

EFFECT OF PUBLIC DEBT ON ECONOMIC GROWTH IN KENYA


KIVUNGI DANIEL ROBERT

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF
MASTER OF SCIENCE IN FINANCE, FACULTY OF BUSINESS
AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI**

NOVEMBER, 2021

DECLARATION


I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed:  Date: 9th November, 2021

KIVUNGI DANIEL ROBERT

D63/33686/2019

This research project has been submitted for examination with my approval as the University Supervisor.

Signed:  Date: 09/11/2021

DR. WINNIE NYAMUTE

Department of Finance and Accounting

Faculty of Business and Management Sciences, University of Nairobi

ACKNOWLEDGEMENT

A number of persons merit my profound appreciations for being so supportive in this research process. I thank God because of endowment of life and opportunities thus far. Secondly, I sincerely thank Dr. Winnie Nyamute, my supervisor for her direction and advice during the whole research process. Thirdly, I would like to acknowledge the commitment and consolation from my family and colleagues particularly for their significant assistance in making the research process successful. Finally but not least, gratitude goes to the professors and lecturers of the Faculty of Business and Management Sciences, University of Nairobi, who devotedly imparted their knowledge and skills throughout the course.

DEDICATION

This research project is dedicated to my lovely daughter, Elsie Mutheu and son, Elvin Mwendwa.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
LIST OF TABLES	viii
LIST OF ABBREVIATIONS	ix
ABSTRACT.....	x
CHAPTER ONE: INTRODUCTION.....	11
1.1 Background of the Study.....	11
1.1.1 Public Debt	12
1.1.2 Economic Growth.....	13
1.1.3 Public Debt and Economic Growth	15
1.1.4 Public Debt and Economic Growth in Kenya	16
1.2 Research Problem.....	16
1.3 Research Objective.....	19
1.4 Value of the Study.....	19
CHAPTER TWO: LITERATURE REVIEW.....	20
2.1 Introduction	20
2.2 Theoretical Foundation	20
2.2.1 Pecking Order Theory	20
2.2.2 Trade-off Theory	22
2.2.3 Finance Growth Theory.....	23
2.3 Determinants of Economic Growth	24
2.3.1 Public Debt	24
2.3.2 Interest Rates	25

2.3.3 Inflation	26
2.3.4 Unemployment Rate	26
2.4 Empirical Studies	27
2.4.1 Global Studies.....	27
2.4.2 Local Studies	29
2.5 Conceptual Framework	31
2.6 Summary of Empirical Review and Research Gaps	32
CHAPTER THREE: RESEARCH METHODOLOGY	33
3.1 Introduction	33
3.2 Research Design	33
3.3 Data Collection.....	33
3.4 Diagnostic Tests	34
3.4.1 Stationarity Test.....	34
3.4.2 Cointegration Test	34
3.4.3 Normality Test.....	35
3.4.4 Multicollinearity	35
3.4.5 Autocorrelation.....	35
3.5 Data Analysis	35
3.5.1 Analytical Model	36
3.5.2 Tests of Significance	36
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS	37
4.1 Introduction	37
4.2 Descriptive Analysis	37
4.3 Diagnostic Tests	37
4.3.1 Stationarity Test.....	38

4.3.2 Co-integration Test	38
4.3.3 Normality Test	39
4.3.4 Multicollinearity	39
4.3.5 Autocorrelation	40
4.4 Correlation Analysis	41
4.5 Regression Analysis	42
4.6 Discussion of Research Findings	44
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	47
5.1 Introduction	47
5.2 Summary of Findings	47
5.3 Conclusion	48
5.4 Recommendations	49
5.5 Limitations of the Study	50
5.6 Suggestions for Further Research	51
REFERENCES.....	53
APPENDICES.....	59
Appendix I: Secondary Data	59

LIST OF TABLES

Table 4.1: Descriptive Statistics	37
Table 4.2: Stationarity Test.....	38
Table 4.3: Co-integration Test Results	38
Table 4.4: Normality Test Results	39
Table 4.5: Collinearity Statistics.....	40
Table 4.6: Autocorrelation Results	40
Table 4.8: Model Summary	42
Table 4.9: Analysis of Variance.....	42
Table 4.10: Model Coefficients	43

LIST OF ABBREVIATIONS

AfDB	African Development Bank
CBK	Central Bank of Kenya
ECOWAS	Economic Community of West African States
EG	Economic Growth
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
OLS	Ordinary Least Squares
PRISMA	Preferred Reporting Items for Systematic Meta-Analyses
SSA	Sub Saharan Africa
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
VECM	Vector Error Correction Model

ABSTRACT

The ratio of public debt to Gross Domestic Product (GDP) in Kenya has been on the rise. Between 2010 and 2018, mean public debt in Kenya rose by half, from 40 to 59 percent of GDP, making Kenya to be among the fastest-growing debt-accumulation countries in the world. At the same time, the country has also recorded significant growth in development spending and economic growth. The country offers a good context to investigate the effect of debt on economic growth. The objective of this research was to determine the effect of public debt on Kenya's economic growth. The study was based on Pecking order theory, tradeoff theory and finance growth theory. The independent variable was public debt measured as log total debt per quarter while the control variables were interest rates, the unemployment rate, and inflation rate. The dependent variable that the research attempted to explain was the growth of the Kenyan economy. The data was collected on a quarterly basis over a period of ten years (from January 2011 to December 2020). A descriptive research approach was employed in the research, with a multivariate regression model used to examine the connection between the study variables. The study's findings yielded an R-square value of 0.613, indicating that the chosen independent variables could explain 61.3 percent of the variance in Kenya's economic growth, while the other 38.7 percent was due to other factors not investigated in this study. The F statistic was significant at a 5% level with a $p=0.000$. This suggests that the model was adequate for explaining economic growth in Kenya. Further, the conclusions demonstrated that public debt had a negative and significant influence on Kenya's economic growth. Unemployment rate also had a significant negative influence. Interest rates and inflation did not exhibit a statistically significant impact on economic growth. The research suggests the need for policy makers to review the set limit of public debt as high debt levels negatively affects the economy. The study also recommends that there is need to come up with effective measures of creating employment as high unemployment rate has an adverse effect on economic growth. The study recommends the need for future researchers to conduct a study for a longer period of time such as the last 30 years to capture the effects of economic cycles.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Public debt effect on growth of economies is an ongoing debate among researchers and two schools of thought have emerged. Proponents hold that public debt is beneficial and necessary as it stimulates economic growth. The argument is that public debt encourages development spending, which boosts economic growth (Mwere, 2018). Achwoga (2016) for instance states that public debt and economic growth possess statistically significant correlation as public debt leads to development spending which has been found to have a substantial influence on growth of economies. Those opposed to borrowing have contended that high levels of public debt are not sustainable and are harmful to economic progress (Ndi, 2017). Musyoka (2017) argues that borrowing to supplement budgets lacks substantial effect on economic growth.

This study was anchored on pecking order theory by Donaldson (1961) which argues that firms' priority is to use their internal finances as the first option since they are cheaper and then proceed to use external sources in the order of their cost. This theory was therefore relevant to the study as a country would use it to determine whether to use internally generated revenue or debt based on the pecking order. Modigliani and Miller's (1958) trade-off theory illustrates how a corporation or a government decides debt to equity proportion to utilize by calculating the costs and benefits and balancing them out. This theory is essential because it explains why operational units are typically financed partially with debt and partially with equity. Finance growth theory by Bagehot (1973) states that financial access offers a favorable environment for growth enhancement growth.

The focus of this study was in Kenya. This is because the public debt to Gross Domestic Product (GDP) ratio in Kenya has been on the rise (World Bank, 2019). Between 2010 and 2018, mean public debt in Kenya rose by half, from 40 to 59 percent of GDP, making Kenya to be among the fastest-growing debt-accumulation nations in the globe. At the same time, the country has also recorded significant growth in development spending and economic growth (World Bank, 2020). The country offers a good context for effect of debt on economic growth investigation.

1.1.1 Public Debt

Badri (2014) defined public debt as the sum of money that a government owes. It can either be internal or external. The part of a country's debt that is borrowed from overseas lenders, such as commercial banks, governments, or international financial institutions, is known as external debt (Mirchandani, 2013). Domestic debt is amounts borrowed from government instruments like Treasury bills, bonds, and others (UNCTAD, 2017). Panizza and Presbitero (2013) suggests that internal borrowing refers to domestic debt in which governments raise funds by acquiring loans from lenders within the geographical boundaries of the country.

