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**THE EFFECTS OF PUBLIC DEBT ON MONETARY POLICY IN THE GAMBIA:
MODERATING ROLE OF POLITICAL LEADERSHIP**

BABOUCARR NYANG

MDF/152229/22

**A Research Dissertation Submitted to the Strathmore Business School in Partial
Fulfillment for the Degree of Masters in Development Finance of Strathmore University**



DECLARATION

I declare that this work has not been previously submitted or authorized for the conferral of a degree by this or any other educational institution. To the utmost extent of my understanding and conviction, the Dissertation does not include any content previously published or authored by someone else unless proper acknowledgment is provided within the thesis.

Baboucarr Nyang MDF/152229/22

Signature:..... .....

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Approval:

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Senior Faculty
Strathmore University Business School

Signature:..... .....

Date: 14/3/2025.....

ABSTRACT

Public debt is crucial in shaping a country's macroeconomic environment, influencing monetary policy decisions, economic stability, and growth. Managing these debts is critical for developing economies, particularly in sub-Saharan Africa, especially Gambia, where fiscal imbalances often intersect with monetary policy challenges. This study examines the impact of public debt on monetary policy indicators in The Gambia from 1983 to 2022. The method employed was the ARDL approach for the Short-Run, as the results from the F-bound tests indicated that there is no co-integration existing among variables. The correlation results suggested that an increase in foreign debt growth is associated with an increase in the money supply and exchange rate of The Gambia. The study found a moderate positive correlation between public debt and foreign debt, with a weak relationship with inflation and a negative correlation with interest rates. Foreign debt showed a moderate negative correlation with inflation and a strong correlation with both interest and exchange rates. Relationships between foreign debt and money supply or political leadership were weak. Conversely, strong positive correlations were observed among exchange rates, money supply, and political leadership. Increases in public debt positively affect money supply, interest rates, and inflation. Higher public debt correlates with rising exchange rates. Foreign debt significantly affects monetary policy and also positively affects interest rates, inflation and exchange rates. Public and foreign debts significantly influence key economic indicators, with political leadership moderating their effects on monetary policy. The study recommends that The Gambia should prioritize effective foreign debt management alongside domestic debt to achieve sustainable growth and inflation control. Enhanced collaboration between fiscal and monetary authorities, stable political leadership, and adopting proactive fiscal strategies and flexible monetary policies are also recommended to bolster resilience against external economic pressures and ensure long-term stability.

Keywords: Short-Run ARDL, Public Debt, Monetary Policy, Political Leadership, Debt Management, Economic Stability, The Gambia.

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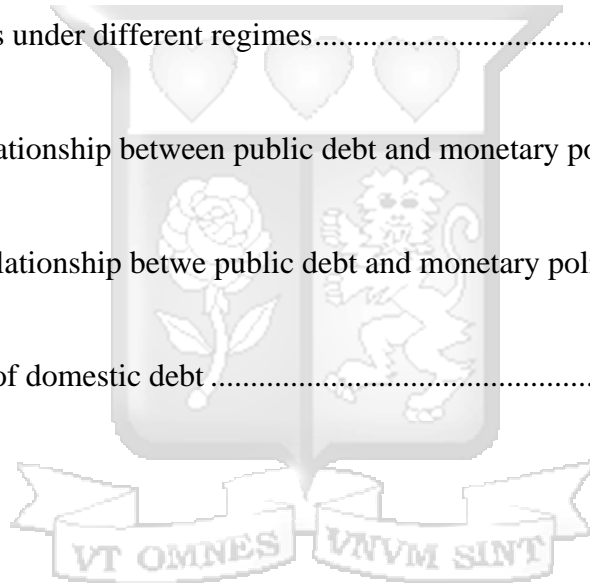
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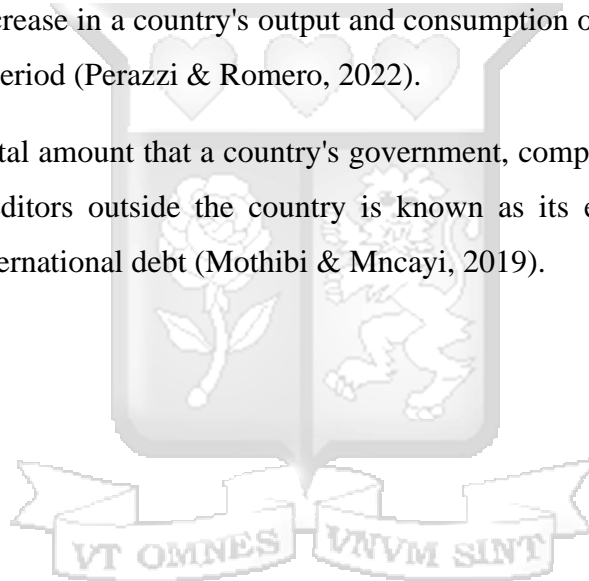


ACRONYMS AND ABBREVIATIONS

ARDL	Autoregressive Distributed Lag
CBG	Central Bank of The Gambia
DSA	Debt Sustainability Analysis
ECOWAS	Economic Community of West African States
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNI	Gross National Income
IMF	International Monetary Fund
LIC	Least Income Countries
LNDD	Log of Domestic Debt
LNEXCH	Log of Exchange Rate
LNFD	Log of Foreign Debt
LNIFL	Log of Inflation
LNINT	Log of Interest Rate
LNMS	Log of Money Supply
MDRI	Multilateral Debt Relieve Initiatives
MOFEA	Ministry of Finance and Economic Affairs
MPC	Monetary Policy Committee
SSA	Sub-Saharan Africa
UN	United Nations
WAMI	West African Monetary Institute
WAMZ	West African Monetary Zone
WB	World Bank

DEFINITION OF TERMS

- Debt to the public** All of a country's money is due to banks and other lending institutions, both at home and abroad, that have accumulated over the years as a result of borrowing money (Blanchard, 2019).
- Debt** Taking out a loan from another person or organisation and promising to pay it back, usually with interest, later (Haziri & Shala, 2022).
- Domestic debt** Sum of money that a country's government, companies, and citizens owe to creditors inside the country (Jawo, Jebou & Bayo, 2023).
- Economic growth** Increase in a country's output and consumption of goods and services over a period (Perazzi & Romero, 2022).
- External debt** Total amount that a country's government, companies, and citizens owe to creditors outside the country is known as its external debt, also called international debt (Mothibi & Mncayi, 2019).



DEDICATION

This work is dedicated to my beloved family, whose unwavering support made this journey possible. To my dear wife, thank you for your strength, patience, and love. Your sacrifices and tireless care for our children while I was away will forever be remembered and cherished.

To my mother, your nurturing spirit and constant encouragement have carried me through every challenge. Your role in caring for my children allowed me to pursue this dream with peace of mind.



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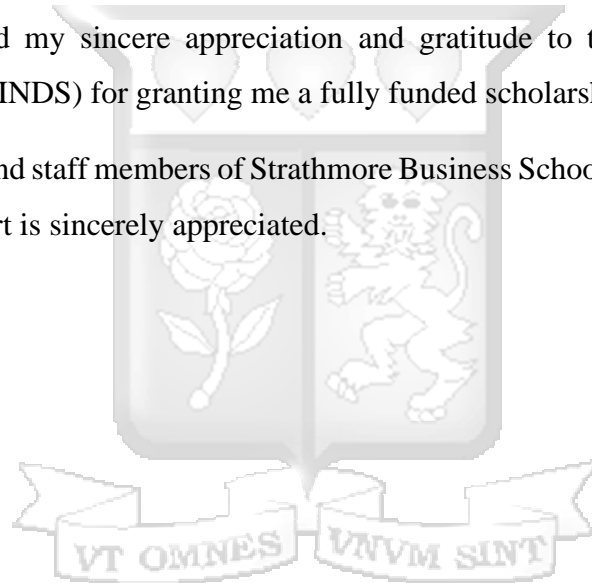
First and foremost, I give all thanks and praise to Allah for granting me the strength, patience, and resilience to complete this academic journey.

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CHAPTER ONE

INTRODUCTION

This research examines The Gambia's national debt and its relationship to the country's monetary policy. The research includes data covering 40 years, from 1983 to 2022, to guarantee definitive results. This chapter provides study's background, context, issue statement, research aims, questions, scope, relevance, and limits.

1.1 Background of the Study

Government officials in The Gambia are dealing with a significant economic problem caused by the heightened risk of financial difficulties associated with public debt portfolios. The latest debt sustainability analysis indicates that the country has exceeded many recommended debt limits by a significant margin, suggesting significant challenges with liquidity (MOFEA, 2021). Studies on monetary policy have increased because of its crucial role in controlling government debt. Public debt and monetary policy significantly influence economic policy's role, impacting a country's economy (Cifuentes-Faura & Simionescu, 2023).

Public debt is a prevalent financial tool that governments use globally to manage their fiscal affairs and fulfill their financing requirements effectively. In international economics, external debt pertains to the aggregate financial obligations owed by a nation's inhabitants, including governmental and private sector institutions to foreign lenders. The nature of this debt encompasses a range of indications, such as loans, bonds, promissory notes, and other financial instruments. It is customary for this debt to be denominated in foreign currencies or due to companies that are not residents. Internal debt, within economics and finance, pertains to the aggregate sum of funds that a government or public sector body procures from domestic origins, usually expressed in the national currency. This kind of debt is differentiated from external debt, which pertains to borrowing from creditors outside the domestic borders. Internal debt encompasses a range of financial instruments, such as government bonds, treasury bills, and loans procured from domestic banks and financial organisations (Stiglitz & Rosengard, 2015).

Scholars contend that maintaining reasonable amounts of public debt may benefit an economy. According to Yangailo (2024), moderate debt levels, when directed toward productive investment, can stimulate economic growth, especially in the presence of good governance and institutional

frameworks. Similarly, Orinda et al. (2022), focusing on the East African Community, highlight that public debt can positively and significantly influence growth when strategically applied. Kibigo (2021) confirmed that public debt has both short- and long-term growth benefits, especially when used to boost productive economic activities. Furthermore, Kithinji (2021) noted that while public debt contributes to growth, government expenditure patterns and debt composition play a vital role, with external borrowing often being more growth-enhancing than domestic debt.

Conversely, several experts emphasise the possible disadvantages of elevated governmental debt. Baidoo et al. (2021) emphasise negative effect of government debt on economic development. Owusu-Nantwi and Erickson (2016) provided statistical data that demonstrated a strong correlation between public debt and economic growth. Guei (2019) noted that debt minimally influences long-term economic growth. However, external debt is substantially connected with a drop in economic growth in the short run.

The central bank helps support the economy through monetary policy. The success of monetary policy depends a lot on how changes in the central bank's rates affect the lending rates that commercial banks offer (Njie & Badjie, 2021). Lending rates, in turn, affect how much people and businesses invest and spend. Monetary policy is important for keeping the economy stable and helping it grow over time (Kollmann, 2021). It also affects the cost of credit, inflation, exchange rates and other parts of economic performance. However, for monetary policy to work well, it must be able to influence lending rates and other key financial activities (Haziri & Shala, 2022). Sometimes, when the government borrows too much from local banks, it can weaken monetary policy and make it harder for changes in policy rates to affect lending rates (Djinkpo, 2019).

Inconsistent monetary, fiscal and exchange rate policies can lead to excessive reliance on foreign borrowing, increasing the risk of debt crises. Lack of policy alignment causes the financial system to be unstable, complicating sustainable debt management (Haziri & Shala, 2022). Ensuring coherence in policies is important for economic balance and investor confidence. Stable government budget deficits cause domestic credit to significantly influence foreign debt growth. Central banks that cover budget gaps with credit can result in overdependence on foreign loans (Cifuentes-Faura & Simionescu, 2023). Thus, responsible domestic credit management is vital to control external debt accumulation. Some countries amass international reserves even while

increasing foreign debt, underscoring the importance of analyzing gross debt levels rather than just net figures (Atta–Mensah & Ibrahim, 2020). Avoiding unsustainable foreign debt requires effective monetary and fiscal policy coordination, focusing on financial flows and credit dynamics for long-term stability (İkiz, 2020).

Monetary policy aims to attain desired macroeconomic outcomes, including maintaining stable prices, achieving full employment, and promoting sustainable economic expansion. The process entails exerting influence on interest rates, the money supply, and several other variables inside the financial market to accomplish these stated goals (Mishkin & Eakins, 2012). Public debt and monetary policy have a complex and context-dependent relationship. Elevated public debt may hinder a central bank's achievement of monetary policy goals, particularly when the debt is not handled cautiously or fiscal dominance becomes worrisome. Establishing efficient coordination and communication channels between fiscal and monetary authorities is important to guarantee the harmonious functioning of public debt management and monetary policy, to foster macroeconomic stability and sustained economic development.

GDP growth was used as a control variable to examine the relationship between public debt and monetary policy. Indeed, GDP growth affects government revenues and expenditures, which affects debt accumulation (O'Neill, 2023). A growing economy often generates higher tax revenues, reducing the need for borrowing, while in a contracting economy, governments may borrow more to stimulate growth (Miyamoto, 2023). Similarly, central banks consider GDP growth trends when setting monetary policy tools such as interest rates and money supply (Rogoff, 2020). For instance, in periods of strong growth, monetary authorities might tighten policy to prevent overheating, whereas during slowdowns, they may adopt expansionary measures (Kurniasih, 2021). Controlling for GDP growth in analysis helped isolate the effects of public debt and monetary policy from economic cycles (Kozlov, 2023). Without this control, the observed effects might be confounded by fluctuations in economic activity rather than the policy instruments themselves (Guei, 2019). It thus enabled a more accurate interpretation of causal relationships between variables.

1.1.1 Public Debt in The Gambia

Countries borrow to address macroeconomic needs and to finance temporary Balance of Payments (BOP) deficits (Djinkpo, 2019). However, effect of debt on GDP growth may be positive or negative, according to the structure, size and utilisation of government debt (Njie & Badjie, 2021). According to Blanchard (2019), a key factor contributing to rising debt is the excessive reliance on external resources to minimise the gap between revenue and expenditure while supporting domestic capital formation. High interest payments and significant current account deficits exacerbate this situation, leading to a substantial debt burden. The research, aiming to guarantee definitive results, includes data covering 40 years, from 1983 to 2022.

The mid-2008 financial crisis led to a significant debt crisis in advanced economies, including Greece and the Asian Crisis. Factors such as weak revenue collection, government spending, and poor EU debt enforcement contributed to the crisis. Greece's debt-to-GDP ratio was 180.1% in 2014, while Portugal and Ireland experienced similar ratios (Abille & Kiliç, 2023). These crises prompted austerity measures in Eurozone countries, causing economic instability, political tensions, and increased protests. Most developing countries have struggled to manage growing public debt, ensuring sufficient revenue remains after debt servicing. Kengdo (2023) observed that between 1995 and 2000, the domestic debt of Sub-Saharan Africa totaled to 23% of the overall debt, with a debt-to-GDP ratio of 16%. Central Bank of Libya reported a debt-to-GDP ratio of 6.1% in 2014, averaging 10.2% between 2003 and 2014, with a high of 21.2% in 2003 and a low of 5.9% in 2012 (Aimola & Odhiambo, 2021). Algeria maintained a sustainable debt level of 8.76% of GDP in 2014. In contrast, countries like Egypt, Sudan, and Zimbabwe had high debt levels, with ratios of 90.5%, 79%, and 77% of GDP respectively (Abille & Kiliç, 2023).

The Gambia's national debt has steadily risen over the past ten years. Trading Economics (2023) said the public debt to GDP ratio was 80.8% in 2022. From 2023 - 2028, the projected increase in the national debt is 18.29%. Worryingly, projections show it reaching \$1.9 billion after 2028. From 1983 to 2022, public debt to GDP ratio is displayed in Figure 1.1.

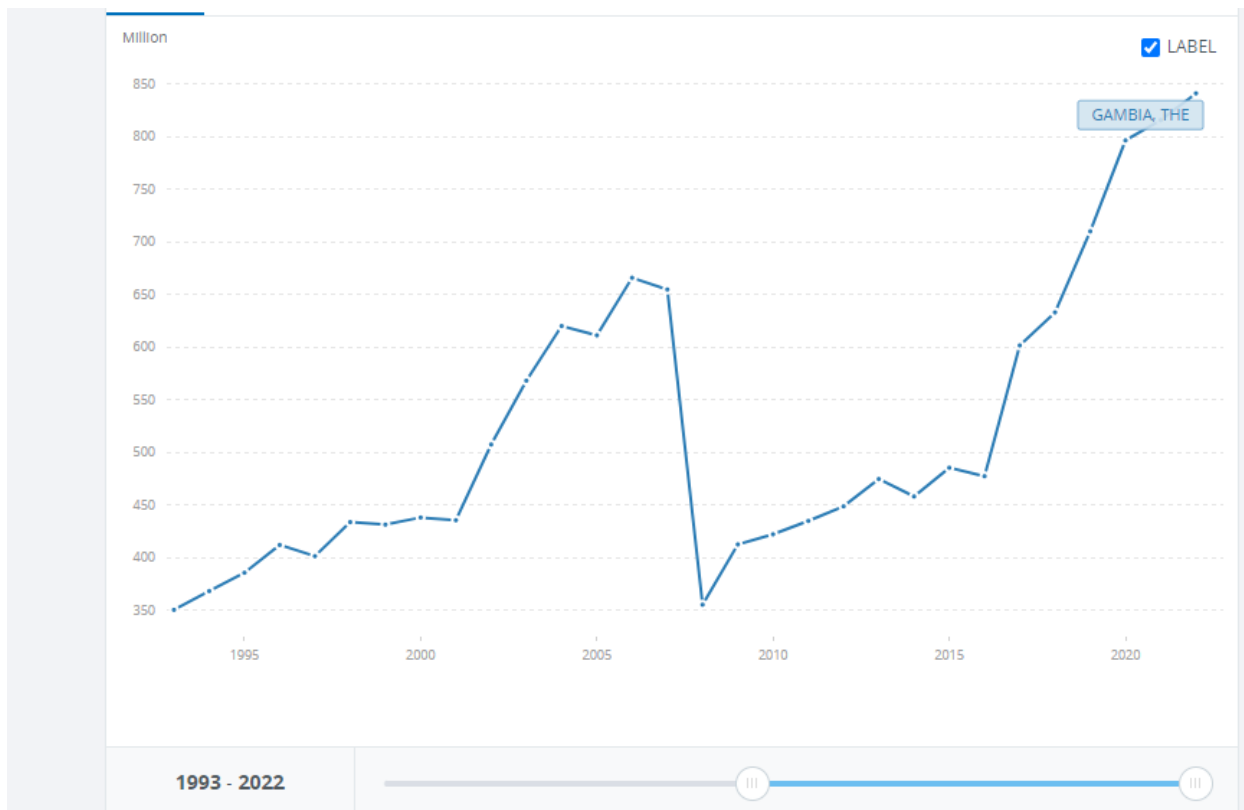


Figure 1.1: The Gambia government debt trends

Source: World Bank, International Debt Statistics (2022)

Gambia has had a consistent upward trajectory in its public debt levels in recent years. The situation has given rise to apprehensions over the possible ramifications of the escalating debt on the nation's monetary policy and general economic stability. The Gambian external debt burden is growing, and debt accumulation is becoming a critical concern for policymakers (Jarjue, 2021). The Gambia's difficulties sustaining debt in recent years are due to its high debt-to-GDP ratio, fiscal imbalances, and sluggish economic growth (Atta-Mensah & Ibrahim, 2020). The Gambia's relatively high debt-to-GDP ratio has prompted questions about the viability of debt. The nation's debt-to-GDP ratio was roughly 87% in 2020, which is higher than the World Bank's cutoff point of 60% for developing countries. In addition, the nation's debt service obligations 2020 represented over 14% of total government income, exceeding the 10% level the World Bank advises (Atta-Mensah & Ibrahim, 2020).

