

**EFFECT OF PUBLIC DEBT SUSTAINABILITY ON ECONOMIC STABILITY  
IN KENYA**

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**A Thesis Submitted to the School of Business and Economics in Partial Fulfilment of  
the Requirements for the Award of Degree of Masters of Science in Economics of  
Masinde Muliro University of Science and Technology**

**October 2025**

**DECLARATION AND CERTIFICATION**

This thesis is my original work and it has not been presented for a degree in any other academic institution.

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## **DEDICATION**

This thesis is dedicated to my lovely daughter Delaney, my mother Resila, and my siblings Irine, George and Judith, whose unwavering support and encouragement have been my constant source of strength and inspiration.

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## ABSTRACT

Kenya's rising public debt raises concerns about its impact on economic stability. Reliance on domestic and foreign borrowing for infrastructure development poses risks to fiscal sustainability and long-term stability. High debt servicing obligations divert resources from essential sectors like healthcare and education. With a significant portion of the national budget allocated to debt servicing, Kenya faces a "debt trap," limiting fiscal space and the ability to respond to economic shocks. A knowledge gap exists in understanding the precise relationship between public debt sustainability and economic stability in Kenya, particularly regarding how debt indicators such as the debt-to-GDP ratio, debt service ratio, and debt maturity structure impact fiscal health. This study therefore sought to examine the effect of public debt sustainability on economic stability in Kenya. The specific objectives were to examine the effect of debt-to-GDP ratio, debt service ratio and debt maturity structure on economic stability in Kenya. The study also sought to examine the moderating effect of government fiscal policy on the relationship between public debt sustainability and economic stability. The study adopted a causal research design. Secondary time-series data was used in the present study and was collected by use of a data collection checklist. Data on public debt sustainability, budget deficit/surplus and economic stability was obtained from the Central Bank of Kenya, Kenya National Bureau of Statistics (KNBS) and The World Bank. Analysis of the quantitative data was based on descriptive and inferential statistics. Descriptive statistics focused on computation of mean, percentage, standard deviation and frequencies. Inferential statistics focused on calculation of correlation and multivariate regression analysis. Correlation analysis was used to determine the strength of the association between dependent and independent variables while regression analysis was used to determine the weight of the relationship between the independent variables and the dependent variable. Hypothesis testing involved comparing the p-value with the significance level (typically set at 0.05). Diagnostic tests were performed to test for the regression model assumptions before carrying out regression analysis. The R-squared was 0.7240, indicating that approximately 72.40% of the variation in economic stability is explained by the independent variables, namely debt-to-GDP ratio, debt service ratio, and debt maturity structure. The study found that debt-to-GDP ratio negatively and significantly impacts on economic stability in Kenya (p-value= 0.014). In addition, debt service ratio positively and significantly impact on economic stability in Kenya (p-value = 0.013). Moreover, debt maturity structure positively and insignificantly impact economic stability in Kenya (p-value = 0.177). Also, government policy moderates the relationship between public debt sustainability and economic stability in Kenya (p=value=0.000). The study concludes that in Kenya, debt-to-GDP ratio undermines economic stability, debt service ratio has a positive effect, debt maturity is insignificant, and government policy moderates the debt-stability relationship. The government should enhance economic stability in Kenya by controlling public borrowing, expanding revenue sources, prioritizing long-term debt instruments, prudently managing budget deficits, investing in high-impact sectors, and adopting innovative financing mechanisms such as public-private partnerships and green bonds to ensure sustainable debt and inclusive growth.

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## ABBREVIATIONS AND ACRONYMS

<b>ARDL:</b>	Autoregressive Distributed Lag
<b>COVID-19:</b>	Coronavirus Disease 2019
<b>DMS:</b>	Debt Maturity Structure
<b>DSR:</b>	Debt Service Ratio
<b>ECM:</b>	Error Correction Model
<b>GDP:</b>	Gross Domestic Product
<b>GFS:</b>	Government Fiscal Policy
<b>GMM:</b>	Generalized Method of Moments
<b>IMF:</b>	International Monetary Fund
<b>KNBS:</b>	Kenya National Bureau of Statistics
<b>MENA:</b>	Middle East and North Africa
<b>NSE:</b>	Nairobi Securities Exchange
<b>OLS:</b>	Ordinary Least Squares
<b>PEDSGD:</b>	Public External Debt Stock to GDP
<b>VECM:</b>	Vector Error Correction Model

## OPERATIONAL DEFINITION OF TERMS

**Annual GDP growth rate:** This is the percentage change in the Gross Domestic Product (GDP) of a country from one year to the next, indicating the economic growth or contraction during that period.

**Average Debt Maturity:** This refers to the average length of time remaining until the principal amounts of a government's (or any borrower's) outstanding debt instruments are due for repayment.

**Budget deficit/surplus:** This refers to the difference between a government's revenues (mainly from taxes and other income) and its expenditures over a specific period, typically a fiscal year.

**Debt Maturity Structure:** It refers to the distribution of a country's debt repayment schedule over time, which affects its liquidity and ability to manage refinancing risks. In this study, debt maturity structure was measured using average debt maturity, defined as the weighted average time remaining until the repayment of outstanding debt obligations.

**Debt Service Ratio:** It is a financial metric that measures the proportion of a country's income or revenue allocated to paying its debt obligations, including both interest and principal repayments, and in this study it was measured as the ratio of total debt service payments to government revenue.

**Debt-to-GDP Ratio:** It measures a country's total debt relative to its gross domestic product, indicating its ability to repay debt through

economic output, and in this study it was measured as the proportion of total public debt relative to its GDP.

**Economic Stability:** It refers to a state in which a country's economy experiences steady growth, low inflation, and a balanced fiscal policy without excessive fluctuations, and in this study it was measured using the annual GDP growth rate.

**Government Fiscal Policy:** It involves the use of government spending and taxation to influence economic activity, manage inflation, and promote sustainable growth, and in this study it was measured using the budget deficit/surplus.

**Gross Domestic Product (GDP):** Refers to the total monetary value of all goods and services produced within a country's borders over a specific period, usually measured annually or quarterly.

**Public Debt Sustainability:** It refers to a country's ability to meet its debt obligations without compromising long-term economic growth and stability, and in this study it was measured using the debt-to-GDP ratio, debt service ratio, and debt maturity structure.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

Economic stability refers to a condition in which an economy experiences constant growth and low inflation, avoiding long periods of recession or high volatility. According to Grytsenko (2022), economic stability is a crucial foundation for sustainable growth, fostering reduced uncertainty, and creating a favorable environment for investment, employment, and improved living standards. As observed by Onyele and Nwadike (2021), economic stability is measured in terms of Gross Domestic Product (GDP) growth rate. Similarly, Chowdhury, Shoyeb and Abdullah (2024) measured economic stability in terms of GDP growth rate and inflation rate. In this study, economic stability was measured in terms of GDP growth rate.

In developed nations, economic stability fosters consistent growth with strong financial systems and policy continuity, while developing nations often face instability from fluctuating markets and political challenges (Banna & Alam, 2023). Therefore, while economic stability benefits all economies, its impact is particularly transformative in developing nations where it supports foundational growth and poverty alleviation. To ensure economic stability, governments all over the world have resulted to borrowing, both domestically and externally. As observed by Zhao (2023), public debt can support economic stability and growth if effectively managed, but excessive or poorly allocated debt may undermine public debt sustainability, potentially destabilizing the economy and hindering long-term growth.

Theories of public debt sustainability and economic stability offer different perspectives on how debt affects long-term economic health. The Sustainable Debt Theory suggests that public debt remains manageable as long as the government's economic growth rate exceeds the interest rate on the debt, ensuring that debt levels do not grow faster than the economy (Yuan, 2023). In contrast, the debt overhang theory warns that excessive debt can undermine economic stability, as high debt levels may lead to higher future taxes or inflation, eroding growth potential (Ayomitunde, 2020). The Keynesian Theory of Public Debt emphasizes that during economic downturns, borrowing can stimulate demand through increased government spending, thereby promoting stability; however, if such borrowing persists beyond recovery phases, it risks fueling inflation and higher debt servicing costs, which could destabilize the economy (Phelps, 2022). Complementing these perspectives, the IMF's Debt Sustainability Framework (DSF) provides an applied analytical tool for assessing a country's debt-carrying capacity, thereby offering policymakers a structured approach to ensure long-term economic stability (IMF, 2022).

Public debt sustainability affects economic stability by determining whether a country can meet its debt obligations without undermining its future growth (Mehrotra & Sergeyev, 2021). If governments borrow at rates exceeding their economic growth, the debt burden becomes unsustainable, raising risks of higher taxes or inflation. These dynamics suppress consumption and investment, thereby stalling growth (Yusuf & Mohd, 2021). Conversely, effectively managed debt allows governments to finance infrastructure, social services, and growth-enhancing programs without shifting undue burdens to future generations. In this sense, sustainable debt supports macroeconomic

stability by ensuring that borrowing contributes to productive capacity rather than destabilizing fiscal balances.

Excessive or poorly managed debt, however, creates vulnerabilities that constrain economic resilience. Rising debt servicing costs crowd out investment in healthcare, education, and infrastructure (Bandiera & Tsiropoulos, 2020). At the same time, higher repayment obligations tend to increase borrowing costs, reinforcing fiscal stress. While Yusuf and Mohd (2021) highlight how excessive debt often erodes investor confidence and sparks fiscal crises, Bandiera and Tsiropoulos (2020) emphasize the long-run developmental trade-offs of allocating scarce resources to debt servicing rather than productive sectors. Together, these studies underscore the paradox of debt: it can finance development but, if mismanaged, can accelerate fiscal deterioration. What is less clear, however, is how this balance plays out in low- and middle-income countries like Kenya, where fiscal space is narrow.

Globally, this thesis presents both consensus and divergence. For example, Fetai, Bexheti, and Malaj (2020) find a threshold effect in European transition economies, moderate debt fosters growth, but excessive levels reduce stability. Medina, Pérez, and Omar (2020) similarly show that in Mexico, public debt promotes growth at low levels but crowds out resources when debt servicing becomes excessive. These findings support the view that debt has nonlinear effects depending on its scale and management. Yet, the threshold levels vary across contexts, raising questions about whether lessons from Europe or Latin America can be directly applied to sub-Saharan Africa, where structural constraints and fiscal institutions differ markedly.

In Africa, existing studies further expose contextual weaknesses. Ademola (2023) observes that rising debt burdens undermine fiscal stability across many African states, while Alagoa, Ifionu, and Ogunbiyi (2023) demonstrate how Nigeria's high debt servicing constrains investments in growth-supporting sectors. Chanda (2022), focusing on Zambia, shows how debt servicing limits development financing, locking economies into cycles of stagnation. While these findings align in showing the destabilizing effect of excessive debt, they primarily focus on broad measures of external and domestic debt. Few studies isolate the role of debt-to-GDP ratios, debt service ratios, or debt maturity structures, indicators that may provide more precise insight into fiscal stress. This limitation underscores the need for Kenya-specific analysis to establish how these indicators interact with economic stability under current fiscal conditions.

In Kenya, the rising public debt has become a critical issue for policymakers, with significant implications for the country's economic stability. As observed by Njoroge (2020), Kenya's escalating public debt has significantly strained the national budget, leaving less funding available for crucial sectors such as healthcare and education, thus compromising economic stability. Similarly, Hassan, Ongeru, and Ndolo (2023) conclude that high national public debt and its servicing obligations have diminished fiscal space, resulting in slower economic growth and hindering overall development. Kasili (2020) and Khatundi (2020) reveal that while external debt has the potential to support economic growth, its sustainability remains a concern, as the increasing debt servicing burden undermines long-term fiscal stability in Kenya.

Kenya's public debt has expanded significantly over the past decade, raising concerns about its sustainability and potential threats to long-term economic stability. The debt-to-

GDP ratio, which exceeded the IMF's recommended threshold of 50% in 2015, reached nearly 70% by mid-2024, signaling worsening fiscal health (Central Bank of Kenya, 2023). Similarly, the debt service ratio has climbed above 60% of government revenue, leaving limited fiscal space for development expenditure. Kenya's debt maturity structure has also shifted toward shorter-term borrowing, heightening rollover and refinancing risks (Hassan, Ongeri & Ndolo, 2023). These trends not only strain fiscal discipline but also increase the likelihood of economic instability, as borrowing costs rise and repayment pressures intensify against a backdrop of sluggish revenue growth.

Although public debt is often justified as a tool for financing development and bridging budget deficits, Kenya's borrowing practices have not consistently translated into productive investments (Obiero & Topuz, 2022). Concerns remain about mismanagement, corruption, and inefficiencies in large infrastructure projects, which undermine expected returns and worsen fiscal vulnerabilities. External shocks, including the COVID-19 pandemic, global commodity price fluctuations, and the Russia–Ukraine conflict, have further exposed Kenya's fragile debt position (Kipyego, Njoka & Muniu, 2022). Compared to peers such as Rwanda and Botswana, which have maintained relatively sustainable debt levels through prudent borrowing and strong fiscal institutions, Kenya faces mounting risks similar to Ghana and Zambia, where unsustainable debt accumulation led to default and restructuring. This highlights the urgency of understanding debt dynamics within the Kenyan context rather than relying solely on generalized global evidence.

Extensive research globally and regionally has explored the relationship between public debt and economic stability, but limited studies explicitly analyze Kenya's debt sustainability indicators. Existing work often focuses on aggregate measures of external and domestic debt, overlooking critical dimensions such as the debt-to-GDP ratio, debt service ratio, and debt maturity structure, which directly reflect fiscal stress and refinancing risks (Machagua & Naikumi, 2023). Moreover, few studies have examined how government fiscal policy, through budget deficits or surpluses, moderates the relationship between debt sustainability and economic stability in Kenya (Kipyego et al., 2022). This narrow scope fails to capture the complexity of Kenya's fiscal challenges, particularly given its growing reliance on non-concessional borrowing and exposure to global financial shocks.

Therefore, a significant knowledge gap exists in understanding how specific debt sustainability indicators influence Kenya's economic stability and how fiscal policy interacts with these dynamics. Addressing this gap is essential, as unsustainable debt threatens not only macroeconomic growth but also investor confidence, fiscal space, and the government's ability to fund critical sectors such as health, education, and infrastructure. By analyzing the effect of debt-to-GDP ratio, debt service ratio, and debt maturity structure on Kenya's economic stability between 2014 and 2023, this study provides timely evidence to guide fiscal consolidation, borrowing strategies, and long-term sustainability policies. This sharper focus ensures that the Kenyan debt problem is not treated as a generic issue but as a pressing, context-specific challenge requiring targeted solutions.

## 1.2 Statement of the Problem

Kenya's economy has experienced periods of robust growth; however, this progress is increasingly threatened by fiscal instability linked to a ballooning public debt. External shocks such as the COVID-19 pandemic, the Russia-Ukraine conflict, global inflationary trends, and currency depreciation have intensified fiscal pressures (Central Bank of Kenya, 2023). The country's debt-to-GDP ratio surpassed the IMF's sustainability threshold of 50% in 2015, rising to 56% by 2022 and reaching 70% by June 2024 (Japan International Cooperation Agency, 2018; Central Bank of Kenya, 2023). This trajectory signals declining fiscal health, weakening market confidence, and mounting risks to Kenya's economic stability. The consequence is that economic stability, measured by growth consistency, inflationary trends, and fiscal balance, is increasingly fragile, exposing the country to shocks that threaten its development agenda.

Rising debt servicing costs, estimated at over 60% of revenue, are constraining the national budget, limiting allocations to vital sectors like education, agriculture, manufacturing, healthcare, and infrastructure among others (Atwoli, 2024). Although government borrowing is often justified by development goals, evidence suggests that much of the borrowed capital is not efficiently invested in productive or high-return sectors. Mismanagement, corruption, and cost overruns in flagship projects undermine the expected economic multiplier effects. As a result, Kenya risks falling into a "debt trap," where borrowing is driven more by the need to meet existing obligations than by strategic investment. This undermines the stability of public finances and crowds out investments critical for sustaining economic growth.

Moreover, a shift from concessional to commercial and non-concessional borrowing has increased Kenya's vulnerability to global interest rate fluctuations and exchange rate shocks, raising borrowing costs and intensifying refinancing risks (Ndung'u, 2023). Market confidence has weakened, as evidenced by fluctuating bond yields and tightening access to international capital markets. While fiscal consolidation and tax reforms have been initiated, they have not kept pace with the country's growing expenditure needs and debt obligations. Consequently, Kenya faces an increasingly uncertain fiscal future, where debt obligations could trigger higher inflation, exchange rate depreciation, or constrained growth if corrective measures are not urgently implemented.

In contrast, countries such as Rwanda and Botswana have maintained relative debt sustainability by aligning borrowing with productive investments, strengthening public financial management, and ensuring transparency and accountability (International Monetary Fund, 2022; World Bank, 2023). Meanwhile, peers like Ghana and Zambia have defaulted or sought debt restructuring due to unsustainable debt accumulation and poor fiscal management (Organisation for Economic Co-operation and Development, 2023; United Nations Conference on Trade and Development, 2023). This regional divergence highlights the consequences of unsustainable debt: while some countries have managed to preserve macroeconomic stability, others have faced financial crises and loss of investor confidence. Kenya, therefore, stands at a critical juncture between safeguarding economic stability and slipping into a debt crisis.

Despite the gravity of the issue, there remains a limited empirical understanding of how key debt sustainability indicators, specifically, the debt-to-GDP ratio, debt service ratio,

and debt maturity structure, affect economic stability in the Kenyan context. Furthermore, little attention has been paid to the role of borrowing costs, market perceptions, and the effectiveness of debt-funded investments (Himmer & Rod, 2022). This study addresses this gap by examining the relationship between public debt sustainability and economic stability in Kenya between 2014 and 2023, thereby generating evidence that can inform policy interventions aimed at restoring investor confidence, strengthening fiscal sustainability, and safeguarding long-term economic performance.

Various studies have been conducted on public debt and economic stability. For instance, Njoroge (2020) examined the impact of Kenya's public debt on economic stability, while Hassan et al. (2023) analyzed the effect of national public debt on economic growth in Kenya. However, both studies measured debt only in terms of external and domestic categories, whereas the present study focuses on public debt sustainability using debt-to-GDP ratio, debt service ratio, and debt maturity structure. Moreover, Njoroge (2020) covered 1971–2018 and Hassan et al. (2023) focused on 1990–2019, thus failing to capture recent dynamics shaped by COVID-19, global debt shocks, and fiscal reforms. This creates a gap in understanding how debt sustainability indicators influence economic stability in the contemporary Kenyan context, which this study addresses for the period 2014–2023. To fill this gap, the study is guided by the central research question: What is the effect of public debt sustainability on economic stability in Kenya between 2014 and 2023?

### **1.3 Objectives of the Study**

#### **1.3.1 General Objective**

The general objective of the study was to examine the effect of public debt sustainability on economic stability in Kenya between 2014 and 2023

#### **1.3.2 Specific Objectives**

The specific objectives of the study were;

- i. To examine the effect of debt-to-GDP ratio on economic stability in Kenya between 2014 and 2023
- ii. To determine the effect of debt service ratio on economic stability in Kenya between 2014 and 2023
- iii. To establish the effect of debt maturity structure on economic stability in Kenya between 2014 and 2023
- iv. To assess the moderating effect of government fiscal policy on the relationship between public debt sustainability and economic stability between 2014 and 2023

### **1.4 Research Hypotheses**

The study tested the following null hypotheses;

**H<sub>01</sub>:** Debt-to-GDP ratio has no significant effect on Kenya's economic stability between 2014 and 2023

**H<sub>02</sub>:** Debt service ratio has no significant effect on Kenya's economic stability between 2014 and 2023

**H03:** Debt maturity structure has no significant effect on Kenya's economic stability between 2014 and 2023

**H04:** Government fiscal policy has no significant moderating effect on the relationship between public debt sustainability and Kenya's economic stability between 2014 and 2023

### **1.5 Scope of the Study**

The study sought to examine the effect of public debt sustainability on economic stability in Kenya. Kenya was selected for this study due to its significant reliance on public debt to finance infrastructure and development projects, making it a relevant case for analyzing the impact of debt sustainability on economic stability. Additionally, Kenya's evolving debt dynamics and its role as one of the largest economies in East Africa provide valuable insights into the broader regional implications of public debt management. This study was anchored on sustainable debt theory, debt overhang theory and Keynesian theory of public debt. In this study, public debt sustainability was conceptualized in terms of debt-to-GDP ratio, debt service ratio and debt maturity structure, with their depth of focus shedding light on macroeconomic variables such as GDP growth, inflation, and exchange rate stability. The moderating variable was government fiscal policy. This study was conducted in Kenya. The focus is justified due to Kenya's increasing public debt burden, rising debt servicing costs, and the country's ongoing efforts to balance economic growth with fiscal stability.

The target population of the study was along the years starting from year 1964. The study adopted purposive sampling in the selection of the number of years to cover in the study (2014 to 2023). This timeframe is chosen for several reasons. First, it encompasses

significant political and economic transitions in Kenya, including periods of economic liberalization, political reforms, and major policy shifts that have influenced public debt sustainability. Second, this extended period allows for the observation of long-term trends and cyclical patterns, ensuring that the analysis captures both short-term fluctuations and long-term impacts of public debt. Secondary data was used and will be collected from the Central Bank of Kenya, Kenya National Bureau of Statistics (KNBS) and World Bank.

### **1.6 Significance of the Study**

This study is crucial in understanding how sustainable public debt management influences Kenya's economic stability. In an era where the country faces rising debt levels, it becomes vital to assess the impact of this trend on macroeconomic variables such as inflation, interest rates, economic growth, and fiscal discipline. Theoretically, the study contributes to the advancement of public debt literature by grounding its analysis in Sustainable Debt Theory, Debt Overhang Theory, and the Keynesian Theory of Public Debt. Specifically, it tests the applicability of these theories in the Kenyan context: Sustainable Debt Theory emphasizes maintaining debt at levels that do not threaten fiscal health; Debt Overhang Theory explains how excessive debt can discourage investment and growth; while the Keynesian perspective underscores the short-term benefits of debt-financed spending during economic downturns.

For policymakers, the findings will provide evidence-based insights to inform borrowing strategies, fiscal consolidation, and the setting of sustainable debt thresholds. This strengthens macroeconomic frameworks aimed at promoting long-term stability. For private sector institutions such as commercial banks, credit rating agencies, and

multinational corporations, the results can enhance understanding of debt-related risks that may influence interest rate trends, credit availability, and investment opportunities. Economists and financial analysts also benefit from the study by gaining a deeper understanding of the debt–economic growth relationship in Kenya, thereby improving forecasting and economic modeling in public finance and sustainability research.

For international investors and development partners, the study enhances transparency and informs risk assessment, helping them make better-informed decisions regarding lending or investing in Kenya while also guiding donor engagement on fiscal reforms. Academic and research institutions gain value from the study as it contributes to the growing body of knowledge in public finance, development economics, and macroeconomic policy, serving as a reference point for further scholarly work. Finally, while the study may not directly “empower citizens to hold leaders accountable,” its findings can still inform civic discourse by clarifying how debt dynamics affect taxation, inflation, and public services, thereby promoting more evidence-based discussions on national budgeting and borrowing practices.

### **1.7 Limitations of the Study**

One of the limitations of this study is that when combining data from different sources, there were challenges in reconciling variations in data definitions or measurement techniques. For example, institutions such as the Central Bank of Kenya and World Bank use slightly different approaches in calculating debt metrics, which could complicate comparability. To address this, the study employed standardization techniques such as re-basing figures to a common reference year, converting data into consistent units, and

applying interpolation to fill small gaps in missing time-series observations. While these steps improved coherence, the process may still introduce minor distortions.