One of the most important macroeconomic factors that shapes a country's image in international markets is public debt (Abbas, 2013). It is one of the determinants of inward foreign direct investment flow. Furthermore, because governments borrow primarily through the issuance of securities, the length, interest rates, and overall costs of debt financing have a considerable impact on the economy, the future of businesses, and social welfare for current and future generations. Higher taxes lead to reduced current consumption, which could limit economic growth (Abbas, 2013). Martin (2015) claims

that public debt can also be used to postpone taxation, hence lowering present distortions. Thus, government may go through budget deficit.

There are several measures of public debt but the most used measure is the ratio of a country's total debt to its GDP. A higher ratio would imply higher debt. Debt can also be measured in absolute terms, which ignores a country's wealth as well as efficiency. As a result, proportional to a country's GDP, rather than absolute terms, is a better indicator of debt. Debt can also be classified in terms of the type of debt that is whether internal or external (Matiti, 2013). The current study measured debt as the natural logarithm owed by the Kenyan government in a given quarter.

1.1.2 Economic Growth

Economic growth definition is change in the economy's capacity to produce goods and services from one-time span to another, and represents the economic wellbeing of an economy (Haseeb, Kot, Hussain & Jermsittiparsert, 2019). Economic growth may be positive or negative, where positive growth is viewed as an increase in the total output (goods and/or services) produced within a country, while negative economic growth is when an economy is shrinking, and thus there is a decrease in the overall economic wellbeing. An economic growth increase may be as a result of improved efficient use of production inputs, or via an increase in the quantity of production output (Cadman, 2015).

Economic growth is viewed as an important overall measure of an economy's wellbeing. It is thus used to track the overall economic growth trend of an economy over time and can thus be used to track the effectiveness of economic policies instigated with an aim of enhancing

growth overtime. More to that, it is also used as a basis of comparison of economic wellness between different economies. As a result, knowledge of the perceived drivers of economic growth is important in order to create policies that can enhance these key sources of growth that have been known to include, physical capital accumulation, production efficiency in input processing, human capital development and increasing investment in new ideas via research and development (Bett, 2013). Further, achieved positive economic growth may help in the realization of various macro-economic objectives that include poverty reduction, increased employment, public services improvement and reduced debt balances to Gross Domestic Product (GDP) ratios (Phimmarong & Kinnalone, 2017).

Economic growth is generally operationalized using varying methods that include Gross National Product (GNP) by Adeola (2017), Gross Domestic Product (GDP) by Waweru and Ochieng (2017), and Human Development Index (HDI) by (Okoro, Nzotta & Alajekwu, 2019). All these are considered as standard measures of national income and development within a given economy. HDI is an index measure of economic growth that is based on life expectancy measures at birth, education level, literacy and real per capita income adjusted (Okoro, Nzotta & Alajekwu, 2019). GDP has been reviewed as a measure of change in the rate of aggregate growth by Waweru and Ochieng (2017), and has also been analyzed in real terms like real GDP per capita growth rate by (Phimmarong & Kinnalone, 2017). The current study utilized GDP growth rate as a measure of growth.

1.1.3 Public Debt and Economic Growth

According to finance growth theory, the poor are unable to save and invest in income-generating activities due to a lack of finances. On the other hand, easy access to money resulting from debt availability motivates governments to undertake more investments and assume more risk, resulting in increased economic growth (Neaime & Gaysset, 2018). Access to the use of public debt is a critical aspect in fostering long-term economic and social growth, as well as poverty and unemployment alleviation (Zins & Weill, 2016).

Keynesian theory suggests that governments may counteract economic downturns through private sector borrowing and then spending the proceeds back into the private sector (Eze & Ogiji, 2016). An economy's gross expenditure has an impact on economic growth and stability, hence borrowing by the government to fund the expenditure does not bad harm economy (Bal & Rath, 2016). The Ricardian's theory proposes a debt-growth correlation that is neither positive nor negative (Lwanga & Mawejje, 2014). According to this theory, the fiscal deficit is irrelevant since it just serves to smooth off expenditure or income disruptions (Renjith & Shanmugam, 2018).

The neoclassical theorem suggests that a budget deficit yield in a rise in present spending, which will yield huge interest rates, smaller savings nationally, as well as decline in anticipated investment when there is full employment as well as a closed economy. That is, a budget deficit causes investment to be crowded out, resulting in lower future capital accumulation. The theory foresees that increasing borrowing to support higher consumer expenditure will lead the local currency to strengthen, causing a rise in imports as well as

a reduction in exports, negatively damaging the balance of current account (Lwanga & Maweje, 2014).

1.1.4 Public Debt and Economic Growth in Kenya

Kenya has one of the fastest-growing economies in Sub-Saharan Africa, with an average annual growth rate of 5.4 percent, making it East Africa's strongest economy, though it still falls short of the aim of 10% annual economic growth set forth in Vision 2030's economic pillar (World Bank, 2020). Various downside risks continue to threaten the country's economic growth and development potential. Agriculture's exposure to natural disasters, rising public debt, heavy dependence on primary commodity exports, as well as increasing oil prices in oil-importing nations are all major concerns (AfDB, 2020).

According to the World Bank (2019), the National Treasury data on fiscal out turn released in September 2019 reveals a considerable rise in the public debt for FY2018/19, taking decisive action to take back Kenya to fiscal consolidation path. There is a growth in fiscal deficit from 7.4 percent (previous years) to 7.7 percent of GDP in FY2018/19 hence the target was missed in FY2018/19 (of 6.8 percent of GDP) by nearly a full percentage point of GDP. This has sequentially resulted in the driving out of the private sector, an unforeseen rise in budget deficit, and the moderate credit growth in private sector.

1.2 Research Problem

There is plethora of academic and policy literature on public debt against economic growth, where various scholars and policy makers argue for and against public debt on economic growth. For example, Musyoka (2017) argues that borrowing to supplement

budgets lacks a substantial effect on economic growth. It has also been argued public debt leads to development spending which in effect enhances growth in an economy. Achwoga (2016) for instance states that public debt and economic growth have a statistically significant correlation as public debt leads to development spending which has been discovered to significantly influence on economic growth.

Kenya has consistently accumulated the level of public debt used in financing budgets. Most of the public debt by Kenya is used in funding infrastructure projects including the road networks. The key challenge with this increase in debt is whether it would be sustainable for the country to service in terms of repaying principal and the interest amount as and when they fall due (Were, 2018). Debt to GDP ratio in Kenya escalated from 25.4 to 56.2 percent from 1963 to 2015 with the target set at 41.4 percent in 2015 implying debt stabilization has not been a priority to the government but escalation of public debt may have negative repercussions in achieving several targets like GDP growth of 10.6 percent and a debt-GDP reduction to 39.2 percent by 2017 (Republic of Kenya, 2018). The implication of deficit financing through borrowing is that, the debt burden, if not well managed may dim envisaged growth prospects in Kenya.

The findings of studies on the correlation between public debt and economic growth have been inconsistent, demonstrating that the correlation is dependent on debt dynamics that vary by nation. Sheikh, Faridi and Tariq (2016) studied the impacts of domestic debt on economic growth in Pakistan. According to the research, the negative impact of domestic debt servicing on economic growth outweighs the positive benefit of domestic debt. Rahman et al. (2019) investigated if there is widespread agreement on the consequences of public debt on a country's or group's economic growth by reviewing literature. The

correlation between public debt and economic growth was discovered to be a source of disagreement. Based on how funds are used, the connection can be positive, negative, or even non-linear. Ehikioya et al. (2020) investigated the diverse relationships between foreign loan and economic development in 43 African nations from 2001 to 2018. The study concluded that foreign debt has a significant negative influence on growth of African Nations.

In Kenya, Wanjuki (2016) studied effect of Kenya's national debt on economic growth. Using a VECM, the researcher discovered that public debt servicing and domestic debt had a negative impact on GDP growth. This research offers a contextual gap as it was conducted when the public debt was still relatively low. Mwangi (2017) surveyed how each type of debt, that is, internal and foreign borrowing impacts individually on growth of Kenya's economy. The research revealed that in domestic debt scenario, it has an insignificant though positive effect on growth of an economy while external debt, revealed substantial but negative association with growth. Murungi and Okiro (2018) conducted an analysis of the theoretical and empirical literature on the impact of government debt on EG. The findings demonstrated that government debt had an impact on EG; some studies showed positive growth, while others indicated negative growth. This study presents a methodological gap as it was a critical review of literature and therefore need for an empirical study to confirm the findings. From the above reviewed local and global studies, it evident most studies provide conflicting findings with some oscillating from negative to positive and others indicating no relationship at all. The studies also were carried using different methodologies in varying contexts making it difficult to generalize the findings to a particular context. In addition, most of the local

studies were carried before the rise in public debt. This yields to the research question, what is the effect of public debt on economic growth in Kenya?