An important part of every country's economic management is the association between public debt and monetary policy. The complex interplay between these two variables is crucial in attaining

macroeconomic goals, including maintaining stable prices, ensuring maximum employment, and fostering sustainable economic expansion. Gaining a comprehensive understanding of this relationship offers many benefits to a nation, including efficient policy coordination, bolstered economic progress, and an elevated worldwide reputation.

Macroeconomic factors, like growth, inflation and interest rates, contribute significantly to Gambia's heavy debt load and burden of repaying that debt (Djinkpo, 2019). The country's borrowing costs have risen dramatically in recent years due to increasing macroeconomic factors, unfavourable funding conditions, and domestic issues, such as high inflation and budget deficits (OzdemiR & Gomez, 2020). The Gambia's total debt is predicted to increase by \$0.3 billion, or 18.18%, between 2023 and 2028 as per IMF World Bank Debt Sustainability Analysis (DSA). National debt is expected to exceed \$1.9 trillion by 2028. The total debt the government owes includes all obligations that need repayment of principal and interest to the lending institution, as determined by the International Monetary Fund. There has been less investigation into how fiscal and monetary variables influence debt accumulation in The Gambia, which is surprising given the paramount significance of debt sustainability (Djinkpo, 2019).

1.1.2 Monetary Policy in The Gambia

Every country aims for sustainable economic growth as a key objective. Key indicators of a country's monetary policy's success include inflation, interest, and exchange rates. Global concern is centred around the instability of prices. A country's economic growth is very sensitive to shifts in product and service prices and currency exchange rates. The exchange rate policies of the country determine how exchange rates impact inflation. In economic conditions, inflation is a crucial factor, sparking debates on its impact on the economy - whether positive or negative (Barguelli et al., 2018). Measuring, monitoring, and evaluating monetary policy in a timely and accurate manner becomes challenging because inflation rates are constantly changing. Uncertainty in inflation calculation could significantly affect policymaking for any nation. It is, therefore, important for policymakers to ascertain and calculate the nation's inflation correctly. The policymakers should ascertain production levels, wage rates, currency rates, inflation, balance of trade, money supply, demand and interest rates (Musarat, Alaloul & Liew, 2021). Despite the economic slump, inflation has remained steady in several emerging nations due to significant changes in monetary policy frameworks, including implementation of more accommodating

exchange rate regimes with goal of controlling in inflation (Madhou et al., 2021). Renzhi and Beirne's (2023) study in Bangladesh's Pakistan and Punzi's (2017) analysis found that monetary policy effectiveness depends on market conditions and business cycles.

Figure 1.2 highlights the trends for inflation rates in The Gambia for the last 10 years:

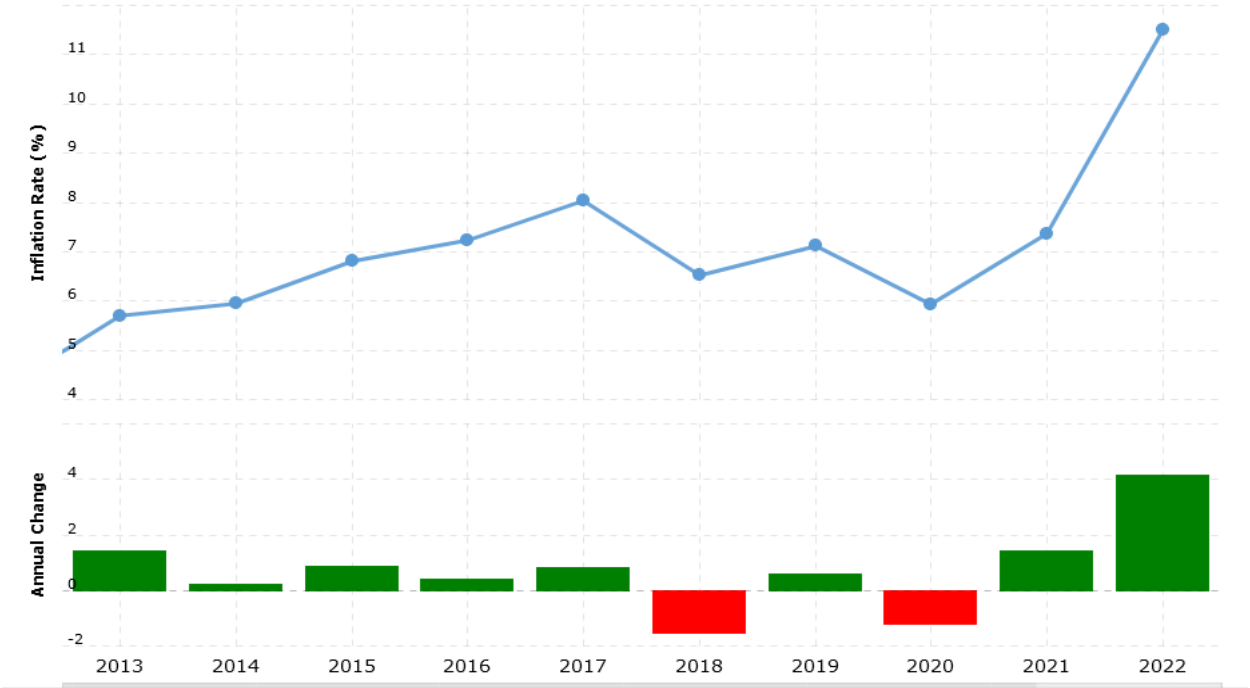


Figure 1.2: The Gambia Inflation trends

Source: World Bank, *International Debt Statistics (2024)*

The Gambia has continually maintained some of the highest interest rates in Africa. The average T-bill rate decreased over the previous four years, from 17.5% in October 2016 to roughly 6.8% in May 2018. The average T-bill rate decreased over the previous four years, from 17.5% in October 2016 to roughly 6.8% in May 2018. The Central Bank of The Gambia mentioned in 2019 that the decrease is attributable to reduced levels of domestic debt. However, in 2017, interest payments still constituted 42% of government revenue. The current and previous administrations have implemented costly and unproductive economic policies, which critics say is to blame for the relatively high interest rates. These policies have led to ongoing budget deficits, which successive governments have funded by borrowing more money, ultimately causing interest rates to rise. As per classic Keynesian theory, the crowding-out hypothesis posits a causal link between budget

deficits and interest rates. Hypothesis posits that when government borrows money to bridge budget deficits, it might result in substantial rises in real interest rates. Consequently, this can diminish the economy's ability to lend money and dampen company investments. Budget deficits and interest rates do not have a substantial relationship, according to Ricardian equivalence theory (Mukhtar and Zakaria, 2008). Interest rate trends in The Gambia are shown in Figure 1.3.

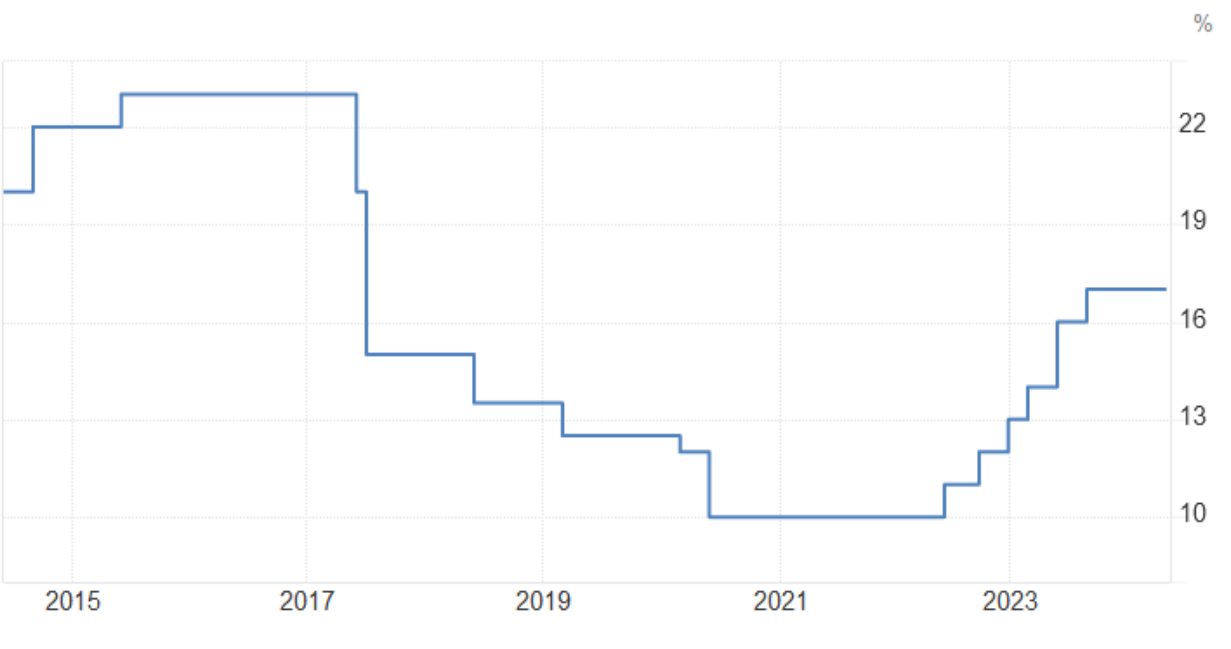


Figure 1.3: The Gambia Interest Rate Trends

Source: World Bank, International Debt Statistics (2024)

1.1.3 Political Leadership

Political leadership has a direct impact on economic development. Evidence indicates that the economic downturn in Africa post-independence is mainly attributed to inadequate management of public economic matters by contemporary state officials (Vaggi & Frigerio, 2021). This indicates that the continent's economic challenges are not solely due to a lack of natural resources. If effectively harnessed and utilised, existing resources can drive economic development and breakthroughs (Kozlov, 2023). On the other hand, a nation with abundant natural and human resources could face poverty and an economic standstill if it does not have capable political

leadership that can effectively utilise these resources for the nation's development and well-being of its people (Kollmann, 2021).

Political leaders often try to influence central banks by sharing their opinions on how monetary policy should be handled (Khatri, 2020). They may also use their political power to pressure the central bank, knowing that the bank cares about protecting its reputation (De Haan, 2019). Additionally, political leaders may use their views on the central bank to show their political beliefs, setting themselves apart from opposing parties and appealing to their supporters (Rossi, 2024). Consequently, political leaders reflect the divisions that exist among the people they represent (Kurniasih & Tampubolon, 2022). If political voices are missing from discussions about monetary policy, it can make people feel that central banks are not democratic enough, leading to growing distrust and populist criticism (Ackah, 2023). Thus, support for central bank independence could weaken, which might influence monetary policy decisions (Busato, 2022).

Gambia has faced challenges with significant public debt, primarily due to budget shortfalls funded by extensive loans. This lending has led to elevated interest rates, causing stress on government budgets and impeding the expansion of the private sector through constraints on lending ability. Political leadership is crucial in determining the economic policies of The Gambia. Past governments have faced backlash for their poor handling of the economy, resulting in ineffective and squandering strategies that worsened the national debt. The present government must overcome these trends by adopting prudent financial strategies. Efficient political leadership is essential for rebuilding investor trust, guaranteeing openness, and fostering long-term economic development. Thus, political leadership influences how public debt affects monetary policy (Aimola & Odhiambo, 2022). In the past, poor leadership led to bad financial decisions, higher debt and pressure on the economy (Djinkpo, 2019). Good leadership can help manage debt better, build trust and support stronger monetary policy (Jarju, 2021). Therefore, including political leadership as a moderating factor helps explain why the outcomes of public debt and monetary policy differ over time.

The Gambia's Central Bank oversees monetary policy to control inflation and maintain currency stability. Recently, the bank has seen improvements as T-bill rates dropped from 17.5% in October 2016 to approximately 6.8% in May 2018, indicating lower domestic debt levels. However, sustaining this advancement necessitates ongoing watchfulness and efficient policy actions to

regulate inflation and currency exchange rates. There has been a lack of thorough examination of how political leadership and public debt affect monetary policy in previous studies. Additionally, a review of existing literature reveals inconsistencies in research results. Djinkpo (2019) evaluated how domestic debt affects monetary policy. The research employed a New Keynesian framework, revealing that levies on consumer and capital earnings help maintain national debt stability, whereas labour income taxes show a slightly significant impact. The research shows a theoretical deficiency, as it was based on the Keynesian framework. The study also leaned more toward taxes, which affect fiscal policy.

In the same breath, Mothibi and Mncayi (2019) assessed the correlation between national debt and monetary policy in South Africa and concluded that there were no substantial connections between national debt and interest rates, inflation, and foreign exchange rates. Research took place in South Africa, resulting in a contextual discrepancy. Njie and Badjie (2021) examined how interest rates impact economic growth in The Gambia and found no association between the two factors. The research highlights a conceptual discrepancy due to the differing variables in the suggested study. As indicated by Egbuna et al. (2019), the Highly Indebted Poor Nations initiative resulted in higher levels of public debt in West African Monetary Zone nations, prompting worries about the program's sustainability in the long term. Panel Smooth Transition Regression model discovered a beneficial nonlinear impact of increasing debt ratios as long as they stayed under 90%. There is a gap in the methodology. How does the national debt influence monetary policy? This research aims to address the question: How is it influenced by political leadership in The Gambia between 1983 and 2022?

1.2 Statement of the Problem

Cifuentes-Faura and Simionescu (2023) asserted that public debt is a critical issue facing most governments globally. The Gambia's public debt distress is a critical issue that must be urgently addressed. High levels of debt, slow economic development, and limited budgetary flexibility are major economic issues that The Gambia is now facing. Jarjue (2021) states that various factors influence public debt levels. However, the long-term effects of these variables are more apparent than short-term ones. An increase in national debt has detrimental effects on borrowing costs and the government bond yields, derailing The Gambia's efforts to repay its debt (Trading Economics, 2023).

Notably, The Gambia's governmental debt has increased throughout the previous ten years. In 2022, ratio of public debt to GDP was 80.8% (Trading Economics, 2023). The national debt is projected to rise by 18.29% between 2023 and 2028. It is shocking that after 2028, the debt will probably total \$1.9 billion. Due to its expansive fiscal policy, which has increased internal and external debt to enhance economic growth, the government faces a high debt-to-GDP ratio of 72% by 2022 (World Economics, 2022). In 2023, the government's domestic debt increased by 8.4 percent to reach D41.3 billion, which accounted for 29.4% of the nation's GDP. This is compared to D38.1 billion in 2022, representing 31.7 per cent of the GDP. The increase can be primarily attributed to the higher issue of Treasury bills and medium-term government bonds, which are used to pay off debts and fund the budget. Consequently, 58.5 per cent of the overall domestic debt comprises short-term debt, while 41.5 per cent is medium to long-term debt. This suggests a significant risk in refinancing, as more than half of the loan will need to be repaid within a year.

Increased national debts result in reduced fiscal flexibility (Abdelkafi, 2016). Therefore, governments cannot adequately respond to economic conditions and critical issues. As such, there is reduced government revenue because it allocates most of its revenues to debt servicing (Kengdo, 2023). Ineffective monetary policies and poor political leadership exacerbate the practical problem of public debt in growing nations. Public debt management often fails to ensure sufficient revenue post-debt servicing, as seen in Sub-Saharan Africa and countries like Egypt and Zimbabwe study (Heimberger, 2023). According to research, monetary policy directly influences economic stability and debt levels, but its effectiveness is variable and dependent on market conditions and business cycles (Renzhi & Beirne, 2023; Aimola & Odhiambo, 2021; Ikiz, 2020). Political leadership plays key role in improving or undermining efficacy of monetary policies, thereby affecting public debt outcomes and overall economic development. Since the early 1980s, The Gambia has seen significant economic difficulties, like variable levels of public debt, varying interest rates and foreign stocks that have impacted its decisions about monetary policy (Njie & Badjie, 2021).

Previous studies have not adequately examined effect of public debt political leadership on monetary policy. There are inconsistencies in results of studies that have been reviewed. Djinkpo (2019) analysed effect of domestic debt on monetary policy. Research uses a New Keynesian model, finding that taxes on consumer and capital income stabilise national debt while labour income taxes have a modest positive effect. It presents a theoretical gap since it was grounded on

the Keynesian model. Mothibi and Mncayi (2019) examined national debt and monetary policy in South Africa and found no strong relationships between national debt and interest rates, inflation and foreign exchange. The study was conducted in South Africa, hence a contextual gap. Njie and Badjie (2021) found no association between The Gambia's interest rates and economic growth. The study presents a conceptual gap as the variables differ from the proposed study. Various knowledge gaps exist, hence the justification for this study, which investigated effect of public debt politics and leadership on monetary policy in Gambia between 1983 and 2022.

1.3 Research Objectives

1.3.1 General Objective

The study's primary aim was to examine the effect of public debt and political leadership on monetary policy in The Gambia between 1983 and 2022.

1.3.2 Specific Objectives

The study aims to :

- i. Assess the effect of domestic public debt on monetary policy in The Gambia
- ii. Evaluate the effect of foreign public debt on monetary policy in The Gambia
- iii. Investigate the moderating effect of political leadership between public debt and monetary policy in The Gambia

1.4 Research Questions

- i. How does domestic public debt impact monetary policy in The Gambia?
- ii. How has foreign public debt impacted monetary policy in The Gambia?
- iii. How does political leadership moderate the relationship between The Gambia's public debt and monetary policy?