Beyond data harmonization challenges, the study also recognizes potential econometric limitations. These include risks of model specification errors, omitted variable bias, and possible endogeneity between debt indicators and economic stability, which may affect the precision of the estimated relationships. Although Ordinary Least Squares (OLS) regression with diagnostic checks was used to mitigate such risks, these challenges cannot be fully eliminated. Acknowledging these limitations highlights the need for cautious interpretation of results and suggests that future research could apply more advanced techniques such as instrumental variable (IV) estimation or panel data methods to strengthen causal inference.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The study explores the literature on various aspects of public debt sustainability and its impact on economic stability. The review is structured into five main sections: the theoretical review, the conceptual review, the empirical review, a summary of research gaps, and the presentation of the conceptual framework. Each section delves into different aspects of the literature, beginning with foundational theories, followed by key concepts and variables relevant to the study, and a synthesis of previous research findings. The summary of research gaps highlights areas where further exploration is needed, leading to the development of the conceptual framework that informs the study.

#### **2.2 Theoretical Review**

A theoretical review examines existing theories and models relevant to a research topic, synthesizing their assumptions and key relationships. It aims to provide a deeper understanding of the theoretical framework, guide hypothesis development, and identify gaps in the literature (Creswell & Creswell, 2022). The Sustainable Debt Theory is the anchor theory for this study as it directly explains the relationship between a country's ability to service its debt and its long-term economic stability. It provides the foundation for assessing whether Kenya's public debt levels are within manageable limits without undermining growth or fiscal balance. The theory is further supported by the Debt Overhang Theory, Keynesian Theory of Public Debt, and the IMF's Debt Sustainability Framework, which complement it by highlighting the risks of excessive debt, the short-

term stabilizing role of borrowing, and offering practical tools for debt sustainability assessment.

### **2.2.1 Sustainable Debt Theory**

Sustainable Debt Theory was developed by Evsey Domar in 1944. This theory posits that a government's debt can be considered sustainable as long as the economy grows at a rate that allows for manageable debt servicing without destabilizing the economy. According to Domar (1944), for debt to be sustainable, the growth rate of a country's Gross Domestic Product (GDP) should exceed the interest rate on its debt, ensuring that the economy's growth can keep pace with, or surpass, the costs associated with debt obligations (Yuan, 2023). This balance helps prevent excessive debt accumulation, supporting economic stability and long-term fiscal health (Brunnermeier & Sannikov, 2020). The theory underlines that sustainable debt policies require careful management of both public spending and revenue to foster growth while avoiding an unsustainable debt burden that could lead to fiscal crises.

The Sustainable Debt Theory assumes that a government can borrow without triggering economic instability if certain conditions are satisfied, such as maintaining stable economic growth that consistently exceeds the interest rate on debt, implementing optimal levels of public spending, and ensuring effective revenue mobilization (Yuan, 2023). It further presupposes limited disruption from external factors like inflation, exchange rate volatility, or global shocks that could undermine debt sustainability (Mehrotra & Sergeyev, 2021). In addition, the theory emphasizes that financial market

confidence in prudent fiscal management is crucial for maintaining access to affordable credit.

Critics argue that the sustainable debt theory oversimplifies the link between public debt and economic stability, especially in developing economies like Kenya, where inflation, political instability, corruption, and external financing needs complicate debt dynamics (Yuan, 2023). The theory assumes rational fiscal management and market confidence, conditions often undermined by weak institutions. It also neglects the potential benefits of borrowing, such as funding infrastructure and social investments that enhance growth and debt repayment capacity (Zenios & Erce, 2021). Moreover, it inadequately considers external shocks like global price fluctuations, exchange rate volatility, and rising interest rates, which significantly affect debt sustainability.

A key limitation of the sustainable debt theory in African contexts is that it assumes strong governance, prudent fiscal management, and market confidence, conditions that are often undermined by corruption, weak institutions, and political instability (Onuoha & Ekesiobi, 2023). In many developing economies like Kenya, structural challenges such as limited revenue mobilization, reliance on external financing, and vulnerability to external shocks make the theory's assumptions less applicable (Shikumo & Irungu, 2024). Moreover, its focus on economic growth exceeding debt servicing costs overlooks how governance inefficiencies and fiscal indiscipline distort debt outcomes, thereby reducing the theory's relevance in explaining debt sustainability in such settings.

Sustainable debt theory was used to explain the effect of effect of public debt sustainability, in terms of debt-to-GDP ratio, debt service ratio and debt maturity

structure, on economic stability in Kenya. A manageable debt-to-GDP ratio indicates that the government's debt is within a level that can be serviced without jeopardizing future economic growth, while a high ratio suggests potential risk to fiscal health. The debt service ratio reflects the portion of government revenue spent on debt repayments, and if it is too high, it can strain public finances, reducing the resources available for public investment and social services, which may harm economic stability (Brunnermeier & Sannikov, 2020). Further, the maturity structure of debt, whether it is short-term or long-term, affects the government's ability to plan for future repayments. A well-structured, long-term debt profile helps reduce the risk of sudden financial crises, ensuring greater economic stability.

### **2.2.2 Debt Overhang Theory**

Debt overhang theory was developed by economist Richard C. Krugman in 1988 (Krugman, 1988). The theory posits that when a country's debt reaches unsustainable levels, the burden of repaying that debt hinders future economic growth and investment. It argues that high debt, particularly if it exceeds a certain threshold of GDP, discourages both domestic and foreign investment because potential returns are anticipated to be taxed or diverted to debt repayment (Ayomitunde, 2020). This creates a vicious cycle, where the country's debt load stifles economic growth, which in turn makes it more difficult to service the debt, leading to further economic instability. Krugman's theory highlights the importance of managing the debt-to-GDP ratio and maintaining a sustainable debt structure to avoid economic stagnation.

Debt overhang theory assumes that when a country's debt exceeds its ability to repay, it creates a situation where further investment becomes unappealing because the returns are

expected to be used for debt servicing rather than fostering economic growth (Gan, Xia & Zhang, 2022). This theory presumes that high levels of debt cause a disincentive for both domestic and foreign investors, as they expect future profits to be used to pay off existing debts. It also assumes that the government cannot effectively reduce the debt burden through regular fiscal policies and must consider debt restructuring or forgiveness to escape stagnation (Ayomitunde, 2020).

Criticisms of the debt overhang theory argue that it oversimplifies the complex dynamics between debt and investment, overlooking the possibility that borrowed funds, even under high debt levels, can be channeled into productive investments such as infrastructure, which may stimulate growth and ease debt repayment pressures (Barbiero & Wolski, 2020). Additionally, critics contend that the theory fails to adequately account for the role of debt maturity structures, interest rate dynamics, and debt composition. It also neglects external factors such as political instability, governance weaknesses, and global economic shocks, all of which can significantly complicate debt burdens (Wittry, 2021).

A key limitation of the debt overhang theory in African contexts is that it assumes high debt levels primarily discourage investment by reducing expected future returns, yet it overlooks how governance challenges, corruption, and weak institutions often play a more direct role in undermining investment and debt management (Ghecham, 2021). In developing economies like Kenya, borrowed resources may be misallocated, diverted, or poorly managed, meaning the growth-retarding effects of debt are not solely due to overhang but also institutional weaknesses (Awuor & Musau, 2021). Moreover, the

theory underestimates the impact of external shocks, political instability, and fiscal indiscipline that amplify debt vulnerabilities in such contexts.

The study used debt overhang theory to explain the effect of effect of effect of public debt sustainability on economic stability in Kenya. The theory indicates that the negative impact of excessive public debt on economic stability, particularly in terms of the debt-to-GDP ratio, debt service ratio, and debt maturity structure (Ayomitunde, 2020). The theory suggests that when a country's debt exceeds a certain threshold, the burden of debt repayment (reflected in high debt service ratios) deters investment, as the private sector anticipates that the returns from new investments may be taxed or diverted to debt servicing. In Kenya, a high debt-to-GDP ratio could signal unsustainable debt levels, while a high debt service ratio implies that a significant portion of government revenues is devoted to repaying existing debt rather than funding productive investments. Moreover, poor debt maturity structure, with a concentration of short-term debt, may exacerbate liquidity pressures and undermine investor confidence, ultimately destabilizing economic performance.

### **2.2.3 Keynesian Theory of Public Debt**

The Keynesian Theory of Public Debt was developed by the British economist John Maynard Keynes in the mid-20th century, particularly through his seminal work *The General Theory of Employment, Interest, and Money*, published in 1936 (Phelps, 2022). Keynes argued that during periods of economic downturn, governments should actively use fiscal policy, including running budget deficits and accumulating public debt, to stimulate demand and pull the economy out of recession. According to Keynes, increased

government spending, even if financed by borrowing, can boost aggregate demand, reduce unemployment, and lead to higher economic growth, especially when the private sector is unwilling or unable to spend sufficiently (Yamin & Alsheikh, 2023). The key tenets of this theory include the belief that markets do not always self-correct, unemployment can persist due to insufficient demand, public debt is not inherently harmful if it finances productive investments, and that countercyclical fiscal policies are essential to stabilize economic cycles and sustain growth.

The Keynesian theory of public debt assumes that markets do not always clear, and unemployment can persist due to insufficient aggregate demand (Phelps, 2022). It further assumes that government intervention through borrowing and spending can effectively stabilize economic cycles, boost employment, and stimulate growth. The theory also assumes that public debt is not inherently harmful if it is directed toward financing productive investments that generate future returns and enhance economic capacity (Aybarç, 2019). Additionally, it presupposes that governments can manage fiscal deficits sustainably without triggering long-term instability.

Criticisms of the Keynesian approach highlight concerns about the long-term sustainability of high public debt levels, noting that persistent borrowing can create structural fiscal imbalances (Prasetyo & Cahyani, 2022). There is also the risk of inflation if government spending exceeds productive capacity and overheats the economy, as well as the possibility of crowding out private investment when excessive public borrowing raises interest rates (Odubuasi & Onuora, 2019). Furthermore, critics argue that Keynesian policies may foster chronic fiscal deficits and rising debt burdens,

undermining investor confidence, elevating borrowing costs, and reducing economic resilience over time (Phelps, 2022).

A major limitation of the Keynesian Theory of Public Debt in African contexts is that it assumes borrowed funds are efficiently allocated to stimulate demand, employment, and long-term growth, yet governance weaknesses, corruption, and institutional inefficiencies often undermine this process (Tche, 2024). In developing economies like Kenya, public borrowing frequently finances recurrent expenditures or is mismanaged, limiting its intended multiplier effect on stability and growth (Kingu, 2024). Additionally, the theory underestimates the risks of debt mismanagement, inflationary pressures, and fiscal indiscipline, which can quickly erode the stabilizing benefits of borrowing in environments with fragile economic structures.

Keynesian theory of public debt was used to explain how public debt sustainability affects economic stability in Kenya. According to this theory, a rise in public debt, in terms of debt-to-GDP ratio, is not necessarily harmful if the debt is used for productive investment that stimulates demand and economic growth. Keynesian economics supports government spending during recessions, arguing that public debt can be sustainable if it fosters growth that outpaces the increase in debt (Phelps, 2022). In Kenya, the debt service ratio, which measures the proportion of government revenue spent on debt servicing, could be manageable as long as debt-financed investments drive economic activity. However, the theory also emphasizes the importance of the debt maturity structure, as longer-term debt reduces the immediate pressure of debt servicing, allowing for greater fiscal flexibility.

#### **2.2.4 IMF's Debt Sustainability Framework**

The IMF's Debt Sustainability Framework (DSF) was developed jointly by the International Monetary Fund (IMF) and the World Bank in 2005, primarily to guide borrowing and lending decisions in low-income countries (International Monetary Fund, 2024). The framework sets out to assess whether a country's debt is sustainable, meaning it can meet its present and future debt service obligations without resorting to arrears, debt restructuring, or compromising economic growth (Ferry & Zeitz, 2024). It establishes thresholds for key debt indicators and integrates them into country assessments, which then inform policy advice, lending terms, and access to concessional financing.

The DSF operates under several assumptions. First, it assumes that debt sustainability can be objectively measured through quantitative indicators such as the debt-to-GDP ratio, debt-to-revenue ratio, and debt service-to-exports ratio (Haughton & Keane, 2021). Second, it assumes that countries with stronger policy and institutional frameworks can safely carry higher levels of debt compared to those with weaker governance. Third, it assumes that baseline projections and stress tests, if accurately modeled, provide reliable guidance on future debt dynamics (James, 2024). Also, the DSF assumes that fiscal discipline, prudent debt management, and stable macroeconomic conditions are maintained by borrowing governments.

Despite its wide application, the DSF faces criticisms, particularly in African contexts. It has been faulted for relying heavily on projections, which are often optimistic and fail to account for volatile global shocks, commodity price fluctuations, or exchange rate swings

(Willems & Zettelmeyer, 2022). Moreover, it overlooks the influence of governance challenges, corruption, and weak institutional capacity, which are common in African economies and significantly affect debt outcomes. Critics also argue that by focusing narrowly on numerical thresholds, the framework underestimates structural vulnerabilities such as fiscal indiscipline, political instability, and limited revenue generation capacity, making it less adaptable to Africa's realities (Kranke, 2022).

In the Kenyan context, the DSF helps explain the effect of public debt sustainability on economic stability through its key indicators. A rising debt-to-GDP ratio signals risks of fiscal stress, as more resources are devoted to servicing debt rather than supporting development. High debt service ratios strain government revenues, crowding out essential spending on health, education, and infrastructure, thereby undermining stability. Similarly, the debt maturity structure plays a critical role: a reliance on short-term or expensive commercial loans increases rollover risks and vulnerability to interest rate shocks. Together, these indicators illustrate how unsustainable debt weakens Kenya's fiscal resilience, undermines investor confidence, and heightens economic instability.

### **2.2.5 Comparative Analysis of the Theories**

The Sustainable Debt Theory and Debt Overhang Theory present contrasting perspectives on the relationship between debt and growth. Sustainable Debt Theory is relatively optimistic, suggesting that debt remains manageable as long as economic growth outpaces interest obligations (Domar, 1944; Brunnermeier & Sannikov, 2020), whereas Debt Overhang Theory is more pessimistic, emphasizing how excessive debt can discourage investment and create a growth-stifling cycle (Krugman, 1988; Ayomitunde,

2020). While Domar's framework views debt as a potentially neutral or even sustainable fiscal tool, Krugman's approach highlights debt's adverse psychological and structural effects on investors. Together, these theories illustrate both the enabling and constraining roles of debt in shaping economic performance.

The Keynesian Theory of Public Debt adds another layer of nuance by emphasizing the productive potential of borrowing, particularly during recessions. Unlike Debt Overhang Theory, which stresses the risks of crowding out and stagnation, Keynesian thought suggests that borrowing can stimulate demand, employment, and growth if debt is channeled into productive uses (Phelps, 2022; Yamin & Alsheikh, 2023). At the same time, it complements Sustainable Debt Theory by recognizing that debt sustainability is contingent on growth exceeding repayment costs (Yuan, 2023). However, Keynesian optimism contrasts sharply with the IMF's Debt Sustainability Framework (DSF), which relies on fixed thresholds and stress tests to determine sustainability rather than focusing on countercyclical fiscal policy (International Monetary Fund, 2024; Haughton & Keane, 2021).

Contemporary frameworks such as the IMF's DSF and political economy theories of debt expand on these classical perspectives by acknowledging the role of governance, institutional capacity, and global financial dynamics. While the DSF offers standardized metrics such as debt-to-GDP and debt-service ratios, it has been criticized for relying on overly optimistic projections and overlooking governance weaknesses, corruption, and weak institutions that distort debt outcomes in Africa (Willems & Zettelmeyer, 2022; Kranke, 2022). Political economy theories, on the other hand, highlight how power relations, fiscal indiscipline, and rent-seeking behavior shape debt trajectories beyond

what numerical thresholds can capture (Onuoha & Ekesiobi, 2023). Taken together, these perspectives suggest that while traditional theories provide useful benchmarks, their applicability in African contexts like Kenya must be tempered by an understanding of governance and institutional realities (Shikumo & Irungu, 2024).

## **2.3 Conceptual Review**

This section presents conceptual review on debt-to-GDP ratio, debt service ratio, debt maturity structure, government fiscal policy and economic stability.

### **2.3.1 Public Debt Sustainability**

Public debt sustainability is the ability of a government to service its debt obligations without resorting to excessive borrowing or creating inflationary pressures (Joy & Panda, 2021). According to Eđrican and Togan (2022), public debt sustainability is achieved when a country can meet its current and future debt obligations while maintaining a stable macroeconomic environment. This involves ensuring that the growth rate of the economy exceeds the rate at which the debt accumulates, thus preventing an unsustainable debt burden. In addition, Ye and Guo (2024) indicate that public debt sustainability refers to the government's ability to finance its debt in the future without requiring excessive new borrowing or creating economic instability.

Different studies used diverse measures of public debt sustainability. For instance, Posta, Marelli and Signorelli (2022) looked at public debt sustainability in terms of debt-to-GDP ratio and public debt-to-GDP ratio. In addition, Pamies and Reut (2020) observed that the measures of public debt sustainability include debt-to-GDP ratio, debt level structure and debt threshold. Similarly, Eđrican and Togan (2022) looked at debt structure, debt

threshold, debt-to-GDP ratio as measures of public debt sustainability. In addition, Thomi, Fumey and Ewusi (2024) conceptualized public debt sustainability in terms of debt stock, interest rate costs and debt-to-GDP ratio. This study will look at public debt sustainability in terms of debt-to-GDP ratio, debt service ratio and debt maturity structure.

The debt-to-GDP ratio compares a country's total debt to its Gross Domestic Product (GDP), providing an indication of how manageable the debt is relative to the size of the economy. A high ratio suggests that the country may face difficulties in servicing its debt without straining its economy (Pamies & Reut, 2020). The debt service ratio measures the proportion of a country's income that is used to pay interest and principal on its debt, indicating whether a government can meet its debt obligations without jeopardizing its fiscal health (IMF, 2013). Finally, the debt maturity structure refers to the distribution of debt repayment periods, with longer-term debt offering more stability and less short-term pressure on public finances (Joy & Panda, 2021). A well-managed maturity structure reduces the risk of sudden fiscal crises arising from large repayments due in the short term (Eğrican et al., 2022). These measures collectively provide a comprehensive view of a country's ability to sustain its debt without undermining economic stability.

Countries worldwide have adopted diverse strategies to enhance public debt sustainability and economic stability. Rwanda and Botswana have successfully maintained debt sustainability by aligning borrowing with productive investments, strengthening public financial management, and ensuring transparency and accountability (International Monetary Fund, 2022; World Bank, 2023). Conversely, nations like Ghana and Zambia have faced challenges, including defaults and debt restructuring, due to unsustainable

debt accumulation and fiscal mismanagement (Organization for Economic Co-operation and Development, 2023; United Nations Conference on Trade and Development, 2023). Innovative approaches, such as "debt-for-nature" swaps, have been proposed to address both fiscal and environmental challenges, offering debt relief in exchange for climate-positive investments (Financial Times, 2025). Additionally, the African Union is spearheading efforts to establish the African Financing Stability Mechanism (AFSM), aiming to provide a financial safety net for African nations facing liquidity crises due to external debt repayments (Reuters, 2025).

In Kenya, the government has taken steps to address the drivers of the rising debt-to-GDP ratio. The 2024/25 budget emphasizes fiscal consolidation through broadening the revenue base and containing non-priority expenditures while enhancing social safety nets (National Treasury, 2024). Investments have been directed towards key sectors such as agriculture, manufacturing, and infrastructure to stimulate economic growth and improve GDP (African Development Bank, 2024). For instance, subsidized inputs for farmers and improved weather conditions have supported agricultural growth, contributing to a projected GDP growth of 5.5% in 2024/2025 (Xinhua, 2024). However, challenges remain, including high debt servicing costs that strain the national budget and divert resources from essential sectors like education and healthcare (Atwoli, 2024; Central Bank of Kenya, 2023). While efforts have been made to invest borrowed funds into productive sectors, the effectiveness of these investments in significantly boosting GDP and ensuring debt sustainability requires continuous monitoring and evaluation.

### **2.3.1.1 Debt-To-GDP Ratio**

The debt-to-GDP ratio measures the level of a country's public debt relative to its Gross Domestic Product (GDP). It is a critical indicator of public debt sustainability, as it provides insight into the country's ability to repay its debt without compromising economic growth (Fetai, Bexheti & Malaj, 2020). A lower debt-to-GDP ratio suggests that a country has a manageable level of debt relative to its economic output, whereas a high ratio may indicate excessive debt levels, which could strain financial resources and limit the government's capacity to respond to economic challenges (Hu & Wong, 2021). A debt-to-GDP ratio is also used to assess the risk of debt distress, as it shows how easily a government can fulfill its debt obligations with its current economic productivity (Onyele & Nwadike, 2021).

For public debt sustainability, the debt-to-GDP ratio is particularly important because it helps determine the likelihood of debt repayment and future borrowing capacity (Ahmad, Afzal & Ullah, 2024). When the ratio rises above a certain threshold, the country may face increased borrowing costs, potentially affecting economic growth and financial stability. According to IMF guidelines, sustainability often depends on keeping the debt-to-GDP ratio within acceptable limits, typically adjusted according to a country's level of development and economic stability (Getinet & Ersumo, 2020). For example, a high debt-to-GDP ratio in developing economies may indicate vulnerability, as such economies have limited fiscal space and may face challenges in meeting debt obligations without sacrificing essential investments in public services and infrastructure.

### **2.3.1.2 Debt Service Ratio**

The debt service ratio measures the proportion of a country's export earnings or total revenue allocated to repaying its external debt (Agandhi & Sungkowati, 2022). It's an essential component of public debt sustainability, as it assesses the burden of debt repayment in relation to the income a country generates through exports or tax revenues. A higher debt service ratio indicates that a substantial portion of national revenue or foreign currency earnings is going toward debt payments, which can limit the resources available for essential expenditures like social services and infrastructure (Tama & Habila, 2022). This can also heighten vulnerability to external shocks, as a large debt service burden may leave limited fiscal space to absorb economic fluctuations or respond to crises.

In public debt sustainability, the debt service ratio is especially significant for countries with high external debt, as it highlights the risks associated with foreign currency obligations (Chanda, 2022). When the debt service ratio is high, a country may struggle to meet its debt obligations, potentially leading to a debt crisis or the need for restructuring (Efuntade & Efuntade, 2022). For emerging and developing economies, maintaining a low debt service ratio is critical to sustaining long-term economic growth and stability, as high debt servicing costs can crowd out public investment and reduce a government's ability to fund growth-promoting initiatives (Kongo & Omboto, 2023). Monitoring the debt service ratio, therefore, helps policymakers gauge the long-term sustainability of a country's debt load and assess potential risks in managing public finances.

### **2.3.1.3 Debt Maturity Structure**

The debt maturity structure refers to the timeline or duration over which a country's public debt obligations are scheduled to be repaid, distinguishing between short-term and long-term debt (Dau, 2024). It is a critical component of public debt sustainability, as it influences a country's ability to manage refinancing risks and interest rate changes effectively. Short-term debt requires more frequent refinancing, which can expose the government to interest rate volatility and increased risks during periods of financial instability (Bilgin, 2020). Conversely, a debt structure that leans towards long-term maturities provides greater stability by reducing the need for constant refinancing, which can mitigate potential liquidity crises and smoothen the impact on fiscal operations (IMF, 2020).

A well-balanced debt maturity structure is essential for sustainable public debt management (Adi, 2019). When a significant portion of a country's debt is due in the short term, the government may face pressure to allocate a substantial share of its resources to debt rollover, potentially affecting other fiscal priorities like social spending and investment (Naser, Matemilola & Bany-Ariffin, 2024). Additionally, countries with a high proportion of short-term debt are more vulnerable to market fluctuations, as they may need to refinance their obligations at unfavorable rates if market conditions deteriorate (Mwangangi, 2020). Therefore, maintaining a prudent debt maturity structure by favoring longer-term obligations helps support debt sustainability and reduces vulnerability to economic shocks, contributing to overall fiscal stability.