1.3 Research Objective

This research sought to establish the effect of public debt on economic growth in Kenya

1.4 Value of the Study

This research finding will add on to the available theoretical discussion on the effect of government borrowings on EG. The study will also add on to the empirical literature on debt and EG. Additional, studies may also be carried out based on the recommendation and further research suggestions. Future researchers may utilize the recommendations of this research to establish areas for further research.

The study will also be of value to policymaking organizations like governments and economic bodies such as CBK and the National Treasury that formulate the various policies on debt and EG. The policy making bodies may use the study recommendations to come up with effective borrowing strategies to enhance economic growth. They could also utilize the results of this research to develop effective regulatory measures.

The review will be of significance to the management of institutions that are tasked with managing public debt and enhancing economic growth. Investors will gain from this research as well, since they will be able to comprehend the implication of changes in public debt and take necessary actions. Investment analysts will also gain from this research as they will be able to advise their clients on how public debt is likely to influence their investments.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The theoretical review chapter documents the various theories guiding the study and the relationship with the study variables as well as the empirical linkages among the variables under review. A conceptual framework has also been developed from the review.

2.2 Theoretical Foundation

The primary theories made use of in the literature in interpreting the public debt impact on the economy are pecking order theory, trade-off theory and finance growth theory. A discussion of these theories is given in this segment. The theories offer several viewpoints on public borrowing impact on the economy.

2.2.1 Pecking Order Theory

This is the current research anchor theory. Donaldson was the first to suggest this theory in 1961 which was later modified by Stewart, Myers and Malouf (1984). The theory argues that firms' priority is to use their internal finances as the first option since they are cheaper and then proceed to use external sources in the order of their cost. Internal sources are therefore utilized first, and companies only issue debt when such internal funds are depleted. Equity is then given an option only when it is no longer sensible to continue using debt. The theory starts with asymmetric information since executives would have more information relating to the company's prospects and associated risks more than external investors. Such information influences the decisions on whether to use internal or external financing as well as whether to use debt or equity. A pecking order

therefore exists and would be very important in financing new or existing projects (Agboola, 2015). In most cases, asymmetric information works in favour of debt financing over equity financing as debt financing depicts confidence that an investment would be profitable. On the other hand, issuance of equity signals a pessimistic view about the board of management and that they feel the share price is over-valued. Issuing more shares may therefore contribute to reduction in the price of the shares (Boivin, Kiley & Mishkin, 2010).

Pecking order theory has met censure from subsequent researchers like Halov and Heider (2006) who displayed that bigger companies face costs of adverse selection compared to smaller firms. Smaller businesses, they claimed, are less transparent. Due to information asymmetry, they tend to suffer higher expenses, according to Psillaki (1995). Furthermore, Pettit and Singer (1985) suggested that smaller enterprises confront greater information asymmetries, based on the notion that a firm's size is determined by the financial statements it produces on a regular basis. More recently, Chen (2004) and Delcours (2007) established a new pecking order theory, focusing on developed countries, in which business organizations use retained earnings, equity capital, and, as a last resort, long-term debt to finance their investments.

Public debt normally comes in two ways; either as external debt or internal debt. This theory is therefore appropriate to the research as countries might use it to establish if to source debt from external or internal sources based on the pecking order of their country. The theory would also be of great importance to the countries in determining the most appropriate and cost-effective source of financing to their projects.

2.2.2 Trade-off Theory

This theory, founded by Myers (1984), emphasizes the significance of balancing the risk and return of debt and equity financing. Only a cost-benefit analysis of tax savings, agency expenses, deadweight bankruptcy costs, and financial distress can attain the equilibrium advocated by Myers (1984). This theory has been widely applied in disciplines other than capital structure research, and it may thus be expanded to justify the presence of an optimal target PE investment level that maximizes financial performance (Ashhari, 2012). Subsequent improvements to this theory called for the use of internal financing. The pecking order theory and the Modigliani and Miller capital structure relevance theory were two of these theories. The above changes broadened the scope of risk-return analysis to include items such as dividend payments and venture capital funding.

The presence of an imperfect economy with great levels of information asymmetry has been backed up by supporters of this theory. They also emphasize the theory's capacity to describe the presence of an optimal target level of capital structure that reduces funding costs while maximizing firm benefits (Leary & Roberts, 2010; Hennessy & Whited, 2005; Strebulaev, 2007; Sheikh & Wang, 2011) . On the other side, the theory critiques have contended that assuming a positive relationship between money and performance is an insufficient static model (Awan & Amin, 2014; Chen & Chen, 2011; Frank & Goyal, 2003). It is crucial to note, though, that this theory develops and expounds on the risk and return principle in finance by implying that enterprises establish their ideal level of funding by weighing the marginal costs and benefits.

This research implies that governments maintain target debt and growth levels in order to minimize the risk of bankruptcy while maximizing growth, in keeping with the theory's optimality assumptions. The theory's premise that optimality can only be attained when the costs and benefits of multiple alternatives are matched, and both information asymmetry levels and agency costs are minimised, thus supports the aforementioned premise. The above constructions are extrapolated in this study, which looks into whether there is an ideal level of debt that maximizes economic growth.

2.2.3 Finance Growth Theory

Bagehot (1973) was behind the formulation of this theory. It states that provision of financial services provides a productive and conducive condition for growth of firms and economies. Additionally, income inequality and imbalance is caused by limited access to affordable financial services by the major population. This has the effect of slowing down the rate of growth and development. Demirgüç-Kunt and Levine (2008) states that access to finance is crucial to economic growth and development of any country. Because of this they implore nations to encourage policy makers to make policy formulation a priority. They need to channel efforts towards addressing factors influencing financial provision as a means to promote an all-inclusive growth. This is promoted by PE investments.

Bagehot (1973) states that the theory gives an explanation of a well – functioning financial system and how it can encourage increased economic efficiency, lead to the creation and expansion of liquidity, mobilize savings, improve the accumulation of capital, resource transfer from conventional (limited-growth) sectors to the modern sectors that induce growth. Sparatt and Stephen (2013) argued that economic growth is dependent on the financial provision level, the financial institution's composition and

stability. Additionally, it improves entrepreneur response thereby sustaining growth and development.

This theory was pertinent to the current research since it recognizes that financial services' accessibility creates conditions that support growth of firms and economies influenced by supply push that causes a demand pull effect. It also states that insufficiency in low-cost financial products for all is a crucial factor that increases income inequality and imbalance thereby slowing down growth. The theory elucidates how the predictor variable public debt, helps in promoting growth of economies.

2.3 Determinants of Economic Growth

The elements that drive growth can be internal as well as external to the company, and they determine the level of output. Internal factors vary in every company and influence growth in different ways. Such elements arise as a result of management's actions, which are taken in cooperation with the board. Public debt, interest rates, exchange rate volatility, inflation, economic growth, unemployment, and other external factors all contribute to growth.

2.3.1 Public Debt

According to Keynesian theory, governments may counteract economic downturns through private sector borrowing and then spending the proceeds back into the private sector (Eze & Ogiji, 2016). An economy's gross expenditure has an impact on economic growth and stability, hence borrowing by the government to fund the expenditure does not bad harm economy (Bal & Rath, 2016).

The Ricardian's theory proposes a debt-growth correlation that is neither positive nor negative (Lwanga & Mawejje, 2014). According to this theory, the fiscal deficit is irrelevant since it just serves to smooth off expenditure or income disruptions (Renjith & Shanmugam, 2018). This theory is based on the idea that growing government debt entails increasing anticipated taxes with a current value equivalent to the debt's current worth.

2.3.2 Interest Rates

Interest rate greatly affects the pricing of goods and services both regionally and abroad. The supply of money in the economy can greatly affect the levels of interest. For instance, when there is plenty of money in the economy, the interest rates are more likely to reduce and this will affect how a firm performs in the market. This will subsequently boost the market which will become more attractive for foreigners in the country. Vice versa will happen if the money supply in the economy reduces (Barksenius & Rundell, 2012)

Interest rates determine progress of the economy. According to Barnor (2014), an unanticipated alteration in interest rates possess an effect on investment decisions, and as a result, investors tend to alter their savings arrangements, moving from capital market to fixed profit instruments. As per Khan and Sattar (2014), interest rate has a positive or negative impact on performance depending on the movement. Savings are discouraged by a reduction in deposit interest rates and an increase in consumption.