1.5 Scope of the Study

The study analyzed correlation between Gambia's public debt and monetary policy from 1983 to 2022. It examined economic data and policy changes in The Gambia over three decades, focusing on the country's unique economic setting and policy responses. The main factors studied were governmental debt and monetary policy, like interest rates, money supply, exchange rates, inflation and central bank actions. Correlation between government debt and interest rates was investigated

using secondary data and ARDL (Autoregressive Distributed Lag) model. Findings had substantial implications for policymakers, central banks, foreign financial institutions, and other parties involved in economic management and development in The Gambia. To spur growth, policies that bring in foreign debt consider long and short-term links between external debt and economic development, which are important to various segments of the economy. Akinwunmi and Adekoya (2018) found that economic growth improved when countries used borrowed funds, like foreign debt, for profitable and productive activities. The main purpose of this study was to examine relationship between public debt and monetary factors.

1.6 Significance of the Study

Policymakers will benefit from the research by better understanding how public debt impacts monetary policy. This research will concentrate on effects of government debt on interest rates, money supply, foreign exchange and inflation. Gambian policymakers will develop policies that would enhance economic decisions. Suggestions for the research will serve as a foundation for implementing policies. Similarly, policymakers will grasp how political leadership affects the connection between public debt and monetary policy.

The study will help experts understand how public debt affects fundamental economic variables like inflation, interest rates, money supply, and currency exchange rates. Experts will better grasp effects of public debt on monetary policy. The effect of political leadership on the connection between public debt and monetary policy is a critical area of study in economics.

The study will be important to scholars as it adds to the theory of effect of public debt on monetary policy. Students of economics, finance, and related disciplines will refer to the study as reference material. Recommendations for further studies will serve as a foundation for scholars to develop their research topics and refine their research processes.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter evaluated literature on the link between government debt and monetary policy. It also examined literature discussing public debt and monetary policy concepts and empirical studies associated with them.

2.2 Theoretical Review

This research section reviewed existing literature on government debt and monetary policy theories. The theories discussed were the Debt Overhang anchor theory, the Ricardian Equivalence theory, and the Dynamic Political Economy theory as the support theories.

2.2.1 Debt Overhang Theory

Howard first put up the debt overhang idea in 1972; it describes a situation where a nation's debt exceeds its capacity to repay. Kurniasih (2021) defines debt overhang as anticipated repayment sum of debt exceedingly originally agreed-upon amount. Akanbi, Uwaleke, and Ibrahim (2022) define debt overhang as a situation where a debtor country receives limited advantages from further investment gains because it is burdened with significant debt repayment responsibilities. The "debt overhang effect" deters private sector investment due to concerns among investors about the government imposing high taxes to repay the debt, referred to as the tax disincentive (Kurniasih, 2021).

According to the theory, a government's capacity to execute economic measures, particularly monetary policy, is impeded by an excessive debt load (Gan et al., 2022). According to this theory, if the government is serious about meeting its debt obligations, it must keep its debt levels manageable. According to the argument, fiscal management becomes more complicated when debt levels are high since a more significant percentage of government funds go into paying off debt rather than investing in development projects (Fetuu & Rahman, 2022). According to this theory, monetary policy shifts take precedence when a government is weighed down by debt payments and hence, unable to tackle other economic issues.

The theory has been criticized due to the various limitations it presents. Substantial debt load limits a company's spending capacity, forcing it to slash costs and impeding optimal operations, negatively impacting production and hindering business growth (Kurniasih, 2021). Existing debt raises the spectre of default, deterring investors from financing new projects essential for the company's recovery, while banks, if willing to lend, impose exorbitant interest rates. Equity holders are reluctant to issue more stocks to revive the business, fearing accountability for prior losses incurred by shareholders (Fetuu & Rahman, 2022). Debt overhang influences business decisions: organisations may opt for strategies to mitigate losses or pursue high-risk ventures in pursuit of higher returns, but the latter may exacerbate debt burdens if unsuccessful (Kurniasih, 2021).

The present investigation applies the debt overhang theory to evaluate the success of monetary policy from 1983 to 2022. It helps to clarify how fiscal restrictions are affected by high levels of governmental debt. According to this theory, a large national debt can dampen investment and economic growth by doubting the government's ability to meet future tax and spending commitments (Akanbi, Uwaleke & Ibrahim, 2022). Findings about the impact of debt dynamics on macroeconomic results may be gleaned from analysing the current study.

2.2.2 Ricardian Equivalence

It was advocated by Robert Barro, who posits that individuals are inclined to save rather than spend any additional income generated. Ikiz (2020) suggests that people can predict how government economic policies will play out. According to this idea, people may alter their behaviour in preparation for future tax rises to settle the debt. Therefore, the impact on aggregate demand resulting from government expenditure increases financed through borrowing may be limited. Tax smoothing, intertemporal substitution, and debt neutrality form the basis of the Ricardian Equivalence Theory (Ayunasta, Setiaji & Hakim, 2020). According to tax smoothing, the government borrows money today, which implies that future generations will have to pay higher taxes to settle the debts quicker. Intertemporal substitution theory suggests that individuals may save more money if they expect to pay more taxes in the future, which would lessen the effect of government spending programs (Ikiz, 2020). According to debt neutrality theory, government borrowing does not affect aggregate demand or economic growth rates since people consider potential tax consequences.

The theory presumes consumer rationality and forward-looking behaviour, although real-life decisions often involve emotions, short-term considerations and imperfect information about future tax policies. Uncertainty regarding future tax policies can sway consumer actions, leading to altered saving and spending patterns (Busato, 2022). The theory assumes uniform effects of government spending across all income groups, disregarding potential disparities in impacts, such as differing benefits from increased spending on education for low versus high-income families (Sardoni, 2021). Additionally, while Ricardian Equivalence suggests changes in government spending have no bearing on overall demand, assuming effective monetary policy, limitations in monetary tools, like zero interest rates, may render government spending pivotal in stimulating demand. The assumption that consumers perceive government debt solely as future tax liabilities may change if concerns about debt default or inflation arise (Ayunasta et al., 2020).

The Ricardian Equivalence Theory is essential and relevant in this study because it sheds light on effects of changes in Gambia's government debt levels on private investment and consumption habits. Ricardian Equivalence suggests that increases in public debt, when used for government spending, may not lead to increased consumption or investment since consumers may save more forecasting higher taxes in future, thereby offsetting stimulative effect of government spending on the economy (Sardoni, 2021). This theory influences monetary policymakers by suggesting that fiscal policy changes, especially those involving debt-financed expenditure, may not be as helpful in generating economic activity as previously imagined. Therefore, policymakers must consider the potential offsetting effects of consumer behaviour in response to changes in public debt when formulating monetary policy strategies (Ayunasta et al., 2020).

2.2.3 Dynamic Political Economy Theory

It relates to public expenditure, taxation and debt and is based on the concept of tax smoothing put forward by Barro in 1979. This theory suggests that governments strategically use budget deficits and surpluses to stabilise tax rates and smooth out fluctuations. Governments incur deficits during heightened spending requirements, while during reduced needs periods, they generate surpluses (Razin, Sadka & Suwankiri, 2021). This strategy operates under the assumptions of government benevolence, fluctuating government spending needs and convex deadweight costs associated with income taxes (Barro, 1979).

According to the theory, a legislative body makes policy choices made up of elected representatives from single-member districts. This legislature primarily earns money through a proportional tax on labour earnings and taking out loans from the capital market, typically in the form of secure one-period bonds (Arclean, 2018). Furthermore, the lawmakers can purchase bonds and utilise the interest earnings to finance upcoming public expenses. Public funds are allocated to support a public good that benefits all residents and to provide targeted transfers to certain districts, known as pork-barrel spending (Solstad, 2023). Random fluctuations, such as wars or natural disasters, can impact the value of the public good due to unforeseeable events. Decisions on policies are determined by either a majority or super-majority voting system. The legislative policymaking process in every period utilises the legislative bargaining method (Razin, Sadka & Suwankiri, 2021). The study assesses how policy choices made by elected representatives, alongside fluctuations in public spending needs and the use of debt instruments, shape the dynamics of fiscal and monetary policies (Solstad, 2023). Additionally, it explores effect of stochastic events on value of public goods and the role of legislative bargaining in policymaking. This study aims to elucidate how level of public debt acts as a state variable, affecting decision-making process across multiple periods and how political leadership interventions may shape this relationship over time (Arclean, 2018).

2.3 Empirical Review

This part reviews study's empirical literature.

2.3.1 Domestic Public Debt and Monetary Policy

Mupunga and Ngundu (2020) analyse the measures governments took in Sub-Saharan Africa (SSA) to combat increasing public debt levels. According to their findings, SSA nations have consolidated their fiscal policies to make their debt more manageable. However, compared to the initiatives of other developing and developed nations, there is scant evidence that the pro-cyclical policies adopted by several SSA nations have reduced the output gap. Policy implications indicate that SSA governments should step up their budget consolidation initiatives to lessen the impact of possible future debt crises.

Mupunga and Roux (2015) investigated how Zimbabwe's public debt is affected by macroeconomic shocks. They stress the importance of establishing a solid system to control the

national debt. Researchers were able to replicate these shocks by employing the BVAR model. Findings indicated that interest rate, currency, economic development, and primary balance changes are the leading causes of the 61% variance between the expected and actual values of Zimbabwe's debt-to-GDP ratio. Policy implications highlight importance of government prioritising debt automatic adjustments, keeping primary balance sustainable, and pursuing policies that promote growth to ensure sure long-run sustainability of debt.

According to Mothibi and Mncayi (2019), slow economic growth and insufficient revenue collection, especially in the sub-Saharan region, are mainly responsible for the increase in global government debt. Between 1994 and 2017, researchers in South Africa employed ARDL model to investigate correlation between the country's debt and spending and actual GDP, inflation and interest rates. Statistical analysis revealed a correlation between these factors that persisted over time. Accumulation of public debt has a chilling effect on price increases and economic expansion. Inflation, actual interest rates and national debt did not show any significant links in short term. Improving South Africa's capacity to manufacture goods and provide services, regulating interest rates, and cutting wasteful spending would all help reduce the country's national debt.

According to Egbuna et al. (2019), the West African Monetary Zone (WAMZ) countries have increased their public debt levels due to the Highly Indebted Poor Nations (HIPC) program, which raises questions of whether it will be sustained over time. Analysing how these nations dealt with increased public debt, primary balances responded positively to shifts in debt-to-output ratio. The level of public debt stayed within a reasonable range throughout the given time frame. A noteworthy and advantageous non-linear reaction to rises in the debt ratio, as long as it stayed below a 90% threshold, was revealed by the Panel Smooth Transition Regression model.

Djinkpo (2019) investigated how changes in domestic debt were affected by fiscal and monetary policies. The article suggests fiscal restrictions to handle these dynamics and guarantee budgetary consolidation efficiently. The analysis employs a New Keynesian model to examine how tax adjustments impact domestic debt dynamics and how government expenditure affects total demand. The results indicate that consumer and capital income taxes help stabilise the national debt. In contrast to other taxes, taxes on labour income have a modestly positive effect, mainly because there are more non-Ricardian families. The study's mathematical framework for tax policy aims to alleviate fiscal suffering without negatively impacting output growth.

Ackah (2023) examined the correlation between Ghana's policy rates and domestic debt using time series data and VECM. Findings show that while domestic debt is advantageous in the near term, it harms the long-term interest rate. Nevertheless, no statistical significance was shown in either model's outcomes. Research highlights a robust relationship between real GDP, inflation, and long-term monetary policy rate, indicating that inflation is beneficial while real GDP is detrimental. Although only inflation initially showed statistical relevance, the model's lack of serial correlation or heteroskedasticity highlights the study's credibility. Investigating relationship between domestic debt and monetary policy rates, this research hopes to fill a major knowledge gap on Ghana's public debt.

Siele and Serem (2022) used the Financing Gap theory to analyse yearly data from 1980-2019 and determine effect of state debt on economic development in Kenya. By utilising an explanatory research design and a tailored VECM model, debt overhang is supported by the study findings that show that effect of domestic debt on economic development is negative, whereas effect of foreign debt is positive. The research highlights the significance of wise financial and monetary strategies, especially in handling national borrowing, to reduce the crowding-out impact and promote lasting economic development. It suggests diversifying the economy's productive foundation to strengthen economic development, broaden tax base, and improve nation's capability to fulfil its financial commitments. The research emphasises negative effects of rising domestic debt levels on economic development and provides practical suggestions for policymakers to address this issue.

The causes of Gambia's high national debt were the subject of research by Jarju (2021) looked at estimates using ARDL cointegration technique for data from 2000 to 2018. The research found that trade openness and increases in investment in fixed assets were significant factors in the expansion of government debt. The study found that increased GDP, currency rates, and government performance negatively affected public debt. Government borrowing could increase due to the positive relationship between trade openness, high gross fixed capital output, and public debt. Public debt levels were discovered to fall as GDP grew. However, there was a positive correlation between GFCF and trade openness about public debt. Foreign exchange rate fluctuations severely affect government debt levels, but if the home currency were to appreciate, import expenses would be reduced, and investor confidence would be enhanced, thus easing this load. The study's results

reveal that competent governments may manage fiscal policies more efficiently and reduce dependency on borrowing, suggesting that government programs and governance performance negatively influence public debt levels. In sum, the study shows that economic variables should be considered when analysing the dynamics of government debt, and it suggests that policies that encourage economic growth, good governance, and financial investment might reduce debt buildup.

Swamy (2015) analyzed the determinants affecting government debts from a macroeconomic perspective. Several variables, including GDP growth, FDI, population growth, inflation, and government expenditure, were negatively correlated with debt. The study indicated that debt was positively and statistically significantly related to trade openness, gross fixed capital creation, and final consumer spending. Government debt declined as GDP grew, explained by more tax collections and lower borrowing needs. The fact that FDI hurt public debt levels suggests that the economy is doing well, which could lead to faster growth and lower debt levels. Research shows that a larger population helps decrease the national debt by increasing economic activity and broadening the tax base.

In contrast, inflation has the opposite effect, reducing the purchasing power of existing debt. Paradoxically, lower debt levels were related to higher government expenditure, indicating that higher spending can promote economic growth while simultaneously lowering debt levels over time. The government's debt grows due to investments in fixed assets and immediate consumption. Gross fixed capital formation and final consumer expenditure are strongly connected. Government debt levels were significantly and positively affected by trade liberalization.

2.3.2 Foreign Debt and Monetary Policy

Hurtado, Nuño, and Thomas (2023) analyzed influence of monetary policy on national debt sustainability. Their analysis considers a scenario in which the government creates longer-term nominal debt without protecting its holders from default or lowering their purchasing power via inflation. They contend that inflation serves as a partial default mechanism. While a true default may have serious consequences, the state's current situation is more important. If inflation cannot wipe off debt, the government is less likely to fail, and the range of payments is larger. According to their research, inflation has significant advantages for welfare during periods of the sovereign

debt crisis, particularly in terms of its ability to stabilize the debt. However, over time, the advantages of inflation for welfare are restricted due to the inflationary inclination, prompting the government to create inflation even when it is not as advantageous for stabilizing debt. While the research provides useful comprehension of the difficulties of monetary policy and the long-term viability of government debt, its practical relevance may be constrained by the simplifications and assumptions used in the model.

In their research, Kurniasih and Tampubolon (2022) look at Indonesia's open economy, evaluating influence of internal inflation and foreign debt on Rupiah exchange rate. ARDL was utilized to explore connections between variables, utilizing secondary data covering 2010 to 2021. Significant long-term relationships were found between domestic inflation, foreign debt, and the Rupiah's value. While domestic inflation and foreign debt have positive long-term impacts on exchange rate, domestic inflation has a comparable positive short-term effect, and foreign debt has a negative one. The research shows that careful foreign debt management is necessary to guarantee productive utilization, and smart monetary policies are critical for managing inflation and exchange rate concerns. The study's results, however, might be skewed due to concerns with data quality and intricacy of variables impacting currency values in a free market economy.

Miyamoto (2023) discusses the changing relations between government debt and monetary policy in Japan, focusing on challenges posed by increasing global inflation and Japan's long-standing battle with deflation. Given its high debt levels, Japan is uncertain about its monetary policy direction and economic impact due to rising prices and a new Bank of Japan governor. The author stresses the importance of closely monitoring how the market responds to the Bank of Japan's monetary policy changes while also working to enhance Japan's fiscal condition through government actions. Although the author briefly summarizes the issues related to government debt and monetary policy in Japan, a more comprehensive examination of potential policy options and how they might impact the economy and public finances would elevate the study.

Abdelkafi (2018) examined the association between financial expansion, monetary policy, and government debt in Tunisia. It sheds light on fiscal shocks and how they affect monetary policy. Econometric research demonstrates the complex link between monetary policy, government debt, and economic performance. Monetary policy, economic growth, and government debt are causally

related. This analysis highlights how policy interactions affect Tunisia's inflation, exchange rates, and economic activity. The study highlights the difficulties that come from the differing goals of fiscal and monetary authorities, offering valuable insights into Tunisia's economic actions. However, the study's efficacy may be impeded by the limited duration of the investigation and the susceptibility of the model assumptions.

Zhang (2019) investigates the impacts of the housing market crash in the US during the Great Recession, specifically on household debt, banks' balance sheets, and overall economic activity. The research explores how the housing market impacts the overall economy by adding a micro-founded banking sector to a typical DSGE model that includes household debt. Employing data from the US, the study shows the notable impact on investment through the banking industry, demonstrating the correlation between real estate prices, personal debt, and the financial stability of banks. Furthermore, the research emphasizes the effectiveness of non-traditional monetary strategies, especially in focusing on assets supported by real estate wealth, in alleviating economic recessions. Despite providing valuable insights into how housing market shocks impact the broader economy, the study's use of model-based simulations and narrow focus on the US may restrict its applicability to other economic situations. Moreover, conducting additional empirical validation and sensitivity analyses would enhance the strength of the findings.

Sriram investigated the demand for broad money and its potential effect on execution of monetary policy in Gambia (2009). Research's results imply a weak but persistent association between the demand for broad money (M2) over an extended period. Possible causes of this weak association include changes in income velocity, data quality problems, new financial innovations, and external shocks to production. When things outside the economy impact the economy, this is called an external economic disruption. A shift in the economy's money velocity might affect the demand for currency. Furthermore, the conclusions drawn from money demand studies could be skewed depending on the data's quality and dependability. Ongoing changes and advancements in the financial market influence the actions of economic actors and their need for capital.

Monetary policy execution in The Gambia is hindered by the weak correlation between money demand and its determinants. When deciding how and when to implement monetary policies, policymakers must consider various variables, not limited to conventional measures of money demand. To sum up, Sriram's research shows how difficult it is to comprehend and foretell the

need for broad money in The Gambia. Money demand and its effects on monetary policy can be better understood by taking a holistic view of the economy, as shown by the results.

