:

$$Y \equiv C + I + G - T + X - M \quad (1)$$

Where: Y is national output, C is consumption, I is investment, G is government expenditure, T is taxes, X is Exports, and M is imports.

Equation 1 can be rearranged to obtain the following identity:

$$S - I \equiv G - T + X - M \quad (2)$$

Where: S is savings, S – I is net savings, G − T represents budget deficit (government spending minus net taxes), and X − M is the trade surplus (net exports).

From the identity in Equation 2, the excess of saving over investments (S − I) of the private sector equals the government budget deficit plus the trade surplus (the economy's external balance). Any sector in the identity that spends more than it receives must borrow to finance excess expenditure.

Borrowing can arise when $S - I < 0$; $X - M < 0$; and $G - T > 0$.

Access to foreign capital can be crucial for countries with limited domestic savings to finance investments and promote economic growth. However, the value of foreign credit in financing long-term growth depends on several factors, including a country's level of development, the availability of domestic resources, and the type of capital inflow (Aizenman, Jinjarak, & Zheng, 2022). For many African countries, low saving rates and limited access to domestic capital markets often necessitate reliance on external financing (UNCTAD, 2020). While foreign credit can fill this gap, its effectiveness depends on whether it is used for productive investments and whether the country can manage the associated debt burden (Kharas & Kohli, 2022). Short-term lending, while potentially helpful for addressing immediate financing needs, may offer limited long-term benefits compared to foreign direct investment (FDI). FDI often brings not only much-needed capital but also access to new technologies, expanded markets, and entrepreneurial skills, contributing to productivity growth and structural transformation (Alfaro, 2019).

High debt burdens can impede economic growth and sustainable development, potentially leading to a debt overhang. When debt service costs become excessive, governments may need to raise taxes or cut spending on essential services to meet their obligations, which can discourage domestic investment and hinder economic activity. The negative effects of debt overhang on investment, particularly in developing and low-income countries, have been widely documented (Eberhardt & Presbitero, 2019). High debt levels can also increase a country's vulnerability to economic shocks and financial crises (Mbaye, Badia, & Chae, 2020). To mitigate these risks, countries should prioritize debt sustainability, using tools like Debt Sustainability Analysis (DSA) and exploring debt restructuring options when necessary (Zettelmeyer, 2020). Furthermore, strengthening domestic resource mobilization and ensuring that borrowed funds are used for productive investments are crucial for avoiding debt overhang and promoting sustainable development (Guillaumont, Kpodar, & Tapsoba, 2017)."

**Debt Dynamics Matter**

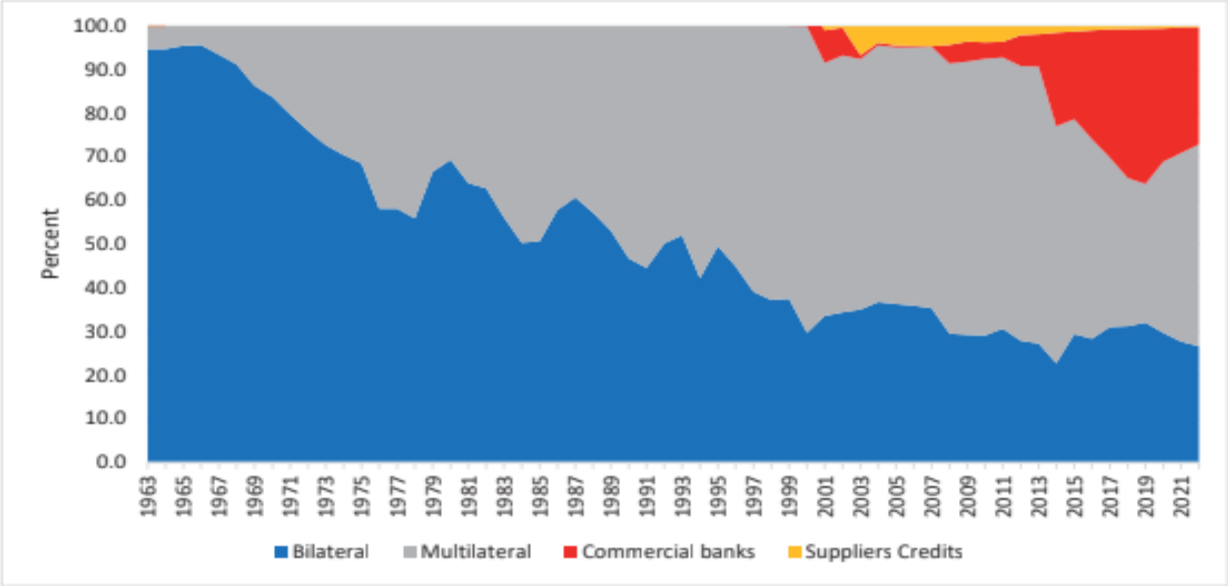
The level of debt that a country can sustain depends critically on various factors that influence its economic prospects and resilience to shocks (Kose, Ohnsorge, & Sugawara, 2020). Even if a country's current debt levels appear manageable, sudden changes in factors like exchange rates, interest rates, or GDP growth can increase the debt burden and reduce the country's capacity to service its debt (Das, Papaioannou, & Trebesch, 2021). Therefore, it is crucial to consider not only the level of debt but also the dynamics of debt accumulation and the country's vulnerability to external shocks. These dynamics are closely linked to structural factors, such as the degree of economic diversification, the quality of institutions, and the strength of macroeconomic policy frameworks (Presbitero, 2022). For example, countries with undiversified economies that rely heavily on commodity exports are particularly vulnerable to fluctuations in commodity prices, which can adversely impact export earnings and the ability to service.