2.3.3 Inflation

Rates of inflation can affect the economy of a country substantially. For instance, during times of price movements and increments, prices of property will increase. Therefore, when inflation in an economy rises, the general cost of goods is likely to increase. This will subsequently affect how firms perform financially. Therefore, many investors who engage in sale of goods and services in the market usually include an allowance for inflation (Biller, 2007).

Higher rates of inflation will translate to prices being higher for consumers slowing down business and thus reduce firms' earnings. Prices that are high also trigger a regime that has higher interest rate (Hendry, 2016). According to Fama (1970), inflation is likely to be negatively associated with real economic activity, and as a result likely to be positively related to the market performance. Thus, growth ought to be associated negatively to the expected price level, interest rates at the short-term representing the IFE.

2.3.4 Unemployment Rate

Assume the stock and labor markets are both in balance. Now, imagine there is a negative shock to labor demand, resulting in a fall in wages and salaries and an increase in unemployment, *ceteris paribus*. Increased unemployment will result in lower disposable income for the employees affected, lowering demand for stocks. Stock durability suggests that the short-term supply of stocks is fixed, thus stock prices will fall in this situation (Osoro & Ogeto, 2014).

The prospering of a nation is intimately related with the economic, which includes factors like as unemployment, GDP, inflation, remittances, capital supply, interest rate, and exchange rates, according to both theory and empirical literature. Variations in economic fundamentals drive share price movements, and these fundamentals affect future prospects (Rehman, Sidek, & Fauziah, 2009).

2.4 Empirical Studies

Under the empirical studies section, various surveys linked to the research variables, which have been undertaken by various author around world, were reviewed to establish the methodologies used and the gaps in those studies.

2.4.1 Global Studies

Sheikh, Faridi, and Tariq (2016) used the OLS technique to examine the effects of domestic debt on economic growth and the effect of domestic debt servicing on economic growth in Pakistan from 1975 to 2015. According to the research, the negative domestic debt servicing impact on economic growth outweighs the positive effect of domestic debt. This study presents a conceptual gap as it focused on domestic debt leaving a gap on the effect of external debt on growth economically.

Between 1996 and 2013, Mensah et al. (2018) pursued to clarify infrastructure development and foreign loans impact on economic development in 36 Africa's Sub-Saharan nations. Foreign loans describe the growth economic designs in SSA, according to the research, which used the GMM approach. Foreign loans devoted appropriately in gainful infrastructure projects, according to the report, would have a favorable influence on growth. External debt, however, might not be meaningful beyond a certain amount

and has a detrimental impact on SSA's growth economically. The research presents a conceptual gap as domestic debt was not considered.

Rahman et al. (2019) investigated if there is widespread agreement on the consequences of public debt on a country's or group's economic growth. A systematic review of related papers was performed via Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standard process, which included identification, screening, as well as eligibility. The major papers to be reviewed were picked from a total of thirty-three. The correlation between public debt and economic growth was discovered to be a source of disagreement. Based on how funds are used, the connection can be positive, negative, or even non-linear. Countries that spend the public debt on infrastructure development tend to report a positive effect on EG. This study presents a methodological gap as it was a review of literature and therefore need to conduct empirical studies.

Ehikioya et al. (2020) investigated the diverse relationships between foreign loan and economic development in 43 African nations from 2001 to 2018. They utilized the Johansen Cointegration test. The study shows how the importance of external borrowing can be narrow as a result of its misappropriation. The findings show that if external debt is utilized in infrastructure development, there is a long-run equilibrium link between foreign loans and Africa's economic development. The conclusion shows that, if a precise capacity is reached, there is intersection of short and long-run equilibrium, thus foreign loans begins to negatively affect African growth economically. The research conclusions highlight the importance for policymakers to guarantee that external debt is properly applied to economic activity in order to achieve long-term economic stability.

This study presents a contextual gap as it was cross-country in nature and therefore the findings cannot be generalized to a specific country.

2.4.2 Local Studies

In Kenya, Kibui (2015) investigated the influence of external debt on state investment and economic growth. To analyze the influence of external debt on governmental investments and economic growth in Kenya, the researchers used time series data from 2007 to 2014 and a reduced form growth model incorporating debt variables. Since 2007, the primary debt indicators have been above the critical level, according to the study's conclusions. The empirical results of a time series data analysis for the years 2007-2014 show that the debt service ratio is important in explaining Kenya's GDP growth. Both the stock of external debt expressed as a percentage of GDP and debt service ratios have a negative connection with public investment. The findings suggest that debt relief in Kenya could be a stimulus for investment recovery and economic growth. This study presents a conceptual gap as internal debt was not taken into account.

Wanjuki (2016) investigated the impact of Kenya's national debt from 1980 to 2013. He used variables such as gross debt service, inflation, real interest rate as well as real exchange rate using data from the CBK. Using a VECM, the researchers discovered that public debt servicing, domestic debt, real interest rate, inflation, as well as a lagged PIGR had a negative impact on GDP growth, whereas external debt, real exchange rate, lagged GDP, and private investment had a positive impact. Although this research considered the effect of public debt on economic growth, it presents a conceptual gap as the operationalization of public debt did not take into account the effect of internal and external debt separately.

Kimolo and Onono (2017) used a multivariate linear regression model including additional variables believed to influence EG to examine the reaction of Kenyan economic growth to domestic borrowing from 1971 to 2013. Transitions in political regimes and market reforms were also explored to see if they had any moderating influence on Kenya's economic growth response to domestic borrowing. Domestic borrowing appears to have a detrimental impact on economic growth, according to the data. Private consumption and inflation have a negative impact on EG, whereas private investment and net exports growth have a positive impact. The findings imply that domestic borrowing has an adverse effect on EG. Economic growth has been proven to be unaffected by market reforms. The research presents a conceptual gap as it focused on domestic debt leaving a gap on external debt.

Mwangi (2017) aimed at establishing how each type of debt, that is, internal and foreign borrowing impacts individually on growth of Kenya's economy. A modified Solow's growth model was used in the research. Both domestic and external debt were found to be responsible for growth. Cointegration analysis was applied to empirically determine the incidence of a long-term correlation between GDP, and the selected variable. The research established that in the domestic debt scenario, it has an insignificant though positive effect on growth of an economy. In the case of external debt, revealing substantial but negative association with growth. The study presents a contextual gap as it was specific to Kenya and due to economic differences, the results cannot be generalized in other contexts.

Murungi and Okiro (2018) conducted a thorough analysis of the theoretical and empirical literature on the impact of government debt on EG. The study's specific goals were to

look into the government debt influence on EG, to look into the effects of macroeconomic variables on the correlation between debt and EG, and to see how regulatory reforms affected the association between debt and EG, and to look at how macroeconomic variables and regulatory reforms interact to affect debt and EG. The majority of the findings from the government debt literature review demonstrated that government debt had an impact on EG; some studies showed positive growth, while others indicated negative growth. This study presents a methodological gap as it was a critical review of literature and therefore need for an empirical study to confirm the findings.

2.5 Conceptual Framework

This research conceptual model encompasses public debt and EG as the independent and dependent variables while interest rate, unemployment rate as well as inflation rate being incorporated as the control variables. Figure 2.1 depict the study’s conceptual model.