2.3.3 Political Leadership, Public Debt and Monetary Policy

Zhao, Chen and Hao (2018) investigated the relationship among local governments, local businesses and monetary strategies in China. The study reveals the complexities of policy implementation and its outcomes by examining how interactions between local governments and businesses impact specific monetary policies through various action-propagating mechanisms. Based on the institutional setting, property rights framework, and political ties of businesses, the research examines how monetary policies affect their investments. It observes significant variations in how monetary policies affect enterprises. The results emphasize how local government actions can unintentionally alter the outcomes of monetary policies, especially in lessening investment cuts for state-owned enterprises and privately-owned businesses with political connections. Although the research offers a valuable understanding of how monetary policy transmission mechanisms work in China, limitations could stem from the unique context and applicability of the findings to other economies.

Rao (2023) analyzed the Federal Reserve's monetary policy influence on worldwide capital markets via spillover effects and transmission channels, with a particular focus on the US-China relationship. Through an in-depth analysis of the literature and using curve fitting, qualitative, and empirical methods, the study investigates effect of policy adjustments on asset prices and market liquidity worldwide. The results demonstrate spillover effects and pinpoint four unique avenues of communication between the US and Chinese financial markets and the policy. Research offers guidance on investments considering changing monetary policies and global economic recovery, underscoring the significance of comprehending China's responses to the Federal Reserve's policies. Further validation and consideration of potential confounding factors could strengthen the study's findings on global transmission of monetary policy and its influence on investors and government management of financial markets.

Bauer and Faseruk (2020) conducted a comprehensive study on relationship between political influences, monetary measures, and the autonomy of the Federal Reserve in the U.S. spanning from 1960 to 2019. Looking at the history of US banking system and analyzing economic factors,

research assesses how political influences have affected the independence of the Federal Reserve. The research offers insights into how the dynamics of making monetary policy decisions have changed by analyzing the individuals who have held prominent roles in the US government and the Federal Reserve. The results emphasize the long-lasting impact of political factors on the monetary system and the continuous obstacles to the autonomy of the Federal Reserve. While the study provides important historical perspectives on how politics and monetary policy interact in the United States, there may be limitations due to looking back in time and the various factors that affect policy results.

Rossi (2024) stresses the significance of central bankers' involvement in mitigating the effects of COVID-19 epidemic and financial disaster in 2008. The article showcases the non-traditional measures central bank officials and governments take to boost economic progress, even though it comes at a cost to income and wealth distribution. The research discussed the political and distributional impacts, supporting a different monetary policy approach that includes climate-related factors. While the paper discusses important issues about the political aspects of monetary policy, its criticism is that simplifying income and wealth distribution to central bank actions may be oversimplified. The interplay of economic, social, and political variables and their influence on distributional outcomes requires more research. Additionally, the suggested different monetary policy approach might encounter difficulties being put into practice and could need more investigation into its practicality and effectiveness.

De Haan (2019) analyses how government political ideology influences monetary policies and concludes there is limited proof of partisan impacts on monetary policy when using forward-looking data and considering country differences. Also, the research looks at how monetary policies affect distribution of income and wealth by analysing existing studies. Nevertheless, the article points out that the empirical evidence on these matters is varied and not closely linked to more recent theoretical research. The paper offers a valuable understanding of the complexities of central bank independence and its connection with political ideology, but its criticism is centred on the narrow analysis of how political factors impact monetary policy decisions. A deeper analysis of the structures of institutions, the ways policies are conveyed, and surrounding factors affecting measures of central banks could improve comprehension of political economics of monetary policy.

2.4 Summary of the Literature and Research Gap(s)

Table 2.1: Summary of the Empirical Literature gaps

Author	Title	Methodology	Findings	Research Gap
Ackah (2023)	Policy rates and domestic debt in Ghana	VECM with time series data	Domestic debt has a detrimental effect on long-term monetary policy rate, in contrast to a significant effect on short-term	This study employed the ARDL model, hence a methodological gap
Hurtado, Nuño and Thomas (2023)	Impact of monetary policy on sovereign debt sustainability	ARDL	Inflation provides notable benefits to welfare during times of sovereign debt crisis, especially in terms of its effectiveness in stabilising the debt	The study was restricted in scope as it concentrated on sovereign debt
Siele and Serem (2022)	Public debt and economic growth in Kenya	Explanatory research design and a tailored VECM model	Foreign debt has a beneficial effect on economic growth, and local debt has an adverse effect, aligning with idea of debt overhang	There is a conceptual gap as the study's dependent variable is economic growth.
Kurniasih and Tampubolon (2022)	Effect of domestic inflation and external debt on monetary policy	ARDL	Inflation within the country and debt from other countries greatly affect the	A conceptual gap exists as it focuses on the exchange rate as an element of monetary policy.

			effectiveness of monetary policy.	
Bauer and Faseruk (2020)	Relationship between political influences, monetary policy	Systematic review of literature	Results emphasize the long-lasting impact of political factors on the monetary system	A methodological gap exists as it was a systematic review of the literature
Jarju and Njie (2021)	Factors Influencing the Gambia's Public Debt: An Analysis Employing the ARDL Bound Cointegration Method.	ARDL Bound Cointegration Method is Used for Estimations.	Research findings indicated that elevated gross fixed capital formation levels and trade openness were related to higher public debt. Conversely, the study indicated that GDP growth, exchange rate fluctuations, and government effectiveness hurt public debt levels.	The study only applied to The Gambia and cannot be applied to other jurisdictions, hence a contextual gap.
Abdelkafi (2018)	Public debt, economic growth and monetary policy in Tunisia	SVECM model; Granger causality analysis	Government debt, monetary policy, and economic performance are interrelated in a positive way.	A methodological gap has existed since the study utilized Granger Causality Analysis.

2.5 Conceptual Framework

The research determined correlation between government debt and monetary policy in Gambia. The inquiry entailed a comprehensive analysis of various variables linked to monetary policy, like inflation, interest rates, exchange rates and money supply.

Independent variables

Dependent variable

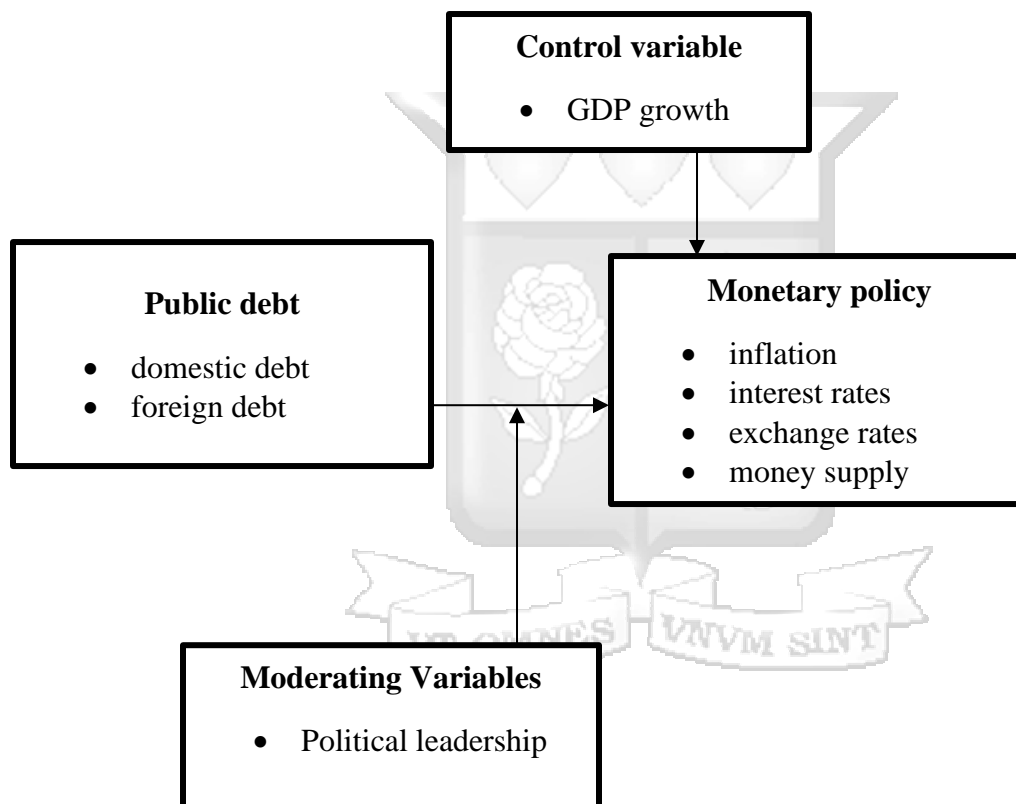


Figure 2.1: Conceptual framework

2.5.1 Public Debt

"Public debt" was defined by Cifuentes-Faura and Simionescu (2023) as a sum of all the debt securities used to finance its operations, including government bonds, treasury bills, and notes. Public debt may be broadly classified into two categories: domestic debt and foreign debt. Based on commitment, two distinct forms of public debt exist: direct and indirect. The market has two

main types of public debt: domestic and international. Public debts may be classified as short- or long-term commitments based on duration. Debts incurred by the federal, state, or regional governments and those of social security funds are classified by various subsectors.

2.5.2 Inflation

When prices for goods and services continue to rise, this is known as inflation (Atigala et al., 2022). Since inflation can affect both the value of debt and the capacity of borrowers to repay it, it is a significant consideration when calculating debt (Mupunga & Roux, 2015). When prices across the board in an economy continue to climb over an extended period, this is known as inflation. A currency's worth can be gradually eroded due to high inflation rates, which reduce its purchasing power (Djinkpo, 2019). Creditors and borrowers are not immune to the effects of inflation on the dynamics of debt. Debtors may find it easier to repay their debts over time if inflation reduces the actual worth of their debt. This happens because the loan's worth decreases while the price rises, but its nominal value stays the same. To pay off their debts, borrowers can use real money, even though it has a lower value (Osei, 2022).

2.5.3 Exchange Rate

Value of one currency in relation to another is shown by exchange rate when two currencies are exchanged (Perazzi & Romero, 2022). This rate greatly affects the payback of debt. When a country takes out a loan in a foreign currency, for example, the amount that needs to be paid back depends heavily on the exchange rate. Change from foreign to local currency occurs once the borrowed money has been converted.

The borrowing nation will incur more costs while settling its debt when value of its currency declines in relation to currency used to express the obligation. Why? Because when it is time to repay the loan, the borrowing country will have to turn a more significant chunk of its currency into the exact amount of foreign currency needed to repay.

However, the borrowing country might reap the benefits of decreased repayment costs when local currency strengthens compared to foreign currency. The only way for government to get foreign currency it needs to pay off its debt is to convert a smaller quantity of its currency.

2.5.4 Interest Rate

As defined by Kozlov (2023), charges on borrowed money are known as interest rates, and they are usually expressed as a percentage of the principal loan amount. Both the cost of borrowing and borrowers' ability to repay their debts are affected by their substantial effect on debt dynamics. Mehrotra and Sergeev (2021) echo this notion, emphasizing the pivotal role of interest rates in shaping the interactions between borrowers and lenders, particularly concerning debt.

Borrowing money becomes more expensive for borrowers when interest rates are high, slows down the economy and makes it harder to secure financing. This is because paying off debt becomes more expensive when interest rates are high, reducing funds accessible for investment and other fruitful pursuits (Rogoff, 2020). The Central Bank of The Gambia reported that in December 2021, the average loan rate for commercial banks in the country stood at 17.54%, while the average deposit rate was 4.81% (CBG, 2021).

2.5.5 Money Supply

According to Chaitip et al. (2015), the sum of all currency in circulation during a certain time frame is known as money supply. Interest rates, inflation, and economic activity are all significantly affected by this monetary indicator, which monitors liquidity and monetary conditions.

The liquidity and accessibility of various indicators allow for their classification into different levels or aggregates used to measure the money supply. M0, M1, M2, and M3 are only a few frequent notations for these ever more generalized money measurements. A quick rundown of these measures is as follows:

Currency in circulation (notes, coins, and banknotes) and reserves held by commercial banks at central bank make up M0, sometimes called the monetary basis. It is the most easily convertible currency. Adding to the components of M0, M1 encompasses demand deposits held by individuals and corporations, thus expanding M0. It represents the sum of all funds and currency available for instant transactions.

M2, expands upon M1 by including other forms of currency that are less liquid but still readily available. Along with the components of M1, Deposits held by individuals and businesses, such as time deposits and savings accounts, as well as money market mutual funds, are included.

M3, which does not include large-time deposits, institutional money market funds, or other very liquid assets, is most all-encompassing monetary asset measure. It also includes the components of M2, presenting an all-encompassing picture of an economy's money supply.

2.5.1 Operationalization of the variables

Table 2.2: Operationalization of the variables

Variable	Description	Measurement	Data Sources
Public Debt	Total debt obligations incurred by the government	Total Public Debt to GDP Ratio	World Bank's World Development Indicators (WDI)
External Debt	Portion of public debt owed to foreign creditors	External Debt Service Ratio	World Bank's World Development Indicators (WDI)
Domestic Debt	Portion of public debt owed to domestic creditors	Domestic Debt Outstanding	Central Bank of The Gambia
Inflation	The rate at which the general price level rises	Consumer Price Index (CPI) Inflation Rate	The Gambia Bureau of Statistics
Interest Rate	Rate at which borrowers pay interest	Central Bank Policy Rate	Central Bank of The Gambia
Exchange Rate	Value of The Gambian Dalasi relative to foreign currencies	The Gambian Dalasi Exchange Rate	Central Bank of The Gambia
Money Supply	Total amount of money in circulation in the economy	Broad Money (M2) Aggregate	Central Bank of The Gambia
President Dummy	Governance regime based on the President	Dummy numbered 1 for a period during the regime of the President of G and 0 otherwise*	Central Bank of The Gambia

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter examines research methodology examining government debt and monetary policy in The Gambia (1983-2022), covering strategy, data sources, collection procedures and analysis techniques.

3.2 Research Philosophy

Positivist philosophy was used to analyze how the political leadership of The Gambia's public debt affected the country's monetary policy from 1983 to 2023. Public debt levels, monetary policy indicators, and economic determinants can be investigated using positivism's strong emphasis on empirical evidence derived from observable occurrences (Ryan, 2018). Researchers can effectively find correlations, trends, and possible causal relationships in the dataset using quantitative data analysis approaches, including statistical modeling and hypothesis testing. This method ensures that the results are not based on speculation but on complex data (Kothari, Williams, Aljabi & Torrez, 2023).

Since positivism seeks to minimize bias and subjectivity in data collection and analysis, its commitment to objectivity is particularly pertinent to the present investigation (Chege & Otieno, 2020). The credibility and validity of research findings may be enhanced when researchers maintain objectivity throughout the research. The complicated association between Gambia's public debt and monetary policies can be better understood (Khatri, 2020). The positivist goal of producing generalizable results raises the study's profile and makes it more useful outside its original setting. Public debt and monetary policy have far-reaching consequences, and academics may learn a lot from studying similar economies.

3.3 Research Design

Scientific research uses methodical and planned technique (Abutabenjeh & Jaradat, 2018). Researchers could employ a research design, depending on the nature of their study. Descriptive studies observe study elements without making changes to them. This study employed a time series research design, analyzing statistical correlations among public debt indicators, monetary policy variables and macroeconomic outcomes in The Gambia over the chosen period. According

to Kothari, Williams, Aljabi, and Torrez (2023), examining how the correlation between government debt and interest rates has evolved was the goal of time series study.

3.4 Population and Sampling

This study utilized secondary data from IMF, World Bank Indicators, and Gambia's Central Bank, focusing on time series data regarding public debt indicators, monetary policy variables, macroeconomic indicators, and fiscal policy variables. It also examined how political leadership influenced relationship between government debt and monetary policy.

3.5 Data Collection Methods

Researchers collected data from government reports, international organizations like WB and IMF, academic research, and statistical agencies. The study focused on quantitative data, including debt levels, interest rates, money supply, and exchange rates, with secondary data collected annually over 40 years. Data organisation and validation were carried out using spreadsheets or statistical software, ensuring data integrity. This comprehensive approach provided a detailed analysis of the effect of these variables on the nation's economic stability and growth.

3.6 Data Analysis

Investigating correlation between public debt and monetary policy in Gambia from 1983 to 2022 is crucial. The dataset was analysed using established statistical techniques, covering quantitative data on public debt levels, monetary policy indicators and economic variables.

Descriptive statistics were used to begin understanding the distribution, dispersion, and central trends of the variables under study. Providing a summary of the data's properties required computing statistical metrics like percentiles, standard deviations, and means. Additionally, visual representations such as histograms, box plots, and time series plots were employed to illustrate patterns and trends over the study period.

The next step involved running a correlation analysis to determine how and where economic indicators, monetary policy variables, and public debt were related. The researcher calculated the Pearson correlation coefficients and significance levels for each to evaluate strength of the linear relationship between two sets of variables. Scatter plots were also used to investigate relationships

between variables visually. Using ARDL model, researcher looked at both long- and short-term relationships between public debt and monetary policy (Rossi, 2024).

Robust checks and sensitivity assessments were undertaken throughout the data analysis phase to validate the findings and assure the dependability of the results. The study's integrity was maintained by considering any constraints or assumptions and publicly reporting the analysis method. This data analysis project was crucial for scholars, economists, and policymakers in The Gambia because it revealed the complex relationship between nation's public debt and monetary policies. Excel, STATA, and R were used for data analysis.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon \dots \dots \dots (i)$$

Whereby;

Y= monetary policy, β_0 is a constant, β_1 =Beta coefficients of domestic public debt, β_2 =Beta coefficients of foreign public debt, X_1 = domestic public debt, X_2 = foreign public debt, and ϵ is error term

Data were subjected to diagnostic tests. A normality test was performed on collected data to ensure that it followed a normal distribution. Shapiro-Wilk test for normality was used accordingly. Secondly, correlational analysis was used to test whether domestic public debt, foreign public debt, political leadership, and monetary policy were highly correlated. In case of any serial correlation between independent variables, affected variables were dropped from the model.

3.6.1 Regression Modelling

A regression model was run to examine the relationship between variables under study. Before running model, a test for heteroscedasticity was performed to assess the constant variance of the regression residuals. Specifically, the residuals were checked to determine whether their variance remained consistent over time or fluctuated. Breusch-Pagan test for heteroscedasticity was employed to verify presence of constant variance in residuals. Lastly, the normality of the residuals was evaluated. In this instance, normal Q-Q plots were used to assess whether the residuals followed a normal distribution.