In debt sustainability analysis, two commonly used indicators are solvency and liquidity debt indicators. Solvency risk refers to the country's overall economic capacity to accommodate and meet debt obligations, measured by the debt-to-GDP ratio relative to a given threshold. Liquidity risk reflects the country's ability to manage and meet upcoming debt service obligations, measured by the ratio of debt service to exports and revenue. These two types of risks are not necessarily congruent, as a country could face challenges in one category while not in the other. Therefore, it is essential to consider debt ratios in conjunction with the overall dynamics of key domestic and external factors that determine the actual debt sustainability outcome in the medium to long run.

**Composition of Debt**

Kenya's external financing in the period after independence to the late 1980s relied heavily on bilateral creditors. Bilateral debt accounted for an average of approximately 70.0 percent of total external debt between 1963 and 1989, while multilateral debt averaged 29.0 percent over the same period. Since 2000, Kenya's external debt stock has been on the rise, driven by various factors such as the issuance of sovereign bonds, commercial syndicated loans, increased bilateral credits, and foreign exchange rate fluctuations. The share of commercial debt in external debt increased significantly from 6.3 percent in June 2000 to a record high of 35.6 percent in June 2019. The growth in commercial loans in Kenya's external debt stock was driven by the issuance of Eurobonds between 2014 and 2021 to support the government budget and finance infrastructure projects contributed to the increase in commercial debt. However, by June 2022, the proportion of commercial debt had dropped to 26.8 percent due to a shift towards more concessional borrowing aimed at addressing the challenges posed by the COVID-19 pandemic.

In June 2000, multilateral debt accounted for 70.3 percent of total external debt. However, in June 2022, the share of multilateral debt had decreased to 46.3 percent (Kenya National Bureau of Statistics (KNBS), 2021). This indicates a reduction of nearly 24 percentage points in the share of multilateral debt since 2000. The shift towards commercial debt resulted in a lower share of multilateral debt in the overall external debt stock. Kenya actively pursued alternative sources of financing, including commercial borrowing. The government issued sovereign bonds and engaged in commercial syndicated loans to access funds for budgetary needs and infrastructure development. However, the share of bilateral debt remained relatively stable between June 2000 and June 2022. Bilateral debt accounted for 35.0 percent of total external debt in June 2000 but declined to 26.6 percent in June 2022. The decreasing share of multilateral debt and the increasing share of commercial debt are in part due to a change in Kenya's income status. In 2014, Kenya transitioned from a low-income country (LIC) to a lower-middle-income country (LMIC). Consequently, Kenya, by World Bank and IMF standards is not meant to access concessional loans meant for the LICs, pushing the country to go for commercial loans, which have little conditionalities compared to the multilateral loans.




*Source: Annual Public Debt Management Report (Various issues) and KNBS (Various), Economic Surveys*

Figure 5: Composition of External Debt

**Macroeconomic and Public Debt Management**

Public debt sustainability refers to the result of the interaction between fiscal policy and the economic environment, rather than merely a statistical concept. If debt is not to increase over time, policymakers must respond to changing macroeconomic conditions. Even if debt levels are low, they can still lead to accumulation and sustainability challenges if not managed prudently. Public debt management involves establishing and executing a strategy to raise the required funding at the lowest possible cost over the medium to long term while considering exposure to market risks such as exchange rate and interest rate volatility (World Bank, 2017). Furthermore, as countries continue to witness a rise in contingent liabilities, particularly after the global financial crisis, a consolidated fiscal account that considers both explicit and implicit government contingent liabilities is crucial in assessing exposure to debt risk. The sustainability of public debt is a dynamic concept that requires careful management of fiscal policy in response to the prevailing economic environment, consideration of market factors, and accounting for contingent liabilities, rather than solely relying on statistical debt levels.

## METHODOLOGY: PUBLIC DEBT SUSTAINABILITY ASSESSMENT FRAMEWORK

Apart from exploratory analysis of debt evolution and structure, debt sustainability is assessed based on two key approaches: the widely used debt sustainability framework developed by the International Monetary Fund (IMF) and the World Bank, and an empirical estimation of a fiscal reaction function specifically for Kenya. The IMF/World Bank debt sustainability framework (DSF) is a standardized analytical tool used to evaluate a country's debt sustainability by projecting debt dynamics over the medium to long term. This framework considers the macroeconomic assumptions, financing needs, and policy targets to assess debt vulnerability and guide borrowing decisions (IMF and World Bank, 2017). This framework helps identify potential risks to debt sustainability and guides borrowing decisions and policy adjustments.

Furthermore, an empirical fiscal reaction function can be estimated for Kenya to analyze the country's historical fiscal policy response to changes in debt levels. A fiscal reaction function captures the relationship between a government's primary balance (difference between revenues and non-interest expenditures) and its debt level, reflecting the willingness and ability of policymakers to adjust fiscal policy to stabilize or reduce debt (Bohn, 1998; Mendoza & Ostry, 2008). This analysis provides insights into Kenya's past fiscal behavior and its implications for future debt sustainability. Recent studies have utilized this approach to examine fiscal sustainability in Kenya, considering factors such as election cycles, economic shocks, and the impact of devolution on fiscal policy (Mutuku, 2015; Ikikii, 2017; Otieno et al., 2023). This analysis provides insights into Kenya's past fiscal behavior and its implications for future debt sustainability.