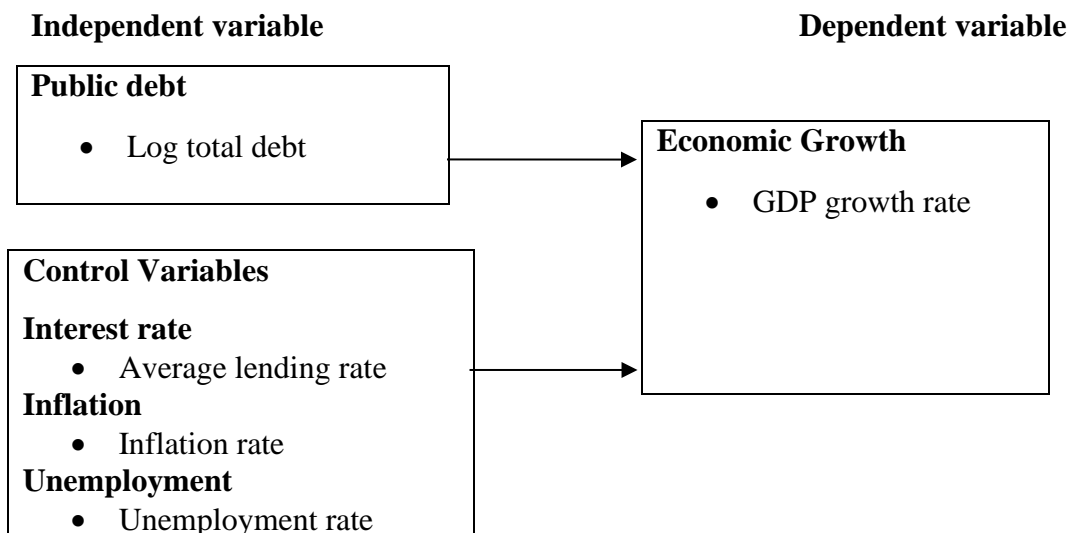


Figure 2.1: Conceptual Model

Source: Author (2021)

2.6 Summary of Empirical Review and Research Gaps

From the reviewed literature, it is apparent that there exists deviation on public debt and EG. The deviation in research results on this subject can be attributed to the following research gaps; conceptual gaps, contextual gaps and methodological gaps. At the conceptual level, different researchers who adopted different proxies for public debt and economic growth and diverse theories when explaining the relationship between the study variables established different conflicting findings.

At the methodological level, different research methodologies were adopted by different researchers studying the subject leading to different findings as expounded in the review of empirical studies. These methodologies included GMM, co-integration and multivariate analysis. At the contextual level, various surveys on public debt and economic growth were carried out developed western economies with few done in developed Asia-Pacific economies and few in frontier economies. This gap tends to limit the generalizability of the study's findings given the structural differences between developed economies and frontier economies. The current study intended to fill these knowledge gaps.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter highlights the steps and tactics that was adopted in executing the proposed research. In particular, it converses the research design, population, data collection methods, operationalization of the variables and data analysis procedures.

3.2 Research Design

A descriptive research design was used for this research. A descriptive design was utilized in establishing the effect and interrelationship among the chosen study variables. Descriptive design was also used to describe variables of the study namely public debt as well as economic growth in terms of their mean and standard deviations. This design was suitable since they enable the researcher to prudently compare the findings of the research and help in answering the questions of what, where as well as how.

3.3 Data Collection

Only secondary data was utilized in this research. Secondary data was gathered through Central Bank reports and KNBS reports between January 2011 and December 2020 quarterly and captured in a data collection sheet. The 10-year quarterly period was considered long enough to provide adequate data to achieve the research objectives. A secondary data collection sheet was used in compiling the secondary data collected. The specific data collected included; total debt, interest rate, inflation rate, unemployment rate as well as GDP growth rate.

3.4 Diagnostic Tests

Before moving on to equation estimation, diagnostic tests were done to guarantee that there are no breaches of the traditional linear regression model assumptions. Parameter estimations are skewed as well as inefficient whenever the assumptions of a classical regression model are broken.

3.4.1 Stationarity Test

Using Augmented Dickey-Fuller (ADF) tests, the researchers used a stationarity test to determine the presence of a unit root. The test being performed in regard to avoid the issue of erroneous and inconsistent regression results. In general, a p-value of below 5% indicating the null hypothesis of a unit root is rejected. The computed DF_T the calculated critical value was also compared to the statistic. The null hypothesis of a unit root was rejected since the DF_T statistic was more negative than the table value. It's worth noting that the lower the DF test statistic, the more evidence that the null hypothesis of a unit root was rejected.

3.4.2 Cointegration Test

Cointegration prior to the VAR analysis was carried out to see if the variables have a long-run or short-run correlation. The presence of cointegration was detected via the Johansen test in this study.

3.4.3 Normality Test

Jarque-Bera was used to establish the normality of the data, which was found to be true for all variables. The data was declared not normally distributed in case p-value obtained was below 0.05.

3.4.4 Multicollinearity

When two independent variables are linearly connected, this is a common occurrence in time series data. Its existence causes the variance of parameter estimations to inflate, resulting in inaccurate magnitude and sign estimates for the coefficients and signs. This could lead to erroneous findings. To test for multicollinearity, the researchers employed VIF values for all of the variables.

3.4.5 Autocorrelation

Autocorrelation relates to a circumstance in which the erroneous phrase is linked to the one before it. Its presence has no effect on the estimates' unbiasedness, but it does lead to erroneous conclusions due to incorrect hypothesis testing. To see if there was any autocorrelation, the researchers used the Breusch Godfrey LM test. The residuals of the empirical model are not auto correlated if the p-values for the Chi-square statistic are below 0.05

3.5 Data Analysis

In data analysis, version 24 of SPSS software was used. Tables will present the findings quantitative manner. Descriptive statistics were employed in the calculation of central tendency measures as well as dispersion such as mean as well as standard deviation for every variable. Inferential statistics relied on correlation as well as regression. The degree

of the connection between the variables in the research was determined by correlation, while cause and effect was determined by regression.

3.5.1 Analytical Model

The following equation was applicable:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Economic growth measured as GDP growth rate

β_0 = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4$ = are the regression coefficients

X_1 = Public debt measured as log total public debt per quarter

X_2 = Interest rate measured as average quarterly lending rate

X_3 = Inflation measured as quarterly inflation rate

X_4 = Unemployment measured as quarterly unemployment rate

ε = error term

3.5.2 Tests of Significance

Parametric tests were used to establish the relevance of the overall model and each individual variable. The F-test established the overall model's significance and this was achieved by means of ANOVA whereas a t-test determined coefficient significance.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

The current research's conclusions and results are summarized in this chapter. The goal was to establish how public debt influences economic growth in Kenya. These parts contain descriptive statistic, diagnostic test, analysis of correlations, regression and discussion of results.

4.2 Descriptive Analysis

The descriptive statistics for the variables analyzed are listed in the table below. Quarterly information on the factors under investigation was collected and analyzed using SPSS version 24 software during a ten-year period (2011 to 2020).

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Economic Growth	40	-4.7000	6.0000	4.182500	2.0277419
Ln Public debt	40	6.138	6.859	6.49603	.226401
Interest rate	40	5.9	18.0	9.685	2.7149
Inflation	40	4.1567	16.2900	7.186000	2.9059835
Unemployment rate	40	2.600	2.980	2.78800	.112209
Valid N (listwise)	40				

Source: Research Findings (2021)

4.3 Diagnostic Tests

Prior to running the regression model, diagnostic tests were performed. Co-integration, Multicollinearity, normality, autocorrelation, and stationarity test were all performed in this instance.

4.3.1 Stationarity Test

The researcher used a stationarity test to determine the presence of a unit root Augmented Dickey-Fuller (ADF) tests. The findings are depicted in Table 4.2.

Table 4.2: Stationarity Test

	Critical value at 95%	DFT statistic	P-value
Economic growth	-2.447	-3.271	0.000
Public debt	-2.447	-3.337	0.000
Interest rate	-2.447	-4.748	0.000
Inflation	-2.447	-3.755	0.000
Unemployment rate	-2.447	-4.826	0.000

Source: Research Findings (2021)

From the conclusions, the p-values for all the variables were less than 0.05 and the DFT statistic were more negative than their corresponding critical values. This is an indication that null hypothesis that there is a unit root was rejected and study concluded that the variables did not have unit roots.

4.3.2 Co-integration Test

Co-integration test was conducted to determine whether the variables exhibit a long run or short run relationship. The results are as shown in Table 4.3

Table 4.3: Co-integration Test Results

	Eigen Value	Trace Statistic	Critical value at 95%	P-value
Public debt	0.123	23.13	26.03	0.000
Interest rate	0.083	61.02	62.07	0.000
Inflation	0.301	20.01	26.79	0.000
Unemployment rate	0.189	27.22	28.76	0.000

Source: Research Findings (2021)

From the conclusions, the study shows that all the variables had their p values less than 0.05 and hence the research discovered that variables exhibit long-run or short run relationship.

4.3.3 Normality Test

Data normality was tested using Jarque-Bera and was established for all variables. The findings are in Table 4.4 displayed.

Table 4.4: Normality Test Results

	Jarque-Bera Coefficient	P-value
Economic growth	2.587	0.100
Public debt	5.304	0.202
Interest rate	1.763	0.315
Inflation	2.153	0.227
Unemployment rate	3.145	0.201

Source: Research Findings (2021)

From the conclusions, the p-values for economic growth, debt, interest rate, inflation and unemployment rate were greater than 0.05. Thus, the research resolved the data was deemed to be normally distributed.