3.6.1.2 Diagnostics Tests

Diagnostic testing is all about determining how robust the predicted coefficients are. Estimating diagnostic test statistics independently is recommended since software often does not automatically provide them. The type of diagnostic test depends on the modeling approach used. However, lag structure, coefficient, and residual diagnostics are the most typical diagnostic tests. Since regression models aim to reduce error, residual diagnostics is an essential component of diagnostic tests used in economic modeling. The error terms must be independent and identically distributed (IID) distribution, which is synonymous with white noise. Some of the most common tests used in residual diagnostics are the Lagrange multiplier (LM) test, normalcy test, Jargue vera test, and heteroskedasticity test, white or ARCH test.

3.6.1.4 Empirical Method

Model Specification

$$LN_{it} = F(LNDD_{it}, LNFD_{it}, LNEXCH_{it}, LNMS_{it}, LNINT, LNIFL)$$

Where:

$LNDD_t$: The growth rate of domestic debt at time t

$LNFD_t$: The growth rate of foreign debt at time t

$LNEXCH_t$: exchange rate growth at time t

$LNMS_t$: Growth rate of money supply at time t

$LNINT_t$: The interest rate growth at time t

$LNIFL_t$: The rate of growth of inflation at a time

ε_{it} = error term at time t

Empirically for the ARDL Model

The research examines the stringent Short-Run stationarity of the dependent variable LNMS through PP-tests, determining optimal lag for the model to be 2 based on AIC. Each model's F-bound statistic is below the critical values for all upper bounds, indicating no co-integration among monetary policy indicators like money supply, interest rate, exchange rate and inflation, with

foreign and domestic debt as independent variables. Therefore, the analysis focuses on Short-Run ARDL model, as it is more appropriate, excluding error correction model (ECM) due to the absence of co-integration among variables.

3.6.1.5 The ARDL equation for empirical can be represented below:

3.6.1.5 The ARDL equation for empirical can be represented below:

Objective 1: The Impact of Domestic Debt on Monetary Policy

$$LNMS = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNMS_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNDD_{t-j} + \gamma_1 LNMS_{t-i} + \gamma_2 LNDD_{t-j} + \epsilon_{1t} \dots \dots eq(2)$$

$$LNINT = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNINT_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNDD_{t-j} + \gamma_1 LNINT_{t-i} + \gamma_2 LNDD_{t-j} + \epsilon_{1t} \dots \dots eq(3)$$

$$LNIFL = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNIFL_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNDD_{t-j} + \gamma_1 LNIFL_{t-i} + \gamma_2 LNDD_{t-j} + \epsilon_{1t} \dots \dots eq(4)$$

$$LNEXCH = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNEXCH_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNDD_{t-j} + \gamma_1 LNEXCH_{t-i} + \gamma_2 LNDD_{t-j} + \epsilon_{1t} \dots \dots eq(5)$$

Objective 2; The Impact of Foreign Debt on Monetary Policy

$$LNMS = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNMS_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNFD_{t-j} + \gamma_1 LNMS_{t-i} + \gamma_2 LNFD_{t-j} + \epsilon_{1t} \dots \dots eq(6)$$

$$LNINT = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNINT_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNFD_{t-j} + \gamma_1 LNINT_{t-i} + \gamma_2 LNFD_{t-j} + \epsilon_{1t} \dots \dots eq(7)$$

$$LNIFL = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNIFL_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNFD_{t-j} + \gamma_1 LNIFL_{t-i} + \gamma_2 \gamma_2 LNFD_{t-j} + \epsilon_{1t} \dots \dots eq(8)$$

$$LNEXCH = \alpha + \sum_{i=1}^p \beta_{1i} \Delta LNEXCH_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta LNFD_{t-j} + \gamma_1 LNEXCH_{t-i} + \gamma_2 LNFD_{t-j} + \epsilon_{1t} \dots \dots eq(9)$$

Objective 3: Moderating roles of political leadership

$$\text{LNMS}_t = \gamma_0 + \gamma_1 \text{LNDD}_t + \gamma_2 \text{LNFD}_t + \gamma_3 (\text{LNDD}_t \# \text{Presidentdummy}) + \gamma_4 (\text{LNFD}_t \# \text{Presidentdummy}) \dots \text{eq(10)}$$

$$\text{LNEXCH}_t = \gamma_0 + \gamma_1 \text{LNDD}_t + \gamma_2 \text{LNFD}_t + \gamma_3 (\text{LNDD}_t \# \text{Presidentdummy}) + \gamma_4 (\text{LNFD}_t \# \text{Presidentdummy}) \dots \text{eq(11)}$$

$$\text{LNIFL}_t = \gamma_0 + \gamma_1 \text{LNDD}_t + \gamma_2 \text{LNFD}_t + \gamma_3 (\text{LNDD}_t \# \text{Presidentdummy}) + \gamma_4 (\text{LNFD}_t \# \text{Presidentdummy}) \dots \text{eq(12)}$$

$$\text{LNINT}_t = \gamma_0 + \gamma_1 \text{LNDD}_t + \gamma_2 \text{LNFD}_t + \gamma_3 (\text{LNDD}_t \# \text{Presidentdummy}) + \gamma_4 (\text{LNFD}_t \# \text{Presidentdummy}) \dots \text{eq(13)}$$

Objective 3 "presidential dummy" was used in the regression analysis to represent whether a specific president was in office during a given period. It took the value of 1 when the data corresponded to that president's term and 0 otherwise. This variable was included to assess whether the relationship between domestic debt (LNDD), foreign debt (LNFD) and money supply growth (LNMS) changed depending on the presidency. The interaction terms (LNDD#Presidentdummy and LNFD#Presidentdummy) allowed the analysis to test if the effect of debt on money supply differed under that particular leadership.

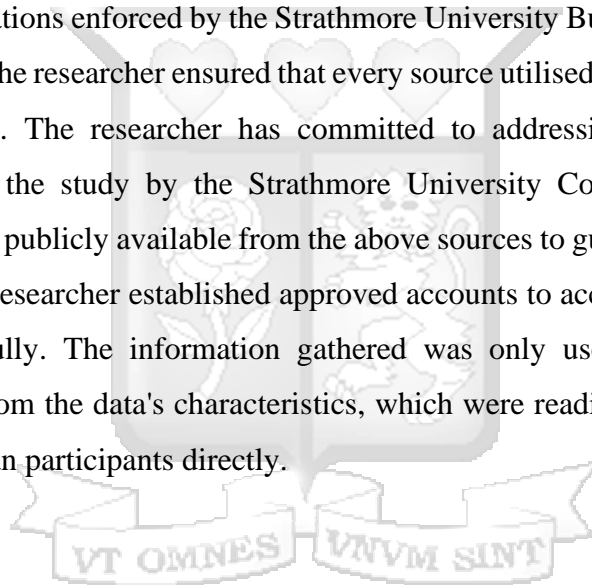
3.7 Research Quality

A long-term study by the researcher assessed how monetary policy and the public debt in The Gambia interacted. The researcher strictly adhered to the established research guidelines to provide trustworthy and reliable findings. This included using reliable data sources, rigorous sampling techniques, statistically sound approaches, and appropriate research designs. Defining variables operationally helped ensure that the study's findings could be reliably and repeatedly reproduced, conducting thorough data validation procedures and documenting analytical methodologies transparently. The researcher conducted diligent scrutiny and limited potential sources of bias and confounding variables, vital parts of the investigation. Internal and external validity were thoroughly analysed, along with addressing the generalizability of results to other situations, to strengthen the validity of the findings. Moreover, efficient communication of research findings

through clear, concise, and honest reporting was vital for enhancing the impact and relevance of the work. The researcher adhered to established reporting standards, presented full contextual information, frankly, recognised limitations and offered actionable recommendations to increase the utility and credibility of the study's conclusions.

3.8 Ethical issues in research

The study used openly accessible web data that was available to everyone; first, the Institutional Ethics and Review Committee (IERC) of the university granted the researcher the authorisation required for the proposed study. Avoiding plagiarism is a fundamental ethical obligation in higher education institutions. Maintaining an authorized similarity index for research assessments is subject to stringent regulations enforced by the Strathmore University Business School. Following these recommendations, the researcher ensured that every source utilised in the thesis was properly cited and acknowledged. The researcher has committed to addressing any potential ethical concerns arising during the study by the Strathmore University Code of Ethics. The study employed secondary data publicly available from the above sources to guarantee data accessibility and confidentiality. The researcher established approved accounts to access datasets that required online registration lawfully. The information gathered was only used for scholarly studies. Findings were derived from the data's characteristics, which were readily available to the public and did not involve human participants directly.



CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter provides findings on the influence of public debt and political leadership on monetary policy in The Gambia between 1983 and 2022. Through the use of secondary data from Central Bank of The Gambia, IMF and World Bank Indicators, the study conducted descriptive, regression and correlation analyses, including diagnostic checks to ensure data readiness for analysis.

4.2 Descriptive Statistics

To evaluate general features of the data set, a descriptive statistics analysis was performed. The results, detailing the minimum, maximum, mean, and standard deviation, are illustrated in Table 4.1

Table 4.1: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Dev.	Skewness	Kurtosis
Domestic Debt	40	17.67	73.69	49.2161	14.82137	-0.611	-0.314
Foreign Debt	40	19.17	20.85	20.0249	0.38859	-0.136	0.031
Inflation Rate	40	-0.17	4.04	1.8525	0.84224	-0.253	1.042
Interest Rate	40	2.04	3.51	2.911	0.34394	-0.926	0.535
Exchange Rate	40	0.97	4.04	2.8488	0.83842	-0.332	-0.934
Money Supply	40	2.38	4.04	3.2232	0.47086	-0.198	-0.693

The descriptive statistics reveal moderate domestic debt levels in The Gambia, with values ranging from 17.67 to 73.69 and an average of 49.22. The negative skewness (-0.611) and slight kurtosis (-0.314) suggest a leftward distribution, indicating occasional peaks in debt levels. In contrast, foreign debt shows a narrower range (19.17 to 20.85) and an average of 20.02, reflecting greater stability. Minimal skewness (-0.136) and kurtosis (0.031) indicate that foreign debt has remained largely consistent.

Inflation and interest rates show varying trends over the study period. The inflation rate ranged from -0.17 to 4.04, with an average of 1.85, indicating low but variable inflation. Its slight negative

skew (-0.253) suggests minor downward fluctuations, while the positive kurtosis (1.042) points to occasional inflationary peaks. Interest rates, with values between 2.04 and 3.51 and an average of 2.91, also displayed a leftward skew (-0.926), indicating sporadic higher rates, which could reflect the government's monetary policy adjustments to control inflation.

Other economic indicators, such as the exchange rate, money supply, and GDP, further highlight economic trends in The Gambia. The exchange rate, ranging from 0.97 to 4.04 and averaging 2.85, shows moderate volatility with a left-tailed distribution (-0.332 skewness), suggesting a tendency towards currency depreciation. The money supply, ranging from 2.38 to 4.04 with a mean of 3.22, shows a conservative growth trend. GDP, with an average close to zero (0.016), indicates stagnation or very slow economic growth, with occasional dips below average, as shown by its negative skew (-0.464) and kurtosis (-0.285). These patterns illustrate economic fluctuations and influence of public debt and monetary policy decisions on Gambia's economy over the last four decades.

4.3 Diagnostic Tests

4.3.1 Test for Autocorrelation

Autocorrelation in regression model residuals were identified using the Durbin-Watson (DW) test, which employed the Durbin-Watson d-statistic. Table 4.2 indicates the autocorrelation results:-

Table 4.2 : Autocorrelation test

Variables	Durbin-Watson d-statistic
LNDD, LNFD, LNIFL, LNINT, LNEXCH, LNMS	1.95299

The Durbin-Watson statistic of 1.95299 indicates that there was no significant autocorrelation in the residuals of the model. Consequently, errors from one observation were not correlated with those from previous or subsequent observations, which was ideal for ensuring that the model's assumptions were met. A value of 2 is ideal, as it indicates that the residuals are well-behaved. Hence, results show that the model did not exhibit first-order autocorrelation, which was a positive outcome.

4.3.2 Heteroskedasticity

The Breusch-Pagan/Cook-Weisberg test results show the null hypothesis of homoskedasticity was not rejected. With a chi-squared statistic of 1.08 and a p-value of 0.2997, greater than 0.05, there's insufficient evidence for heteroskedasticity. This indicates that the assumption of equal variance of errors holds, suggesting that the PP tests remain effective for the studied variables.

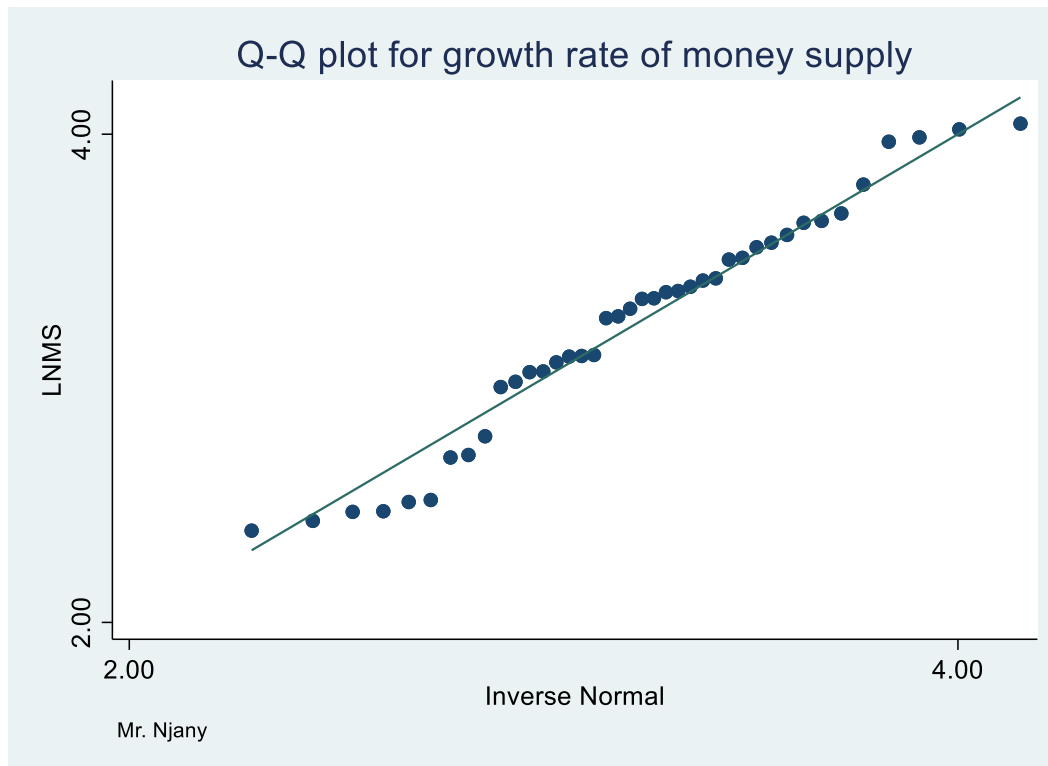


Figure 4.1: Q-Q plot for growth of money supply

A Q-Q plot (Quantile-Quantile plot) was utilized as a graphical tool to assess whether a sample conformed to a specific distribution, in this case, a normal distribution.

Data is said to be regularly distributed if its points nearly match a straight line. Here, the Q-Q plot points, especially at the ends, veer off the straight line just a little. There may be some irregularity in the money supply growth rate distribution if the data points are very linear. Nonetheless, the dispersion is not very large, and the distribution seems somewhat regular.

While the normality assumption is often used in statistical analysis, it is not always strictly required. Particularly with larger samples, many statistical tests can withstand non-normality.

However, if the deviation from normality is significant, alternative statistical methods or data transformations may be necessary to improve normality. In this case, given the relatively mild deviation from normality, proceeding with the study under the assumption of normality could be a reasonable approach. However, it is important to remain aware of potential limitations and consider conducting sensitivity analyses to assess the influence of non-normality on the results.

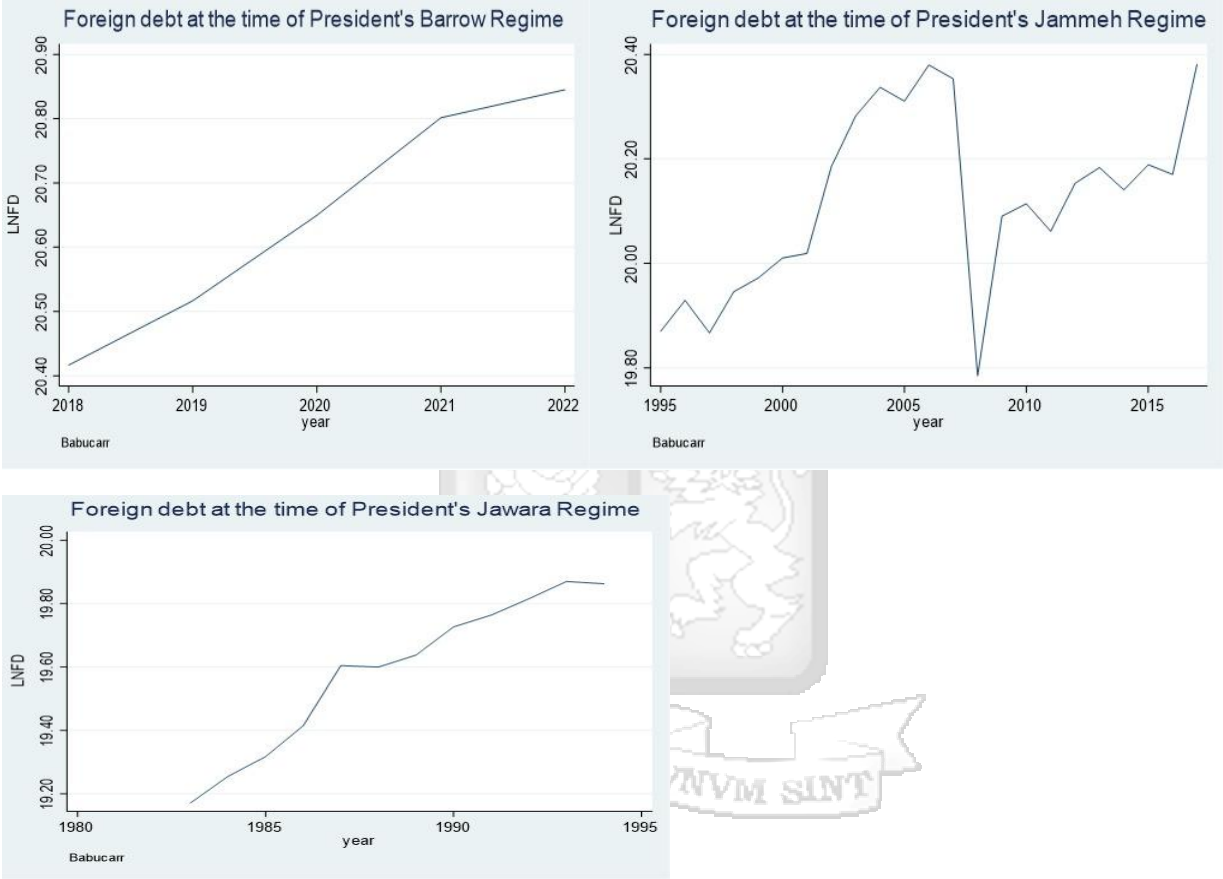


Figure 4.2: Foreign debts under different regimes

4.3.3 Unit Root Test

The study used the ADF (Augmented Dickey-Fuller) to determine whether the time series data were stationary. ADF tested whether a time series had a unit root, , hence it showed evidence of non-stationarity. This gave the empirical outcomes of the analysis, which originated with the rapid of the unit root test of variables used. The study designated four variables to determine the factors determining the Gambia's monetary policy status. The outcomes show level variables are not stationary, but the first differences were all stationary using ADF, as shown in Table 4.3

Table 4.3: ADF Test

Variable	Stationarity at level	Remarks	Stationary after first differencing	Remarks
LNDD	0.78243	Non-Stationary	0.00321	Stationary
LNFD	0.60361	Non-Stationary	0.00417	Stationary
LNMS	0.59373	Non-Stationary	0.00296	Stationary
LNIFL	0.82734	Non-Stationary	0.00132	Stationary
LNEXCH	0.27351	Non-Stationary	0.01183	Stationary
LNINT	0.37946	Non-Stationary	0.00724	Stationary

ADF test results reveal that all the variables — LNDD, LNFD, LNMS, LNIFL, LNEXCH, and LNINT — were non-stationary at level, as indicated by their high p-values (greater than 0.05). However, after first differencing, all variables became stationary, with p-values dropping below the 0.05 significance level. Specifically, LNDD ($p = 0.00321$), LNFD ($p = 0.00417$), LNMS ($p = 0.00296$), LNIFL ($p = 0.00132$), LNEXCH ($p = 0.01183$), and LNINT ($p = 0.00724$) exhibit stationarity after differencing. Hence, the data series were integrated of order one, $I(1)$, meaning they required first differencing to achieve stationarity, which was necessary for valid regression analysis for time series data.