### **2.3.2 Government Fiscal Policy**

Government fiscal policy refers to the strategies and decisions by which a government manages its expenditure and revenue to influence the economy (Rathnayake, 2020). Galli (2021) indicates that fiscal policy involves adjusting public spending, taxation, and borrowing levels to achieve macroeconomic goals like economic growth, employment, and price stability. It is a key tool for guiding economic direction, allowing governments to stimulate or restrain economic activity depending on the current needs of the economy (Yien & Khan, 2019). There are generally two types of fiscal policy: expansionary and contractionary. Expansionary fiscal policy is used to boost economic activity, typically through increased public spending or tax cuts. This approach is often employed during periods of economic recession to increase demand and reduce unemployment.

Budget deficit/surplus and government expenditure are key measures of government fiscal policy that reflect how a government manages its finances (Imoisi, 2020). A budget deficit occurs when government expenditures exceed its revenues, leading to borrowing or increasing public debt, while a budget surplus arises when revenues surpass expenditures, often allowing for debt reduction or saving (Asatullaev, 2019). Government expenditure, on the other hand, refers to the funds spent by the government on goods, services, infrastructure, and social programs, which can stimulate economic growth or address social needs (Nya & Onyimadu, 2019). These measures influence economic stability by determining the government's fiscal stance, impacting inflation, unemployment, and national debt levels.

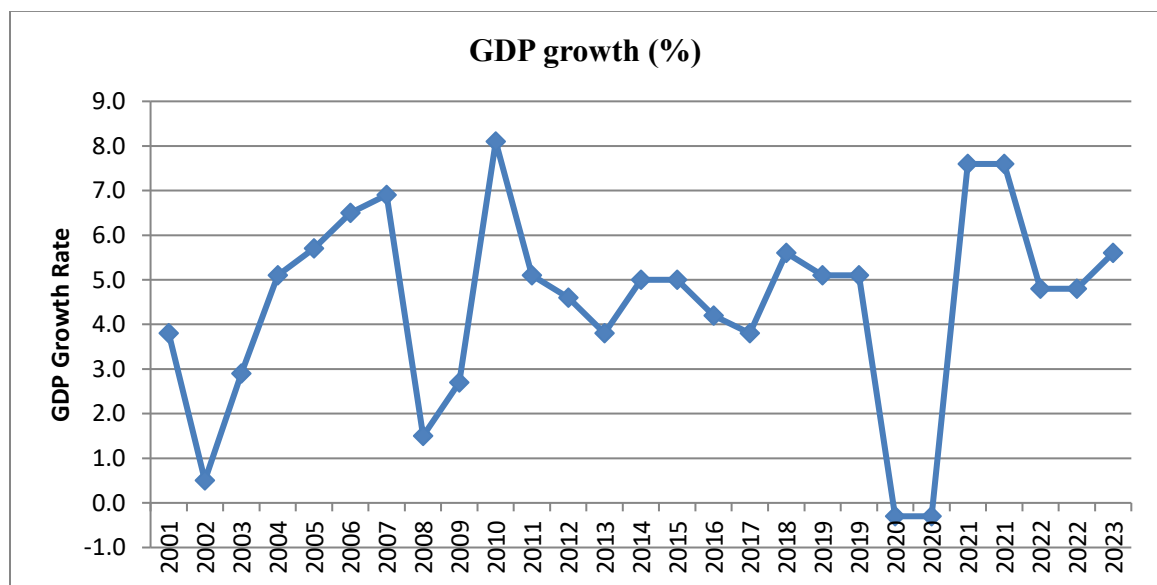
### **2.3.3 Economic Stability**

Economic stability refers to a condition where an economy experiences consistent growth, low inflation, and a predictable environment, which fosters investment and promotes long-term planning (Onyele & Nwadike, 2021). According to Henri (2019), economic stability involves maintaining price stability, full employment, and a balanced growth rate, avoiding extreme fluctuations in output and inflation. Chowdhury (2024) defines it as the absence of volatile economic shifts that might harm long-term prosperity, ensuring a smooth economic transition and minimizing systemic risks. Alagoa, Ifionu and Ogunbiyi (2023) emphasizes that economic stability also involves a stable currency value, where external imbalances (such as balance of payments deficits) are manageable and do not destabilize the broader economy.

Various studies conducted in different parts of the world, have looked at economic stability mainly using Gross Domestic Product (GDP) growth rate. For instance, Chowdhury, Shoyeb and Abdullah (2024) looked at economic stability in Malaysia in terms of GDP growth rate. Similarly, Alagoa, Ifionu and Ogunbiyi (2023) observed that the measure of economic stability is real GDP growth rate. Also, Onyele and Nwadike (2021) indicate that GDP growth rate is the main measure of economic stability in a country. In Kenya, Njoroge (2020) conceptualized economy stability in terms of GDP growth rate. Therefore, this study looked at economic stability in terms of GDP growth rate.

For a long duration of time, Kenya's economic growth has been inconsistent. Since 1960s there has been changes in economic growth, over the 1960s Kenya noticed increased rate

of growth before the decline which took place in early 1970s and the mid-1970. The cut of the multilateral aid due to poor management between 1985 and 1992 resulted to decline in GDP together with agricultural problem (The World Bank, 2023). According to World Bank (2023), the average growth in GDP was 4 percent per annum from 1994 to 1996. Nevertheless, before the general elections in the year 1997; the economic growth became stagnant as a result of minimal economic activity and adverse weather conditions. In the year 1997, the IMF gave a three year suspension of lending to the government of Kenya due to the countries failure to meet the earlier commitment concerning governance reforms. Further structural adjustment credit worth \$90million was put on hold by the World Bank (World Bank, 2024).



**Figure 1. 1: Trend of Economic Growth (2001-2023)**

**Source: World Bank (2024)**

The results of Kenya's annual GDP growth rate from 2001 to 2023 illustrate the dynamic nature of the country's economic performance over this period. The early 2000s show a period of economic struggle, with the GDP growth rate fluctuating significantly. In 2002,

the growth rate was notably low at 0.5%, but by 2004, it had rebounded to 5.1%, indicating an economic recovery. This upward trend continued, reaching a peak in 2010 with an impressive growth rate of 8.1% (Central Bank of Kenya, 2023). This period of growth can be attributed to various factors, including improved governance, increased foreign investment, and robust economic policies that fostered a conducive environment for growth. However, the global financial crisis and internal political instability, particularly the 2007-2008 post-election violence, negatively impacted the growth rate, resulting in a significant dip to 1.5% in 2008.

From 2011 onwards, the growth rate stabilized somewhat, fluctuating between 3.8% and 5.1% until 2018. The year 2020 saw a severe contraction with a GDP growth rate of -0.3%, likely due to the adverse effects of the COVID-19 pandemic which disrupted economic activities globally. However, the economy showed resilience with a strong recovery in 2021, achieving a growth rate of 7.6% (Central Bank of Kenya, 2023). This rebound can be attributed to the easing of pandemic-related restrictions and the implementation of economic recovery strategies. The consistent growth in subsequent years, with a rate of 5.6% in 2023, indicates a return to stability and gradual economic improvement. Overall, the data reflects Kenya's capacity to overcome economic challenges and maintain a trajectory of growth despite periodic setbacks.

## **2.4 Empirical Review**

This section presents a review of empirical studies related to the impact of public debt components on economic stability. It examines the relationships between the debt-to-GDP ratio, debt service ratio, and debt maturity structure with economic stability, while also exploring how government fiscal policies influence public debt sustainability.

Studies have been conducted on Kenya's public debt and economic stability (Hassan et al., 2023; Njoroge, 2020). However, for instance Hassan et al. (2023) conceptualized public debt in terms of domestic and external debt while Njoroge (2020) looked at Kenya's public debt in terms of GDP growth rate, which is different from the measures of public debt sustainability. Therefore, this study sought to examine the effects of public debt sustainability on Kenya's economic stability.

#### **2.4.1 Debt-To-GDP Ratio and Economic Stability**

Among European Countries, Fetai, Bexheti and Malaj (2020) assessed the relationship between public debt, measured in terms of public debt-to-GDP ratio, and economic growth from 1995 to 2017. The study employed various econometric models and techniques, including pooled OLS, fixed and random effects models, the Generalized Method of Moments (GMM), and the bootstrap method. The study found that a low level of public debt-to-GDP ratio positively affected economic growth, while beyond a certain threshold, the effect became negative. In addition, the results revealed that the threshold values of the debt-to-GDP ratio varied among European transition countries. For less developed countries in the sample, the threshold values were lower compared to more developed ones. This implies that countries with lower debt levels can potentially experience higher growth, but exceeding a certain debt level can negatively impact economic stability. However, the study was confined to European countries which are more developed and therefore the findings cannot be generalized to Kenya, a developing country. In addition, the study covered the period between 1995 and 2017 while the current study covered the period between 2014 and 2023.

In China, Hu and Wong (2021) explored the relationship between debt-to-GDP ratio and economic growth. The study conducted an exploratory data analysis using data on the GDP growth rate and debt-to-GDP ratio of 20 countries from 1791 to 2009. However, for regression analysis, the study limited the data to the period from 1980 to 2005. The researchers employed regression techniques to analyze the relationship between the debt-to-GDP ratio and average GDP growth during this period. The study found that the relationship between the debt-to-GDP ratio and average GDP growth was positive when the debt-to-GDP ratio was below a certain threshold (approximately 70%). However, once the debt-to-GDP ratio exceeded this threshold, further increases in the ratio negatively impacted average GDP growth. These findings suggest that managing debt below a critical threshold is essential for maintaining sustainable economic growth. However, the study was conducted in China, hence the findings cannot be generalized to Kenya due to variations in legal frameworks and technological advancements between the two countries.

In Pakistan, Ahmad, Afzal, and Ullah (2024) investigated the relationship between the debt-to-GDP ratio and foreign debt in Pakistan, focusing on the foreign debt incurred by the last three governments from 2008 to 2022. The research employed a quantitative approach by analyzing data on twelve development indicators sourced from the World Bank. The study found that Pakistan's increasing reliance on foreign debt has significantly affected the country's debt-to-GDP ratio, raising concerns about the sustainability of its debt burden. The foreign debt incurred by the last three governments has had implications for the country's economic growth, fiscal policies, and external relations. The research suggests that improving debt management practices is essential

for reducing dependence on foreign debt. The findings highlight the importance of managing foreign debt responsibly to prevent destabilizing fiscal pressures. However, the study was carried out in Pakistan, hence the findings cannot be generalized to Kenya due to variations in geographical features between the two countries. In addition, the study used foreign debt as the dependent variable while the current will use economic stability as the dependent variable.

In Nigeria, Onyele and Nwadike (2021) investigated the impact of national debt burden, measured in terms of total debt-to-GDP ratio, on economic stability. The study used data from 1981 to 2019, sourced from the World Development Indicators and the Central Bank. To measure the national debt burden, the study used the total debt-to-GDP ratio (debt overhang). The exchange rate was included as a control variable. Economic stability was measured by the real GDP growth rate. The study found that, in the long run, total debt-to-GDP ratio caused a diminishing impact on economic stability, with revenue adequacy having a negative and significant effect. This suggests that higher levels of public debt relative to GDP may destabilize an economy. Since the study focuses on Nigeria, its findings may not be directly applicable to Kenya due to significant differences in the economic and political contexts of the two countries.

In Kenya, Njoroge (2020) studied the impact of Kenya's public debt, measured in terms of public debt to GDP ratio (GOVD), on economic stability. The study employed a quantitative research design, utilizing time-series data to examine the relationship between public debt and economic stability. The data were collected from official sources, likely including Kenya's national financial reports and other relevant economic indicators over a specified period. The findings revealed that an increase in the public

debt-to-GDP ratio (GOVD) had a significant impact on economic stability in Kenya. The study found that while moderate levels of public debt were associated with positive economic outcomes, higher levels of debt led to diminishing returns, with public debt potentially creating instability when it exceeded certain thresholds. The findings imply that while moderate debt can foster growth, excessive debt undermines economic stability, which is a key consideration for Kenya as it grapples with rising debt levels. Nonetheless, the study used a quantitative research design while the current study used a causal research design.

The reviewed literature provides valuable insights into the relationship between debt-to-GDP ratio and economic stability across different contexts. However, several research gaps remain. First, much of the empirical evidence stems from developed regions such as Europe and Asia (Fetai et al., 2020; Hu & Wong, 2021), where institutional frameworks, fiscal discipline, and governance structures differ markedly from those in African economies like Kenya. This raises concerns about the external validity of their findings in the Kenyan context. Second, studies in developing countries such as Pakistan and Nigeria (Ahmad et al., 2024; Onyele & Nwadike, 2021) primarily focus on foreign debt or macroeconomic indicators like exchange rates but fall short of examining economic stability comprehensively in terms of multiple dimensions. Third, while Njoroge (2020) provides country-specific insights for Kenya, the study employs a purely quantitative design, which limits causal inferences about how debt-to-GDP dynamics influence economic stability. Moreover, none of the existing studies adequately integrate the roles of governance quality, corruption, and weak institutions—factors that significantly shape debt outcomes in African contexts. This creates a clear gap that the present study

addresses by employing a causal research design to examine the effect of debt-to-GDP ratio on economic stability in Kenya, while also acknowledging the mediating role of institutional and governance challenges that have been overlooked in prior research.

#### **2.4.2 Debt Service Ratio and Economic Stability**

Agandhi and Sungkowati (2022) conducted a study to examine the impact of debt service ratio on the gross domestic product (GDP) of Indonesia. The study conducted a quantitative analysis focused on identifying correlations between the debt service ratio and GDP. By analyzing historical data, the researchers aimed to capture trends and assess the direction and strength of the relationship between debt service obligations and GDP growth in Indonesia. The study found a negative correlation between Indonesia's debt service ratio and GDP, meaning that as Indonesia's debt service ratio increased, GDP growth tended to decrease. This outcome suggests that higher debt servicing requirements may restrict economic growth by diverting resources away from investments or other productive uses. The findings imply that managing debt service obligations could be crucial for maintaining or enhancing GDP growth, potentially informing future fiscal and economic policy adjustments for sustainable economic performance. However, since the study was conducted in Indonesia, its findings may not be directly transferable to Kenya due to key differences in economic structure, fiscal policy, and external vulnerabilities.

In a different study, Tama and Habila (2022) examined the impact of external debt services on economic growth in Nigeria. The study adopted an ex-post facto research design, utilizing secondary data to test the hypotheses. This methodology was employed to estimate and evaluate the impact of external debt services on Nigeria's economic

growth. The study found that external debt is closely linked to underdevelopment, poverty, and unemployment, which have contributed to low living standards in Nigeria. The rising external debt servicing significantly adversely affected the country's economic growth. The findings imply that high external debt servicing could hinder economic growth, stressing the importance of controlling external debt obligations. Since, the study focuses on Nigeria, the findings may not be directly transferable to Kenya due to significant differences in economic structure as well as fiscal policy. In addition, the study adopted an ex-post facto research design while the current study used a causal research design.

Chanda (2022) analyzed the effect of public debt servicing on economic growth in Zambia, focusing on the separate impacts of public domestic debt servicing, public external debt servicing, and the total effect of public debt servicing. The study used annual time series data spanning from 1990 to 2019. The study found that public domestic debt servicing had a negative impact on economic growth in both the short run and long run in Zambia. Similarly, public external debt servicing also showed a negative relationship with economic growth in both the short run and long run. Regarding the total effect of debt servicing, the study found a negative and significant relationship with economic growth in the long run, while in the short run, the relationship was positive but insignificant. These findings suggest that high public debt servicing, both domestic and external, could have a detrimental effect on economic growth in the long run, implying that countries need to balance debt servicing to foster growth. However, the study's finding specifically focuses on Zambia and may not be fully applicable to Kenya due to

differences in economic structure. In addition, the study covered the period between 1990 and 2019 while the current study covered the period from 2014 to 2023.

In Nigeria, Efuntade and Efuntade (2022) examined the Debt Servicing to Revenue Ratio (DSR) in the context of fiscal space, Barro-Ricardian equivalence, and debt sustainability. The study employed descriptive statistics and quantitative analysis to assess the debt servicing trends in Nigeria. The study referenced the recommendation by Mugun (2021) for Sub-Saharan African countries to restrain from contracting new external debt. The study found that Nigeria's debt servicing ratio was alarmingly high (97% of revenue as of December 2021), significantly above the World Bank's recommended threshold of 22.5%. This excessive debt servicing was linked to a decline in economic growth and posed a serious challenge to the country's fiscal space and debt sustainability. The study supported the Barro-Ricardian equivalence theory, asserting that high debt servicing through budget deficits negatively impacts government revenue. The findings imply that excessive debt servicing could lead to fiscal challenges and reduced government capacity to invest in economic development, highlighting the need for fiscal reforms. However, the study was restricted to Nigeria hence the findings cannot be generalized to Kenya due to differences in microeconomic environment and legal frameworks between the two countries.

In Kenya, Kongo and Omboto (2023) investigated the impact of the debt service ratio on the sustainability of Kenya's public debt. The study utilized time series data from 1990 to 2021, drawing from relevant fiscal and financial indicators. The researchers employed the Vector Error Correction Model (VECM) to establish the relationships between the debt service ratio and public debt sustainability. This model was used to capture both short-

term and long-term dynamics between the variables and to assess the statistical significance of their associations. The study found a statistically significant negative relationship between Kenya's debt sustainability and the debt service ratio. As the debt service ratio increased, it adversely affected the sustainability of public debt. Additionally, the study found that depreciation of the exchange rate also negatively impacted public debt sustainability. The findings imply that managing the debt service ratio is essential to maintaining the sustainability of public debt. This suggests that Kenya may need to implement strategies to control its debt servicing obligations to ensure long-term fiscal health and avoid economic instability. Nonetheless, the study covered the period between 1990 and 2021, while the current study covered the period between 2014 and 2023.

The reviewed literature consistently shows that high debt service ratios negatively affect economic performance, diverting scarce resources from productive investment and development priorities. Studies in Indonesia, Nigeria, and Zambia (Agandhi & Sungkowati, 2022; Tama & Habila, 2022; Chanda, 2022) all demonstrate that rising debt servicing burdens tend to suppress growth, with long-term fiscal and developmental consequences. While these findings highlight the detrimental effects of high debt service ratios, most of the studies are context-specific, focusing on Asian and African countries with different economic, institutional, and policy structures than Kenya. Moreover, Nigerian and Zambian studies emphasize external debt servicing, while overlooking the combined role of domestic and external servicing, which is highly relevant in Kenya's case.

Even within Kenya, Kongo and Omboto (2023) focus primarily on debt sustainability but do not comprehensively analyze how the debt service ratio directly influences broader economic stability outcomes such as growth resilience, fiscal space, and social spending. This indicates a significant research gap: although debt service ratio has been widely studied in other developing economies, few studies explicitly examine its effect on economic stability in Kenya, considering both short- and long-term dynamics. Additionally, prior literature rarely integrates governance weaknesses, corruption, or institutional inefficiencies into the analysis, despite their profound influence on debt outcomes in African economies. The current study addresses these gaps by using a causal research design to determine the effect of debt service ratio on economic stability in Kenya during the period 2014–2023, thus providing more contextually relevant insights for policy and fiscal management.

#### **2.4.3 Debt Maturity Structure and Economic Stability**

In developing countries, Bilgin (2020) analyzed the determinants of debt maturity structures. The study utilized a panel dataset consisting of 3,981 firms from 30 developing and transitioning countries over an eight-year period (2011–2018). A multilevel modeling methodology was employed to isolate and examine the determinants of debt maturity structures. Variance components analysis was used to determine the relative impact of country-level and firm-level factors on debt maturity variability. The study found that firm-level factors accounted for 50% of the variability in debt maturity structures, while country-level factors contributed 15%. The findings imply that both firm-level characteristics and broader country-level factors significantly influence debt maturity, and managing these factors can lead to more stable debt structures. However,

the study was confined to developing countries, thus the findings cannot be generalized to Kenya, which is a developing country. In addition, the study covered the period between 2011 and 2018, while the current study covered the period between 2014 and 2023.

In Ghana, Adi (2019) looked at the relationship between debt maturity structure—represented by both external and domestic public debt—and economic growth in Ghana over the period from 1965 to 2017. This study employed the Ordinary Least Square (OLS) Model to analyze the relationship between public debt maturity structure and economic growth. Time series data from 1965 to 2017 was used. The study found a positive correlation between public debt maturity structure and economic growth in Ghana over the observed period. The findings suggest that a well-structured debt maturity strategy, particularly one that manages debt sustainability across both short- and long-term horizons, significantly influences Ghana's economic growth trajectory. The study implies that debt maturity management is crucial for promoting sustainable economic growth, emphasizing the need for balanced debt strategies that account for both short-term and long-term needs. Nonetheless, the study was restricted to Ghana, thus the findings may not be applicable to Kenyan context due to variations in microeconomic environment between the countries.

In Kenya, Mwangangi (2020) examined the determinants of debt maturity and their influence on the performance of companies listed on the Nairobi Securities Exchange (NSE). The research was guided by the trade-off theory, market timing theories, and the theory of pecking order and employed a descriptive research design. The study covered a sample of 65 firms listed on the NSE, using secondary data collected over a 10-year period from 2008 to 2017. The study found that leverage, growth opportunities, asset

tangibility, and taxes were effective predictors of debt maturity among NSE-listed companies, though debt maturity alone did not significantly predict firm performance. Overall, the study concluded that the selected independent variables satisfactorily explained variations in both debt maturity and firm performance. The implication of this finding is that while debt maturity is important, other factors such as leverage and growth opportunities play a more critical role in determining firm performance, highlighting the need for a broader approach in managing corporate debt. Nonetheless, the study covered the period between 2008 and 2017 while the current study covered the period between 2014 and 2023.

While the reviewed studies provide important insights into the relationship between debt maturity structure and economic stability, several gaps emerge. First, most of the studies, such as Bilgin (2020), focus on firm-level or cross-country determinants of debt maturity rather than examining the macroeconomic implications in a country-specific context like Kenya. This limits their applicability in explaining how debt maturity affects overall economic stability in emerging economies with unique institutional and governance challenges. Second, studies like Adi (2019) in Ghana establish a positive relationship between debt maturity and growth, but they do not sufficiently interrogate how weak institutions, fiscal indiscipline, and governance constraints—common in many African economies—distort these relationships. Third, Kenyan evidence, such as Mwangangi (2020), concentrates on corporate debt structures rather than public debt, leaving a gap in understanding how sovereign debt maturity profiles influence macroeconomic outcomes like debt sustainability, fiscal stability, and long-term growth. Moreover, most of the existing studies rely on relatively older datasets, with limited attention to the more recent

period (post-2014) marked by Kenya's rising debt levels, Eurobond issuances, and recurrent fiscal deficits. Therefore, there is a clear need for a context-specific study that critically evaluates the effect of debt maturity structure on economic stability in Kenya, while explicitly accounting for governance, corruption, and institutional weaknesses that may alter debt outcomes.

#### **2.4.4 Government Fiscal Policy, Public Debt Sustainability and Economic Stability**

Rathnayake (2020) assessed the sustainability of Sri Lanka's fiscal imbalance and public debt, with a specific focus on the role of fiscal policy asymmetries. The study applied the symmetric ARDL (Autoregressive Distributed Lag) method, which was used to estimate the government's intertemporal budget constraint. The study found that Sri Lanka's fiscal management does not meet the criteria for strong form sustainability, which requires government expenditures to grow at a rate slower than or equal to the growth of revenues. The results indicated that Sri Lanka's fiscal policy did not consistently adhere to this principle, contributing to fiscal imbalance. However, the analysis of the fiscal reaction function revealed clear evidence of fiscal policy asymmetries. The findings imply that countries need to align fiscal policy with the growth of revenues to ensure fiscal sustainability and avoid fiscal imbalances that can undermine economic stability. Since the study was confined to Sri Lanka, its findings cannot be generalized to Kenya due key differences in economic structure, and fiscal policy.