**Debt Sustainability Framework by the IMF - World Bank**

The standard approach to debt sustainability analysis (DSA) focuses on the debt-to-GDP ratio. The IMF-World Bank Debt Sustainability Framework for Low-Income Countries (LIC DSF) and Debt Sustainability Framework for Market Access Countries (MAC DSF) are the most widely used frameworks for assessing and conducting DSA. These frameworks were introduced in 2005 and have undergone various developments, with the latest review in July 2018. They are extensively utilized by the Bretton Woods institutions, lenders, and borrowers as the primary basis for guiding borrowing and lending decisions.

The DSA involves an analysis of a country's projected debt burden over the next ten years and its vulnerability to shocks, based on medium-term projections of macroeconomic variables and assumptions regarding changes in the primary balance. Based on these projections, baseline and stress test scenarios are calculated. The assessment of the risk of external and overall debt distress is based on predetermined debt burden thresholds and benchmarks. The framework focuses on the present value of debt obligations for comparability, with a 5 percent discount rate used to calculate the present value of external debt. To assess debt sustainability, debt burden indicators are compared with indicative thresholds over the projection period. The risk of external public debt distress is categorized into four ratings: low risk, moderate risk, high risk, and in debt distress. The key advantage of the DSF/DSA framework is its simplicity, which allows for easy replication across different countries.

**Table 1: Debt Burden Thresholds and Benchmarks under the DSF**

| | PV of external debt in % of | | External debt service in % of | | PV of total public debt in % of |
|---|---|---|---|---|---|
| | GDP | Exports | Export | Revenue | GDP |
| Weak | 30 | 140 | 10 | 14 | 35 |
| Medium | 40 | 180 | 15 | 18 | 55 |
| Strong | 50 | 240 | 21 | 23 | 70 |

*Source: Reproduced from IMF (2020)*

While the DSF is heavily relied upon, it has faced several criticisms due to its limitations. One critique is that its focus on the present value of debt is outdated. Moreover, only concessional external debt is discounted at an arbitrary rate of 5%, which may not accurately reflect the different types of public debt (concessional, market debt, Eurobonds, non-concessional bilateral loans) at

varying interest rates. According to Law, Ng, Kutan, and Law (2021), nominal debt and the weighted average of these different types of debt are more relevant for debt dynamics analysis. Additionally, the IMF-World Bank framework is overly optimistic in its projections and assumptions about growth and fiscal adjustments. Despite this, borrowing agreements are based on the DSAs obtained using this framework, leading countries to continue borrowing (Atingi-Ego, Timuno & Makuve, 2021). Atingi's analysis showed a tendency for optimism bias, with significant errors in growth forecasts for some countries.

Moreover, the simulations do not account for the uncertainty of macroeconomic forecasts given the volatile global environment faced by low-income and emerging market economies, which is a major drawback (Rogoff, 2022). The DSF also does not distinguish between debt sustainability issues arising from misuse of public resources and weak fiscal institutions versus those linked to relatively more meaningful infrastructure investments. Concerns have also been raised about the need for country-specific benchmarks for domestic debt and total public debt, beyond the internationally set benchmarks, to better assess sustainability and vulnerabilities. Furthermore, robust analysis of variables that drive debt relative to GDP, fiscal deficits, interest rate differentials, exchange rate risks, and current account deficits is crucial but lacking in the current framework.

**Fiscal Reaction Function**

Governments must adhere to a present value (PV) borrowing constraint, balancing their budgets over time by equating current debt market value with the discounted sum of expected future surpluses. Failing to maintain this intertemporal budget balance may indicate unsustainable fiscal policy, as debt value would grow faster than the economy. However, this does not necessarily require balanced budgets. Empirical research on fiscal sustainability often employs univariate and multivariate techniques, particularly unit root tests and fiscal rules analysis. Notable contributions include Makala and Bouzid (2020) and Ferraz, Sarmento, and Duarte (2024), though some researchers such as Ferraz (2023) have questioned the necessity of stationarity and cointegration restrictions. The PV budget constraint-based sustainability definition has also faced criticism for lacking solid economic reasoning.

A model-based approach, as proposed by Bohn (1998), is recommended for testing sustainability. This involves estimating a fiscal reaction function that relates the primary surplus to the debt-to-GDP ratio (Can, 2023). A sustainable fiscal policy should increase the primary surplus in response to rising debt. This approach aims to capture the relationship between fiscal policy (represented by primary balance) and debt stability. Following Bohn's methodology, a fiscal reaction function for Tanzania is estimated. This function describes how a country's fiscal policy, measured by primary balance, responds to changes in debt levels and economic cycles (output gap). A positive and statistically significant fiscal response coefficient indicates debt sustainability. The model includes a lagged primary balance to account for potential deficit bias and gradual budget adjustments, while also controlling for serial autocorrelation. This approach aligns with similar studies by researchers like Paret (2017) and Bartoletto, Chiarini, Marzano, and Piselli, (2015). Econometrically, this also controls for serial autocorrelation. The basic equation is specified below: -

$$pb_t = a_0 + a_1 d_{t-1} + a_2 pb_{t-1} + a_1 og_t + \varepsilon_t$$

Where $pb$ is the primary balance measured as a ratio to GDP; $dt{-}1$ is the debt at the end of the previous period measured as a ratio to GDP, $ogt$ is the output gap at time $t$ and $\varepsilon t$ is the error term.