4.3.4 Multicollinearity

Collinearity Statistics was used to see if the independent variables were sufficiently correlated to establish a significant causal correlation. The results for multicollinearity test were presented in Table 4.5.

Table 4.5: Collinearity Statistics

	Collinearity Statistics	
	Tolerance	VIF
Public debt	.166	6.134
Interest rate	.103	8.998
Inflation	.138	7.217
Unemployment rate	.101	8.834

Source: Research Findings (2021)

Based on the coefficients output, public debt had a VIF value of 6.134, interest rate had a VIF value of 8.998, inflation had a 7.217 VIF value whereas unemployment rate had a 8.834 VIF value. The VIF values for all the variables were below 10 implying that there were no Multicollinearity symptoms.

4.3.5 Autocorrelation

Autocorrelation is a measure of how similar one-time series was when compared to its lagged value across successive timings. The measure of this test was done using the Wooldridge test. The findings are shown in Table 4.6.

Table 4.6: Autocorrelation Results

Wooldridge test for autocorrelation
H0: no first-order autocorrelation
F(1, 40) = 0.384
Prob> F = 0.5235

Source: Research Findings (2021)

From the results of Table 4.6, the null hypothesis of no serial correlation is not rejected given that the p-value is significant (p-value = 0.5235).

4.4 Correlation Analysis

The Pearson correlation was utilized to examine the correlations between growth of the Kenyan economy and the study's characteristics (public debt, inflation, interest rate and unemployment rate). According to the findings, there was a weak negative and significant statistical connection between public debt and economic growth ($r = -.350$, $p = .027$). Unemployment rate also has a considerable and inverse relationship to the growth of the Kenyan economy ($r = -.492$, $p = .001$). Even though there was a positive connection between interest rate and economic growth, the link was not significant, as demonstrated by a probability value of 0.386 which is greater than a 0.05 threshold. The results also revealed a positive but not significant association between inflation and growth of the Kenyan economy.

Table 4.7: Correlation Analysis

		Economic Growth	Ln Public debt	Interest rate	Inflation	Unemployment rate
Economic Growth	Pearson Correlation	1				
	Sig. (2-tailed)					
Ln Public debt	Pearson Correlation	-.350*	1			
	Sig. (2-tailed)	.027				
Interest rate	Pearson Correlation	.141	-.343*	1		
	Sig. (2-tailed)	.386	.030			
Inflation	Pearson Correlation	.018	-.490**	.863**	1	
	Sig. (2-tailed)	.914	.001	.000		
Unemployment rate	Pearson Correlation	-.492**	-.392*	-.008	.237	1
	Sig. (2-tailed)	.001	.012	.963	.140	

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).
 c. Listwise N=40

Source: Research Findings (2021)

4.5 Regression Analysis

Public debt, interest rates, inflation, and the unemployment rate were all used as predictor factors for the Kenyan economic growth. The testing was performed at 5% level of significance. Table 4.8 to 4.10 displays the results.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 ^a	.613	.568	1.3322720

a. Predictors: (Constant), Inflation, Unemployment rate, Ln Public debt, Interest rate

Source: Research Findings (2021)

The R squared indicator indicates how the explanatory variables may describe variations in the response variable. As indicated in Table 4.8, the R square was 0.613, indicating that change in public debt, interest rate, inflation, and the unemployment rate account for 61.3 percent of Kenya’s economic growth. Other factors not included in this research account for 38.7 percent of the variance in economic growth in Kenya. The correlation coefficient (R) of 0.783 showed a significant connection amongst predictor factors and economic growth.

Table 4.9: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.235	4	24.559	13.836	.000 ^b
	Residual	62.123	35	1.775		
	Total	160.358	39			

a. Dependent Variable: Economic Growth
b. Predictors: (Constant), Inflation, Unemployment rate, Ln Public debt, Interest rate

Source: Research Findings (2021)

The value of P obtained by ANOVA is 0.000, which is less than $p=0.05$. This demonstrates that the model's importance described the impact of public debt, interest rates, inflation, and unemployment on Kenya's economic growth.

The relevance of various variables was determined using the model coefficients. The statistics of t and values of p were used to accomplish this. This study is significant since it allowed the researcher to determine which independent variables were chosen (Public debt, interest rates, inflation and unemployment rate) significantly influences growth of the Kenyan economy. The importance of the association between the two variables was shown by the sig. column's p-value. At a 95 percent confidence level, a p-value of less than 0.05 was judged to be statistically significant, which is the most conservative estimate. Table 4.10 summarizes the findings.

Table 4.10: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	82.088	11.316		7.254	.000
Ln Public debt	-6.442	1.145	-.719	-5.628	.000
Interest rate	.097	.173	.130	.560	.579
Unemployment rate	-12.767	2.261	-.706	-5.647	.000
Inflation	-.195	.172	-.279	-1.132	.265

a. Dependent Variable: Economic Growth

Source: Research Findings (2021)

Table 4.10 shows that only public debt and unemployment rate, with a p value less than 0.05, were a significant predictor of economic growth in Kenya. Other independent factors (interest rates, and inflation) were not significant predictors of economic growth in Kenya, as evidenced by low t values and p values greater than 0.05.

The following regression was estimated:

$$Y = 82.088 - 6.442X_1 - 12.767X_2$$

Where,

Y = Economic growth

X₁ = Public debt

X₂ = Unemployment rate

Using the constant = 82.088, we can see that if certain independent variables (public debt, interest rates, inflations, and unemployment rates) were rated zero, economic growth would be 82.088. Increasing public debt by one unit would decrease growth by 6.442 units while increasing the unemployment rate by one unit would cause the growth to decline by 12.767. The other variables considered had no statistically significant influence.

4.6 Discussion of Research Findings

The goal of this research was to see how the predictor variables affected the growth of Kenya's economy. The independent variables were public debt, interest rates, inflation and unemployment rate. The study aimed to explain the growth as a dependent variable. The GDP growth rate was used to measure economic growth. Correlation as well as regression analysis being utilized to examine the relationships between the independent and dependent variables.

The Pearson model revealed a weak and significant negative link between public debt and economic growth. Interest rates showed a positive though not significant association with the growth, according to the data while inflation showed a positive but not

significant association with economic growth. In the Kenyan economy, the unemployment rate has a substantial, negative, and statistically significant link with growth.

The independent variables accounting for 61.3 percent of variances in growth of the Kenyan economy, according to the model summary. In this study, the chosen predictor variables were found to have explanatory power that was fit at a 95 percent confidence level, as shown by the p value of 0.000, that is below the significance threshold of 5 percent. Thus, the overall model used in this research proved to be a viable prediction model for understanding the growth of the Kenyan economy.

This research is in agreement with Ehikioya et al. (2020) who investigated the diverse relationships between foreign loan and economic development in 43 African nations from 2001 to 2018. They utilized the Johansen Cointegration test. The study shows how the importance of external borrowing can be narrow as a result of its misappropriation. The findings show that if external debt is utilized in infrastructure development, there is a long-run equilibrium link between foreign loans and Africa's economic development. The conclusion shows that, if a precise capacity is reached, there is intersection of short and long-run equilibrium, thus foreign loans begins to negatively affect African growth economically.

This study is also in agreement with Kimolo and Onono (2017) who used a multivariate linear regression model including additional variables believed to influence EG to examine the reaction of Kenyan economic growth to domestic borrowing from 1971 to 2013. Transitions in political regimes and market reforms were also explored to see if

they had any moderating influence on Kenya's economic growth response to domestic borrowing. Domestic borrowing appears to have a detrimental influence on economic growth, as per the data. Private consumption and inflation possess a negative impact on EG, whereas private investment and net exports growth have a positive impact. The findings imply that domestic borrowing has an adverse effect on EG.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The primary purpose of the research was to determine how public debt influences the growth of Kenya's economy. The findings from the preceding chapter are summarized in this section, as well as the research's conclusions and limitations. It also suggests policies which may be used by policymakers. The chapter also makes recommendations for future research.

5.2 Summary of Findings

The research evaluated the contribution of public debt to the growth of the Kenyan economy. Public debt, interest rates, inflation, as well as unemployment were all included in the study as predictor variables. The research utilized descriptive design for analysis and data collection. Secondary data have been acquired from CBK as well as KNBS and processed using SPSS version 24 program. The research utilized data over a period of 10 years on a quarterly basis.