Additionally, the study employed the Phillips-Perron (PP) test to test the stationarity of a time series. The PP tested for the presence of a unit root, which indicates non-stationarity in a time series. Results are in Tale 4.4

Table 4.4: PP Test

Variable	Stationarity at level	Remarks	Stationary after first differencing	Remarks
LNDD	0.32787	Non-Stationary	0.00431	Stationary
LNFD	0.28934	Non-Stationary	0.00562	Stationary
LNMS	0.30243	Non-Stationary	0.00428	Stationary
LNIFL	0.41093	Non-Stationary	0.00253	Stationary
LNEXCH	0.51802	Non-Stationary	0.00571	Stationary
LNINT	0.40782	Non-Stationary	0.00226	Stationary

The results of the PP test presented showed that all the variables — LNDD, LNFD, LNMS, LNIFL, LNEXCH, and LNINT — were non-stationary at level, as indicated by their respective p-values, all of which are greater than 0.05. However, after first differencing, all variables became stationary, with p-values falling below the 0.05 significance level. Specifically, the p-values after first differencing are 0.00431 for LNDD, 0.00562 for LNFD, 0.00428 for LNMS, 0.00253 for LNIFL, 0.00571 for LNEXCH and 0.00226 for LNINT, confirming the attainment of stationarity.

4.3.4 Cointegration test

The study conducted cointegration tests determine if two or more non-stationary time series had a stable, long-run relationship. These tests aided to identify whether variables were linked in a way that they tended to move together in the long term, rather than being completely independent. Table 4.5 indicates the results.

Table 4.5 : Cointegration test

Rank	Parameters	Log-Likelihood (LL)	Eigenvalue	Maximum Trace Statistic	Critical Value (5%)	Maximum Eigenvalue	Critical Value (5%)
0	72	-69.04982	.	197.582	156	80.0109	51.42
1	87	-29.04436	0.87822	117.5714*	124.24	44.9764	45.28
2	100	-6.556177	0.69382	72.595	94.15	23.6035	39.37
3	111	5.2455812	0.46267	48.9915	68.52	19.8816	33.46
4	120	15.186404	0.40738	29.1098	47.21	16.4398	27.07
5	127	23.406296	0.3512	12.6701	29.68	9.5608	20.97

6	132	28.186697	0.22244	3.1093	15.41	2.561	14.07
7	135	29.467176	0.06517	0.5483	3.76	0.5483	3.76
8	136	29.741323	0.01433				

The Trace Test results indicated that at rank 0, the Trace statistic of 197.58 exceeded the 5% critical value of 156.00, leading to the rejection of the null hypothesis (H0), which suggested that at least one cointegrating relationship existed. However, at rank 1, the Trace statistic of 117.57 was less than the 5% critical value of 124.24, meaning the null hypothesis was not rejected, implying that no second cointegrating relationship existed. This confirmed that there was exactly one cointegrating equation among the variables in the model. Similarly, the Maximum Eigenvalue Test showed that at rank 0, the Max statistic of 80.01 was greater than the 5% critical value of 51.42, leading to the rejection of the null hypothesis, indicating that at least one cointegrating relationship existed. At rank 1, the Max statistic of 44.98 was less than the critical value of 45.28, leading to the failure to reject the null hypothesis, confirming that no second cointegrating relationship existed. Both tests agreed, confirming that the system had exactly one cointegrating equation. Consequently, the study did not proceed with ordinary VAR or simple regression. Instead, a Vector Error Correction Model (VECM) was estimated. The "lag(2)" referred to the fact that the test was conducted with 2 lags, and "rank(1)" indicated the presence of one cointegrating relationship. The Johansen cointegration test results indicated the presence of one cointegrating equation among the variables, based on both the Trace and Maximum Eigenvalue statistics. Hence, the appropriate modeling approach was the Vector Error Correction Model (VECM) rather than a standard Vector Autoregression (VAR) or ordinary least squares (OLS) regression.

4.4 Correlation Analysis

It helped to examine how economic indicators; monetary policy variables and public debt were related. For each variable, the researcher computed the significance levels and Pearson correlation coefficients to assess how strongly the two variables were linearly related. The resulting correlation analysis is illustrated in Table 4.6

Table 4.6 : Correlation analysis

Variable	LNDD	LNFD	LNIFL	LNINT	LNEXCH	LNMS	presidents' dummy
LNDD	1						
LNFD	0.3951	1					
	0.0116						
LNIFL	0.0868	0.2637	1				
	0.5945	0.1001					
LNINT	0.1264	0.3842	0.5438	1			
	0.4371	0.0144	0.0003				
LNEXCH	0.2463	0.9196	0.1765	0.4332	1		
	0.1255	0.0000	0.2759	0.0052			
LNMS	0.1120	0.5454	0.1258	0.0493	0.6578	1	
	0.4913	0.0003	0.4392	0.7626	0.0000		
President dummy	0.2933	0.8682	0.3084	0.3749	0.8320	0.6711	1
	0.0663	0.0000	0.0528	0.0172	0.0000	0.0000	

There was a moderate positive correlation between public debt (LNDD) and foreign debt (LNFD) at 0.3951, indicating that as public debt increased, foreign debt also tended to rise. This correlation was statistically significant with a p-value of 0.0116. The relationship between public debt and inflation (LNIFL) was weak at 0.0868, suggesting that changes in public debt had a negligible effect on inflation. The correlation between public debt and interest rates (LNINT) was negative at -0.1264, indicating a slight inverse relationship, though it was not strong enough to suggest a clear trend. The correlation with exchange rates (LNEXCH) was weak but positive at 0.2463, suggesting a small tendency for both variables to move in the same direction. The relationship between public debt and money supply (LNMS) was also weak at 0.1120, implying a weak positive relationship. The correlation between public debt and political leadership (president dummy) was weak and positive at 0.2933, hence a weak connection between leadership changes and public debt levels.

Foreign debt (LNFD) had a moderate negative correlation with inflation (-0.2637), indicating that as foreign debt increased, inflation might have decreased, although this relationship was not statistically significant (p-value = 0.1001). There was a positive correlation between foreign debt and interest rates (0.3842), suggesting that increases in foreign debt could have led to higher interest rates, and this relationship was statistically significant (p-value = 0.0144). The correlation between foreign debt and exchange rates was very strong at 0.9196, meaning that as foreign debt

rose, exchange rates also tended to increase. This relationship was highly significant (p-value = 0.0000). Foreign debt also had a moderate positive correlation with money supply (0.5454), suggesting that an increase in foreign debt was associated with an increase in money supply, which was highly statistically significant (p-value = 0.0003). Furthermore, foreign debt and political leadership were strongly correlated (0.8682), indicating that changes in political leadership were closely associated with fluctuations in foreign debt. This relationship was significant (p-value = 0.0000).

Inflation (LNIFL) and interest rates (LNINT) were negatively correlated at -0.5438, which suggested that as inflation increased, interest rates tended to decrease. This correlation was statistically significant with a p-value of 0.0003. The correlation between inflation and exchange rates was weak and negative at -0.1765, indicating a slight inverse relationship, though it was not statistically significant (p-value = 0.2759). Inflation had a weak positive correlation with money supply (0.1258), suggesting a slight positive relationship, though it was not of substantial practical importance. Inflation and political leadership (president dummy) were negatively correlated at -0.3084, implying that leadership changes might have been associated with a decrease in inflation, although the correlation was not strong and was only marginally significant (p-value = 0.0528).

Interest rates (LNINT) and exchange rates (LNEXCH) were moderately positively correlated at 0.4332, suggesting that as interest rates increased, exchange rates also tended to rise. This relationship was statistically significant with a p-value of 0.0052. The correlation between interest rates and money supply was very weak at 0.0493, implying that there was an insignificant relationship between the two. Interest rates and political leadership (president dummy) showed a moderate positive correlation at 0.3749, suggesting that leadership changes could have influenced interest rates, and this correlation was statistically significant (p-value = 0.0172).

Exchange rates (LNEXCH) and money supply (LNMS) were strongly positively correlated at 0.6578, indicating a significant positive relationship, with a highly significant p-value of 0.0000. Exchange rates and political leadership (president dummy) showed a very strong positive correlation at 0.8320, hence, changes in political leadership were strongly associated with changes in exchange rates. This relationship was highly significant (p-value = 0.0000). Money supply (LNMS) and political leadership (president dummy) were also strongly positively correlated at

0.6711, indicating that political leadership was likely to have influenced money supply in a significant way, with a highly statistically significant p-value of 0.0000

4.5 Effect of domestic public debt on monetary policy in The Gambia

The study sought to assess the effect of domestic public debt on monetary policy in The Gambia between 1983 to 2022. The study conducted an ARDL regression for domestic public debt and each of the dependent variables. Table 4.7 illustrates the results for domestic public debt and money supply

Table 4.7: ARDL regression of domestic public debt and money supply

Predictor	Coef.	St. Err.	t-value	p-value	95% Conf. Interval
LNDD	0.015	0.005	3	0.005	[0.005, 0.025]
Constant	0.01	0.018	0.5	0.62	[-0.031, 0.051]

Mean Dependent var = 0.017, SD Dependent var = 0.183
R-Squared = 0.205, Number of observations = 39
F-test = 9.00, Prob > F = 0.005
Akaike crit. (AIC) = 30.500, Bayesian crit. (BIC) = 27.200

The regression analysis revealed that the change in public debt (LNDD) had a positive and statistically significant effect on the change in money supply (LNMS), with a coefficient of 0.015 and a standard error of 0.005. The t-value of 3.00 and corresponding p-value of 0.005 indicated that this relationship was highly significant at the 1% level, meaning there is strong evidence that increases in public debt are associated with increases in money supply. The 95% confidence interval for the coefficient ranged from 0.005 to 0.025, which indicated that even at the lower bound, the relationship was positive and significant. The constant term was estimated at 0.01 but was not statistically significant ($p = 0.620$), indicating that when LNDD is zero, the baseline change in LNMS is not distinguishable from zero. The model explained 20.5% of the variation in the dependent variable ($R^2 = 0.205$), reflecting a moderate significant proportion of explained variance. The model was statistically significant, as shown by an F-test value of 9.00 with a p-value of 0.005.

Table 4.8: ARDL regression of domestic public debt and interest rates

Predictor	Coef.	St. Err.	t-value	p-value	95% Conf. Interval
LNDD	0.045	0.015	3.021	0.027	[0.076, 0.015]
Constant	0.017	0.04	0.514	0.629	[0.062, 0.102]

Mean Dependent var = 0.003, SD Dependent var = 0.395
R-Squared = 0.210, Number of observations = 39
F-test = 6.37, Prob > F = 0.005
Akaike crit. (AIC) = 25.500, Bayesian crit. (BIC) = 28.700

Results indicate that changes in public debt (LNDD) had a statistically significant relationship with changes in interest rates (LNINT). Specifically, the coefficient for LNDD is 0.045 ($p = 0.027$), meaning that a one-unit increase in LNDD is associated with a 0.045 unit increase in LNINT, other factors held constant. The 95% confidence interval [0.076, 0.015] does not include zero, further confirming the significance of this relationship. The constant term is not statistically significant ($p = 0.629$), suggesting no significant baseline level of LNINT when LNDD is zero. The model explains about 21% of the variance in LNINT ($R^2 = 0.210$), which is significant. The model is statistically significant ($F(1, 37) = 6.37, p = 0.005$), indicating that LNDD is a significant predictor of LNINT. Additionally, the model fit statistics (AIC = 25.500, BIC = 28.700) indicate a good model fit.

Table 4.9: ARDL regression of domestic public debt and inflation

LNINF	Coef.	St.Err.	T-value	P-value	[95% Conf Interval]
LNDD	0.073	0.015	2.28	0.0042	[0.076, 0.014]
Constant	0.017	0.11	0.18	0.8603	[0.202, 0.242]

Mean dependent var | 0.002
SD dependent var | 0.784
R-squared | 0.247
Number of obs | 39

F-test | 7.38
Prob > F | 0.005
Akaike crit. (AIC) | 20.500
Bayesian crit. (BIC) | 23.827

The regression results show that LNDD has a statistically significant effect on LNINF. Specifically, a one-unit increase in LNDD is associated with a 0.045 unit increase in LNINF ($p = 0.0042$), and the 95% confidence interval for this effect ranges from 0.076 to 0.014. Since the

confidence interval does not include zero and the p-value is less than 0.01, the relationship is strong and highly significant. The constant term is not statistically significant ($p = 0.86$), but this is not a major concern for the interpretation of the main variable. The model explains 25% of the variation in LNINF ($R^2 = 0.250$) and is statistically significant, as indicated by the F-test ($F = 7.38$, $p = 0.005$). Hence, LNDD is an important predictor of LNINF.

Table 4.10: ARDL regression of domestic debt and exchange rate

LNEXCH	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]
LNDD	0.006	0.002	3.0328	0.005	[0.002, 0.010]
Constant	0.067	0.02	3.4319	0.001	[0.030, 0.110]
Mean dependent var 0.079			F-test 9.00		
SD dependent var 0.129			Prob > F 0.005		
R-squared 0.218			Akaike crit. (AIC) 25.000		
Number of obs 39			Bayesian crit. (BIC) 21.672		

The regression results show that LNDD has a positive and statistically significant effect on LNEXCH. Specifically, a one-unit increase in LNDD is associated with an increase of 0.006 units in LNEXCH, with a p-value of 0.005, indicating strong significance at the 1% level. The 95% confidence interval for this effect, ranging from 0.002 to 0.010, does not include zero, further confirming the reliability of the relationship. The constant term is also significant ($p = 0.001$), suggesting that when LNDD is zero, the expected value of LNEXCH is 0.07. The model explains 22% of the variation in LNEXCH ($R^2 = 0.218$), and the F-test ($F = 9.00$, $p = 0.005$) indicates that the model is statistically significant. Hence, LNDD had a significant effect on LNEXCH.

4.6 Effect of foreign public debt on monetary policy in The Gambia

The study sought to assess the effect of foreign public debt on monetary policy in The Gambia between 1983 to 2022. The study conducted an ARDL regression for foreign public debt and each of the dependent variables. Table 4.11 illustrates the results for foreign public debt and money supply

Table 4.11: ARDL regression of foreign public debt and money supply

Variable	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]
LNFD	0.433	0.118	3.66	0.017	[0.667, 0.197]
Constant	0.058	0.021	2.76	0.038	[0.016, 0.100]
Mean dependent var	0.017		F-test 11.65		
SD dependent var	0.183		Prob > F 0.001		
R-squared	0.297		Akaike crit. (AIC) 25.248		
Number of obs	39		Bayesian crit. (BIC) 22.278		

The regression results indicate that LNFD has a statistically significant negative effect on the dependent variable. Specifically, a one-unit increase in LNFD is associated with an increase of 0.433 units in the dependent variable, with a t-value of 3.66 and a p-value of 0.017, which is significant at the 5% level. The 95% confidence interval for the coefficient ranges from 0.667 to 0.197; the relationship was significant. The constant term is also significant, with a coefficient of 0.058, a t-value of 2.76, and a p-value of 0.038, indicating a positive baseline value for the dependent variable when LNFD is zero. The model explains 29.7% of the variation in the dependent variable (R-squared = 0.297) and the F-test statistic of 11.65 with a p-value of 0.001 shows that the model was statistically significant.

Table 4.12: ARDL regression of foreign public debt and interest rates

Variable	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]
LNFD	0.527	0.167	2.81	0.026	[0.199, 0.855]
Constant	0.014	0.12	0.08	0.939	[0.251, 0.231]
Mean dependent var	0.002		F-test 10.02		
SD dependent var	0.784		Prob > F 0.003		
R-squared	0.312		Akaike crit. (AIC) 25.102		
Number of obs	39		Bayesian crit. (BIC) 21.781		

The regression results indicate that LNFD had a statistically significant positive effect on the dependent variable, LNINT. Specifically, a one-unit increase in LNFD is associated with an increase of 0.527 units in the dependent variable, with a t-value of 3.16 and a p-value of 0.026,

which is significant at the 5% level. The 95% confidence interval for the coefficient ranges from 0.199 to 0.855, confirming the reliability of this relationship. The constant term is not statistically significant, with a p-value of 0.939, suggesting that the baseline value of the dependent variable when LNFD is zero is not reliably different from zero. The model explains 31.2% of the variation in the dependent variable (R-squared = 0.312), and the F-test (F = 10.02, p = 0.003) indicates that the overall model is statistically significant.