The above equation is estimated using the general method of moments (GMM). This approach is best suited to dealing with potential endogeneity. However, the ordinary least squares (OLS) estimation results are also reported for robustness. The data used for the empirical analysis cover the period 2015–2022. Data are from statistics produced by the IMF-World Bank, Treasury, CBK, and KNBS.

**Results of Debt Sustainability Analyses**

This section presents the results of the debt sustainability analyses based on the IMF-World Bank DSF and empirical estimation of the fiscal reaction function.

**Debt Sustainability Analysis based on the IMF-World Bank DSF**

The IMF-World Bank usually works with low-income countries to produce regular DSAs using the Debt Sustainability Framework (DSF). Table 2 shows the results of Kenya's current and projected Debt Sustainability Analysis between 2021 and 2042.

**Table 2: Kenya's Debt Sustainability Analysis Results**

| Indicators for medium DCC | Thresholds (Medium) | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2032 | 2042 |
|---|---|---|---|---|---|---|---|---|---|---|
| ***External DSA*** | | | | | | | | | | |
| PV of Debt to GDP | 40 | 27.4 | 26.6 | 26.8 | 26.1 | 25.6 | 25.1 | 25 | 24.2 | 17.7 |
| PV of Debt to Exports | 180 | 256.1 | 221.5 | 208.6 | 195.9 | 186.5 | 179.8 | 175.4 | 143.4 | 68.8 |
| Debt Service to Exports | 15 | 23.5 | 22.6 | 20.5 | 29.6 | 21.2 | 19.2 | 15.8 | 14.5 | 7.3 |
| Debt Service to Revenue | 18 | 15.3 | 15.7 | 15.2 | 22.3 | 16.5 | 15.2 | 12.6 | 13.3 | 9 |
| ***Fiscal DSA*** | | | | | | | | | | |
| PV of Total Public Debt to GDP | 55 | 61.6 | 61.7 | 60 | 57.8 | 55.9 | 54 | 52.5 | 44 | 24.1 |
| PV of Public Debt to Revenue | N/A | 368.7 | 353.1 | 340.4 | 322.5 | 310.9 | 301 | 289.6 | 235.3 | 114.9 |
| Debt Service to Revenue | N/A | 55.9 | 52 | 57 | 62.7 | 54.5 | 49.9 | 43.9 | 39.1 | 17 |

*Source: authors' compilation based on IMF Country Report No. 22/382, December 2022 and Republic of Kenya (2022)*

The analysis results show that the Present Value (PV) of the debt-to-GDP ratio is a crucial indicator that measures a country's ability to service its debt from its national income. According to the medium debt-carrying capacity (DCC) thresholds, this ratio should be below 40%. Kenya's PV of Debt to GDP ratio was 27.4% in 2021, which was within the threshold. However, the ratio has been projected to decline gradually over the years, reaching 17.7% by 2042. This declining trend suggests that Kenya's external debt burden relative to its GDP is expected to become more manageable in the long run. Additionally, the PV of the Debt to Exports ratio measures a country's

ability to service its debt from its export earnings. The medium DCC threshold for this ratio was 180%. In 2021, Kenya's PV of Debt to Exports ratio stood at 256.1%, which was above the threshold, indicating that the country's external debt burden relative to its export earnings was relatively high. However, this ratio is projected to decline consistently, reaching 68.8% by 2042, which is below the threshold. This improvement implies that Kenya's external debt burden relative to its export earnings is expected to become more sustainable over time.

Furthermore, the debt service to exports ratio measures the proportion of a country's export earnings required to service its external debt. The medium DCC threshold for this ratio was 15%. Kenya's Debt Service to Exports ratio was 23.5% in 2021, exceeding the threshold. Although this ratio is projected to fluctuate over the years, it is expected to decline to 7.3% by 2042, which is below the threshold. This improvement suggests that Kenya's external debt service burden relative to its export earnings is expected to become more manageable in the long run. The results also show that the debt service to revenue ratio measures the proportion of a country's government revenue required to service its external debt. The medium DCC threshold for this ratio was set at 18%. Kenya's Debt Service to Revenue ratio was found to be 15.3% in 2021, which is below the threshold. While this ratio is projected to fluctuate over the years, reaching a peak of 22.3% in 2024, it is expected to decline to 9% by 2042, which is below the threshold. This trend implies that Kenya's external debt service burden relative to its government revenue is expected to become more sustainable in the long run.

The PV of total public debt to GDP ratio which is considered is a comprehensive indicator that captures both external and domestic public debt obligations relative to the country's national income. The medium DCC threshold for this ratio was 55%. In 2021, Kenya's PV of Total Public Debt to GDP ratio stood at 61.6%, exceeding the threshold, but is projected to decline gradually over the years, reaching 55.9% in 2025, which is still slightly above the threshold. However, by 2032, the ratio is expected to drop to 44%, below the threshold, and further decline to 24.1% by 2042. This significant improvement suggests that Kenya's overall public debt burden relative to its GDP is expected to become increasingly sustainable in the long run, alleviating concerns about debt sustainability. The results generally indicate that while Kenya's external debt burden is currently relatively high, the projections suggest that the country's debt sustainability indicators are expected to improve significantly in the long run, indicating a more manageable external debt situation.