Abdullah, Yien and Khan (2019) looked at the relationship between fiscal policy, measured in terms of budget deficits, government expenditure and tax revenue, and economic growth in the ASEAN-5 countries (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) from 1970 to 2016. The study used the Autoregressive

Distributed Lag (ARDL) approach to analyze the relationship between fiscal policy and economic growth based on the available data. The results showed that government expenditure is statistically significant in all ASEAN-5 economies except for Indonesia. In the long run, non-tax revenue increases expenditure in most countries, except Indonesia. This suggests that fiscal policy, particularly government expenditure, plays a significant role in promoting economic growth in developing countries, although the context-specific differences in legal frameworks should be considered. Since the study focused on ASEAN-5 countries, its findings may not be directly applicable to Kenya due to notable differences in legal frameworks. In addition, the study covered the period between 1970 and 2016, while the current study covered the period between 2014 and 2023.

In Pakistan, Rathnayake (2020) examined the moderating effect of government fiscal policy on the relationship between public debt sustainability and economic stability. The study utilized a time-series analysis covering data from 1990 to 2020 and applied an Autoregressive Distributed Lag (ARDL) model to assess short-term and long-term dynamics among public debt sustainability, economic stability, and fiscal policy indicators as moderating variables. The study found that fiscal policy significantly moderates the relationship between public debt sustainability and economic stability. Prudent fiscal policies enhanced the positive impact of public debt sustainability, while expansionary fiscal measures weakened economic stability. The findings suggest that adopting prudent fiscal policies is crucial for strengthening the positive effects of public debt sustainability on economic stability. However, the study provides insights into Pakistan's fiscal dynamics, but its findings may not be applicable to Kenya due to differences in economic structure, fiscal policies, and external economic influences.

Imoisi (2020) explored the relationship between fiscal policy and public debt sustainability in Nigeria over the period from 1970 to 2019. The study utilized a multivariate framework and applied the Autoregressive Distributed Lag (ARDL) bounds test to determine the long-term relationships among the key variables. The findings of the ARDL test indicated that there is a significant long-run relationship between fiscal policy and public debt in Nigeria. Specifically, the study revealed that the budget deficit had a positive and significant impact on public debt in both the short and long runs. This suggests that higher budget deficits contribute to the accumulation of public debt. The findings imply that persistent budget deficits can contribute to public debt accumulation, suggesting the need for a balanced fiscal policy to maintain debt sustainability. However, the study was confined to Nigeria, hence the findings may not be applicable to Kenyan context since the countries vary in terms of microeconomic environment.

Abdullah, Yien, and Khan (2019) investigated the moderating role of government fiscal policy in the relationship between external debt and economic stability in Botswana. The study employed a panel data approach covering 1995 to 2021, using a Fixed Effects regression model to control for unobserved heterogeneity. External debt indicators (such as foreign borrowing and debt servicing costs) were the independent variables, while economic stability was measured through GDP growth and inflation. The study found that counter-cyclical fiscal policies mitigated the negative effects of high external debt on economic stability. When government spending was well-structured, the impact of external debt on inflation was reduced. The findings imply that implementing counter-cyclical fiscal policies can reduce the destabilizing effects of external debt on the

economy. While Botswana's fiscal approach may be relevant, its economic structure differs from Kenya, limiting the direct applicability of its findings.

In Ghana, Imoisi (2020) analyzed the moderating influence of government fiscal policy on the relationship between budget deficit and economic stability in Ghana. The study employed a Vector Error Correction Model (VECM) with quarterly data from 2000 to 2020 to examine both short-term and long-term interactions between budget deficit, fiscal policy, and economic stability. The results indicated that expansionary fiscal policies worsened the negative impact of budget deficits on economic stability, whereas conservative fiscal measures mitigated these effects. The findings suggest that adopting conservative fiscal measures is essential to counteract the adverse effects of budget deficits on economic stability. While the study provides valuable insights, Ghana's economic environment differs from Kenya's, making direct comparisons difficult.

In Kenya, Nya and Onyimadu (2019) examined how government fiscal policy moderates the relationship between domestic debt and economic stability in Kenya. The study used a Cointegrated Vector Autoregression (CVAR) model to analyze annual data from 1980 to 2020. Domestic debt indicators such as government bonds, treasury bills, and domestic borrowing were included as independent variables, while economic stability was assessed using inflation rates and GDP growth. The study found that proactive fiscal policies, such as efficient tax administration and controlled public spending, reduced the risks associated with high domestic debt levels and improved economic stability. The findings imply that proactive fiscal policies are essential for minimizing the risks of high domestic debt and ensuring economic stability. While relevant for Kenya, the study does not

account for external economic shocks, which could influence the relationship under study.

In a different study, Rathnayake (2020) explored the moderating role of government fiscal policy in the relationship between tax revenue and economic growth in Kenya. A Structural Equation Modeling (SEM) approach was employed using data from 1995 to 2021. Tax revenue indicators such as VAT collections, corporate tax, and income tax were analyzed as independent variables, while economic stability was measured through GDP growth and inflation volatility. The study found that a well-structured tax system enhanced economic stability by ensuring sustainable revenue generation, while inefficient tax administration led to fiscal imbalances. The findings suggest that disciplined fiscal spending and efficient tax collection mechanisms are crucial for maintaining economic stability. The study relied on secondary data, which may introduce biases, and the SEM approach assumes linear relationships, potentially oversimplifying complex economic interactions.

The literature on fiscal policy's moderating role between public debt sustainability and economic stability yields useful findings but reveals clear gaps that demand critical attention. First, many studies are context-specific, such as Rathnayake (2020) on Sri Lanka and Pakistan, Abdullah, Yien, and Khan (2019) on ASEAN-5, Imoisi (2020) on Nigeria, and panel studies on Botswana, thereby limiting external validity for Kenya's unique institutional, fiscal, and external-vulnerability profile. Second, measurement and scope vary: some studies emphasize budget deficits (Imoisi, 2020), others tax revenue (Rathnayake, 2020), and government expenditure (Abdullah et al., 2019), while others focus narrowly on domestic or external debt (Nya & Onyimadu, 2019)—making

comparisons difficult and leaving moderating channels underexplored. Third, several analyses rely on standard econometric approaches such as ARDL, VECM, CVAR, and SEM without sufficiently addressing endogeneity, policy simultaneity, or governance challenges like corruption and weak institutions that are particularly relevant in Africa (Imoisi, 2020; Rathnayake, 2020).

Fourth, Kenyan studies such as Nya and Onyimadu (2019) and Rathnayake (2020) on tax systems either omit external shocks or assume linearity, oversimplifying complex fiscal responses during crisis episodes. Consequently, there is a methodological and contextual gap: few studies causally identify how different fiscal policy instruments and institutional qualities alter the debt sustainability–stability nexus in Kenya’s recent post-2014 debt landscape. The current study addresses this gap by applying a causal research design for 2014–2023 that disaggregates fiscal policy measures, controls for governance and external shocks, and adopts estimation strategies designed to mitigate endogeneity, thereby offering more policy-relevant evidence for Kenya.

## **2.5 Summary and Research Gaps**

Numerous studies have been done on public debt sustainability and economic stability. However, these studies were limited to particular nations and organizations and used different independent variables, target populations, and research designs. As a result, findings from one country cannot be applied to other countries. Furthermore, due to differences in independent variables, target population and research design, findings from one study cannot be applied to another study.

**Table 2. 1: Summary of Research Gaps**

<b>Author</b>	<b>Title</b>	<b>Methodology</b>	<b>Findings</b>	<b>Research gaps</b>	<b>Focus of the study</b>
<b>Debt-To-GDP Ratio and Economic Stability</b>					
Hu and Wong (2021)	Relationship between debt-to-GDP ratio and economic growth.	Exploratory data analysis	The relationship between the debt-to-GDP ratio and average GDP growth was positive when the debt-to-GDP ratio was below a certain threshold (approximately 70%).	<p><b>Contextual gap:</b> The study was conducted in China, hence the findings cannot be generalized to Kenya due to variations in legal frameworks and technological advancements between the two countries.</p> <p><b>Methodological Gap:</b> In addition the study adopted an exploratory research design</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.</p> <p>This study adopted descriptive and causal research design</p>
Ahmad, Afzal, and Ullah (2024)	Relationship between the debt-to-GDP ratio and foreign debt in Pakistan.	Quantitative approach	Pakistan's increasing reliance on foreign debt has significantly affected the country's debt-to-GDP ratio, raising concerns about the sustainability of its debt burden.	<p><b>Contextual Gap:</b> The study was carried out in Pakistan, hence the findings cannot be generalized to Kenya due to variations in geographical features between the two countries.</p> <p><b>Conceptual Gap:</b> The study used foreign debt as the dependent variable while the current will use economic stability as the dependent</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.</p>

Author	Title	Methodology	Findings	Research gaps	Focus of the study
Getinet and Ersumo (2020)	The impact of public external debt stock to GDP (PEDSGD), as a measure of public external debt on economic growth in Ethiopia.	Explanatory research design	The ratio of public external debt stock to GDP (PEDSGD) has a significant negative impact on Ethiopia's economic growth, both in the long and short run.	variable.  <b>Contextual gap:</b> Having been limited to Ethiopia, the findings of the study cannot be applied to Kenya due to differences in microeconomic environment between the countries.  <b>Methodological Gap:</b> The study covered the period between 1983 and 2018.	The current study focused on the effect of public debt sustainability on economic stability in Kenya.  The current study looked at 2014 to 2023.
Njoroge (2020)	The impact of Kenya's public debt, measured in terms of public debt to GDP ratio (GOVD), on economic stability.	Quantitative research design	An increase in the public debt-to-GDP ratio (GOVD) had a significant impact on economic stability in Kenya	<b>Methodological Gap:</b> The study used a quantitative research design while the current study will use a causal research design.	The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.
<b>Debt Service Ratio and Economic Stability</b>					
Tama and Habila (2022)	Impact of external debt services on economic growth in Nigeria.	An ex-post facto research design	External debt is closely linked to underdevelopment, poverty, and unemployment, which have	<b>Contextual Gap:</b> The study focuses on Nigeria, the findings may not be directly transferable to Kenya due to significant differences in	The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.

Author	Title	Methodology	Findings	Research gaps	Focus of the study
			contributed to low living standards in Nigeria.	economic structure as well as fiscal policy.  <b>Methodological Gap:</b> The study adopted an ex-post facto research design	
Efuntade and Efuntade (2022)	Debt Servicing to Revenue Ratio (DSR) in the context of fiscal space, Barro-Ricardian equivalence, and debt sustainability.	Descriptive research design	Nigeria's debt servicing ratio was alarmingly high (97% of revenue as of December 2021), significantly above the World Bank's recommended threshold of 22.5%.	<b>Contextual gap:</b> The study was restricted to Nigeria hence the findings cannot be generalized to Kenya due to differences in microeconomic environment and legal frameworks between the two countries.	The current study focused on the effect of public debt sustainability on economic stability in Kenya.
Kongo and Omboto (2023)	The impact of the debt service ratio on the sustainability of Kenya's public debt.	Vector Error Correction Model	The study found a statistically significant negative relationship between Kenya's debt sustainability and the debt service ratio.	<b>Methodological gap:</b> The study covered the period between 1990 and 2021, while the current study will cover the period between 2014 and 2023.	The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.
Agandhi and Sungkowati (2022)	The impact of debt service ratio on the gross domestic product (GDP)	Quantitative research design	The study found a negative correlation between Indonesia's debt service ratio and	<b>Contextual gap:</b> Since the study was conducted in Indonesia, its findings may not be directly transferable to Kenya due to key differences	The current study focused on the effect of public debt sustainability on economic stability in Kenya.

Author	Title	Methodology	Findings	Research gaps	Focus of the study
	of Indonesia.		GDP, meaning that as Indonesia's debt service ratio increased, GDP growth tended to decrease.	in economic structure, fiscal policy, and external vulnerabilities.	
<b>Debt Maturity Structure and Economic Stability</b>					
Dau (2024)	The influence of external debt on economic vulnerability, focusing on the role of debt maturity structure in affecting a country's resilience to economic shocks.	Explanatory research design	Long-term external debt contributes to heightened economic vulnerability by increasing the frequency and magnitude of external economic shocks.	<p><b>Contextual gap:</b> However, the study was carried out in Vietnam, a country with different microeconomic environment from Kenya.</p> <p><b>Conceptual gap:</b> The dependent variable was resilience to economic shocks</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya.</p> <p>The dependent variable was economic stability</p>
Bilgin (2020)	Determinants of debt maturity structures.	Multilevel modeling methodology	Firm-level factors accounted for 50% of the variability in debt maturity structures, while country-level factors contributed 15%.	<p><b>Contextual gap:</b> The study was confined to developing countries; thus, the findings cannot be generalized to Kenya, which is a developing country.</p> <p><b>Methodological Gap:</b> The study covered the period</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya.</p> <p>The current study looked at 2014 to 2023.</p>

Author	Title	Methodology	Findings	Research gaps	Focus of the study
				between 2011 and 2018	
				<b>Conceptual gaps:</b> Debt maturity structures was used as a dependent variable	Debt maturity was used as an independent variable
Adi (2019)	Relationship between debt maturity structure— represented by both external and domestic public debt— and economic growth in Ghana over the period from 1965 to 2017.	Ordinary Least Square (OLS) Model	The study found a positive correlation between public debt maturity structure and economic growth in Ghana over the observed period.	<b>Contextual gap:</b> The study was restricted to Ghana, thus the findings may not be applicable to Kenyan context due to variations in microeconomic environment between the countries.	The current study focused on the effect of public debt sustainability on economic stability in Kenya.

**Government Fiscal Policy, Public Debt Sustainability and Economic Stability**

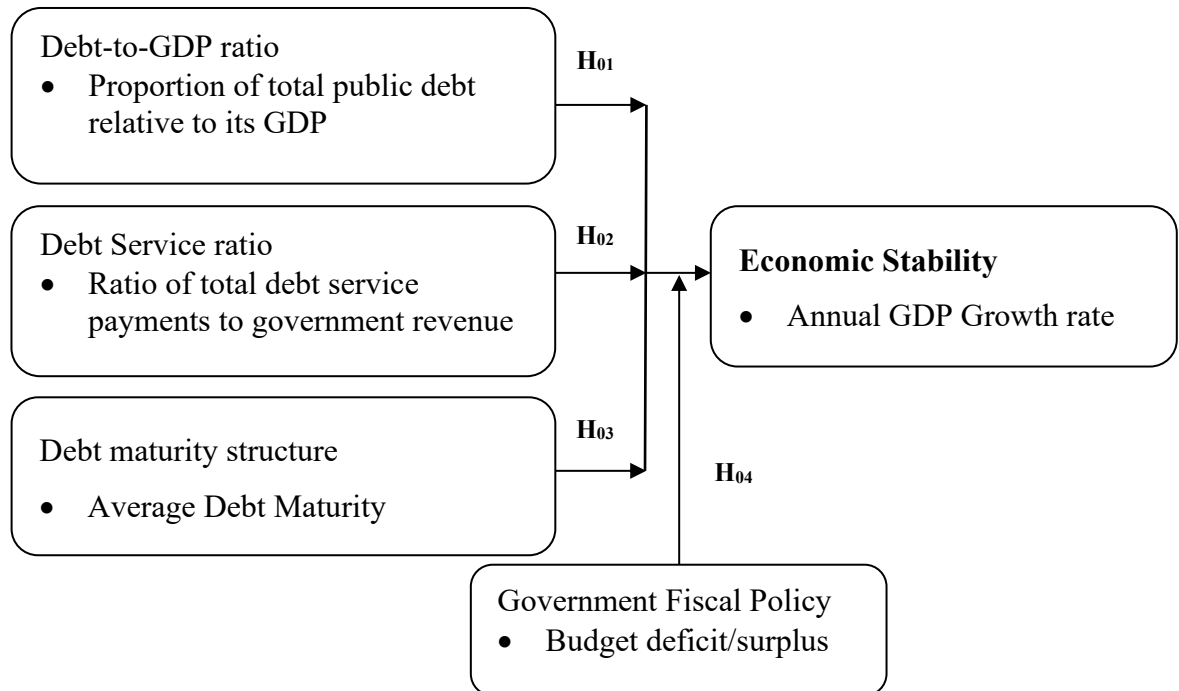
<b>Author</b>	<b>Title</b>	<b>Methodology</b>	<b>Findings</b>	<b>Research gaps</b>	<b>Focus of the study</b>
Rathnayake (2020)	the sustainability of Sri Lanka's fiscal imbalance and public debt, with a specific focus on the role of fiscal policy asymmetries	symmetric ARDL (Autoregressive Distributed Lag) method	Sri Lanka's fiscal management does not meet the criteria for strong form sustainability, which requires government expenditures to grow at a rate slower than or equal to the growth of revenues.	<b>Contextual gap:</b> Since the study was confined to Sri Lanka, its findings cannot be generalized to Kenya due key differences in economic structure, and fiscal policy.	The current study focused on the effect of public debt sustainability on economic stability in Kenya.
Yien and Khan (2019)	Relationship between fiscal policy, measured in terms of budget deficits, government expenditure and tax revenue, and economic growth in the ASEAN-5 countries.	Autoregressive Distributed Lag (ARDL) approach	Government expenditure is statistically significant in all ASEAN-5 economies except for Indonesia	<b>Methodological gap:</b> The study covered the period between 1970 and 2016, while the current study will cover the period between 2014 and 2023.	The current study focused on the effect of public debt sustainability on economic stability in Kenya. The current study looked at 2014 to 2023.

<b>Author</b>	<b>Title</b>	<b>Methodology</b>	<b>Findings</b>	<b>Research gaps</b>	<b>Focus of the study</b>
Imoisi (2020)	Relationship between fiscal policy and public debt sustainability in Nigeria over the period from 1970 to 2019.	Autoregressive Distributed Lag (ARDL)	There is a significant long-run relationship between fiscal policy and public debt in Nigeria.	<p><b>Contextual gap:</b> The study was confined to Nigeria, hence the findings may not be applicable to Kenyan context since the countries vary in terms of microeconomic environment.</p> <p><b>Methodological gap:</b> The study was conducted between 1970 and 2019</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya.</p> <p>The current study looked at 2014 to 2023.</p>
Nya and Onyimadu (2019)	Relationship between fiscal policy, measured in terms of budget deficits and surpluses, and public debt sustainability in Nigeria.	Error Correction Model	Nigeria's public debt had been sustainable over the last 8 to 10 years when measured using the solvency ratio, meaning that the debt levels were manageable relative to the country's economic capacity	<p><b>Contextual gap:</b> The study drew its focus on Nigeria, hence the findings cannot be generalized to Kenya due to variations in microeconomic environment between the countries.</p>	<p>The current study focused on the effect of public debt sustainability on economic stability in Kenya.</p>

## 2.6 Conceptual Framework

Figure 2.1 presents the relationship between the independent, dependent, and moderating variables in the study. The independent variable is public debt sustainability, conceptualized in three dimensions. The first is the debt-to-GDP ratio, which represents the proportion of total public debt relative to the gross domestic product and reflects the country's debt burden in relation to its economic output (Eğrican & Togan, 2022). The second is the debt service ratio, defined as the ratio of total debt service payments to government revenue, indicating the extent to which revenues are consumed by debt obligations. The third is the debt maturity structure, measured by the average debt maturity period, which captures the balance between short-term and long-term debt obligations (Pamies & Reut, 2020). Together, these measures provide a comprehensive perspective on the sustainability of Kenya's public debt.

The dependent variable is economic stability, operationalized in this study as the annual GDP growth rate, which reflects the economy's ability to maintain steady growth amid debt pressures (Chowdhury et al., 2024). The moderating variable is government fiscal policy, measured by the budget deficit or surplus, which influences how public debt sustainability interacts with economic stability. Fiscal policy decisions such as expenditure management and revenue mobilization play a critical role in either strengthening or weakening the relationship between public debt and economic stability. This conceptual framework therefore integrates key constructs that connect public debt dynamics to Kenya's broader macroeconomic performance.

**Independent Variables****Moderating Variable****Dependent Variable****Public Debt Sustainability****Figure 2. 1: Conceptual Framework**

**Source: Adapted from Eđrican and Togan (2022) and Pamies and Reut (2020)**

While the study focuses on debt-to-GDP ratio, debt service ratio, and debt maturity structure as the core indicators of public debt sustainability, it acknowledges that other constructs such as the debt-to-export ratio and the primary balance are also widely used in debt sustainability analysis (IMF, 2021; Presbitero, 2012). However, these were excluded because debt-to-export ratio is more relevant for economies highly dependent on export revenues, whereas Kenya's debt structure is increasingly influenced by domestic borrowing, making GDP-related indicators more appropriate (Were, 2021). Similarly, the primary balance, though important, tends to be volatile and highly sensitive to short-term fiscal adjustments, potentially obscuring long-run sustainability dynamics

(Aizenman & Ito, 2013). Regarding the measurement of economic stability, indicators such as inflation rate, interest rate, and unemployment rate are valid measures (Eberhardt & Presbitero, 2015). However, this study adopts a broader conceptualization that captures the cumulative effect of public debt on the economy's overall stability rather than focusing on single macroeconomic outcomes. The choice of constructs is therefore guided by the study's objective of establishing a causal link between public debt sustainability and economic stability in Kenya's context, while recognizing that alternative indicators could form a useful basis for future research.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology outlines the procedures used in identification of target population, selection of a sample size, data collection and data analysis (Babbie, 2021). Specifically, this chapter covers the study area, research design, target population, sampling design and sampling procedure, data collection instruments, data analysis and ethical considerations.

#### **3.2 Study Area**

Kenya, located in East Africa, provides a compelling context for examining the effect of public debt sustainability on economic stability due to its heavy reliance on debt-financed development. The country's public debt has grown rapidly, surpassing 60% of GDP in recent years, largely driven by infrastructure investments in transport, energy, and water sectors (National Treasury, 2023; Were, 2022). Unlike many Sub-Saharan African peers, Kenya has increasingly relied on commercial loans and Eurobonds alongside concessional financing, exposing it to higher refinancing and exchange rate risks (IMF, 2023). In contrast, countries such as Uganda and Botswana have maintained more conservative debt strategies, with lower debt-to-GDP ratios, while Ghana has faced debt distress and restructuring challenges due to similar borrowing patterns (World Bank, 2024). This regional comparison underscores Kenya's unique positioning—balancing growth aspirations with the risks of rising debt service obligations.

Sectorally, Kenya's borrowing has been concentrated in large-scale infrastructure projects such as the Standard Gauge Railway, road networks, energy transmission lines,

and healthcare system modernization (Ongeri & Ndolo, 2023). While these investments have supported economic growth, they have also heightened fiscal pressures through rising external debt servicing requirements, which now absorb a significant portion of government revenues (Ojwang, 2024). Kenya's fiscal environment is further complicated by exchange rate volatility, revenue shortfalls, and recurrent budget deficits, which make economic stability highly sensitive to debt sustainability dynamics. This context provides not only a unique case for analyzing how debt maturity, service ratios, and fiscal policy interact with economic stability, but also insights that can inform other Sub-Saharan economies facing similar trade-offs between growth and fiscal sustainability.

### **3.3 Research Design**

The study adopted a descriptive and Causal research design. Descriptive research design is a method used to systematically describe a phenomenon, population, or situation without manipulating variables. It aims to provide an accurate representation of characteristics or trends as they naturally occur (Krishna, 2020). Descriptive research was used in this study as it allows the researcher to gather quantitative data on key variables, such as debt-to-GDP ratio, debt service ratio, and other economic indicators, without manipulating these factors. This design is particularly useful for identifying patterns and trends in how public debt affects economic stability over time, providing a clear understanding of the current situation.