The findings revealed a negative and weak link between public debt and economic growth in Kenya. Furthermore, the correlation findings indicate that interest rate is positively but statistical insignificantly linked to economic growth while inflation is also positively but not significantly linked to economic growth. However, the unemployment rate was negatively and statistically significantly linked to Kenya's economic growth.

The R-square coefficient was 0.613, which means that the predictors chosen may explain 61.3% of growth changes in the Kenyan economy, whereas 38.7% of growth changes

relate to other factors not addressed by this study. The research revealed that independent factors combined had a significant effect on economic growth. ANOVA emphasizes that the F statistic with $p=0.000$ is significant at level of 5 percent. This demonstrates that the model was capable of capturing independent variables impact on the growth of the Kenyan economy.

The regression results further discovered that if the selected independent variables (public debt, interest rates, inflations, and unemployment rates) were rated zero, economic growth would be 82.088. Increasing public debt by one unit would decrease growth by 6.442 units while increasing the unemployment rate by one unit would cause the growth to decline by 12.767. The other variables considered had no statistically significant influence.

5.3 Conclusion

The results of the research indicate that Kenya's economic growth is in negative manner influenced by public debt. The research finds that an increase in public debt leads to a significant decrease in economic growth. The research also concludes that unemployment rate has a significant adverse effect on economic growth in Kenya. The research finds that while inflation rate has an impact on growth, the impact is not statistically meaningful. Interest rate was also found not to have a significant impact on economic growth.

This research finds that the factors selected for investigation – public debt, interest rate, inflation and the unemployment rate – influence growth by explaining 61.3% of the growth variations. The finding that the independent factors account for 61.3% of changes

in the economic growth means that the non-model variables explain 38.7% of variations in the Kenya's economy growth. It is sufficient to infer that the factors highlighted substantially influence the growth as demonstrated in the ANOVA summary by p values less than 0.05.

The conclusions of this research concurred with Mwangi (2017) who intended to research in what way each type of debt, that is, internal and foreign borrowing impacts exclusively on growth of Kenya's economy. A modified Solow's growth model was used in the research. Both domestic and external debt were found to be responsible for growth. Cointegration analysis was employed to empirically establish the incidence of a long-term correlation between GDP, and the selected variable. The research discovered in the domestic debt scenario; it has an insignificant though positive effect on growth of an economy. In the case of external debt, revealing substantial but negative association with growth.

5.4 Recommendations

The results have shown that public debt possess a negative and substantial impact on Kenya's growth. Implying a rise in public debt can have an adverse effect on economic growth. The study recommends the need for policy makers to review the set limit of public debt as high debt levels negatively affects the economy. The policy makers should also ensure that the public debt being raised is used for development spending as this will possess a positive effect on overall economic growth of the country.

The results of this research have shown that the unemployment rate has had a negative and substantial impact on the development of the economy in Kenya. The study

recommends that steps are needed to guarantee that variables that impact existing unemployment levels are properly handled in order to ensure that the current unemployment rate does not negatively affect the economy in general. If the nation can control the current unemployment rate, this would improve productivity and eventually the development of the economy as a whole.

The research showed that inflation impacts on Kenya's growth. The research suggests that commodity prices should be regulated on the market since price growth leads to inflation, which may have a negative effect on the growth of the economy. The research suggests that interest rates should be determined by the law of demand and supply with minimal regulation as they do not have a significant influence on economic growth.

5.5 Limitations of the Study

The timeframe chosen was 10 years from 2011-2020 in this research. There is no evidence that over a longer period comparable findings will stay the same. Furthermore, it cannot be evaluated if the same results will hold after 2020. More time is more reliable since it includes instances of significant economic shifts such as recessions and booming.

The greatest constraint for this research was data quality. The results of this study cannot be reliably inferred to be a true reflection of the situation at hand. The accuracy of the data used in the research has been assumed. In addition, there has been a lot of incoherence in measuring the data owing to the existing circumstances. In contrast to primary data, the research used secondary data. Some of the drivers of growth have been taken into account and not all due to the restriction of data availability.

Regression models were utilized to finalize the data analysis. The investigators would be unable to generalize the results exactly due to the constraints involved with the model utilization, such as erroneous as well as deceptive conclusions emanating from a change in value of variable. When data is added to a regression model, it can no longer be run using the previous model.

5.6 Suggestions for Further Research

The purpose of this research was to determine how public debt affected the growth of the economy in Kenya. A study focusing on primary data or a mix of primary as well as secondary data is suggested in order to identify qualitative elements which may be overlooked in this investigation.

The study did not take into account all of the independent elements that drive the growth of the economy. The study suggests that more research and investigation be carried out in this area and that additional factors be included in the study and analyses. Factors such as the money supply, balance of payments, corruption, cost of labour, poverty level and other factors. Displaying each of these factors' impact on the development of the economy will allow policymakers to choose what instruments to employ for controlling economic growth.

Due to constraints in data availability, the research concentrated on the last 10 years. Additional research should utilize a broader range of data to validate additional data. It was also restricted, since only Kenya was concerned. Further research should also be carried out in other countries. Finally, the researcher used a regression model to confirm

or reject the findings, and future researchers should use different ways to confirm or reject the findings.

REFERENCES

- Achwoga, G. (2016). *Effect of public debt on economic growth in Kenya*.
URI: <http://41.89.49.13:8080/xmlui/handle/123456789/1333>
- Aero, O., & Ogundipe, A. (2016). Fiscal deficit and economic growth in Nigeria: Ascertaining a feasible threshold. *Journal of Financial Economics*, 8(3), 296–306.
<https://doi.org/10.2139/ssrn.2861505>
- Agboola, A. O. (2015). Neoclassical economics and new institutional economics. *Property Management*, 15, 1-36
- Akinwunmi, A. (2012). An investigation into factors affecting housing finance supply in emerging economies: a case study of Nigeria. *Journal of International Real Estate and Construction Studies*, 2(1/2), 99-121
- Akram, N. (2010). Impact of public debt on the economic growth of Pakistan. *Journal of Economic Literature* (JEL), H63, O43, E22, C22
- Ariyo, A. (1997). *Paper Presented at a Seminar on the Debt Problem and the Nigeria Economy*: Resolution options, Organized by CBN. Abuja, Nigeria Oct, 28-29
- Asabere, P. K., McGowan Jr, C. B., & Lee, S. M. (2016). A study into the links between public debt and economic development in Africa. *International Journal of Housing Markets and Analysis*, 9(1), 2-19.
- Aziz, R. & Azmi, A. (2017). Factors affecting gross domestic product (GDP) growth in Malaysia. *International Journal of Real Estate Studies*, 11(4), 61-67.

- Bal, D. P., & Rath, B. N. (2016). Is Public debt a Burden for India? *Economic Papers: A Journal of Applied Economics and Policy*, 35(2), 184–201.
<https://doi.org/10.1111/1759-3441.12132>
- Baldwin, J.R., Dixon, J. (2008), Infrastructure Capital: What is it? Where is it? How much of it is there? *Canadian Productivity Review*. No 16. Ottawa: Statistics Canada.
- Berry, M. (2006). *Housing affordability and the economy: A review of macroeconomic impacts and policy issues*. Australian Housing and Urban Research Institute.
- Boldeanu, F. T., & Constantinescu, L. (2015). The main determinants affecting economic growth. *Bulletin of the Transylvania University of Brasov: Economic Sciences*, 8(2), 329-338
- Burns, N. (2008). *The practice of nursing research: Conduct, critique and utilization: 5th Edition*: St Louis, Elsevier Saunders
- Cariolle, J. (2012). Measuring macroeconomic volatility: applications to export revenue data, 1970-2005. *Working paper no. 114*, Ferdi.
- Chow, Y. P., Muhammad, J., Noordin, B. A. A., & Cheng, F. F. (2018). Macroeconomic dataset for generating macroeconomic volatility among selected countries in the Asia Pacific region. *Data in Brief*, 16, 23-28.
- Cooper, R., & Schindler, S. (2013). *Business research methods*. New York: McGrawhill
- Coupet, J. (2017). Government debt and economic growth: Another neo-classical growth approach. *Journal of Applied Economics and Business Research*, 7(3), 172-193.
<http://www.aebrjournal.org/>