**Empirical Results Based on Fiscal Reaction Function**

The empirical results of the fiscal reaction function estimated using the Generalized Method of Moments (GMM) and the Ordinary Least Squares (OLS) are reported in Tables 3 and 4. Equation 1 refers to the basic equation as previously specified, with fiscal balance on the left-hand side and lagged public debt ratio, lagged fiscal balance, and output gap as explanatory variables. Table 3 shows the empirical results of Kenya’s public debt for the period between 2015 and 2022.

**Table 3: Empirical Results on Public Debt**

| Method | Equation | Fb(-1) | Pub(-1) | Ygap | Constant | Adjusted R-squared |
|---|---|---|---|---|---|---|
| GMM | Eq. 1 | 0.09** | 0.010 | -0.10 | -0.006 | 0.43 |
| GMM | Eq. 2 | 1.21*** | 0.028** | -0.25 | -0.007 | 0.51 |
| OLS | Eq. 1 | 0.69** | 0.011 | 0.02 | -0.012 | 0.38 |
| OLS | Eq. 2 | 0.54** | 0.007 | 0.09 | -0.023 | 0.57 |

*Note: *** indicates 1%, ** 5%, and * 10% levels of significance; t-statistics in brackets; FB(−1) = lagged fiscal primary balance, Pub(−1) = lagged public-debt-to-GDP ratio, Ygap = output gap.*

*Source: authors' analysis*

The empirical results in Table 3, show that the lagged fiscal balance Fb(-1) coefficient was positive and significant at 0.09**, indicating that the past fiscal balances positively influence current fiscal balances. This suggests that maintaining a surplus or minimizing deficits in previous periods contributes to improved fiscal outcomes in subsequent periods. The lagged public debt-to-GDP ratio Pub(-1) coefficient is 0.010, which was positive but not statistically significant, implying a weak direct relationship between past public debt levels and the current fiscal balance. The output gap (Ygap) had a negative coefficient of -0.10, highlighting that economic performance below potential output adversely impacts the fiscal balance. The adjusted R-squared value was found to be 0.43, indicating that the model explains 43% of the variability in the fiscal balance. In Equation 2, the inclusion of a dummy variable for policy changes significantly improves the model, with the lagged fiscal balance coefficient increasing to 1.21*** and the lagged public-debt-to-GDP ratio coefficient becoming significant at 0.028**. The negative output gap coefficient remains similar at -0.25, while the constant term is -0.007, and the adjusted R-squared improves to 0.51.

The Ordinary Least Squares (OLS) results further complement the GMM findings. In Equation 1, the lagged fiscal balance coefficient is 0.69**, indicating a strong positive impact of past fiscal balances on the current fiscal balance. The lagged public debt-to-GDP ratio remains positive but insignificant at 0.011, while the output gap coefficient is slightly positive at 0.02, contrasting with the GMM results, suggesting different sensitivity levels to economic performance. The adjusted R-squared was 0.38, showing a lower explanatory power compared to the GMM method. In Equation 2, the OLS method yields a lagged fiscal balance coefficient of 0.54** and a lagged public-debt-to-GDP ratio coefficient of 0.007, both positive but with the latter being insignificant. The output gap coefficient is positive at 0.09, indicating a potential counter-cyclical fiscal policy response. The constant term is -0.023, and the adjusted R-squared value is 0.57, indicating a better model fit than Equation 1.

These findings suggest that Kenya's fiscal policy is reactive to past fiscal performance, with policy adjustments influencing fiscal discipline and public debt management. The positive and significant coefficients for the lagged fiscal balance underscore the importance of prudent fiscal management, as fiscal surpluses or deficits in previous periods play a significant role in shaping current fiscal outcomes. The varying significance of the public debt ratio across different methods highlights the complexity of debt dynamics, suggesting that factors influencing public debt are not uniform and depend on the modeling approach used.

While the empirical evidence on debt sustainability is mixed, the significant role of the lagged fiscal balance indicates that consistent fiscal discipline is crucial for managing public debt. Although the output gap shows some significance in specific models, it is largely statistically insignificant in others, suggesting its effect on debt sustainability is not as robust as fiscal policy. These results suggest that for Kenya to maintain long-term fiscal stability, it must adopt responsive policy measures that prioritize fiscal discipline, as this remains a key driver in managing public debt and ensuring sustainability in the face of economic fluctuations. Table 4 shows the empirical results on external debt.

**Table 4: Empirical Results on External Debt**

| Method | Equation | Fb(-1) | Ext(-1) | Ygap | Constant | Adjusted R-squared |
|---|---|---|---|---|---|---|
| GMM | Equation 1 | 1.04 | 0.015 | -0.16 | -0.004 | 0.31 |
| GMM | Equation 2 | 1.19 | 0.007 | -0.38 | -0.002 | 0.29 |
| OLS | Equation 1 | 0.65 | 0.003 | -0.06 | -0.014 | 0.53 |
| OLS | Equation 2 | 0.73 | 0.005 | 0.012 | -0.032 | 0.67 |

*Note: *** indicates 1%, ** 5%, and * 10% levels of significance; t-statistics in brackets; FB(−1) = lagged fiscal primary balance, Pub(−1) = lagged public-debt-to-GDP ratio, Ygap = output gap.*