The study employed a causal research design, also referred to as explanatory research design, which focuses on identifying and analyzing cause-and-effect relationships between variables (Latwal, 2020). Unlike exploratory designs, which are suitable for generating preliminary insights in under-researched areas, or descriptive designs, which

merely describe the characteristics of variables without testing relationships, causal designs allow researchers to determine whether changes in one variable directly cause changes in another (Waddell, 2020; Saunders, Lewis, & Thornhill, 2019). This made it appropriate for investigating how variations in public debt sustainability influence Kenya's economic stability. To implement this design, the study utilized Ordinary Least Squares (OLS) regression on time-series data, covering the period 2014–2023.

OLS was selected over simple correlation analysis, which only captures associations, because it provides a robust econometric framework for estimating the magnitude and direction of causal effects while controlling for potential confounding influences (Wooldridge, 2019). In the context of time-series analysis, OLS is particularly useful when data meet the assumptions of stationarity and absence of serial correlation, allowing for consistent and unbiased parameter estimates (Gujarati & Porter, 2020). The model was therefore applied to test whether indicators of public debt sustainability—debt-to-GDP ratio, debt service ratio, and debt maturity structure—exert significant causal effects on Kenya's economic stability. However, OLS in time-series analysis is sensitive to issues such as autocorrelation and endogeneity, which, if not addressed, may bias the results. Recognizing these limitations, diagnostic tests were incorporated to ensure the validity of the model.

### **3.4 Data Collection Instruments**

The study relied on secondary time-series data, which was collected using a structured data extraction checklist. This checklist was specifically designed to ensure systematic collection, consistency, and reliability of variables across multiple data sources (Greene & Dreyer, 2021). Secondary time-series data is valuable because it enables the

observation of patterns and relationships in economic behavior across time (Creswell & Creswell, 2022). The study covered the period 2014–2023, justified by the fact that Kenya experienced rapid debt accumulation during this period, with the debt-to-GDP ratio surpassing 60% following infrastructure-driven borrowing under Vision 2030 and the post-2014 Eurobond issuance (National Treasury, 2023; IMF, 2022). This timeframe therefore captures the most recent and policy-relevant shifts in debt sustainability and economic stability.

Data was primarily obtained from the Central Bank of Kenya (CBK) statistical bulletins, Kenya National Bureau of Statistics (KNBS) annual economic surveys, and the World Bank’s World Development Indicators (WDI) database. Additional triangulation was done using the International Monetary Fund (IMF) Article IV Consultation Reports, African Development Bank (AfDB) Economic Outlook Reports, and credit rating agency publications such as Moody’s and Fitch Ratings. Where discrepancies arose between institutions (for example, debt-to-GDP ratios reported by CBK versus IMF in 2017–2018), the figures were reconciled by prioritizing CBK data for domestic debt variables and IMF/World Bank data for external debt, with missing observations interpolated using consistent growth trends. Explicitly, gaps in debt service data for 2015 and 2016 from KNBS were filled using IMF Article IV datasets.

The variables were operationalized as follows: Debt-to-GDP ratio was measured as total public debt divided by GDP; Debt service ratio as total debt service payments divided by total government revenue; and Debt maturity structure as the weighted average time until debt repayment. Economic stability was measured using the annual GDP growth rate (percentage change in real GDP), while government fiscal policy was operationalized

through the budget deficit/surplus (difference between total government revenue and expenditure). A customized data extraction template in Excel was designed to standardize the data collection process across sources, enabling year-by-year cross-checking and identification of inconsistencies.

### **3.5 Data analysis**

The quantitative data was collected, edited and coded into Statistical software known as STATA version 14, for statistical analysis. Analysis of the quantitative data will be based on descriptive and inferential statistics. Descriptive statistics focused on computation of mean, percentage, standard deviation and frequencies. Inferential statistics focused on calculation of correlation and multivariate regression analysis. Correlation analysis was used to determine the strength of the association between dependent and independent variables while regression analysis was used to determine the relationship between the independent variables and the dependent variable. R the strength of the relationship and r square the variance explained

#### **3.5.1 Model Specification**

The study adopted an Ordinary Least Squares (OLS) regression model, which estimates the association between independent and dependent variables by minimizing the sum of squared differences between observed and predicted values (Devi, 2019). OLS was chosen over alternatives such as ARDL or VECM because the study relied on a relatively short annual time-series dataset (2014–2023) that met the assumptions of stationarity and linearity, making OLS the most appropriate and parsimonious method for capturing the

effect of public debt sustainability on economic stability in Kenya (Gujarati & Porter, 2020).

In applying Ordinary Least Squares (OLS) regression to time-series data, the study recognized potential econometric risks such as multicollinearity, autocorrelation, and non-stationarity. Since the independent variables—debt-to-GDP ratio, debt service ratio, and debt maturity structure—may exhibit strong correlations, variance inflation factors (VIF) were planned to detect multicollinearity and ensure reliable coefficient estimates (Wooldridge, 2020). Stationarity of the series was also tested using unit root tests (ADF and PP) prior to estimation, as non-stationary data can lead to spurious regressions (Gujarati & Porter, 2020). To address potential autocorrelation, common in time-series datasets, the study applied the Breusch-Godfrey (BG) test and, where necessary, robust standard errors were used to correct for serial correlation (Greene, 2021). These steps justify the choice of OLS, as the dataset was short (2014–2023) and met the assumptions required, while more complex models like ARDL or VECM are better suited for longer panels or cointegrated systems.

In the functional model, the economic stability was handled as dependent variable whereas independent variable will be public debt sustainability. Model 1 below is the general functional form showing that economic stability depends on debt variables, while Model 2 is the empirical regression model with coefficients and an error term, making it suitable for statistical estimation. The functional association of empirical model was as follows:

$$ES = f(DGR, DSR, DMS, GFP) \dots \dots \dots (1)$$

The regression model was as follows;

$$ES_t = \beta_0 + \beta_{1t}DRG_t + \beta_{2t}DSR_t + \beta_{3t}DMS_t + \varepsilon \dots\dots\dots (2)$$

$EC_t$  is the dependent variable Economic Stability,  $B_0$  is the y intercept (Constant),  $\beta_{1-4}$  are the coefficients of determination, DRG is Debt-To-GDP Ratio, DSR is Debt Service Ratio, DMS is Debt Maturity Structure and GFP is Government Fiscal Policy, t represents time (2014-2023) and  $\varepsilon_t$  is an error term.

The moderating effect analysis examines whether government fiscal policy influences the relationship between public debt sustainability variables (Debt-To-GDP ratio, debt service ratio, and debt maturity structure) and economic stability in Kenya. The regression model was as follows;

$$ES_t = \beta_0 + \beta_{1t}DRG_t + \beta_{2t}DSR_t + \beta_{3t}DMS_t + \beta_{4t}GFP_t + \beta_{5t}(GFP_t \times DRG_t) + \beta_{6t}(GFP_t \times DSR_t) + \beta_{7t}(GFP_t \times DMS_t) + \varepsilon \dots\dots\dots (3)$$

$EC_t$  is the dependent variable Economic Stability,  $B_0$  is the y intercept (Constant),  $\beta_{1-7}$  are the coefficients of determination, DRG is Debt-To-GDP Ratio, DSR is Debt Service Ratio, DMS is Debt Maturity Structure and GFP is Government Fiscal Policy, t represents time (2014-2023) and  $\varepsilon_t$  is an error term.

### 3.5.2 Diagnostic Tests

In this research, diagnostic tests were performed to test for the regression model assumptions before carrying out regression analysis. The research focused on

autocorrelation test, stationarity test, autocorrelation test, normality, heteroscedasticity test as well as stationarity test.

### **3.5.2.1 Normality Test**

To determine whether the data used in the study is normally distributed, the Jarque-Bera test will be employed, along with an analysis of skewness and kurtosis. skewness kurtosis and Jarque Bera test. Skewness tell how spread out the data is or measure of asymmetry level and kurtosis measure the tailedness of the distribution, or how often outliers occurs. The acceptable range for skewness was -3 and 3 and kurtosis acceptable -10 and 10 (Brown and Greene 2006). The Jarque-Bera test is designed to assess the goodness-of-fit of the data to a normal distribution by evaluating the sample's skewness and kurtosis (Hall, 2020). In this test, the null hypothesis posits that the data follows a normal distribution. If the p-value obtained from the test is below the chosen alpha level, typically set at 0.05, the null hypothesis is rejected, indicating that the data significantly deviates from a normal distribution (Hair, Page & Brunsveld, 2020). Conversely, if the p-value is greater than 0.05, there is insufficient evidence to reject the null hypothesis, suggesting that the data does not significantly differ from a normal distribution and can be considered normally distributed.

### **3.5.2.2 Autocorrelation Test**

The Breusch-Godfrey (BG) test is a statistical test used to detect the presence of autocorrelation in the residuals of a regression model. Autocorrelation occurs when the error terms in a regression model are correlated across observations, violating the assumption of independence required for ordinary least squares (OLS) regression. Unlike

the Durbin-Watson test, which only detects first-order autocorrelation, the Breusch-Godfrey test can detect higher-order autocorrelation, making it a more robust method for diagnosing serial correlation in time-series and panel data models. If the p-value is less than 0.05, autocorrelation is present, meaning the model violates the assumption of independent errors. If the p-value is greater than 0.05, there is no significant autocorrelation, and the model satisfies the assumption of independent errors (Krishna, 2020). Therefore, detecting and addressing autocorrelation is crucial for ensuring the robustness of the study's findings on how public debt influences economic growth.

### **3.5.2.3 Heteroscedasticity Test**

Testing for heteroscedasticity or homoscedasticity was conducted using either the Cook-Weisberg test or the Breusch-Pagan test. These tests are designed to assess whether the variance of the residuals from a regression model is constant (homoscedasticity) or varies across observations (heteroscedasticity) (Hall, 2020). The Cook-Weisberg test specifically tests for heteroscedasticity by regressing the squared residuals on the fitted values, while the Breusch-Pagan test extends this by considering a broader range of potential sources of heteroscedasticity. The null hypothesis for both tests is that the residuals exhibit constant variance, indicating homoscedasticity. A rejection of the null hypothesis would suggest the presence of heteroscedasticity, which could undermine the efficiency of the regression estimates and lead to unreliable statistical inferences.

### **3.5.2.4 Linearity Test**

Testing for linearity is crucial to ensure that the relationship between the dependent variable (economic growth) and the independent variables (such as different forms of

public debt) is appropriately modeled. Linearity tests assume that the association between these variables follows a straight-line relationship, which is fundamental for the validity of linear regression models (Greene & Dreyer, 2021). To assess this, the study utilized scatter plots, a graphical tool that visually represents the relationship between two variables. By plotting the dependent variable against each independent variable, the scatter plot allows for an immediate assessment of whether the relationship appears linear or if it shows signs of non-linearity (Bryman, 2022). If the points on the scatter plot align along a straight line, it supports the assumption of linearity.

#### **3.5.2.5 Multicollinearity Test**

It is essential to test for multicollinearity to ensure that the study variables are not excessively correlated with one another (Babbie, 2021). To assess multicollinearity, the study employed the Variance Inflation Factor (VIF), which quantifies how much the variance of an estimated regression coefficient increases due to multicollinearity (Devi, 2019). The VIF measures the extent to which an independent variable is explained by other independent variables in the model. A high VIF value, typically above 10, indicates significant multicollinearity, suggesting that the variable in question is highly correlated with others. Conversely, a low VIF value suggests that multicollinearity is not a concern.

#### **3.5.2.6 Stationarity Test**

Data stationarity in this research was tested using multiple unit root tests, including the Augmented Dickey–Fuller (ADF) test and Philips-Perron (PP) test. These tests are particularly useful for handling unbalanced panels and ensuring the robustness of the results. Testing for data stationarity is a crucial step to ensure the validity of time series

analysis and to avoid misleading results in econometric models. The ADF test evaluates whether a unit root is present in the time series data, indicating non-stationarity (Bryman, 2022). The null hypothesis of the ADF test is that the time series has a unit root, implying non-stationarity, while the alternative hypothesis suggests that the series is stationary. Similarly, the PP tests will also be applied to further validate stationarity. If the p-value obtained from any of these tests is below the chosen significance level (typically 0.05), the null hypothesis is rejected, indicating that the data is stationary (Creswell & Creswell, 2022). Conversely, if the p-value is above the threshold, the null hypothesis cannot be rejected, suggesting that the data may exhibit non-stationarity. Using a combination of these unit root tests ensures that the time series data meets the necessary assumptions for accurate econometric analysis.

### **3.6 Ethical Considerations**

Ethical considerations are essential to ensure that research maintains academic integrity, respects the rights of original data sources, and upholds ethical standards throughout the study. Although secondary data analysis does not involve direct interaction with human subjects, it is still critical to follow ethical principles in handling data. The researcher ensured that all secondary data used in the study was properly sourced, anonymized where necessary, and did not breach any confidentiality agreements or reveal sensitive information. This included verifying that the data was sourced from reputable and publicly available platforms such as government reports and international databases like the Central Bank of Kenya (CBK), Kenya National Bureau of Statistics (KNBS), and the World Bank.

Another critical ethical consideration was ensuring proper attribution of the data used in the study. The researcher adhered to academic standards such as APA citation formats to give credit to the original authors or institutions from which the data was derived. This approach helped avoid plagiarism and ensured that all data sources were clearly acknowledged. The researcher was also mindful to use the data accurately and avoid manipulating or selectively using the information to fit any pre-existing hypotheses or biases, ensuring that findings were based on objective and reliable data.

In addition, the researcher maintained transparency throughout the study by clearly explaining the data selection, processing, and analysis methodologies. This allowed for reproducibility and verification of the results. Any limitations or gaps in the data used were disclosed, and the findings were presented objectively, without exaggeration or political bias. This ethical approach ensured that the research was conducted with integrity, and the results were presented in a balanced manner, highlighting both positive and negative aspects of public debt sustainability.

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND DISCUSSION**

#### **4.1 Overview**

Chapter four presents the data analysis, results presentation and discussion of findings on the effect of public debt sustainability on economic stability in Kenya. It begins with an overview of the chapter, followed by the response rate and descriptive statistics to provide a summary of the study variables. The chapter then covers inferential analysis, including diagnostic test, correlation analysis and regression analyses, as well as an examination of the moderating effect of government fiscal policy.

#### **4.2 Descriptive Statistics**

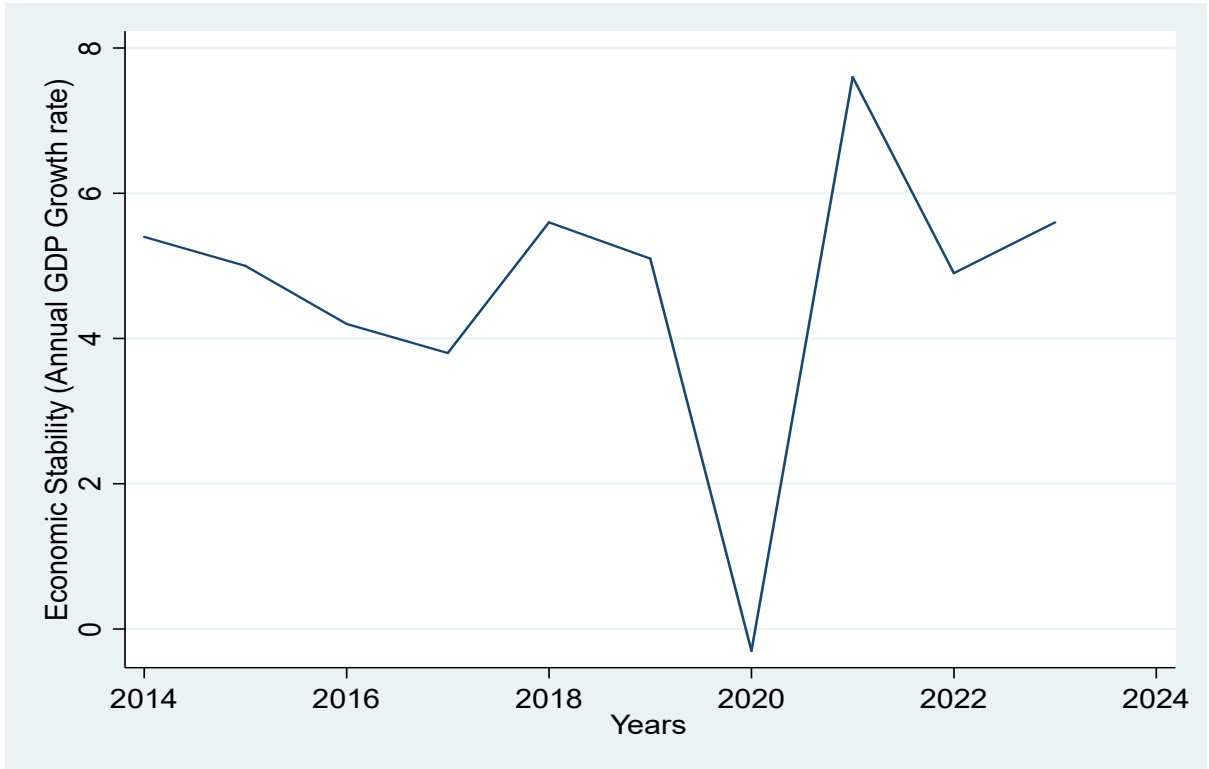
This section presents the descriptive statistics of the study variables, providing a summary of their central tendencies, dispersion, and distribution patterns. The variables analyzed include Economic Stability (ES), measured by Annual GDP Growth Rate; Debt-To-GDP Ratio (DGR); Debt Service Ratio (DSR), calculated as the ratio of debt service payments to government revenue; Debt Maturity Structure (DMS), represented by the average maturity of debt in years; and Government Fiscal Policy (GFS), measured by the budget deficit in billions. These descriptive statistics provide an overview of the data distribution and are essential for understanding the underlying patterns before conducting further analysis. The results were as presented in Table 4.1.

**Table 4. 1: Descriptive Statistics**

<b>stats</b>	<b>ES</b>	<b>DGR</b>	<b>DSR</b>	<b>DMS</b>	<b>GFP</b>
N	10	10	10	10	10
min	-0.3	40.25559	17.5	4.05	-950.2
max	7.6	79.10352	58.8	9.5	-184.7
mean	4.69	54.1605	38.6	6.1513	-585.54
sd	2.023995	12.72871	15.39986	2.097191	281.1299

**Source: Field Data (2025)**

As shown in Figure 4.1, Kenya’s annual GDP growth rate between 2014 and 2023 averaged 4.69% with a standard deviation of 2.02, indicating moderate variability in economic stability. The sharp contraction to -0.3% in 2020 coincided with the COVID-19 pandemic, when lockdowns, reduced demand, and supply chain disruptions severely affected output (World Bank, 2021). In contrast, the peak growth of 7.6% in 2018 reflected robust investment in infrastructure financed through Eurobonds and expansion in agriculture and services (National Treasury, 2019). Periods of heightened volatility, such as in 2017, can also be linked to election-related uncertainty and fiscal expansion, consistent with studies showing that political cycles often destabilize growth in sub-Saharan Africa (Collier & Vicente, 2021). The moderate overall growth suggests that while Kenya’s economy demonstrated resilience compared to regional peers like Ghana and Zambia, its vulnerability to external shocks and fiscal pressures remains significant. These findings corroborate Ademola (2023), who argues that debt-financed growth in Africa often generates short-term gains but exposes economies to volatility when revenues underperform.



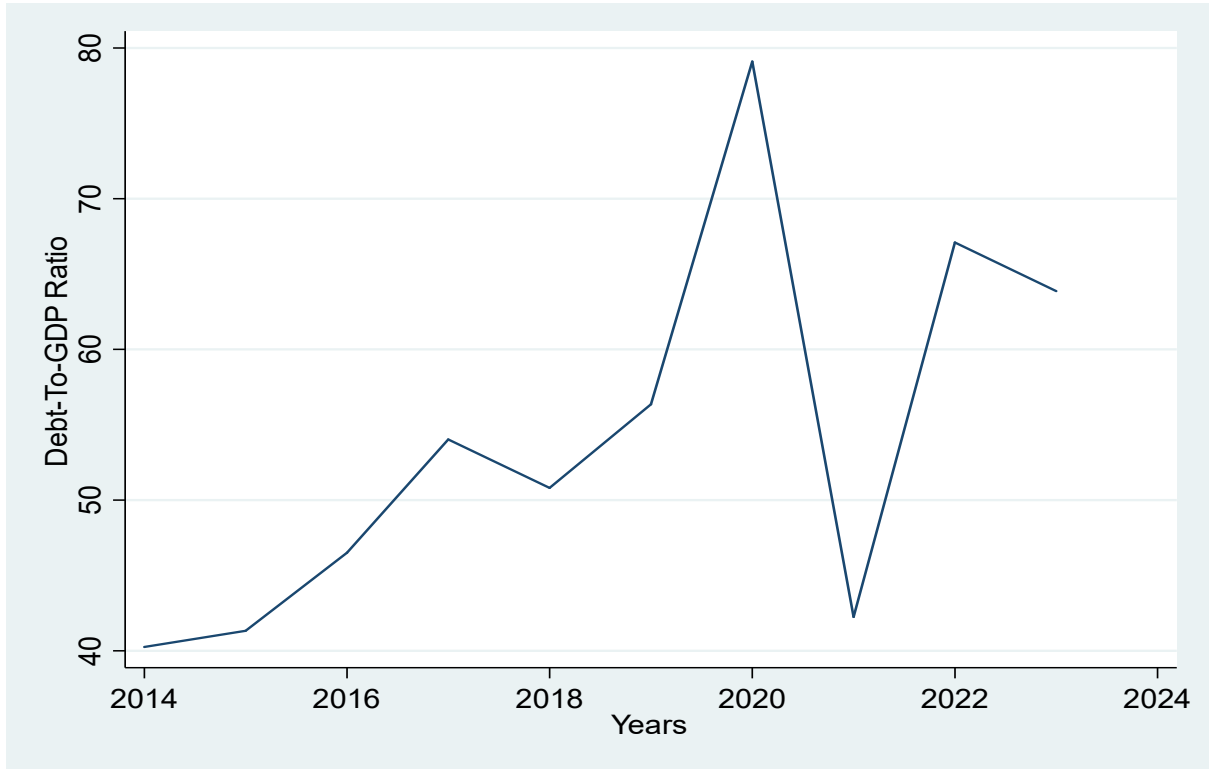
**Figure 4. 1: Trend Line Graph for Economic Stability**

**Source: Field Data (2025)**

As shown in Figure 4.2, between 2014 and 2023, Kenya’s average Debt-to-GDP ratio stood at 54.16%, with a standard deviation of 12.73, indicating considerable volatility in public debt relative to the size of the economy. The ratio fluctuated between a low of 40.26% and a high of 79.10%, reflecting shifts in fiscal policy, borrowing patterns, and external shocks. Notably, the average ratio fell within—but at the upper end of—the IMF’s recommended sustainability threshold of 50–60% for emerging economies (IMF, 2021), suggesting that Kenya’s debt levels were persistently elevated and at times breached safe benchmarks. Compared with regional peers, Kenya’s debt ratio was higher than Rwanda’s (around 50%) but lower than Ghana’s, which exceeded 80% during the same period (World Bank, 2022).

The sharp rise toward 79.10% coincided with heavy external borrowing through Eurobond issuances in 2014 and 2018, as well as increased domestic borrowing to finance infrastructure megaprojects such as the Standard Gauge Railway (Ndung'u & Ngugi, 2021). The spike in debt during 2020–2021 reflected pandemic-related fiscal pressures, including stimulus spending, reduced revenues, and global borrowing to cushion against COVID-19 disruptions (World Bank, 2021). Periods of relative stability in the ratio were often linked to strong GDP growth, such as 2018, when robust agricultural output helped improve the denominator effect despite rising debt stocks.