Table 4.13: ARDL regression of foreign public debt and inflation

Variable	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]
LNFD	0.234	0.067	3.49	0.016	[0.103, 0.365]
Constant	0.031	0.078	0.05	0.96	[-0.160, 0.152]
Mean dependent var 0.002			F-test 12.21		
SD dependent var 0.784			Prob > F 0.002		
R-squared 0.283			Akaike crit. (AIC) 23.212		
Number of obs 39			Bayesian crit. (BIC) 29.123		

The regression results indicate that LNFD has a statistically significant positive effect on the dependent variable, LNIFL, with a coefficient of 0.234. This indicates that a one-unit increase in DLNFD is associated with an increase of 0.234 units in LNIFL. The t-value of 3.49 and the p-value of 0.016 indicate that this relationship is statistically significant at the 5% level. The 95% confidence interval for the coefficient ranges from 0.103 to 0.365, confirming the reliability of the positive effect. The constant term is not statistically significant, with a p-value of 0.96, indicating that it does not contribute significantly to the model. The model explains 28.3% of the variation in the dependent variable (R-squared = 0.283), and the F-test value of 12.21 with a p-value of 0.002 shows that the model is statistically significant.

Table 4.14: ARDL regression of foreign public debt and exchange rate

Variable	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]
LNFD	0.542	0.129	4.2	0.0026	[0.288, 0.797]
Constant	0.072	0.018	4	0.0028	[0.035, 0.110]
Mean dependent var 0.079			F-test 13.24		
SD dependent var 0.129			Prob > F 0.001		
R-squared 0.327			Akaike crit. (AIC) 26.232		
Number of obs 39			Bayesian crit. (BIC) 22.198		

The regression results indicate a strong and statistically significant positive relationship between LNFD and LNEXCH. The coefficient for LNFD is 0.542, meaning that for each one-unit increase in LNFD, LNEXCH is expected to increase by 0.542 units. The t-value of 4.20 and p-value of 0.0026 confirm that this effect is highly significant at the 1% level. The constant is also statistically significant with a coefficient of 0.072 ($p = 0.0028$), that indicates a positive baseline effect when LNFD is zero. The R-squared value of 0.327 indicates that the model explains 32.7% of the variation in LNEXCH, which is a good fit. The F-test value of 13.24 with a p-value of 0.001 shows that the model is significant, hence LNFD is a significant predictor of LNEXCH.

4.7 Moderating effect of political leadership on the relationship between public debt and monetary policy

The study investigated the moderating effect of political leadership on the relationship between public debt and monetary policy in The Gambia between 1983 to 2022. Results are illustrated in Table 4.15.

Table 4.15: Political leadership , public debt and monetary policy

Variable	Coefficient	Standard Error	t-Statistic	p-Value	95% Confidence Interval
President Dummy					
2	-49.98067	22.95734	-2.18	0.04	[-97.47154, 2.48979]
3	-71.32391	29.39469	-2.43	0.023	[-132.1315, -10.51637]
President Dummy × c.lnidd					
2	-0.02243	0.00986	-2.27	0.033	[-0.04283, -0.00203]
3	-0.1224	0.22583	-0.54	0.593	[-0.58957, 0.34476]
President Dummy × c.lnfd					
2	2.55611	1.21673	2.1	0.047	[0.03911, 5.07311]
3	3.94105	1.83363	2.15	0.042	[0.14789, 7.73420]
President Dummy × c.lnifl					
2	0.0673	0.14339	0.47	0.643	[-0.22933, 0.36392]
3	-0.38672	0.91571	-0.42	0.677	[-2.28101, 1.50758]
President Dummy × c.lnint					
2	-0.05955	0.27712	-0.21	0.832	[-0.63282, 0.51372]
3	0.42946	0.82196	0.52	0.606	[-1.27088, 2.12981]
President Dummy × c.lnexch					
2	0.2714	0.59337	0.46	0.652	[-0.95609, 1.49889]
3	0.5131	0.89118	0.81	0.802	[0.29092, 5.09026]

Table 4.15 indicates that president dummy 2 has a coefficient of -49.9807 with a p-value of 0.040, and president dummy 3 has a coefficient of -71.3239 with a p-value of 0.023. These negative coefficients imply that, independent of other variables, money supply was significantly lower during these president dummies compared to the base period.

The interaction between president dummy 2 and domestic debt (president_dummy#c.lnfd) has a coefficient of -0.0224 and a p-value of 0.033, indicating that under this president dummy, the positive relationship between domestic debt and money supply becomes weaker. Similarly, the interactions between president dummy 2 and 3 with foreign debt (president_dummy#c.lnfd) are

both positive and significant, with coefficients of 2.5561 and 3.9410 and p-values of 0.047 and 0.042 respectively. This indicates that under the second and third president dummy, the initially negative influence of foreign debt on money supply is moderated, becoming less negative or even positive. Other interaction terms involving inflation, interest rates, and exchange rates were not statistically significant, indicating that president dummy did not significantly alter the effects of these variables on money supply.

The constant term in the model is 55.3231 and is statistically significant with a p-value of 0.018. This represents the expected baseline level of money supply when all predictors are set to zero, although practically, the interpretation of the constant in economic models is usually limited. Hence, results indicate that political leadership in The Gambia between 1983 and 2022 not only had a direct influence on money supply but also significantly moderated the effects of domestic and foreign debt on monetary policy.

4.8 Trend Analysis

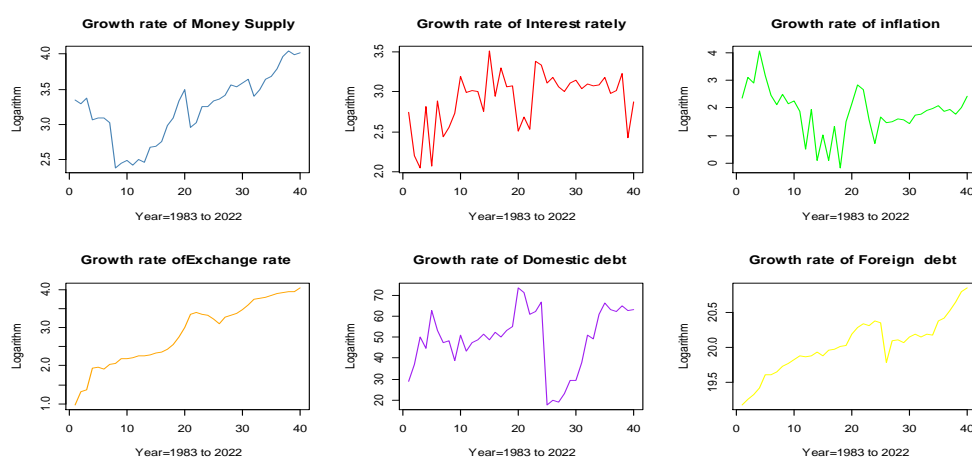


Figure 4.3: Long-run relationship between public debt and monetary policy

The graphs depict the logarithmic growth rates of six key variables: money supply, interest rates, inflation, exchange rates, domestic debt, and foreign debt. Several trends are immediately apparent. Money supply shows a general upward trend, suggesting an expansionary monetary policy. Interest rates exhibit more volatility but appear to stabilize in the later years. Inflation is

characterized by significant fluctuations, indicating periods of instability, but also shows a trend toward stabilization. The exchange rate displays a consistent upward trend, suggesting a gradual depreciation of The Gambian currency. Domestic debt shows a sharp increase in the middle period, followed by a decline and a more recent upward trend. There is an increased tendency in foreign debt, especially towards the conclusion of the time period being studied. The logarithmic scale allows for visualizing proportional changes, highlighting the relative magnitudes of growth rates over time. The observed trends suggest a dynamic and evolving economic landscape for The Gambia over the past four decades. The upward trend in money supply, coupled with fluctuating inflation and exchange rates, points to the challenges of maintaining macroeconomic stability. Increasing domestic and foreign debt levels indicate potential fiscal pressures and reliance on external financing, which could affect long-term economic sustainability. The volatility in interest rates and inflation indicates need for effective monetary policy and macroeconomic management. Overall trends suggest a need for policymakers to address issues related to exchange rate stability, debt management, and inflation control to promote sustainable economic growth. Additionally, the analysis of these trends, in conjunction with other economic and political factors, may offer a deeper understanding of economic growth trajectory of The Gambia during this period.

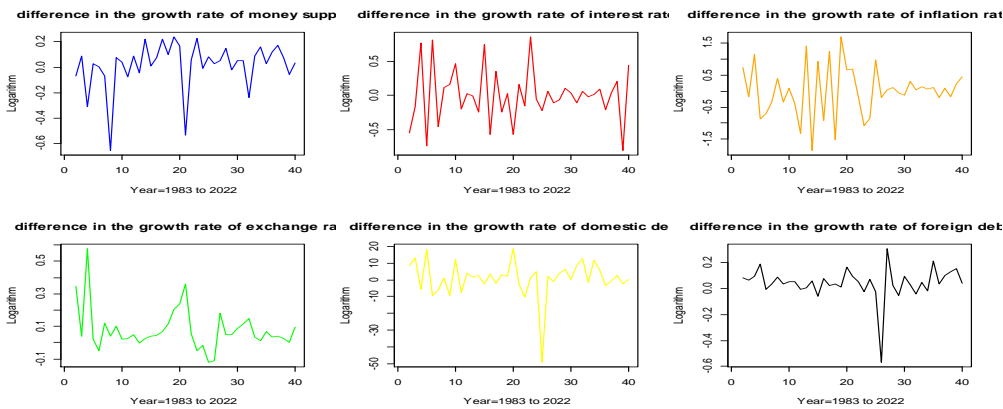


Figure 4.4: Short-Run relationship between public debt and monetary policy

Graph displays time series of logarithmic growth rate differences for macroeconomic indicators in The Gambia (1983-2022), inclusive of money supply, interest rates, inflation, exchange rates, and debts. The graphs reveal varying degrees of volatility and trends across the different indicators.

For instance, the money supply growth rate shows relatively moderate fluctuations, while the interest rate growth rate exhibits more pronounced swings. The inflation rate growth rate appears to have trended downwards over time, while the exchange rate growth rate shows a period of high volatility followed by relative stability. The domestic debt growth rate graph shows a sharp drop in the early years and then stabilizes, while the foreign debt growth rate shows a period of volatility followed by a sharp drop and then stability. These graphs provide a visual representation of the macroeconomic changes and potential challenges faced by the region during this period, offering insights into the dynamics of its economy.

4.9 Growth rate of domestic debt in The Gambia

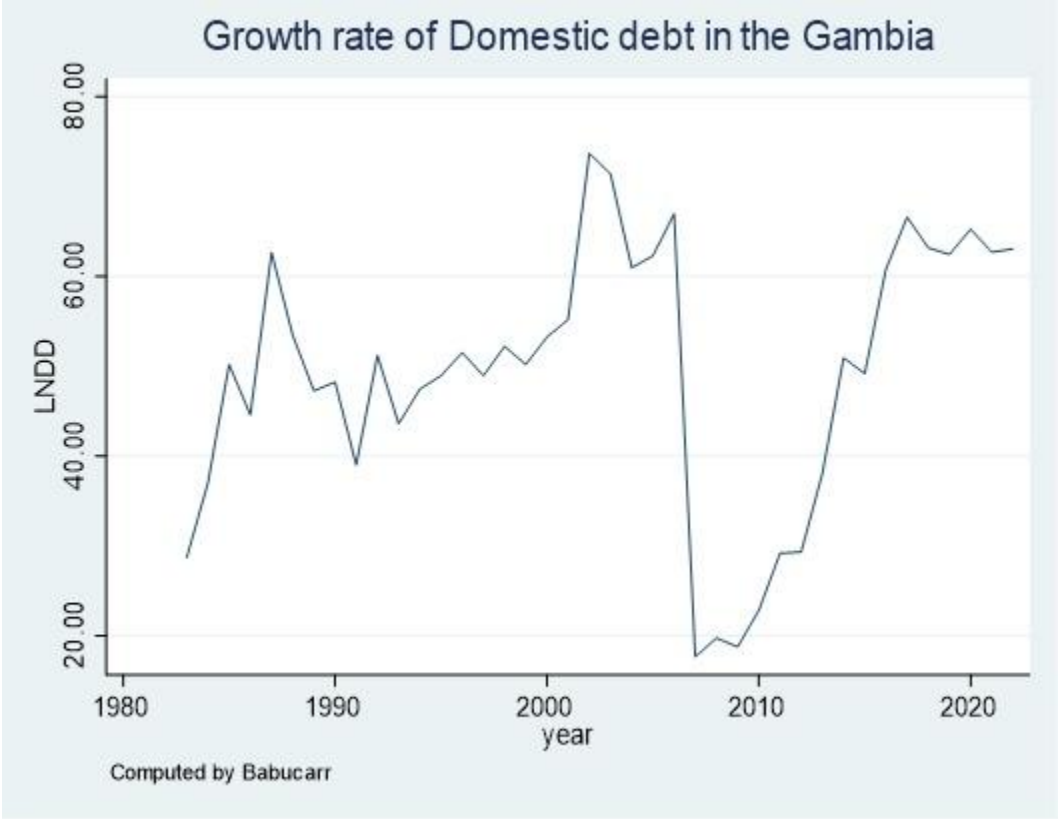


Figure 4.5: Growth rate of domestic debt

The graph demonstrates growth rate of domestic debt in The Gambia from 1980 to 2020. It reveals a fluctuating pattern with periods of rapid increase followed by periods of slower growth or even decline. From 1980 to 1990, the growth rate of domestic debt experienced significant fluctuations. It peaked around 1985 and declined sharply before recovering in the early 1990s. The period

between 1990 and 2000 saw a more stable trend, with the growth rate remaining relatively low. However, after 2000, the growth rate rose again, reaching its highest point around 2005. This was followed by a period of decline until 2010. In the years following 2010, the growth rate experienced another surge, reaching its peak in 2015. Since then, it has stabilized at a lower level. In conclusion, the graph suggests that growth rate of domestic debt in Gambia has been subject to various economic and political factors over the past four decades. While there have been periods of rapid expansion, the trend has been generally stable since the mid-2010.



CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter details the study's findings, conclusion, and recommendations, analyzing the impact of domestic public debt on Gambia's monetary policy from 1983 to 2022, while also assessing political leadership's moderating effect on this relationship throughout the years.

5.2 Summary of the findings

The research sought to assess the impact of domestic public debt on monetary policy in Gambia between 1983 to 2022. The study found that the growth rate of domestic debt positively impacts the growth rate of money supply in Gambia. This hypothesis aligns with studies like those by Catao and Terrones (2005) and Reinhart and Rogoff (2010), who mentioned that domestic debt increases often lead to expansion in money supply, particularly in developing economies. Borrowing money from the central bank is one-way governments may fund deficit spending, which increases the money supply. Additionally, Easterly and Schmidt-Hebbel (1994) and Sargent and Wallace (1981) have highlighted the fiscal dominance phenomenon, where fiscal policies (such as increased domestic debt) drive monetary expansion, especially in countries with less independent central banks. The Gambia's experience is consistent with these findings, where domestic debt growth may contribute to money supply growth through similar mechanisms.

Results revealed that domestic debt causes inflation to rise in The Gambia in the short run. According to Sargent and Wallace (1981), in their seminal work on the "unpleasant monetarist arithmetic," fiscal deficits financed by domestic borrowing might lead to inflationary pressures, especially when monetary policy is accommodative. Similarly, Catao and Terrones (2005) and Reinhart and Rogoff (2010) have empirically demonstrated that high levels of domestic debt, particularly in developing economies, often correlate with higher inflation due to the monetization of debt or expectations of future monetization. Furthermore, Easterly and Schmidt-Hebbel (1994) emphasize that in economies with weak fiscal discipline, domestic debt accumulation can exacerbate inflationary pressures by increasing aggregate demand without a corresponding increase in supply. These studies collectively support this study's results, highlighting the inflationary risks associated with rising domestic debt in The Gambia.

According to this coefficient, the growth rate of interest dropped for every one-unit rise in LNDD (log of domestic debt) in the Gambia in the short run. This is in line with researchers like Greenwood-Nimmo et al. (2016), who found that higher levels of domestic debt may lead to lower interest rates in the short term, as increased government borrowing may crowd out private investment and reduce demand for loanable funds. Similarly, Laubach (2009) and Engen and Hubbard (2004) have shown that higher public debt levels can exert downward pressure on interest rates, particularly when monetary policy is accommodative or when there is excess liquidity in the financial system. Additionally, Blanchard (2019) argues that in low-interest-rate environments, such as those often seen in developing economies, domestic debt accumulation can further suppress interest rates due to the central bank's efforts to manage debt servicing costs. These findings align with study results, suggesting that relationship between domestic debt and interest rates in The Gambia is consistent with broader economic theories and empirical evidence.

Based on this coefficient, the exchange rate goes up as domestic debt increases in the short term. In particular, for each one percentage point rise in LNDD (Log of Domestic Debt), exchange rate sees a similar increase in the short term. This aligns with research by Calvo and Reinhart (2002), who suggest that increased domestic debt may result in currency devaluation due to worries over fiscal sustainability and the possibility of debt monetization. Similarly, Eichengreen and Hausmann (1999) highlight that rising domestic debt in emerging and developing economies can increase exchange rate volatility and depreciation pressures, as investors may perceive higher risk and demand higher premiums for holding domestic assets. Additionally, Krugman (1979) and Obstfeld and Rogoff (1996) emphasize that fiscal imbalances, including high domestic debt, can lead to currency depreciation through their impact on investor confidence and capital flows. This supports research results that a positive correlation exists between domestic debt and Gambia's exchange rate increase. This finding aligns with theoretical and empirical data about the effects of fiscal policy on exchange rates.

Foreign debt decreases the money supply growth in the Short-Run ARDL model in Gambia. Research by scholars like Fry (1995) supports the idea that increases in foreign debt might cause an increase in domestic money supply, particularly in developing economies, as foreign currency inflows are often converted into local currency, increasing liquidity in the banking system. Similarly, Calvo et al. (1996) and Reinhart and Reinhart (2008) have highlighted that foreign

borrowing can result in monetary expansion, especially when central banks intervene in foreign exchange markets to stabilise the currency, increasing reserve money. Additionally, Montiel (2003) emphasises that in economies with managed exchange rate regimes, foreign debt inflows can directly influence money supply growth through central bank operations. These studies back up study results, showing that foreign debt and money supply growth in The Gambia are related.

This coefficient indicates a drop in the inflation growth rate due to LNFD. This finding aligns with studies such as Romer (1993), who argued that increased openness to foreign capital, including foreign debt, can lead to lower inflation due to greater discipline on monetary policy and reduced reliance on seigniorage (revenue from money creation). Similarly, Tytell and Wei (2004) found that foreign capital inflows, including debt, can exert downward pressure on inflation by increasing the availability of foreign exchange and stabilising domestic currency values. Furthermore, Calvo and Reinhart (2002) emphasized that foreign debt inflows can alleviate inflationary pressures by strengthening external balances and boosting economic confidence. These studies align with the findings, indicating that adverse correlation between foreign debt and inflation growth in Gambia agrees with wider empirical data concerning effect of foreign debt on macroeconomic stabilization.