*Source: authors' analysis*

The empirical results in Table 4 present findings from both GMM and OLS methods. Under the GMM approach, Equation 1 shows that the lagged fiscal balance (Fb(-1)) positively influences the current fiscal balance, with a coefficient of 1.04. The lagged external-debt-to-GDP ratio (Ext(-1)) has a positive but statistically insignificant coefficient of 0.015. The output gap (Ygap) negatively affects the fiscal balance, with a coefficient of -0.16, suggesting that poor economic performance worsens fiscal challenges. The adjusted R-squared for this equation is 0.31, indicating moderate explanatory power. In Equation 2, the coefficient for Fb(-1) increases to 1.19, indicating a stronger effect, while Ext(-1) remains positive but smaller at 0.007 and still insignificant. The output gap's coefficient becomes more negative at -0.38, indicating heightened sensitivity to economic downturns. The adjusted R-squared decreases slightly to 0.29.

In the OLS method, the lagged fiscal balance remains positively influential with coefficients of 0.65 in Equation 1 and 0.73 in Equation 2. The Ext(-1) coefficients are low and insignificant at 0.003 and 0.005, respectively. The output gap has a small negative impact in Equation 1 (-0.06) and a marginally positive impact in Equation 2 (0.012). The OLS results show higher adjusted R-squared values of 0.53 and 0.67, indicating a better model fit compared to the GMM results. These findings highlight the significant role of past fiscal balances in shaping current fiscal outcomes, while external debt and the output gap exhibit limited and inconsistent effects.

Overall, the results suggest that Kenya's fiscal policy is responsive to past fiscal balances and economic performance, underscoring the importance of robust fiscal management and adaptable policies for managing external debt sustainably. The GMM models show moderate explanatory power, indicating the complexity of external debt dynamics, while the OLS models show higher explanatory power, emphasizing the role of broader economic factors in debt sustainability. This comparison implies that while the Debt Sustainability Framework (DSF) provides useful long-term debt projections, the fiscal reaction function (lagged fiscal balance) offers insights into short-

term fiscal adjustments, emphasizing the need for a balanced approach to debt management and policy formulation for long-term sustainability.

## CONCLUSION AND POLICY IMPLICATIONS

The debt sustainability analyses conducted using the IMF-World Bank Debt Sustainability Framework (DSF) and the empirical estimation of the fiscal reaction function for Kenya yield informative findings. Based on the results, it is evident that while Kenya's external and fiscal debt burden is currently high, with some indicators exceeding the prescribed thresholds, the projections suggest a significant improvement in debt sustainability over the long term. By 2042, all debt sustainability indicators are expected to fall well below the thresholds, reflecting a more manageable and sustainable debt situation for the country. However, these projections are contingent upon the realization of favorable macroeconomic assumptions and the implementation of prudent debt management strategies.

The consistent decline in the Present Value (PV) of the debt-to-GDP ratio indicates a gradual reduction in Kenya's external debt burden relative to its national income. Similarly, the PV of Debt to Exports ratio is projected to drop suggesting an enhanced capacity to service external debt from export earnings. Moreover, the Debt Service to Exports ratio is also expected to decrease significantly, indicating a reduced burden of external debt service relative to export earnings. These trends point to the potential for Kenya to achieve a more sustainable external debt position in the long run, provided that the underlying assumptions hold.

Regarding fiscal debt sustainability, the PV of the Total Public Debt to GDP ratio is projected to decline between now and 2042 to levels below the 55% threshold. Furthermore, the PV of the Public debt-to-revenue ratio and the Debt Service to Revenue ratio are expected to decrease substantially, suggesting an improved ability to service public debt obligations from government revenue sources. These improvements in fiscal debt sustainability indicators are crucial for enhancing Kenya's fiscal space and enabling the allocation of resources towards developmental priorities.

While the DSF results paint a promising picture of Kenya's long-term debt sustainability, it is important to acknowledge the limitations of the framework. The DSF has faced criticisms for its reliance on present value calculations, potentially optimistic assumptions, and the lack of country-specific benchmarks for domestic and total public debt. Furthermore, the framework does not adequately account for the uncertainty of macroeconomic forecasts in the volatile global environment faced by emerging market economies like Kenya. Thus, it is crucial to interpret the DSF results with caution and complement them with additional analyses and risk assessments.

To maintain debt sustainability and mitigate potential risks, Kenya should prioritize prudent debt management strategies and fiscal discipline. This includes pursuing a balanced approach to borrowing, favoring concessional financing sources whenever possible, and exercising caution when engaging in commercial borrowing. Enhancing domestic resource mobilization through tax reforms and public-private partnerships will also reduce reliance on external debt. Furthermore, efforts should be made to improve the efficiency of public investment, ensuring that borrowed funds are utilized effectively for productive and growth-enhancing projects.

Moreover, it is essential to strengthen institutional capacity for debt management and risk assessment. Building robust systems for monitoring and analyzing debt dynamics, contingent liabilities, and potential vulnerabilities is necessary for informed decision-making and timely

policy adjustments. Additionally, fostering transparency and accountability in debt management practices will play an important role in improving public confidence and facilitating access to favorable financing terms from lenders. By implementing these measures, Kenya will be in a position to address the challenges of debt sustainability more effectively and create a conducive environment for sustainable economic growth and development.