These findings corroborate earlier studies showing that Kenya's rising debt trajectory poses growing risks to fiscal sustainability and macroeconomic stability. For instance, Bandiera and Tsiropoulos (2020) highlight that high debt service costs increasingly crowd out social and development spending, a trend also observed in Nigeria and Zambia. Conversely, Fetai, Bexheti, and Malaj (2020) found that in European transition economies, moderate debt levels stimulated growth up to a certain threshold, suggesting that Kenya's average debt levels may not be problematic per se but their volatility and persistence above safe thresholds heighten long-term risks. Overall, the descriptive evidence underscores that Kenya's debt path is influenced by both domestic fiscal choices and global shocks, with important implications for sustainability and economic stability.



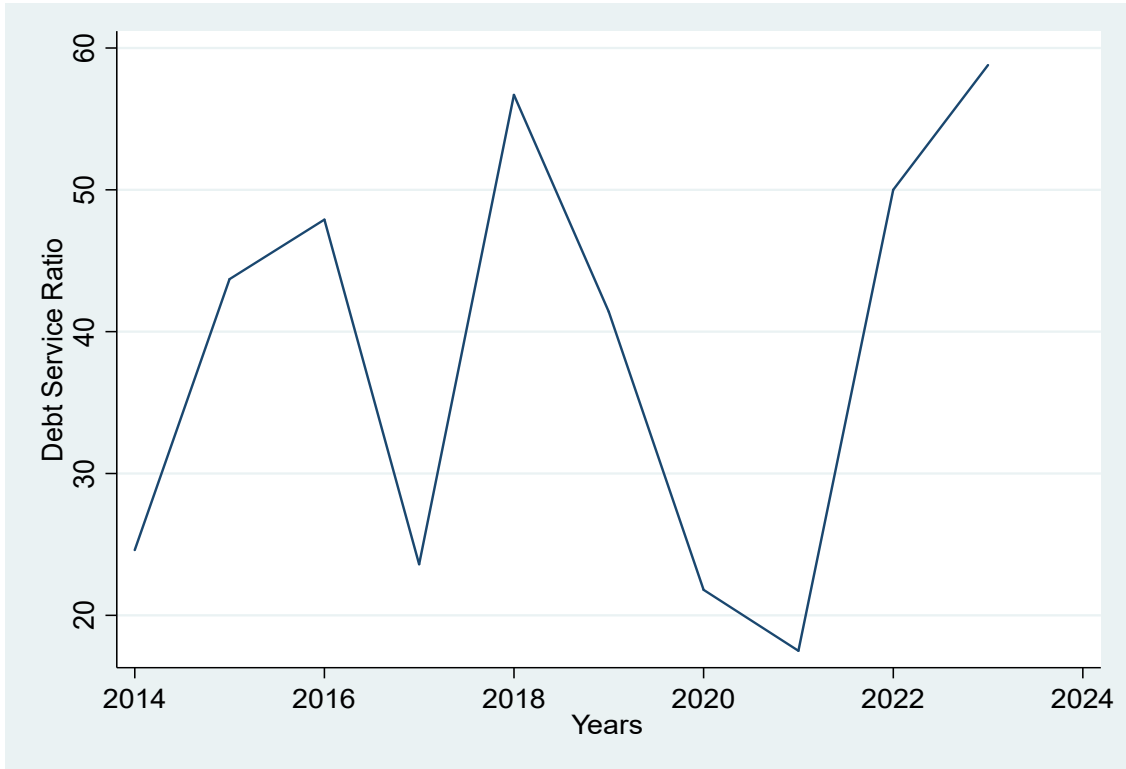
**Figure 4. 2: Trend Line Graph for Debt to GDP Ratio**

**Source: Field Data (2025)**

From 2014 to 2023, as presented in Figure 4.3, Kenya's Debt Service Ratio averaged 38.6%, with a high standard deviation of 15.40, indicating considerable volatility in the share of government revenue allocated to debt repayments. The ratio ranged from a low of 17.5% to a peak of 58.8%, far exceeding the IMF's recommended threshold of 30–35% for emerging economies (IMF, 2021). These fluctuations reflect both domestic and external shocks. For example, debt service burdens spiked in 2018 and 2021, partly due to Eurobond maturities, rising global interest rates, and the COVID-19 pandemic, which constrained revenues while increasing borrowing needs (World Bank, 2021). Election-related spending cycles also heightened fiscal pressures, crowding out allocations to development programs.

Periods of lower debt service ratios, such as 2015–2016, coincided with stronger revenue collection and relatively favorable concessional borrowing terms, providing temporary fiscal space. However, the upward trend post-2017 illustrates growing risks of fiscal distress as more revenue was absorbed by repayment obligations rather than productive investments (Ndung’u & Ngugi, 2021). Comparatively, Kenya’s ratio was higher than regional peers like Rwanda and Uganda, which averaged below 30% during the same period (World Bank, 2022). This suggests Kenya faced a disproportionate repayment burden that may have undermined its fiscal flexibility and long-term economic resilience.

Empirical studies corroborate these findings. Bandiera and Tsiropoulos (2020) warn that high debt service ratios divert resources from growth-enhancing sectors, while Ademola (2023) highlights similar debt service pressures in Nigeria leading to fiscal crises. Kenya’s experience thus demonstrates that debt service volatility not only reflects global shocks and domestic borrowing strategies but also directly constrains development financing, emphasizing the urgent need for sustainable debt management and fiscal reforms.



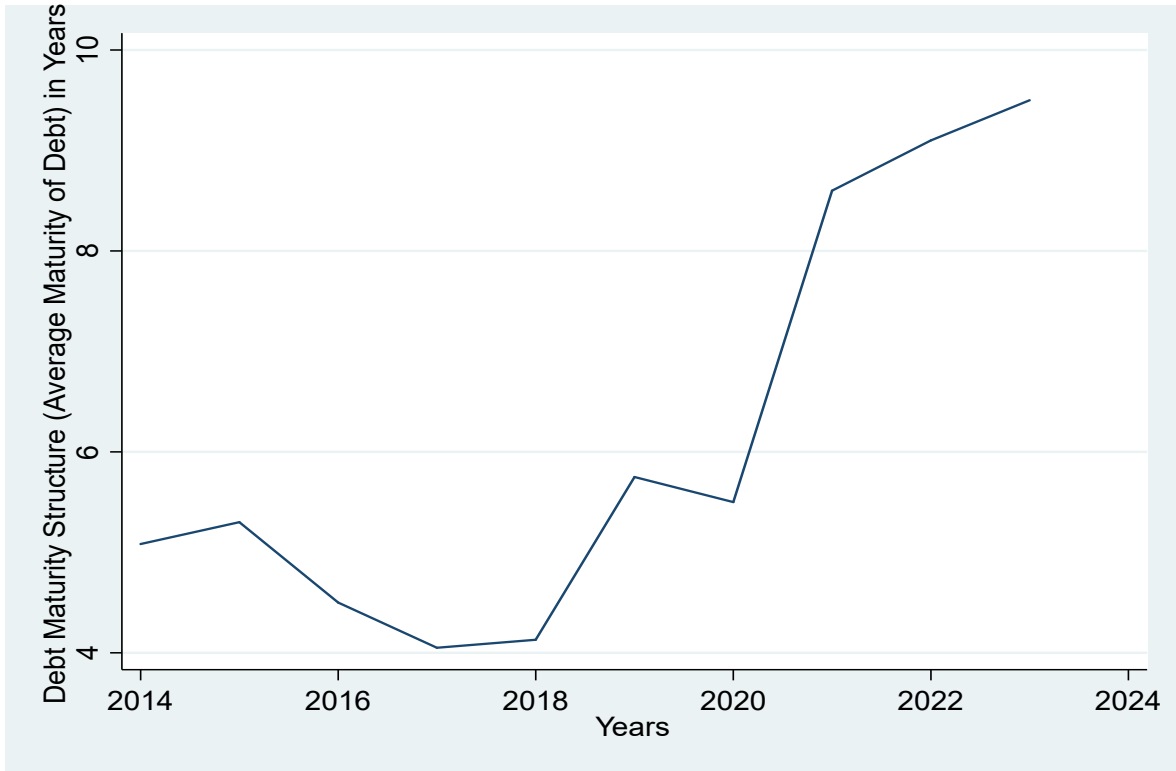
**Figure 4. 3: Trend Line Graph for Debt Service Ratio**

**Source: Field Data (2025)**

As shown in Figure 4.4, between 2014 and 2023, Kenya’s debt maturity structure averaged approximately 6.15 years, with a standard deviation of 2.10, indicating moderate variability in repayment timelines. The range, from 4.05 to 9.5 years, illustrates Kenya’s reliance on both short-term and long-term debt instruments. Periods of shorter maturities, such as 2015–2017, coincided with Eurobond issuances and increased commercial borrowing, heightening refinancing risks when global interest rates rose and market confidence weakened. In contrast, longer maturities during 2020–2021 reflected debt restructuring and concessional financing efforts that provided temporary fiscal relief during the COVID-19 pandemic. These variations show the tension between Kenya’s

immediate financing needs for infrastructure projects and the risks of short-term debt rollovers under volatile global market conditions.

Benchmarking Kenya's average of just over six years against international standards highlights concerns. The IMF (2022) emphasizes that longer debt maturities enhance fiscal stability by reducing refinancing vulnerabilities, particularly in emerging markets. Compared with regional peers such as Rwanda and Botswana, which maintain longer-term maturities anchored to productive investments and stronger fiscal management (World Bank, 2022), Kenya's maturity structure reflects limited fiscal space and exposure to rollover shocks, especially around election cycles and global crises. Similar evidence from Nigeria shows that shorter maturities intensify refinancing costs (Ademola, 2023), while Himmer and Rod (2022) confirm that extending maturities helps distribute repayment obligations more sustainably. These findings suggest that Kenya must strengthen debt management strategies, prioritize concessional borrowing, and enhance investor confidence to safeguard fiscal stability.

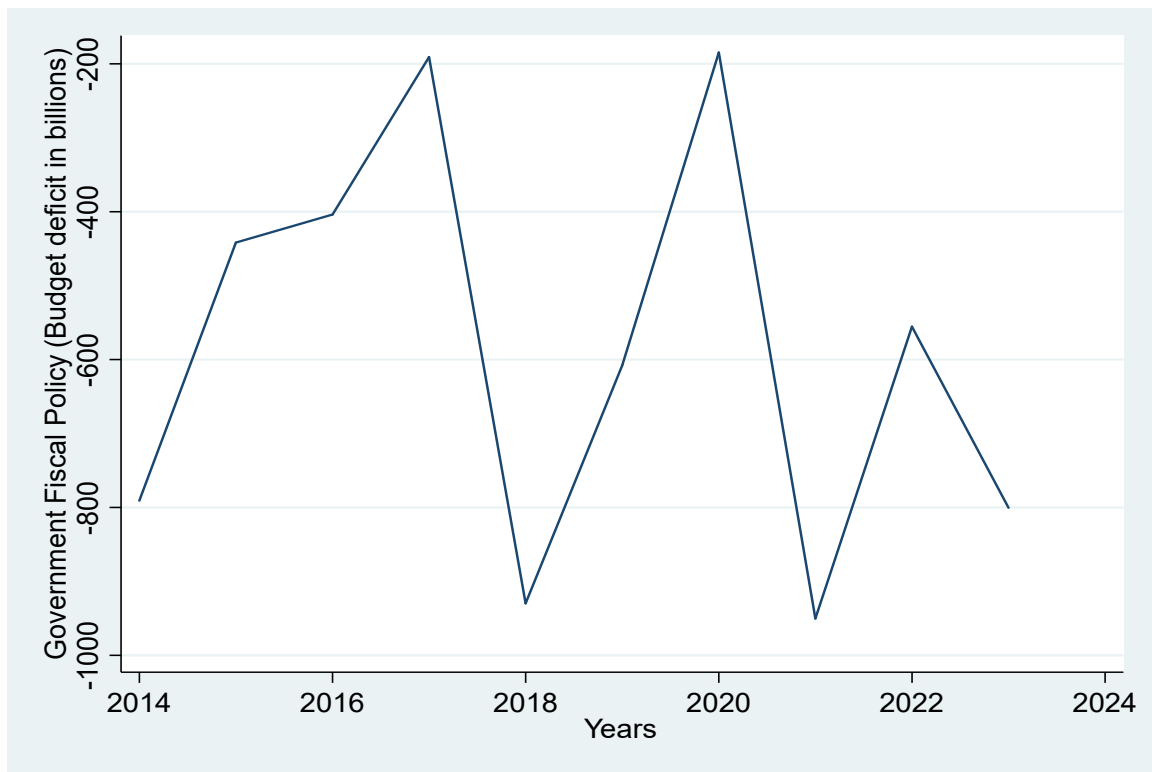


**Figure 4. 4: Trend Line Graph for Debt Maturity Structure**

**Source: Field Data (2025)**

As illustrated in Figure 4.5, between 2014 and 2023, Kenya’s fiscal policy, measured through the budget deficit, averaged Ksh -585.54 billion, with a wide standard deviation of Ksh 281.13 billion, highlighting substantial fiscal imbalances. The deficit fluctuated between Ksh -950.2 billion and -184.7 billion, underscoring persistent shortfalls as expenditures consistently outpaced revenue collections. These gaps were largely driven by ambitious infrastructure projects under the “Big Four Agenda,” rising public sector wage bills, and escalating debt servicing obligations. Revenue shortfalls, linked to tax inefficiencies and the economic slowdown caused by COVID-19, further deepened the fiscal strain (International Monetary Fund, 2022).

The persistence of large deficits points to structural weaknesses in Kenya’s fiscal management. Election-related spending cycles (2017, 2022), global shocks such as the Russia–Ukraine conflict, and volatility in international oil prices also worsened the fiscal balance, forcing the government to rely heavily on borrowing. This borrowing contributed directly to the rising Debt-to-GDP ratio, aligning with findings by Ndung’u (2023) that fiscal indiscipline fuels debt accumulation in Kenya. Comparatively, peers like Rwanda have managed lower and more stable deficits by linking expenditure to revenue performance (World Bank, 2022). Kenya’s trend therefore reflects the urgent need for stronger fiscal consolidation, tax reforms, and expenditure rationalization to avoid further crowding out of development spending and to stabilize public debt sustainability.



**Figure 4. 5: Trend Line Graph for Budget Deficit**

**Source: Field Data (2025)**

### **4.3 Inferential Analysis**

The inferential analysis section explores the relationships between public debt sustainability, Government Fiscal Policy (GFP) and Economic Stability (ES) in Kenya from 2014 to 2023. This section begins with Diagnostic Statistics, which evaluate the underlying assumptions of regression analysis. Correlation analysis then examines the strength and direction of associations among the variables. Regression analysis follows, quantifying the impact of each independent variable on economic stability. Also, moderating effect analysis assesses the influence of government fiscal policy on the relationship between public debt sustainability and economic stability, providing deeper insights into the dynamics at play (Yien & Khan, 2019).

#### **4.3.1 Diagnostic Statistics**

The Diagnostic Statistics section assesses the validity of the regression model by examining key assumptions necessary for reliable analysis. It includes tests for normality, linearity, multicollinearity, autocorrelation, heteroscedasticity, and stationarity to ensure accurate and consistent results.

##### **4.3.1.1 Normality Test**

The normality test was conducted using Skewness, Kurtosis, and the Jarque-Bera (JB) test to assess whether the variables follow a normal distribution, which is a key assumption in many regression models. This test is important in regression analysis because the assumption of normality underpins valid hypothesis testing, accurate estimation of standard errors, and reliable construction of confidence intervals and p-

values. The results indicate that all variables meet the normality requirement, as their p-values are greater than 0.05, meaning the null hypothesis of normality cannot be rejected. The acceptable range for skewness was -3 and 3 and kurtosis acceptable -10 and 10 which was met in this study (Brown and Greene 2006).

**Table 4. 2: Normality Test**

<b>stats</b>	<b>ES</b>	<b>DGR</b>	<b>DSR</b>	<b>DMS</b>	<b>GFP</b>
skewness	-1.3908	0.660468	-0.11679	0.68131	0.142738
kurtosis	5.106025	2.408674	1.461577	1.805882	1.724119
Jarque Bera	5.072	.8727	1.009	1.368	.7122
P Value	.0792	.6464	.6038	.5047	.7004

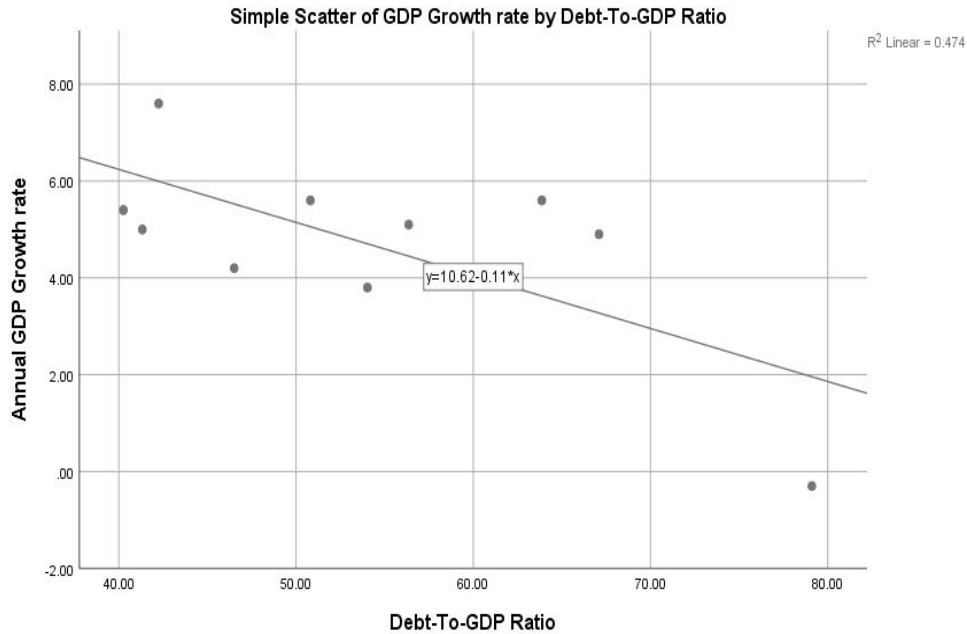
**Source: Field Data (2025)**

#### 4.3.1.2 Linearity Test

The linearity test examines the relationship between independent and dependent variables to determine if they are linearly related. This test is important because linear regression models assume a straight-line relationship between predictors and the outcome; if the assumption is violated, the model may produce biased estimates, misleading coefficients, and poor predictive accuracy. Scatter plots are commonly used to visually assess linearity by plotting data points and observing whether they form a straight-line pattern.

The scatter plot, in Figure 4.6, illustrates the relationship between debt-to-GDP ratio and economic stability (annual GDP growth rate), with a downward-sloping linear regression line. The negative slope suggests an inverse relationship, where higher debt-to-GDP ratios are generally associated with lower economic stability. The data points are relatively dispersed but show a noticeable downward trend. The r-squared of 0.474 indicates that approximately 47.4% of the variation in economic stability is explained by

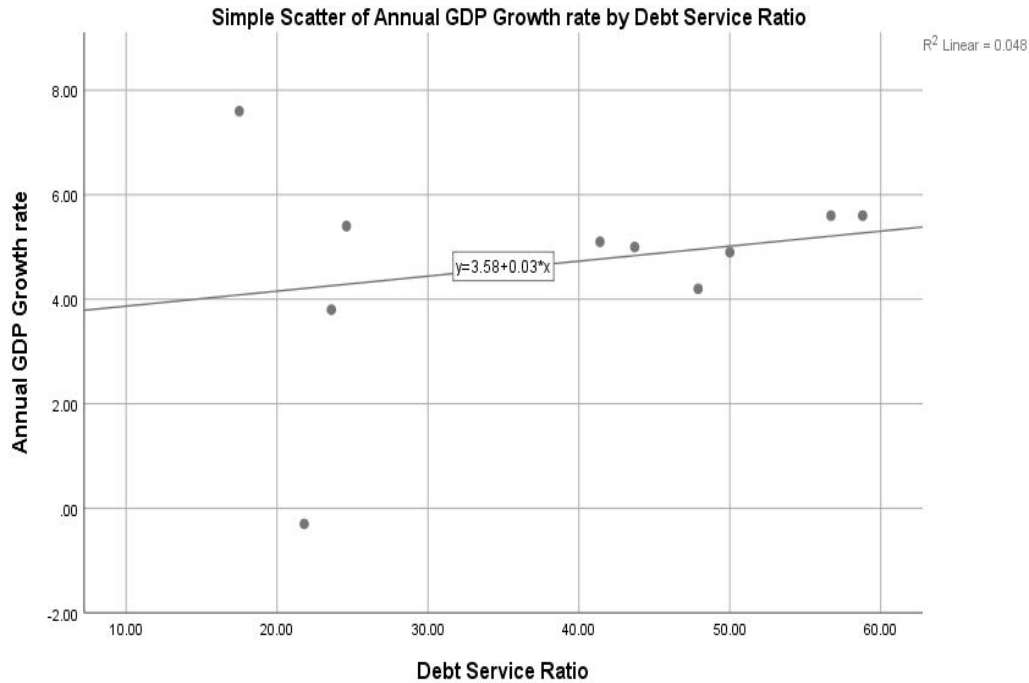
changes in the debt-to-GDP ratio, suggesting a strong relationship between the two variables. These findings agree with Hu and Wong (2021), who observed that a significant relationship exists between debt-to-GDP ratios and economic stability, with variations in debt levels substantially influencing economic outcomes.



**Figure 4. 6: Debt to GDP Ratio and Economic Stability**

**Source: Field Data (2025)**

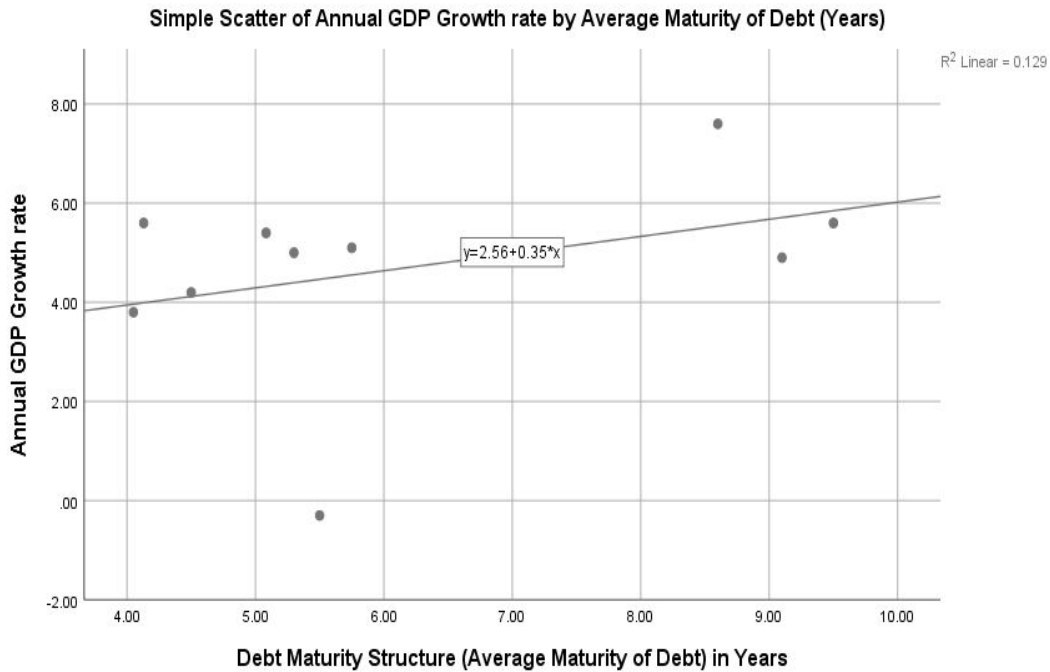
As shown in Figure 4.7, the scatter plot shows the relationship between debt service ratio and economic stability (annual GDP growth rate), with a fitted linear regression line. The data points are widely scattered around the line, suggesting a weak linear relationship between the two variables. The r-squared ( $R^2$ ) of 0.048 indicates that only about 4.8% of the variability in economic stability is explained by debt service ratio, implying that other factors might significantly influence economic stability.