Average annual percentage rate of interest (LNINT) is analysed with LNFD as the independent variable in this model. An optimal correlation between LNFD and LNINT (growth in interest rates) is supported by prior studies. Calvo et al. (1996) found that foreign debt inflows can drive higher interest rates in emerging markets due to increased demand for domestic assets and potential inflationary pressures. Similarly, Reinhart and Reinhart (2008) observe that foreign debt inflows can lead to strained monetary policy, with central banks increasing interest rates to stabilize economy. However, contrasting findings exist. Montiel (2003) argues that foreign debt inflows could lower interest rates in the short term by increasing liquidity in the financial system, particularly in economies with underdeveloped financial markets.

There was a positive relationship between LNFD and Exchange Rate Growth. Similar Findings, Obstfeld and Rogoff (1996) and Krugman (1979) highlighted that foreign debt inflows can lead to currency appreciation in the short term due to increased demand for domestic currency. Calvo and Reinhart (2002) also found that foreign debt inflows can stabilise or appreciate exchange rates by improving external balances and boosting investor confidence. Contrasting Findings, Eichengreen

and Hausmann (1999) argue that excessive foreign debt could lead to exchange rate depreciation in the long term because of concerns about debt sustainability and potential capital flight.

There was an insignificant association between LNDD/LNFD and other variables is consistent with observations made by Easterly and Schmidt-Hebbel (1994), who found that in economies with less established financial markets, effects of domestic debt on macroeconomic factors like inflation and interest rates may be weak or minimal. Greenwood-Nimmo et al. (2016) also observed that relationship between foreign debt and interest rates may be non-linear and dependent on the context, resulting in non-significant outcomes in certain situations. Divergent conclusions drawn by Sargent and Wallace (1981) and Reinhart and Rogoff (2010) highlighted that both domestic and foreign debt frequently significantly influence macroeconomic factors, especially in developing nations with fragile fiscal and monetary systems.

The strong impact of foreign debt (LNFD) on exchange rates conforms to findings of Obstfeld and Rogoff (1996), who demonstrated that foreign debt inflows can significantly influence exchange rates, particularly in economies with managed exchange rate regimes. This aligns with the study's finding of a large positive coefficient for LNFD. Similarly, Calvo and Reinhart (2002) found that foreign debt inflows play key role in exchange rate appreciation in developing markets by increasing foreign exchange reserves and enhancing investor confidence.

Economic literature has widely examined the interaction effects between political variables and fiscal policy. Alesina and Tabellini (2005) explored relationship between debt levels and political factors, like leadership changes and found that political variables can significantly moderate the impact of debt on macroeconomic outcomes, including exchange rates. Similarly, Persson and Svensson (1989) highlight that political leadership shifts, such as presidential administration changes, can alter the relationship between debt and key macroeconomic variables. These results align with study's findings that indicate a significant interaction effect between foreign debt (LNFD) and political leadership (Presidentdummy).

Findings conform to a body of literature highlighting strong effect of foreign debt on exchange rates, the moderating role of political factors, and the often-non-significant effects of domestic debt in developing economies. High R^2 and model significance indicates that study model effectively captures the key drivers of exchange rate dynamics in The Gambia, even if individual predictors like LNDD are not statistically significant.

5.3 Conclusion

In the Gambia, external debt has a positive correlation with money supply and exchange rate. The ARDL Short-Run results confirmed that External debt positively impacts the exchange rate and money supply in the Gambia. We attributed this to the vital roles of SOEs in the Gambia and how they contribute to debt sustainability in both short and long term. The results indicated that the exchange rate caused external debt to be sustainable. Now sustainability depends on the governance of the country's governing structure and institution. As the country becomes more corrupt, the values of external debt became deteriorated. The study recommends that The Gambia priorities effective foreign debt management alongside domestic debt to achieve sustainable growth and inflation control and investment to rise. Enhanced collaboration between fiscal and monetary authorities, stable political leadership, and adopting proactive fiscal strategies and flexible monetary policies are also recommended to bolster resilience against external economic pressures and ensure long-term stability of economic growth.

5.4 Recommendations for Policy and Practice

Given these findings, Gambia should prioritize effective foreign debt management, balancing it with domestic debt to ensure sustainable economic growth and prevent inflationary pressures. Collaboration between fiscal and monetary authorities is essential to strengthen foreign debt's positive impact on monetary policy while mitigating potential disruptions from fiscal shocks. Additionally, the government should adopt policies that support stable political leadership to sustain consistent monetary policy outcomes. Proactive fiscal strategies, informed by policies from Japan and Tunisia, may enhance resilience against external economic pressures. The Gambia should also consider adopting flexible, non-traditional monetary policies that incorporate economic, social and potential climate-related factors to ensure long-term stability.

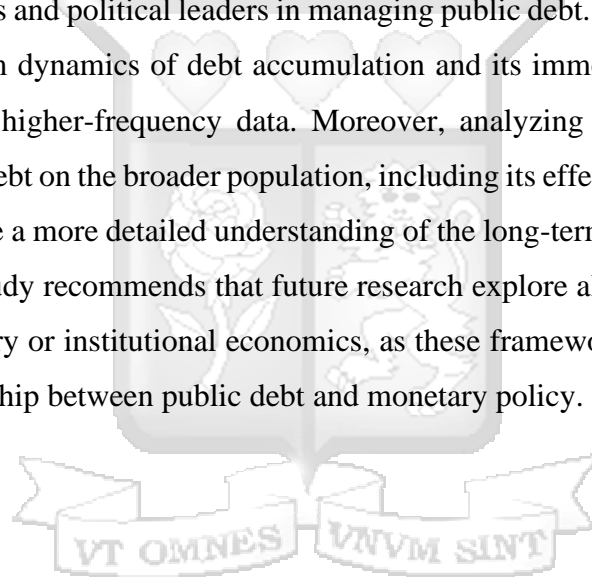
5.5 Limitations of the Study

This study relied exclusively on secondary data from 1983 to 2022, which may not capture recent shifts or the latest economic trends impacting The Gambia's monetary policy. The study's time series research design did not consider qualitative factors such as stakeholder perspectives on debt management or the sociopolitical complexities that influence policy implementation. Regression modelling did not fully address short-term volatility, which could be significant in fiscal and

monetary policy analysis. The study is further limited by its reliance on the debt overhang, Ricardian Equivalence and dynamic political economy theories, which did not include all factors that affect monetary policy changes.

5.6 Suggestions for Further Study

Future studies can examine impact of external factors such as global economic shocks, changes in commodity prices, or international financial assistance on The Gambia's public debt and monetary policy. A comparative study between The Gambia and other West African countries could provide more information on regional debt management practices and their effects on monetary policy. Additionally, qualitative research could examine the perceptions and strategies of key policymakers, economists and political leaders in managing public debt. Further studies could also investigate the short-term dynamics of debt accumulation and its immediate effects on inflation and interest rates using higher-frequency data. Moreover, analyzing the social and economic consequences of public debt on the broader population, including its effects on poverty and income inequality, would provide a more detailed understanding of the long-term effects of public debt on national welfare. This study recommends that future research explore alternative models, such as endogenous growth theory or institutional economics, as these frameworks could provide deeper insights into the relationship between public debt and monetary policy.



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APPENDICES

Appendix I: Ethical Review Committee Approval



23rd July 2024

Mr Nyang Baboucarr,
baboucarr.nyang@strathmore.edu

Dear Mr Nyang,

RE: Effects of Public Debt on Monetary Policy in The Gambia: Moderating Role of Political Leadership

This is to inform you that SU-ISERC has reviewed and approved your above SU-masters proposal. Your application reference number is SU-ISERC2339/24. The approval period is from 23rd July 2024 to 22nd July 2025.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
- v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Ambrose Rachier".

Mr Ambrose Rachier,
Chairperson; SU-ISERC

Appendix 2: Data Set

President_dummy	year	LNDD	LNFD	LNIFL	LNINT	LNEXCH	LNMS
1	1983	28.7	19.17	2.36	2.75	0.97	3.35
1	1984	37.02	19.25	3.1	2.2	1.32	3.29
1	1985	50.19	19.32	2.91	2.04	1.36	3.38
1	1986	44.59	19.41	4.04	2.81	1.93	3.07
1	1987	62.65	19.6	3.16	2.07	1.96	3.09
1	1988	53.43	19.6	2.46	2.89	1.9	3.1
1	1989	47.26	19.64	2.11	2.44	2.03	3.03
1	1990	48.23	19.73	2.5	2.56	2.06	2.38
1	1991	39	19.76	2.16	2.73	2.17	2.45
1	1992	51.2	19.82	2.25	3.19	2.19	2.49
1	1993	43.6	19.87	1.87	2.99	2.21	2.42
1	1994	47.45	19.86	0.54	3.02	2.26	2.5
2	1995	48.95	19.87	1.94	3.01	2.26	2.46
2	1996	51.51	19.93	0.1	2.76	2.28	2.68
2	1997	48.94	19.87	1.02	3.51	2.32	2.69
2	1998	52.21	19.95	0.1	2.94	2.36	2.76
2	1999	50.2	19.97	1.34	3.3	2.43	2.99
2	2000	53.24	20.01	-0.17	3.06	2.55	3.09
2	2001	55.21	20.02	1.5	3.08	2.75	3.33
2	2002	73.69	20.19	2.15	2.51	2.99	3.49
2	2003	71.41	20.28	2.83	2.68	3.35	2.96
2	2004	60.97	20.34	2.65	2.53	3.4	3.03
2	2005	62.29	20.31	1.58	3.39	3.35	3.25
2	2006	66.96	20.38	0.72	3.34	3.33	3.25
2	2007	17.67	20.35	1.68	3.11	3.21	3.33
2	2008	19.74	19.78	1.49	3.18	3.1	3.36
2	2009	18.78	20.09	1.52	3.07	3.28	3.41
2	2010	22.83	20.11	1.62	3.01	3.33	3.56
2	2011	29.18	20.06	1.57	3.11	3.38	3.54
2	2012	29.34	20.15	1.45	3.15	3.47	3.59
2	2013	38.06	20.18	1.74	3.04	3.58	3.64
2	2014	50.95	20.14	1.78	3.1	3.73	3.4
2	2015	49.18	20.19	1.92	3.08	3.77	3.49
2	2016	60.78	20.17	1.98	3.09	3.78	3.64
2	2017	66.6	20.38	2.08	3.18	3.85	3.68
3	2018	63.18	20.42	1.87	2.98	3.88	3.79

3	2019	62.45	20.52	1.96	3.02	3.92	3.97
3	2020	65.24	20.65	1.78	3.23	3.94	4.04
3	2021	62.7	20.8	2	2.42	3.94	3.99
3	2022	63.06	20.85	2.44	2.87	4.04	4.02



Appendix 3: Presidents of Gambia from Independence to date

President	Year from	Year to
Sir Dawda Jawara	1970	1994
Colonel Yahya Jammeh	1994	2017
Adama Barrow	2017	present



Appendix 4: Stata results in PP Test

```

. //////////////////////////////////////////////////pp level form/////////////////////////////////
>
. pperron LNDD , regress lags(1)

Phillips-Perron test for unit root                Number of obs   =       39
                                                    Newey-West lags =        1

----- Interpolated Dickey-Fuller -----
              Test          1% Critical    5% Critical    10% Critical
              Statistic      Value          Value          Value
-----
Z(rho)        -10.854        -18.152        -12.948        -10.480
Z(t)           -2.523         -3.655         -2.961         -2.613
-----
MacKinnon approximate p-value for Z(t) = 0.1100

-----
LNDD |      Coef.   Std. Err.    t    P>|t|    [95% Conf. Interval]
-----+-----
LNDD |
  L1. |      .7198482   .1107384    6.50   0.000    .495471   .9442255
  _cons |     14.56947   5.648797    2.58   0.014    3.123924   26.01502
-----

```



Appendix 5: R Dofile

```
ar(mfrow=c(2,3))  
> ts.plot(LNMS,col ="steelblue",ylab ="Logarithm",xlab ="Year=1983 to 2022",main =  
"Growth rate of Money Supply")  
> ts.plot(LNINT,col ="red",ylab ="Logarithm",xlab ="Year=1983 to 2022",main = "Growth rate  
of Interest rate")  
> ts.plot(LNIFL,col ="green",ylab ="Logarithm",xlab ="Year=1983 to 2022",main = "Growth  
rate of inflation")  
> ts.plot(LNEXCH,col ="orange",ylab ="Logarithm",xlab ="Year=1983 to 2022",main =  
"Growth rate of Exchange rate ")  
> ts.plot(LNDD,col ="purple",ylab ="Logarithm",xlab ="Year=1983 to 2022",main = "Growth  
rate of Domestic debt ")  
> ts.plot(LNFD,col ="yellow",ylab ="Logarithm",xlab ="Year=1983 to 2022",main = "Growth  
rate of Foreign debt ")
```

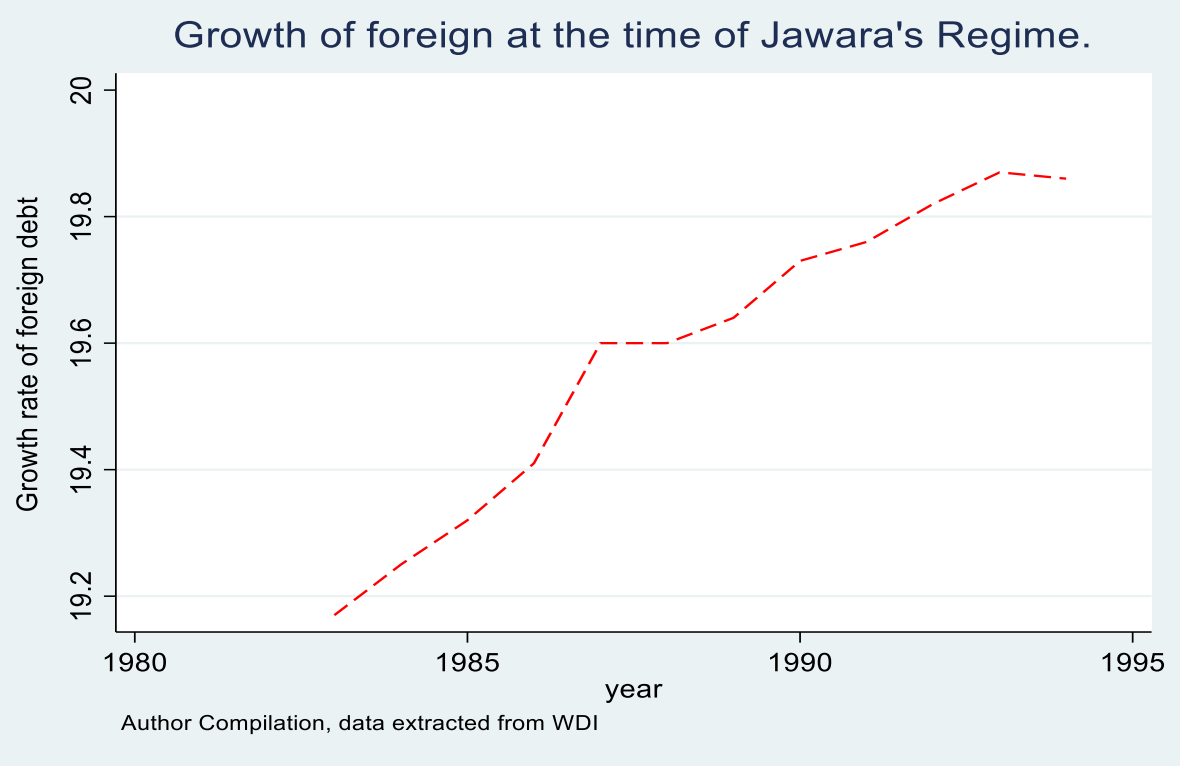


Appendix 6: DW test for time series

```
. estat dwatson  
  
Durbin-Watson d-statistic( 3, 40) = .6869492
```



Appendix 7: Graphically Visualizations



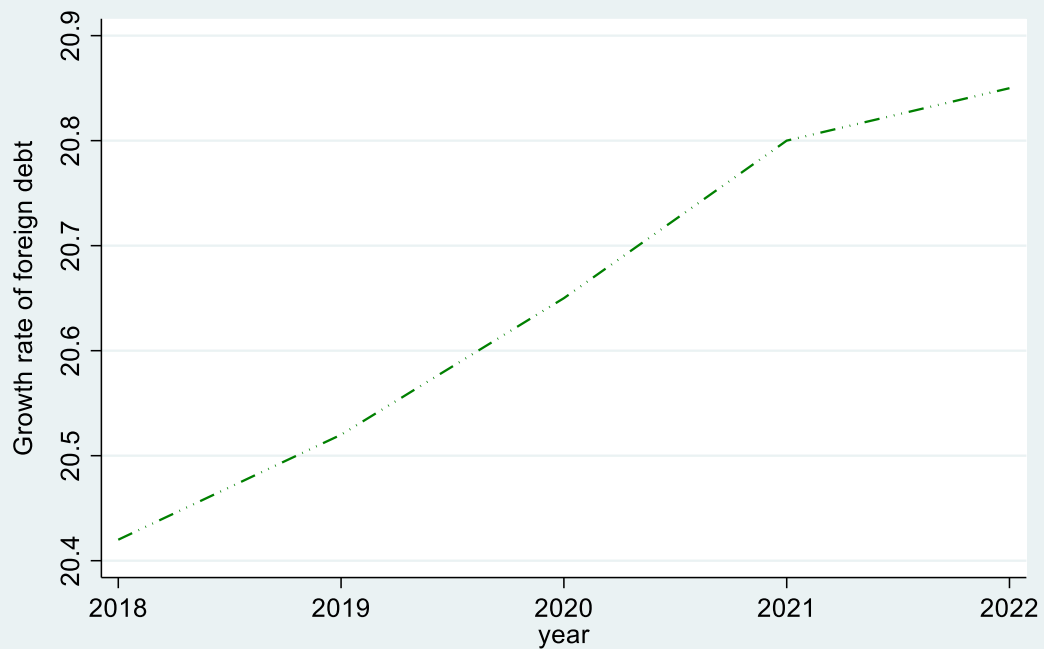
Growth of foreign debt at the time Jammeh's Regime



Author Compilation, data extracted from WDI



Growth rate of foreign debt in Barrow's Regime



Author Compilation, data extracted from WDI