**Disclosure statement**

The authors declare no conflicts of interest related to this study.

**Funding**

This research was self-funded by the authors.

## REFERENCES

African Development Bank. (2003). African Economic Outlook 2003. OECD Publishing.

Arezki, R., Dumitrescu, E., Freytag, A., & Quintyn, M. (2017). Commodity prices and exchange rate volatility: Lessons from South Africa's capital account liberalization. *Journal of International Money and Finance*, *72*, 94-121.

Asravor, R. K., Arthur, L. A., Acheampong, V., Lamptey, C., & Yeboah, M. (2023). Domestic debt sustainability and economic growth: evidence from Ghana. *Research in Globalization*, *100144*.

Atingi-Ego, M., Timuno, S., & Makuve, T. (2021). Public debt accumulation in SSA: A looming debt crisis. *Journal of African Economies*, *30*(Supplement_1), i103-i139.

Bartoletto, S., Chiarini, B., Marzano, E., & Piselli, P. (2015). Business cycles, credit cycles and bank holdings of sovereign bonds: historical evidence for Italy 1861-2013.

Beqiraj, E., Fedeli, S., & Forte, F. (2018). Public debt sustainability: An empirical study on OECD countries. *Journal of Macroeconomics*, *58*, 238-248.

Bohn, H. (1998). The behavior of US public debt and deficits. *The Quarterly Journal of Economics*, *113*(3), 949-963.

Bökemeier, B., & Stoian, A. (2018). Debt sustainability issues in central and east European countries. *Eastern European Economics*, *56*(5), 438-470.

Can, C. K. (2023). Estimating Bohn's Fiscal Sustainability Model with Temporal Variation: Evidence from Turkey. *Prague Economic Papers*, *32*(1), 61-83.

Central Bank of Kenya. (2023). *Annual Report 2022/2023*.

Chibi, A., Chekouri, S. M., Benbouziane, M., & Boulila, H. (2022, February). Essays on Fiscal Sustainability in Algeria. Economic Research Forum (ERF).

Chien, F., Chau, K. Y., Aldeehani, T. M., Huy, P. Q., Tan, L. P., & Mohsin, M. (2022). Does external debt as a new determinant of fiscal policy influence sustainable economic growth: implications after COVID-19? *Economic Change and Restructuring*, 1-21.

Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2023). Is there a debt-threshold effect on output growth? *Journal of Applied Econometrics*, *38*(7), 1229-1254.

Collignon, S. (2012). Fiscal policy rules and the sustainability of public debt in Europe. *International Economic Review*, *53*(2), 539-567.

Das, U. S., Papaioannou, E., & Trebesch, C. (2021). Sovereign debt restructurings 1950–2010: Literature survey, data, and stylized facts. *Journal of International Economics*, *128*, 103393.

Dubbert, T. (2024). Stochastic debt sustainability analysis using time-varying fiscal reaction functions - an agnostic approach to fiscal forecasting. *Applied Economics*, *56*(8), 901-917.

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

Eberhardt, M., & Presbitero, A. F. (2019). Public debt and growth: Heterogeneity and non-linearity. *Journal of International Economics*, *118*, 45-58.

Erick, O., Rotich, J. K., Njoki, F. W., Topisia, F. N., & Bosibori, T. O. (2023). The Effect of Public Debt on Economic Growth in Kenya. *International Journal of Research and Innovation in Social Science*, *7*(2), 254-283.

Ferraz, R. (2023). Testing the Sustainability of Fiscal Policy during the Portuguese First Republic Using Stationary and Cointegration Tests. *Economies*, *11*(11), 267.

Ferraz, R., Sarmento, J. M., & Duarte, A. P. (2024). The Sustainability of Portuguese Fiscal Policy in Democracy, 1974–2020. *Journal of Quantitative Economics*, 1-24.

Furceri, D., & Zdzienicka, A. (2019). The effects of public debt on growth: Evidence from a large panel of countries. *OECD Economics Department Working Papers*, No. 1594.

Ghosh, A. R., Kim, J. I., Mendoza, E. G., Ostry, J. D., & Qureshi, M. S. (2013). Fiscal fatigue, fiscal space and debt sustainability in advanced economies. *The Economic Journal*, *123*(566), F4-F30.

Guillaumont, P., Kpodar, K., & Tapsoba, S. J. A. (2017). Public debt and growth in developing countries: The role of institutions. *World Development*, *90*, 17-31.

Ikikii, S. M. (2017). Fiscal policy reaction function for Kenya. *Developing Country Studies*, *7*(6), 12-23.

IMF and World Bank. (2005). *Kenya: Completion Point Document for the Enhanced Heavily Indebted Poor Countries (HIPC) Initiative*.

IMF and World Bank. (2017). *Guidance Note on the Bank-Fund Debt Sustainability Framework for Low-Income Countries*.

IMF. (2020). *World Economic Outlook, October 2020: A Long and Difficult Ascent*.

IMF. (2023). *Kenya: Selected Issues*.

IMF. (2024). *Kenya: Staff Report for the 2023 Article IV Consultation, Sixth Reviews Under the Extended Fund Facility and Extended Credit Facility Arrangements, Requests for Augmentations of Access, Modification of Performance Criteria, Waiver of No observance of Performance Criteria, Waiver of Applicability of Performance Criteria, and First*

*Review Under the Resilience and Sustainability Facility Arrangement—Debt Sustainability Analysis*.