**Figure 4. 7: Debt Service Ratio and Economic Stability**

**Source: Field Data (2025)**

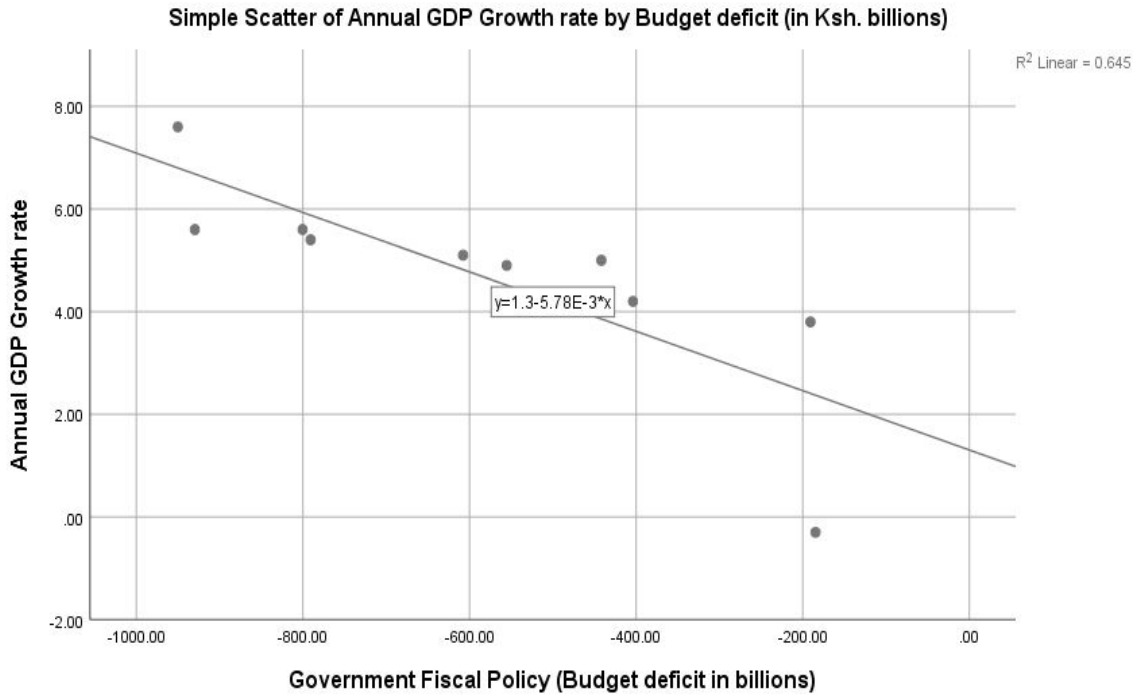
Figure 4.8 illustrates the relationship between debt maturity structure (average maturity of debt in years) and economic stability (annual GDP growth rate), with an upward-sloping linear regression line. The positive slope suggests a direct relationship, where longer debt maturities are generally associated with higher economic stability. However, the data points are relatively scattered, indicating a weak pattern. The r-squared ( $R^2$ ) suggests that only about 12.9% of the variation in economic stability is explained by changes in debt maturity structure, indicating there is a relationship between the two variables. These findings agree with Agandhi and Sungkowati (2022), who noted that there is a relationship between debt maturity and economic stability.



**Figure 4. 8: Debt Maturity Structure and Economic Stability**

**Source: Field Data (2025)**

Figure 4.9 presents illustrates the relationship between Government Fiscal Policy (Budget Deficit in Billions) and Economic Stability (Annual GDP Growth Rate), showing a downward-sloping linear regression line. This negative slope indicates an inverse relationship, where larger budget deficits are generally associated with lower economic stability. The data points show a moderately consistent pattern along the trend line. The r-squared ( $R^2$ ) suggests that approximately 64.5% of the variation in economic stability is explained by changes in the budget deficit, indicating a relatively strong relationship between the two variables. These findings agree with Bilgin (2020), who observed a similar inverse relationship between budget deficits and economic stability, highlighting the negative impact of large deficits on fiscal health and stability.



**Figure 4. 9: Government Fiscal Policy and Economic Stability**

**Source: Field Data (2025)**

#### **4.3.1.3 Multicollinearity Test**

The Multicollinearity Test assesses whether independent variables in a regression model are highly correlated, which can affect the reliability of the estimated coefficients. It is important because high multicollinearity inflates the standard errors of the coefficients, making it difficult to determine the true effect of each predictor, and can lead to unstable estimates that weaken the explanatory power of the model. The null hypothesis for the Variance Inflation Factor (VIF) states that there is no multicollinearity if the VIF value is less than 10. As shown in Table 4.3, the results indicate that the Variance Inflation Factor (VIF) values for the variables are all below the threshold of 10, suggesting that there is no

significant multicollinearity among the variables. The mean VIF of 2.14 further supports that multicollinearity is not a concern in the model.

**Table 4. 3: Multicollinearity Test Results**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
DGR	2.78	0.359291
DSR	2.21	0.451874
DMS	1.44	0.696304
Mean VIF	2.14	

**Source: Field Data (2025)**

#### **4.3.1.4 Autocorrelation Test**

The autocorrelation test is used to determine whether the residuals of a regression model are correlated over time. It is important because regression assumes that residuals are independent; if this assumption is violated, the efficiency of the estimates is reduced, standard errors may be underestimated, and statistical tests such as t-tests and F-tests can become invalid (Krishna, 2020). A violation, indicated by the presence of autocorrelation, often means the model is mis-specified or that important time-dependent variables are omitted, which can lead to biased inferences and unreliable forecasting. It is important because autocorrelation can indicate model misspecification, affecting the validity of statistical inferences.

The null hypothesis of the Durbin-Watson test is that there is no autocorrelation in the residuals, with the test statistic ranging from 1.5 to 2.5 indicating no autocorrelation. In this study, the Durbin-Watson d-statistic of 1.420786 suggests slight positive autocorrelation in the residuals since it is just below the acceptable range of 1.5 to 2.5. This indicates that the residuals may not be completely independent over time, which could impact the reliability of the regression model's estimates. These findings are

supported by Naser, Matemilola, and Bany-Ariffin (2024), who noted that Durbin-Watson values below 1.5 may indicate positive autocorrelation.

Therefore, it was important to use Breusch-Godfrey LM test to assess the presence of serial autocorrelation. As shown in Table 4.4, the Breusch-Godfrey LM test for autocorrelation with a chi-square value of 1.106 and a p-value of 0.28427 suggests that the null hypothesis of no serial correlation cannot be rejected. This indicates that there is no significant evidence of autocorrelation in the residuals at the 5% significance level, supporting the assumption of independent errors in the regression model.

**Table 4. 4: Breusch-Godfrey LM test for Autocorrelation**

<b>lags(p)</b>	<b>chi2</b>	<b>Df</b>	<b>Prob &gt; chi2</b>
1	1.106	1	0.28427

**Source: Field Data (2025)**

#### **4.3.1.5 Heteroscedasticity Test**

The Heteroscedasticity Test assesses whether the variance of the errors in a regression model is constant. It is important because heteroscedasticity can lead to inefficient estimates and biased standard errors, affecting hypothesis testing and confidence intervals. If heteroscedasticity is detected, remedies include applying robust standard errors (e.g., White’s correction), transforming the dependent variable (such as using logarithms), or re-specifying the model to include omitted variables that may explain the changing variance. These approaches help ensure more reliable parameter estimates and valid statistical inferences.

The null hypothesis for heteroscedasticity tests is that the residuals have constant variance (homoscedasticity). The Breusch-Pagan / Cook-Weisberg test for

heteroskedasticity, in Table 4.5, shows a chi-square value of 1.86 with a p-value of 0.1485. Since the p-value is greater than the typical significance level (e.g., 0.05), we fail to reject the null hypothesis of constant variance. This suggests that there is no evidence of heteroscedasticity, and the residuals are likely homoscedastic (i.e., they have constant variance) (Njoroge, 2020)

**Table 4. 5: Heteroscedasticity Test Results**

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Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of ES	
chi2(1)	= 1.86
Prob > chi2	= 0.1495

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**Source: Field Data (2025)**

#### 4.3.1.6 Stationary Test

A Stationarity Test examines whether a time series has constant statistical properties, such as mean and variance, over time. It is important because non-stationary data can lead to unreliable and spurious regression results. The Augmented Dickey-Fuller (ADF) Unit Root Test and the Phillips-Perron (PP) Test were conducted to examine the stationarity of the variables under study. The null hypothesis of both tests states that a unit root is present, meaning the variable is non-stationary. The alternative hypothesis suggests that the variable is stationary. A variable is considered stationary if the test statistic is more negative than the critical value, and the p-value is below 0.05. Since all variables have p-values below 0.05, they are stationary at the 5% significance level, meaning that they do not require differencing before inclusion in further regression

analysis. These findings are supported by Hassan et al., (2023), who outlined the unit root test methodology and the criteria for determining stationarity in time series analysis.

**Table 4. 6: Unit Root test**

Variable	ADF		Philip Perron	
	Statistics	p-value	Statistics	p-value
Economic Stability	-3.478**	0.0086	-3.641**	0.0050
Debt-To-GDP Ratio	-3.880**	0.0022	-2.889*	0.0466
Debt Service Ratio	-3.442**	0.0096	-2.945*	0.0404
Debt Maturity Structure	-5.229**	0.0000	-6.071**	0.0000
Government Fiscal Policy	-3.756**	0.0034	-4.110**	0.0009

\*\* Significance at 0.01, \* significance at 0.05

#### Source: Field Data (2025)

These results imply that differencing was unnecessary before regression analysis. The confirmation of stationarity across all variables justified the adoption of Ordinary Least Squares (OLS) regression as the preferred estimation technique, since OLS is valid under stationary conditions (Wooldridge, 2019). Alternative approaches such as ARDL or VECM, typically required for mixed integration orders or cointegrated non-stationary variables, were not necessary in this case. These findings align with Hassan et al. (2023), who emphasized the importance of stationarity tests in guiding the appropriate econometric model choice in time series analysis.

#### 4.3.2 Correlation Analysis

The Pearson correlation coefficient between the Debt-To-GDP Ratio and Economic Stability is -0.7365, with a p-value of 0.0151. This indicates a significant negative relationship, suggesting that higher debt-to-GDP ratios are associated with lower economic stability. These findings are in line with Reinhart and Rogoff (2010), who found that countries with debt-to-GDP ratios above 90% tend to experience slower economic growth. Similarly, Kumar and Woo (2010) observed that higher initial debt leads to a slowdown in real GDP growth.

The correlation between the Debt Service Ratio and Economic Stability is 0.7211, with a p-value of 0.0186. This positive correlation suggests that higher debt service ratios are weakly associated with increased economic stability; the relationship is statistically significant. This concurs with findings from Cecchetti, Mohanty, and Zampolli (2011), who noted that the impact of debt service costs on economic stability varies depending on the structure of the debt and the economy's resilience. Additionally, Dreher, Herz, and Karb (2006) found that debt service burdens can have mixed effects on economic performance, influenced by factors such as debt composition and repayment terms.

The Pearson correlation coefficient between debt maturity structure and economic Stability is 0.186, with a p-value of 0.6181. This positive and insignificant correlation implies that longer debt maturity structures are associated with improved economic stability. These findings agree with Missale and Blanchard (1994), who argued that longer debt maturities can reduce the risk of refinancing and contribute to economic stability. Similarly, Alesina, Prati, and Tabellini (1990) found that countries with longer debt maturities tend to experience lower volatility in interest rates and economic performance.

The correlation between Government Fiscal Policy and Economic Stability is -0.543, with a p-value of 0.0481. This negative correlation indicates that higher budget deficits are significantly associated with lower economic stability. This is consistent with findings by Barro (1979), who suggested that large fiscal deficits can lead to higher interest rates and reduced private investment, thereby undermining economic stability. Additionally, Easterly and Schmidt-Hebbel (1993) found that persistent fiscal deficits are linked to macroeconomic instability and lower growth rates.

**Table 4. 7: Correlation Results**

		Economic Stability	Debt-To- GDP Ratio	Debt Service Ratio	Debt Maturity Structure	Government Fiscal Policy
Economic Stability	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	10				
Debt-To- GDP Ratio	Pearson Correlation	-0.7365	1			
	Sig. (2-tailed)	0.0151				
	N	10	10			
Debt Service Ratio	Pearson Correlation	0.7211	-0.0672	1		
	Sig. (2-tailed)	0.0186	0.8537			
	N	10	10	10		
Debt Maturity Structure	Pearson Correlation	0.1804	0.3453	0.3364	1	
	Sig. (2-tailed)	0.6181	0.3548	0.3418		
	N	10	10	10	10	
Government Fiscal Policy	Pearson Correlation	-0.543	0.1037	-0.4171	-0.4132	1
	Sig. (2-tailed)	0.0481	0.7755	0.2305	0.2352	
	N	10	10	10	10	10

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**Source: Field Data (2025)**

### 4.3.3 Regression Analysis

Regression analysis was used to assess the relationship between public debt sustainability (debt-to-GDP ratio, debt service ratio and debt maturity structure) and economic stability in Kenya. The regression model was as follows;

$$ES_t = \beta_0 + \beta_{1t}DRG_t + \beta_{2t}DSR_t + \beta_{3t}DMS_t + \varepsilon$$

$EC_t$  is the dependent variable Economic Stability,  $B_0$  is the y intercept (Constant),  $\beta_{1-4}$  are the coefficients of determination, DRG is Debt-To-GDP Ratio, DSR is Debt Service Ratio, DMS is Debt Maturity Structure and, t represents time (2014-2023) and  $\varepsilon_t$  is an error term.

**Table 4. 8: Regression Analysis Results-Model Summary and ANOVA**

Source	SS	Df	MS	Number of obs	=	10
				F(3, 6)	=	5.25
Model	4.505757	3	1.501919	Prob > F	=	0.0408
Residual	3.077668	6	0.512945	R-squared	=	0.7240
				Adj R-squared	=	0.3912
Total	7.583425	9	0.842603	Root MSE	=	0.7162

**Source: Field Data (2025)**

The r-squared shows the proportion of the dependent variable that can be explained by the independent variables. In Table 4.8, the model shows strong explanatory power with an r-squared value of 0.7240, indicating that approximately 72.40% of the variation in economic stability is explained by the independent variables (debt-to-GDP ratio, debt service ratio and debt maturity structure). The model's F-statistic of 5.25 is compared to the critical value from the F-distribution table for (3, 6) degrees of freedom at a 0.05 significance level, which is approximately 4.76. Since  $5.25 > 4.76$ , the null hypothesis that the model has no explanatory power is rejected. Additionally, the p-value for the F-statistic is 0.0408, which is less than the significance level of 0.05, further confirming the overall significance of the model.

**Table 4. 9: Regression Analysis Results-Regression Coefficient**

ES	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
DGR	-1.64891	0.480098	-3.43	0.014	-2.82366	-0.47415
DSR	1.60202	0.45746	3.5	0.013	0.482655	2.721385
DMS	1.465801	0.957508	1.53	0.177	-0.87714	3.808738
cons	-0.23349	1.724803	-0.14	0.897	-4.45393	3.986953

**Source: Field Data (2025)**

Based on the regression results provided, the revised regression model is as follows:

$$ES_t = -0.23349 - 1.64891DRG_t + 1.60202DSR_t + 1.465801DMS_t$$

The study established that the debt-to-GDP ratio exerts a negative and significant effect on economic stability in Kenya. The coefficient of -1.64891 with a p-value of 0.014 indicates that a one-unit increase in debt-to-GDP reduces economic stability by 1.65 units, supporting the rejection of the null hypothesis. This aligns with the Debt Overhang Theory, which argues that excessive debt discourages investment and long-term growth, as well as the IMF's Debt Sustainability Framework, which warns that surpassing certain debt thresholds undermines fiscal resilience. The findings are consistent with Fetai et al. (2020), who noted that countries with debt levels above 90% of GDP experience slower growth, and Hu and Wong (2021), who showed that unexpected debt surges reduce GDP, especially in nations with weak fiscal institutions.

Kenya's experience provides contextual insight into why the debt-to-GDP ratio undermines economic stability. The country's rising debt stock is driven by Eurobond issuances, Chinese-financed infrastructure projects, and recurrent electoral borrowing cycles, which expand fiscal deficits and strain repayment capacity. Corruption scandals and inefficiencies have limited the productivity of borrowed funds, heightening the destabilizing effect of debt accumulation. These findings mirror Getinet and Ersumo (2020), who observed that external debt negatively affects growth in African economies. However, unlike advanced economies where high debt is managed through strong institutions, Kenya's weaker fiscal discipline, limited export earnings, and exposure to shocks such as COVID-19 and global oil price fluctuations magnify the risks. Thus, the negative effect of debt on stability reflects both structural vulnerabilities and political economy dynamics unique to Kenya.

The study found that the debt service ratio has a positive and statistically significant effect on economic stability in Kenya ( $\beta_2 = 1.60202$ ,  $p\text{-value} = 0.013$ ). At first glance this result appears counterintuitive relative to standard concerns about debt servicing crowding out growth, but it can be reconciled with several theoretical and contextual mechanisms. From a Keynesian perspective, higher debt service may coincide with periods when borrowing finances productive public investment that temporarily boosts aggregate demand and GDP—so servicing the debt is part of an active fiscal stance that supports stability (Phelps, 2022; Agandhi & Sungkowati, 2022). Practically in Kenya, increased debt service has often followed large, debt-financed infrastructure projects (Eurobonds, Chinese loans) that supported short-term growth and preserved market access by demonstrating timely repayment (Were, 2022; Ndung’u, 2023). The result therefore suggests a short-run stabilizing role of servicing obligations where timely payment maintained investor confidence and avoided rollover crises—an outcome more consistent with Sustainable Debt/IMF-DSF logic when borrowing is perceived as credible and well-managed (IMF, 2021).

However, this positive association diverges from studies that find crowding-out and negative growth effects (Tama & Habila, 2022; Chanda, 2022). Such contradictions likely reflect measurement, temporal and institutional differences: those studies often focus on external or domestic servicing separately, use different sample periods, or analyze countries with weaker fiscal institutions where servicing crowds out investment. In Kenya’s case, composition matters, whether servicing is for concessional vs. commercial loans, external vs. domestic, short vs. long maturities, and timing matters (short-run stimulus vs. long-run burden). There is also the risk of endogeneity (growth

may affect revenues and therefore the ratio) and omitted variables (quality of investment, governance). To resolve these tensions, further robustness checks are recommended: disaggregate debt service into external/domestic components, include lagged service variables, test for endogeneity using IV/GMM, and interact debt service with fiscal policy and governance indicators. Policymakers should thus interpret the positive coefficient cautiously: while servicing can sustain market access and short-term stability, sustainable outcomes require transparent, productivity-enhancing investment, longer maturities, and stronger public financial management to avoid the Debt-Overhang trap (Ayomitunde, 2020; Bandiera & Tsiropoulos, 2020).

The results show that debt maturity structure has a positive but statistically insignificant effect on economic stability in Kenya ( $\beta_3 = 1.4658$ ,  $p\text{-value} = 0.177$ ). The sign is consistent with Sustainable Debt Theory and IMF guidance, longer maturities ordinarily reduce rollover risk and support fiscal resilience, yet the lack of significance indicates the effect is weak or offset by countervailing forces in Kenya (IMF, 2022; Bandiera & Tsiropoulos, 2020). In Kenya's political-economic context, longer maturities may accompany large, debt-financed infrastructure projects (Eurobonds, Chinese loans) whose returns are uncertain because of cost overruns, weak procurement, and corruption; these factors can blunt the stabilizing benefits of extended maturities (Ndung'u, 2023; Were, 2022). Thus, while longer maturities reduce immediate refinancing pressure, their stabilizing impact depends crucially on the productivity of borrowed funds and on governance, conditions that in Kenya have been inconsistent during the 2014–2023 period.

These findings partly diverge from studies that report a clear positive maturity effect, and the discrepancy likely reflects measurement, sample and institutional differences (Dau, 2024; Bilgin, 2020; Adi, 2019). Average maturity as used here may mask composition effects (external vs. domestic, concessional vs. commercial) and timing (lags between borrowing and project returns). Methodologically, the insignificance could stem from limited time-series variation (2014–2023), endogeneity (investment-driven maturities), or omitted variables such as governance and debt composition. For robustness, the effect should be re-examined by disaggregating maturities, interacting maturity with governance/fiscal-policy indicators, including lagged maturity terms, or applying IV/GMM approaches. Policywise, the takeaway is conditional: extending maturities can support stability only if paired with transparent, productivity-enhancing investment choices and stronger debt management.

#### **4.3.4 Moderating Effect Analysis**

The moderating effect analysis examines whether government fiscal policy influences the relationship between public debt sustainability variables (Debt-To-GDP ratio, debt service ratio, and debt maturity structure) and economic stability in Kenya. The regression model was as follows;

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 (X_1 \times M) + \beta_6 (X_2 \times M) + \beta_7 (X_3 \times M) + \epsilon$$

$Y_t$  is the dependent variable Economic Stability,  $B_0$  is the y intercept (Constant),  $\beta_{1-4}$  are the coefficients of determination,  $X_1$  is Debt-To-GDP Ratio,  $X_2$  is Debt Service Ratio,  $X_3$  is Debt Maturity Structure and  $M$  is Government Fiscal Policy,  $t$  represents time (2014-2023) and  $\epsilon_t$  is an error term.

**Table 4. 10: Moderating Effect Analysis Results**

<b>Model</b>	<b>R2</b>	<b>F(df)</b>	<b>p</b>	<b>R2 change</b>	<b>F(df) change</b>	<b>p</b>
1:00	0.724	5.248(3,6)	0.041			
2:00	0.758	3.920(4,5)	0.083	0.034	0.707(1,5)	0.433
3:00	0.885	54.070(7,2)	0.001	0.127	537.743(3,2)	0.000

**Source: Field Data (2025)**

Model 1, the independent variables collectively explain 72.4% of the variance in Economic Stability. The model is statistically significant ( $F(3,6) = 5.248$ ,  $p = 0.041$ ), indicating that these public debt sustainability variables are strong predictors of Economic Stability. In Model 2, the moderating variable, Government Fiscal was added to the base model. The inclusion of this variable increases the explained variance to 75.8%, representing a 3.4% increase. However, the change is not statistically significant ( $F \text{ Change } (1,5) = 0.707$ ,  $p = 0.433$ ), indicating that Government Fiscal Policy, on its own, does not significantly moderate the relationship between public debt sustainability variables and Economic Stability.

In Model 3, interaction terms are introduced to assess how Government Fiscal Policy moderates the relationship between each independent variable and Economic Stability. The inclusion of these terms significantly improves the model, increasing the explained variance to 88.5%, representing a 12.7% increase. The overall model is highly statistically significant ( $F(7,2) = 54.070$ ,  $p = 0.001$ ), and the change in F-statistic is also significant ( $F \text{ Change } (3,2) = 537.743$ ,  $p = 0.000$ ). This indicates that Government Fiscal Policy significantly moderates the relationship between public debt sustainability s and Economic Stability when interaction effects are considered.