- David, K. G., & Ampah, I. K. (2018). Macroeconomic volatility and capital flights in Sub-Saharan Africa: A dynamic panel estimation of some selected HIPC Countries. *Mediterranean Journal of Social Sciences*, 9(5), 165-176.
- Duran, M.G.G. (2017). Public debt and economic growth in the Philippines: Evidence of causality. *International scientific conference Economic and Social Development*, 267-280.
- Eze, O.R., Ogiji, F. O. (2016). Impact of deficit financing on economic stability in Nigeria: Analysis of economic growth. *Journal of Applied Finance & Banking*, 6(1), 111-125.
- Grimsey, D. & Lewis, M., K., (2004). *Public Private Partnerships: The Worldwide Revolution in Infrastructure Provision and Project Finance*. Edward Elgar Publishing Ltd.
- Haller, A. P. (2012). Concepts of economic growth and development challenges of crisis and of knowledge. *Economy Transdisciplinarity Cognition*, 15(1), 66-71
- Hjalmarsson, D. (2013). Macroeconomic volatility as determinants of FDI: A source country perspective. *Working Paper No. 5/13*, Södertörn University
- International Monetary Fund (2019). *Sub-Saharan Africa Regional Economic Outlook: Navigating Uncertainty*, Sub-Saharan Africa
- Karazijiene, Ž. (2015). Critical analysis of public debt and tendencies of its management. *Public Policy and Administration*, 14(2), 194–208.
- Keynes, J.M. (1936). *The General Theory of Employment, Interest, and Money*, London: Macmillan.
- Khan, J. A. (2008). *Research methodology*. New Delhi. APH Publishing Corporation

- Klein, T. (1994). *External Debt Management*. World Bank Staff Papers, Issue 245
- Lidiema, C. (2018). Effects of government borrowing on private investments in Kenya. *Journal of Finance and Economics*, 6(2), 49-59.
- Loayza, N. V., Ranciere, R., Servén, L., & Ventura, J. (2007). Macroeconomic volatility and welfare in developing countries. *The World Bank Economic Review*, 21(3), 343-357.
- Loosemore M.N (2007). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management*, 25(1), 66–76.
- Lwanga, M. M., & Mawejje, J. (2014). Macroeconomic Effects of Budget Deficits in Uganda: A VAR-VECM Approach. *Research Series*, 4(117), 81–108.
- Maana, I., R. Owino, & N. Mutai (2008). *Domestic Debt and its Impact on the Economy- The Case of Kenya*. Paper presented at the 13th Annual African Econometric Society Conference, Pretoria, South Africa. Retrieved from <https://www.researchgate.net/publication/237440934>
- Magro, J.M. & Bartolome, R., (2010). *Infraestructura Pública y Participación Privada* CAF, ed.
- Matiti, C. (2013). The Relationship between Public debt and Economic Growth in Kenya. *International Journal of Social Sciences and Project Planning Management*, 1 (1), 65-86.
- Megersa, K., & Cassimon, D. (2015). Public debt, Economic Growth, and Public Sector Management in Developing Countries: Is There a Link? *Public Administration and Development*. <https://doi.org/10.1002/pad.1733>

- Mogaka, A. J., Kiweu, J. M., & Kamau, R. G. (2015). Macroeconomic factors and mortgage market growth. *Journal of Finance and Accounting*, 3(4), 77-85
- Murungi, S., & Okiro, K. (2018). Impact of Government Debt on Economic Growth in Kenya: A Critical Literature Review. *European Scientific Journal*, 14(1), 240-257.
- Musibau, H. O., Mahmood, S., Ismail, S., Shamsuddin, Z., & Rashid, N. (2018). Does External Debt Cause Economic Growth? An Experience from ECOWAS Member Countries. *International Journal of Academic Research in Business and Social Sciences*, 8(11), 36-45.
- Musyoka, G. (2017). The effect of public debt on economic growth in Kenya. *Unpublished MBA Project, University of Nairobi*.
- Mwangi, D. N. (2017). *The Impact of Public debt on Economic Growth in Kenya* (Doctoral dissertation, Makerere University).
- Mwere, D. (2018, November 10). President Kenyatta defends government borrowing. *Daily Nation*. Retrieved from <https://www.nation.co.ke/news/Uhuru-defendsgovernment-borrowing/1056-4845134-cxneon/index.html>
- Ndii, D. (2017, November 17). Jubilee's borrowing binge: Chickens are coming home to roost. *The Daily Nation*. Retrieved from <https://www.nation.co.ke/oped/opinion/Jubilee-s-borrowing-binge/440808-4191788-sty2lr/index.html>
- Ochieng', J. (2018, March 10). ICPAK alarmed over Kenya's growing debt. Retrieved from <https://www.nation.co.ke/news/ICPAK-on-Kenya-debt/1056-4345984-7kwrle/index.html>

- Ofor, T. N., & Alagba, O. S. (2019). Housing finance and economic growth of West Africa region. *International Journal of Business and Economic Development*, 6(3), 49-60
- Ohanian, L. E. (2010). The economic crisis from a neoclassical perspective. *Journal of Economic Perspectives*, 24(4), 45-66.
- Owusu-Nantwi, V., & Erickson, C. (2016). Public debt and economic growth in Ghana. *African Development Review*, 28(1), 116–126.
- Panizza, U., & Presbitero, A. F. (2013). Public debt and economic growth in advanced economies: A survey. *Swiss Journal of Economics and Statistics*, 149(2), 175-204.
- Putunoi, G. K., & Mutuku, C. M. (2013). Domestic debt and economic growth nexus in 113 Kenya. *Current Research Journal of Economic Theory*, 5(1), 1-10.
- Rahman, N. H. A., Ismail, S., & Ridzuan, A. R. (2019). How does public debt affect economic growth? A systematic review. *Cogent Business and Management*, 6(1), 12-19.
- Renjith, P. S., & Shanmugam, K. R. (2018). Debt sustainability: Empirical evidence from Indian states. *Public Finance & Management*, 18(2) 168-191.
- Wibowo, M. G. (2017). Public debt and economic growth in the South-East Asian countries. *Signifikan: Jurnal Ilmu Ekonomi*, 6(1), 177–188.
- Wray, L. R., & Tymoigne, E. (2008). *The financial theory of investment*. Macroeconomic Theory and Macroeconomic Pedagogy.

APPENDICES

Appendix I: Secondary Data

Year	Quarter	Economic Growth	Ln Public debt	Interest rate	Unemployment rate	Inflation
2011	1	5.90	6.138	5.88	2.860	4.16
	2	5.40	6.156	6.25	2.860	6.01
	3	5.40	6.189	7.00	2.860	9.02
	4	3.80	6.188	15.16	2.860	12.78
2012	1	3.90	6.186	18.00	2.860	15.83
	2	4.80	6.208	18.00	2.860	16.29
	3	5.00	6.225	14.75	2.860	14.30
	4	4.50	6.249	11.00	2.860	10.70
2013	1	3.60	6.253	9.50	2.870	7.26
	2	4.70	6.278	8.50	2.870	5.04
	3	3.70	6.302	8.50	2.870	4.56
	4	3.20	6.319	8.50	2.870	5.39
2014	1	4.90	6.333	8.50	2.820	6.20
	2	5.90	6.351	8.50	2.820	6.83
	3	5.10	6.375	8.50	2.820	7.24
	4	4.30	6.381	8.50	2.820	6.98
2015	1	4.80	6.416	8.50	2.800	6.67
	2	5.00	6.445	8.50	2.800	6.66
	3	4.70	6.466	11.50	2.800	6.39

Year	Quarter	Economic Growth	Ln Public debt	Interest rate	Unemployment rate	Inflation
	4	5.30	6.486	11.50	2.800	6.44
2016	1	3.80	6.512	11.50	2.760	6.84
	2	3.80	6.541	10.50	2.760	6.59
	3	4.40	6.561	10.50	2.760	6.47
	4	4.80	6.576	10.00	2.760	6.40
2017	1	5.40	6.598	10.00	2.690	6.48
	2	3.30	6.630	10.00	2.690	7.72
	3	3.20	6.649	10.00	2.690	8.32
	4	3.50	6.660	10.00	2.690	8.15
2018	1	5.20	6.682	10.00	2.640	7.36
	2	6.00	6.700	9.50	2.640	5.68
	3	5.30	6.709	9.00	2.640	4.70
	4	6.00	6.720	8.50	2.640	4.60
2019	1	4.80	6.731	8.50	2.600	4.67
	2	5.90	6.753	8.50	2.600	5.04
	3	4.80	6.778	8.50	2.600	5.32
	4	4.40	6.781	8.50	2.600	5.19
2020	1	4.40	6.791	7.75	2.980	5.62
	2	-4.70	6.819	7.00	2.980	6.12
	3	-2.10	6.847	7.00	2.980	5.89
	4	1.20	6.859	7.00	2.980	5.54