James Ochieng, H. C., Omanyo, D., Kiriga, B., & Nato, J. (2023). Public Debt in Kenya: Management and Sustainability.

Kenya National Bureau of Statistics. (2009). *The 2009 Kenya population and housing census* (Vol. 1).

Kenya National Bureau of Statistics. (2024). *Economic Survey 2024*.

Khan, H., Marimuthu, M., & Lai, F. W. (2020). Fiscal deficit and its less inflationary sources of borrowing with the moderating role of political instability: Evidence from Malaysia. *Sustainability*, *12*(1), 366.

Kharas, H., & Kohli, H. (2022). *Leaving no one behind: Time for action on the SDGs*. Brookings Institution Press.

Kose, M. A., Ohnsorge, F., & Sugawara, N. (2020). Debt and financial crises. *Journal of International Economics*, *126*, 103349.

Kourtellos, A., Stengos, T., & Tan, C. M. (2024). The effect of public debt on growth: A nonlinear heterogeneous panel data approach. *Journal of Macroeconomics*, *77*, 103521.

Law, S. H., Ng, C. H., Kutan, A. M., & Law, Z. K. (2021). Public debt and economic growth in developing countries: Nonlinearity and threshold analysis. *Economic Modelling*, *98*, 26-40.

Makala, U. E., & Bouzid, K. N. (2020). An Investigation of Debt Sustainability Issue in Gabon. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *1*(3), 58-72.

Mbaye, S., Badia, M., & Chae, K. (2020). Public debt and financial crises in developing countries. *Journal of International Money and Finance*, *102*, 102114.

Mehrotra, N. R., & Sergeyev, D. (2021). Debt sustainability in a low-interest rate world. *Journal of Monetary Economics*, *124*, S1-S18.

Mendoza, E. G., & Ostry, J. D. (2008). International evidence on fiscal solvency: Is fiscal policy "responsible"? *Journal of Monetary Economics*, *55*(6), 1081-1093.

Mustapha, S., & Prizzon, A. (2015). Debt sustainability and debt management in developing Countries. *Economic and Private Sector Professional Evidence and Applied Knowledge Service Topic Guide*. London: Overseas Development Institute.

Mutuku, C. (2015). Assessing fiscal policy cyclicality and sustainability: A fiscal reaction function for Kenya. *Journal of Economics Library*, *2*(3), 173-191.

National Treasury of Kenya. (2023). *Annual Public Debt Management Report 2022/2023*.

OECD. (2023). *Revenue Statistics in Africa 2023*.

Ogbeifun, L., & Shobande, O. (2020). Debt sustainability and the fiscal reaction function: evidence from MIST countries. *Future Business Journal*, *6*(1), 33.

Otieno, P. A., Ndolo, H., & Nyangweso, G. (2023). Fiscal sustainability in Kenya: An empirical assessment using the fiscal reaction function. *Cogent Economics & Finance*, *11*(1), 2143670.

Paret, A. C. (2017). Debt sustainability in emerging market countries: Some policy guidelines from a fan-chart approach. *Economic Modelling*, *63*, 26-45.

Pradhan, A. K., & Hiremath, G. S. (2020). Why do Indian firms borrow in foreign currency? *Margin: The Journal of Applied Economic Research*, *14*(2), 191-211.

Presbitero, A. F. (2022). Public debt and economic growth in advanced economies: A survey. *Journal of Economic Literature*, *60*(4), 1325-1407.

Rahaman, A., & Mahadeo, S. M. R. (2024). Constructing country-specific debt sustainability indices for developing countries.

Rashied, M. (2021). *Is Egypt on a Sustainable Path of Debt Repayment: Evidence from IMF Framework and Fiscal Reaction Function*. The American University in Cairo (Egypt).

Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*, *100*(2), 573-78.

Rogoff, K. (2022). Emerging market sovereign debt in the aftermath of the pandemic. *Journal of Economic Perspectives*, *36*(4), 147-166.

Stiglitz, J. E. (2016). *Globalization and its discontents revisited: Anti-globalization in the era of Trump*. W. W. Norton & Company.

Uctum, M., & Wickens, M. (2023). Debt sustainability and the COVID-19 pandemic. *Oxford Economic Papers*, *75*(3), 637-660.

UNCTAD. (2020). *World Investment Report 2020: International production beyond the pandemic*. United Nations.

Were, M., & Mollel, L. (2020). Public debt sustainability and debt dynamics.

World Bank. (2017). *Developing a Medium-Term Debt Management Strategy Framework (MTDS) – Updated Guidance Note for Country Authorities*.

World Bank. (2022). Ethiopia poverty assessment: Harnessing continued growth for accelerated poverty reduction.

World Bank. (2024). Analyses of External Debt Stocks and Debt Flows as of End-2022.

World Bank. (2024). *International Debt Statistics*.

Yamin, I., Al_Kasasbeh, O., Alzghoul, A., & Alsheikh, G. (2023). The influence of public debt on economic growth: A review of the literature. *International Journal of Professional Business Review*, *8*(4), e01772-e01772.

Yusuf, A., & Mohd, S. (2023). Nonlinear effects of public debt on economic growth in Nigeria. *SN Business & Economics*, *3*(4), 88.

Zettelmeyer, J. (2020). The role of the IMF in sovereign debt restructuring. *Oxford Review of Economic Policy*, *36*(3), 507-531.