**Table 4. 11: Moderating Analysis Regression Coefficients**

<b>ES</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>T</b>	<b>P&gt;t</b>	<b>[95% Conf.</b>	<b>Interval]</b>
DGR	-7.67278	0.4189161	-18.32	0.003	-9.47523	-5.87033
DSR	-4.14114	0.9931007	-4.17	0.053	-8.41411	0.131826
DMS	-3.30767	2.138713	-1.55	0.262	-12.5098	5.89447
GFP	-7.23943	0.765531	-9.46	0.011	-10.5332	-3.94562
GFP*DGR	1.092418	0.076931	14.2	0.005	0.761411	1.423426
GFP*DSR	0.653542	0.1620708	4.03	0.056	-0.04379	1.350876
GFP*DMS	0.615137	0.3398261	1.81	0.212	-0.84702	2.07729
cons	49.42057	4.945347	9.99	0.01	28.14246	70.69868

**Source: Field Data (2025)**

The regression model can be expressed using the standard notation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 (X_1 \times M) + \beta_6 (X_2 \times M) + \beta_7 (X_3 \times M) + \epsilon$$

Substituting the estimated coefficients:

$$Y = 49.42 - 7.67X_1 - 4.14X_2 - 3.31X_3 - 7.24M + 1.09(X_1 \times M) + 0.65(X_2 \times M) + 0.62(X_3 \times M)$$

where:

**Y** = Economic Stability (Dependent Variable).

**X1** = Debt-to-GDP Ratio (Independent Variable 1).

**X2** = Debt Service Ratio (Independent Variable 2).

**X3** = Debt Maturity Structure (Independent Variable 3).

**M** = Government Fiscal Policy (Moderator).

The Debt-to-GDP Ratio has a significant negative impact on Economic Stability (Coefficient = -7.67278, p = 0.003). This means that for every unit increase in the debt-to-GDP ratio, Economic Stability decreases by 7.67 units, holding other factors constant. This finding suggests that higher levels of debt relative to GDP weaken economic stability, likely due to the increased burden of debt repayment and reduced fiscal flexibility.

Similarly, the Debt Service Ratio also has a negative effect on Economic Stability, but it is only marginally significant (Coefficient = -4.14114, p = 0.053). This suggests that for

every unit increase in the debt service ratio, Economic Stability declines by 4.14 units. Although the effect is close to statistical significance, it indicates that higher debt servicing costs may strain government revenue and limit fiscal capacity, ultimately undermining economic stability.

The Debt Maturity Structure exhibits a negative but statistically insignificant impact on Economic Stability (Coefficient=-3.30767,  $p=0.262$ ). This result implies that the proportion of long-term versus short-term debt relative to GDP does not significantly influence economic stability in this model. It suggests that while debt structure may affect fiscal management, its impact on overall economic stability is not strong enough to be statistically meaningful.

Government Fiscal Policy, measured by the budget deficit or surplus, has a significant negative effect on Economic Stability (Coefficient=-7.23943,  $p=0.011$ ). This result indicates that for every unit increase in the budget deficit (or decrease in surplus), Economic Stability declines by 7.24 units. Expansionary fiscal policies, particularly those that lead to persistent deficits, may undermine economic stability by increasing public debt burdens and reducing investor confidence. These findings are supported by Yien and Khan (2019), who concluded that large fiscal deficits negatively impact economic stability by raising public debt levels and reducing investor confidence in long-term economic health.

The interaction term Debt-to-GDP Ratio \* Government Fiscal Policy shows a positive and statistically significant effect on Economic Stability (Coefficient=1.092418,  $p=0.005$ ). This suggests that Government Fiscal Policy moderates the negative

relationship between the debt-to-GDP ratio and Economic Stability. Specifically, a more conservative fiscal policy, such as maintaining a budget surplus, helps counterbalance the negative effects of a high debt-to-GDP ratio, thereby improving economic stability.

The interaction term Debt Service Ratio \* Government Fiscal Policy is positive but marginally significant (Coefficient=0.653542, p=0.056), suggesting that Government Fiscal Policy may help moderate the adverse effects of high debt service ratios on Economic Stability. However, the effect is weaker than the moderation observed with the debt-to-GDP ratio.

In contrast, the interaction term Debt Maturity Structure \* Government Fiscal Policy is positive but statistically insignificant (Coefficient=0.615137, p=0.212). This result implies that Government Fiscal Policy does not significantly moderate the relationship between debt maturity structure and Economic Stability.

The findings indicate that higher public debt levels and expansionary fiscal policies negatively impact Economic Stability, while fiscal discipline and responsible debt management can help mitigate these effects. The Debt-to-Gross Domestic Product Ratio and Government Fiscal Policy emerge as the most influential factors in determining Economic Stability, emphasizing the need for strong fiscal policies to manage debt effectively and maintain economic resilience. The findings imply that government policy has a moderating effect on the relationship between public debt sustainability and economic stability in Kenya. Therefore, the null hypothesis that government fiscal policy does not significantly moderate the relationship between public debt sustainability and economic stability is rejected. The findings are in line with Rathnayake (2020)

observation that fiscal policy has a positive moderating effect on the relationship between sustainability of Sri Lanka's fiscal imbalance and public debt. The findings also agree with Rathnayake (2020) findings that fiscal policy has a moderating effect on the relationship between public debt sustainability and economic stability. Similarly, the findings agree with Abdullah et al. (2019) observation that fiscal policy (budget deficits) has a moderating effect on the relationship between public debt and economic growth.

**Table 4. 12: Summary of Hypothesis Testing**

<b>Hypotheses</b>	<b>Results</b>	<b>Decision</b>	<b>Conclusion</b>
<b>H<sub>01</sub>:</b> Debt-to-GDP ratio has no statistically significant effect on economic stability in Kenya	p-value=0.014	H <sub>01</sub> was Rejected	Debt-to-GDP ratio has statistically significant effect on economic stability in Kenya
<b>H<sub>02</sub>:</b> Debt service ratio has no statistically significant effect on economic stability in Kenya	p-value=0.013	H <sub>02</sub> was Rejected	Debt service ratio has statistically significant effect on economic stability in Kenya
<b>H<sub>03</sub>:</b> Debt maturity structure has no statistically significant effect on economic stability in Kenya	p-value=0.177	H <sub>03</sub> failed to be Rejected	Debt maturity structure has no statistically significant effect on economic stability in Kenya
<b>H<sub>04</sub>:</b> Government fiscal policy has no significant moderating effect on the relationship between public debt sustainability and economic stability	GFP*DGR (p-value=0.005) GFP*DSR (p-value=0.056) GFP*DMS (p-value=0.212)	H <sub>04</sub> was Rejected	Government fiscal policy has significant moderating effect on the relationship between public debt sustainability and economic stability

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a comprehensive summary of the study's key findings, followed by conclusions drawn from the analysis. The chapter also offers practical recommendations based on the results, highlighting their implications for policy and practice. The study sought to examine the effect of public debt sustainability on economic stability in Kenya between 2014 and 2023. Specifically, the study sought to determine the effect of debt-to-GDP ratio, debt service ratio and debt maturity structure on economic stability. The study also considers the moderating role of government fiscal policy. Also, the chapter discusses the study's contribution to theory and suggests areas for further research to expand understanding of public debt dynamics.

#### 5.2 Summary of the Findings

This section provides an overview of the key results obtained from the analysis, highlighting the most significant insights related to the study's objectives.

##### 5.2.1 Debt to GDP ratio and Economic Stability

The study revealed that the debt-to-GDP ratio has a negative and significant effect on Economic Stability (annual GDP growth rate) in Kenya ( $\beta_1 = -1.64891$ , p-value = 0.014). This indicates that an increase in the debt-to-GDP ratio leads to a decline in Economic Stability. A high debt-to-GDP ratio suggests that a substantial portion of the country's income is allocated to debt repayment rather than productive investments, which can stifle economic growth. Additionally, heavy debt burdens may force the government to implement austerity measures, leading to reduced public spending and economic

contraction. This negative effect on economic stability reflects the economic challenges associated with debt dependency, including inflationary pressures and reduced investor confidence. These findings are in agreement with Njoroge (2020), who argue that high public debt can hinder growth and lead to economic instability.

Moreover, a rising debt-to-GDP ratio can increase the risk of debt distress, making it difficult for the government to secure additional funding at favorable rates. Investors may perceive high debt levels as a sign of fiscal irresponsibility or economic vulnerability, leading to higher borrowing costs. Consequently, the increased cost of debt servicing diverts resources from crucial sectors such as infrastructure, education, and healthcare, further hindering Economic Stability. This situation creates a vicious cycle where the economy struggles to grow, reducing the government's ability to generate sufficient revenue for debt repayment. These observations align with the work of Onyele and Nwadike (2021), who emphasize that high debt levels crowd out public investment and weaken long-term growth prospects.

### **5.2.2 Debt Service Ratio and Economic Stability**

The study found that the debt service ratio (ratio of debt service payments to government revenue) has a positive but statistically insignificant effect on Kenya's economic stability, measured by annual GDP growth rate ( $\beta_2 = 1.60202$ ,  $p\text{-value} = 0.013$ ). Although this appears counterintuitive under the Debt Overhang Theory, which posits that high debt servicing can crowd out productive investment and undermine growth (Ayomitunde, 2020), the result can be explained by Kenya's management of debt obligations. Descriptive analysis shows that despite high debt servicing ratios in certain years, the

government maintained budget allocations for key sectors, suggesting effective fiscal planning, concessional loan terms, and long-term repayment schedules that mitigated the potential negative impact on economic growth.

Comparatively, peer countries such as Ghana and Zambia, which have faced similar debt burdens, experienced more pronounced economic instability when debt servicing exceeded fiscal capacity. Kenya's ability to maintain economic activities despite increasing debt service ratios may also be attributed to strategic revenue diversification, inflows of external financing, and phased debt repayments. These findings converge with Kongo and Omboto (2023) and Efuntade and Efuntade (2022), who argue that sound fiscal management and structured debt repayment schedules can buffer the economy against the disruptive effects of debt service. The results highlight that while debt servicing remains a critical fiscal responsibility, its impact on economic stability depends on the country's broader financial management strategies, resilience to external shocks, and adherence to sustainable debt principles, addressing the knowledge gap on how debt service interacts with Kenya's unique political and economic context.

### **5.2.3 Debt Maturity Structure and Economic Stability**

The study established that debt maturity structure, measured as the average maturity of debt in years, had a positive but statistically insignificant effect on economic stability in Kenya ( $\beta_3 = 1.4658$ ,  $p\text{-value} = 0.177$ ). While the relationship was not significant, descriptive trends show that Kenya's average debt maturity increased from 4.05 to 9.5 years between 2014 and 2023, reflecting a gradual shift toward longer-term borrowing. This longer maturity profile could theoretically ease short-term fiscal pressures by spreading repayment obligations, providing the government with flexibility to invest in

productive sectors such as infrastructure, healthcare, and education. Compared to regional peers like Rwanda and Botswana, which maintain longer maturities to stabilize public finances, Kenya's debt profile still exposes the country to refinancing risks during periods of global interest rate volatility and currency fluctuations (IMF, 2022).

Although statistically insignificant, the positive coefficient aligns with Sustainable Debt Theory and Bilgin (2020) indicate that longer maturities allow for strategic fiscal planning and reduce the need for frequent rollovers, supporting economic stability. The findings also partially converge with the IMF's Debt Sustainability Framework, emphasizing that predictable debt service schedules enhance investor confidence and facilitate counter-cyclical fiscal policies. However, the Kenyan context introduces unique constraints: political election cycles, dependence on Eurobond financing, and occasional corruption scandals may limit the practical benefits of long-term debt. These country-specific factors help explain why longer maturities do not translate into significant improvements in economic stability, highlighting a gap between theoretical expectations and Kenya's fiscal realities. This shows the importance of not only managing maturity profiles but also addressing governance and structural fiscal weaknesses to fully realize the stabilizing potential of long-term debt.

#### **5.2.4 Government Policy, Public Debt Sustainability and Economic Stability**

The study established that government fiscal policy, measured by budget deficits, significantly moderates the relationship between public debt sustainability and economic stability in Kenya ( $p$ -value = 0.000). This indicates that the impact of public debt on economic stability is conditional on the government's fiscal stance. Descriptive trends

from 2014–2023 show persistent budget deficits, particularly in election years and during global shocks such as the COVID-19 pandemic, which coincided with sharp increases in Kenya’s debt-to-GDP ratio. When deficits are directed towards productive investments, such as infrastructure, health, and education, they can stimulate economic activities and future revenue generation, mitigating the adverse effects of high debt levels. Conversely, deficits driven by recurrent expenditures or mismanagement exacerbate fiscal pressures, increase debt servicing obligations, and may reduce investor confidence, thereby undermining economic stability. These findings resonate with Sustainable Debt Theory and the IMF’s Debt Sustainability Framework, which emphasize that debt remains manageable only when accompanied by disciplined fiscal policy (Abdullah, Yien & Khan, 2019).

The results further indicate Kenya’s unique political economy, where election cycles and reliance on Eurobonds often coincide with increased borrowing and larger deficits, creating cyclical pressures on public finances. By comparing Kenya with regional peers like Rwanda and Botswana, which maintain fiscal prudence and productive investment-oriented deficits, it becomes evident that effective budget management is crucial in leveraging debt for growth. The findings also align with Keynesian theory, which supports counter-cyclical fiscal policies, but diverge from the debt overhang theory in that well-managed deficits can mitigate negative debt effects. Overall, the study underscores that public debt’s effect on economic stability is not uniform but contingent on how fiscal policies direct borrowing, highlighting the importance of strategic budget management and transparency to enhance debt sustainability and maintain long-term economic growth (Imoisi, 2020).

### 5.3 Conclusion

The study concludes that the debt-to-GDP ratio has a negative and significant effect on economic stability in Kenya, measured by annual GDP growth. This supports the Debt Overhang Theory, which posits that high levels of debt relative to economic output constrain growth by diverting resources toward debt servicing rather than productive investments. In Kenya, the rising debt-to-GDP ratio between 2014 and 2023 highlights how excessive borrowing, particularly for recurrent expenditures and election-related projects, limits fiscal space for development and undermines economic resilience. This finding challenges the Keynesian perspective that public debt can universally stimulate growth, suggesting that beyond a threshold, debt becomes a drag on the economy, emphasizing the need to maintain a sustainable debt-to-GDP ratio to safeguard long-term stability.

The study further finds that the debt service ratio has a positive and statistically significant effect on economic stability during the study period. This partially contradicts the Debt Overhang Theory, which predicts that high debt servicing crowds out investment, but aligns with the Keynesian Theory, indicating that when managed prudently, through favorable loan composition, low-interest rates, or structured repayment schedules, debt service can coexist with stable growth. In Kenya, effective debt management and strategic allocation of borrowed funds may have allowed the government to maintain spending on critical sectors, demonstrating that the impact of debt servicing depends on fiscal management rather than debt volume alone.

Regarding debt maturity structure, the study concludes that longer average maturities positively, but insignificantly, affect economic stability. This supports the Sustainable Debt Theory, which emphasizes that debt is more manageable when repayments are spread over time, reducing refinancing risks and allowing for consistent economic planning. While the effect was not statistically significant, descriptive trends suggest that long-term borrowing can enhance fiscal flexibility, shield the economy from interest rate and exchange rate volatility, and enable counter-cyclical spending. In the Kenyan context, reliance on both short-term and long-term debt underscores the need to prioritize long-term maturities for sustainable debt management.

Finally, the study concludes that government fiscal policy, specifically budget deficits, moderates the relationship between public debt sustainability and economic stability. This highlights that the effects of debt on growth are conditional: productive deficits, funded by strategic investment in infrastructure and human capital, can offset debt pressures, while unproductive deficits exacerbate them. This finding aligns with IMF's Debt Sustainability Framework, which emphasizes the role of fiscal discipline in managing debt risk. In practice, Kenya's political economy, marked by election-cycle borrowing and Eurobond dependence, demonstrates how fiscal policy choices can either stabilize or destabilize the economy, confirming that public debt impacts are mediated by government policy and expenditure priorities.

## **5.4 Recommendations**

### **5.4.1 Policy Recommendations**

The government should focus on maintaining the debt-to-GDP ratio within sustainable limits (below 60%), emphasizing debt sustainability alongside strategic investments in infrastructure, education, healthcare, and productive sectors like manufacturing and agriculture. This aligns with international evidence from European transition economies and China, where controlled debt-to-GDP ratios supported growth (Fetai, Bexheti & Malaj, 2020; Hu & Wong, 2021). Short-term priority (1–2 years) should involve strengthening budget planning and improving oversight to minimize unproductive borrowing, particularly during election cycles. Medium-term (3–5 years) initiatives should include integrating debt ceilings into fiscal legislation and strengthening parliamentary oversight to enforce compliance.

To leverage the positive effects of long-term debt, Kenya should prioritize issuing longer-maturity instruments, reducing refinancing risks, and providing fiscal flexibility (Naser, Matemilola & Bany-Ariffin, 2024; Adi, 2019). While long-term debt can mitigate short-term pressures, careful planning is necessary to avoid exposure to economic shocks (Dau, 2024). Implementation should focus on designing a debt issuance calendar aligned with projected revenue inflows and macroeconomic conditions, with continuous monitoring to ensure liquidity risks are managed effectively.

Given the moderating role of budget deficits, the government should ensure that borrowing is channeled toward productive projects, particularly infrastructure, human capital, and technology, to stimulate growth and offset the negative impact of public debt (Rathnayake, 2020; Nya & Onyimadu, 2019). This includes optimizing revenue

collection, controlling non-essential expenditure, and maintaining a sustainable debt-to-GDP ratio. Short-term measures could involve strict monitoring of budget execution, while long-term measures should focus on institutionalizing fiscal rules and performance-based budgeting.

#### **5.4.2 Practice Recommendations**

To manage debt service obligations without undermining economic stability, Kenya should expand revenue sources beyond traditional taxation, leveraging digital taxation, green taxes, mineral royalties, and public-private partnerships (Agandhi & Sungkowati, 2022; Tama & Habila, 2022). These strategies can reduce pressure on borrowing while ensuring sufficient resources for development programs.

Corruption, leakages, and inefficiencies in debt-financed expenditures must be addressed. Kenya should enhance transparency, introduce independent project audits, and implement real-time monitoring of debt-funded projects (Ahmad, Afzal & Ullah, 2024; Getinet & Ersumo, 2020; Onyele & Nwadike, 2021). Short-term measures include capacity-building for financial officers, while long-term measures involve integrating automated PFM platforms with strict accountability mechanisms.

#### **5.4.3 Academic and Research Recommendations**

Future research should explore the political economy of debt in Kenya, including election-cycle borrowing, Eurobond dependence, and the role of corruption in fiscal outcomes. Comparative studies with regional peers like Ghana, Rwanda, and Nigeria could provide benchmarks for best practices in debt sustainability.

Scholars should conduct longitudinal studies to examine how different debt instruments, maturity structures, and fiscal policies interact to affect economic stability under varying macroeconomic conditions. This will support evidence-based policy-making and strengthen the theoretical understanding of Sustainable Debt Theory, Debt Overhang Theory, and Keynesian perspectives in the Kenyan context.

### **5.5 Contribution to Theory**

This study makes several theoretical contributions to the understanding of public debt sustainability and economic stability in the context of a developing economy. Specifically, the study affirms and extends three key economic theories: the Sustainable Debt Theory, the Debt Overhang Theory, and the Keynesian Theory of Public Debt. First, the study affirms the Sustainable Debt Theory by providing empirical evidence that a high debt-to-GDP ratio significantly undermines economic stability in Kenya. This supports the theory's assertion that maintaining debt at sustainable levels is critical to avoiding fiscal distress and ensuring macroeconomic balance.

Second, the study supports and extends the Debt Overhang Theory. The findings show that excessive debt servicing crowds out essential public investments and reduces growth potential, consistent with the theory. The extension lies in demonstrating how debt overhang affects a broader set of macroeconomic stability indicators—including inflation, exchange rate volatility, and investment confidence, within the Kenyan context between 2014 and 2023. Third, the study reinforces the Keynesian Theory of Public Debt by highlighting the moderating role of government policy. The evidence shows that where proactive fiscal measures, such as infrastructure investment and revenue diversification, are applied, the negative effects of debt on economic stability are

mitigated. This extends the Keynesian view by illustrating how debt management policy effectiveness can vary based on institutional and policy contexts specific to Kenya.

The new information added in the study is the integration of a moderating variable (government policy) into the debt–stability relationship, a dimension not widely addressed in existing Kenyan or regional studies. Furthermore, the study uses recent data from 2014 to 2023, capturing the post-devolution period and key fiscal developments such as Eurobond issuance, pandemic-related borrowing, and debt restructuring efforts. This contemporary context provides fresh insights into the dynamic interaction between debt, policy, and stability in low- and middle-income economies.

### **5.6 Suggestion for Further Research**

This study focused on the period from 2014 to 2023, providing valuable insights into the relationship between public debt sustainability and economic stability in Kenya. However, to gain a more comprehensive understanding of these dynamics, future research could extend the study period to include earlier years or examine longer-term trends. In addition, public debt sustainability could only explain 85.8% of economic stability, indicating that other factors also play a role. As such, further studies could explore the effect of other macroeconomic variables, such as inflation and exchange rates, on economic stability. Comparative studies involving other developing countries within the East African region would also provide valuable insights into regional debt management practices.

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## APPENDICES

### Appendix I: Approval of Proposal



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

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Kenya

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**Directorate of Postgraduate Studies**

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Ref: MMU/COR: 509099 27<sup>th</sup> March, 2025

Getrude Nabwire  
ECO/G/01-70544/2023  
P.O. Box 190-50100,  
**KAKAMEGA.**

Dear Ms. Nabwire

**RE: APPROVAL OF PROPOSAL**

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters proposal entitled “*Effect of Public Debt Sustainability on Economic Stability in Kenya*” and appointed the following as supervisors:

1. *Dr. Edwin Simiyu* - SOBE, MMUST
2. *Dr. Maniagi Musiega* - SOBE, MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Business and Economics Graduate Studies Committee and Chairman, Department of Economics. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Master’s thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

MASINDE MULIRO UNIVERSITY  
OF SCIENCE AND TECHNOLOGY  
DIRECTORATE OF POSTGRADUATE STUDIES  
P.O. BOX 190 - 50100, KAKAMEGA (K)

for *Kennedy Bota*  
**Prof. Kennedy Bota**  
**AG. DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES**

**Appendix II: Research Permit**


**REPUBLIC OF KENYA**  
 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

**Ref No: 195245**  
**Date of Issue: 04/April/2025**

**RESEARCH LICENSE**



**This is to Certify that Ms.. Getrude Nabwire of Masinde Muliro University of Science and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kakamega on the topic: EFFECT OF PUBLIC DEBT SUSTAINABILITY ON ECONOMIC STABILITY IN KENYA for the period ending : 04/April/2026.**

**License No: NACOSTI/P/25/417871**

**Applicant Identification Number**

**Director General**  
 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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**See overleaf for conditions**

**Appendix III: Map of Kenya in Africa**



#### Appendix IV: Data Extraction Checklist

Years	Debt-to-GDP ratio			Debt Service ratio			Debt maturity structure	Government Fiscal Policy	Economic Stability	
	Total Debt (in billion)	Nominal GDP (in billions)	Debt-to-GDP ratio	Debt Service Payments (in billions)	Total Government Revenue (in billions)	Debt Service ratio	Average Maturity of Debt (Years)	Budget deficit/surpluses (in billions)	Annual GDP Growth rate	
2014	2,296,000.80	57,035.58		40.256	23,841.38889		969.16	24.6	5.1	-790.8
2015	2,845,103.81	68,843.17		41.327	47,334.17503		1083.16	43.7	5.3	-441.8
2016	3,532,074.12	75,940.64		46.511	58,534.50605		1222.01	47.9	4.5	-403.8
2017	4,310,548.04	79,783.95		54.028	32,971.56566		1397.10	23.6	4.1	-190.8
2018	5,046,358.53	99,315.12		50.812	84,325.77487		1487.23	56.7	4.1	-929.7
2019	5,769,841.07	102,377.27		56.359	68,089.47532		1644.67	41.4	5.8	-607.8
2020	6,761,586.07	85,477.69		79.104	37,793.15822		1733.63	21.8	5.5	-184.7
2021	7,727,548.07	182,908.64		42.248	30,421.73090		1738.38	17.5	8.6	-950.2
2022	8,615,410.88	128,406.81		67.095	109,990.38845		2199.81	50	9.1	-555.4
2023	10,137,201.75	158,723.97		63.867	138,797.97230		2360.51	58.8	9.5	-800.4

Source: Kenya National Bureau of Statistics (2024) and Central Bank of Kenya (2024)

