EFFECT OF PUBLIC DEBT ON ECONOMIC GROWTH IN KENYA

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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: ___J.K.K_____   Date: ____05/11/2021_____

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

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ACKNOWLEDGEMENT

This study was accomplished through the support and backing from various persons to who I am greatly in debt. First, my gratitude to the Almighty God for it is by his amazing grace that I was able to undertake and complete my studies. To Him I give glory and honor.

My special thanks to my supervisor, Prof. Cyrus Iraya for modeling this project into a meaningful form, his consistent and insightful reviews, guidance and encouragement. My gratitude goes to my family, parents, colleagues for their invaluable support, encouragement and the understanding that they accorded me.

DEDICATION

This research project is dedicated to my family for their love, support and encouragement

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LIST OF ABBREVIATIONS

AfDB   African Development Bank

CBK   Central Bank of Kenya

ECM   Error Correction Model

ECOWAS   Economic Community of West African States

EG   Economic Growth

GDP   Gross Domestic Product

GMM   Generalized Method of Moments

GNI   Gross National Income

IDA   International Development Agency

IFAD   International Fund for Agricultural Development

IMF   International Monetary Fund

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

VAR   Vector Autoregressive

ABSTRACT

Countries all the world rely on internal and external financing to meet their recurrent and development expenditure occasioned by budget deficits. Evidence shows that the debt limit is significantly low in developing nations compared to the developed ones. In Sub Saharan Africa, the government's unsustainable borrowing has become increasingly problematic in recent years. 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 country in the world. At the same time, the country has also recorded significant growth in development spending and economic growth. The objective of this study was to determine the impact that public debt have on the growth of the Kenyan economy. Public debt, interest rates, the unemployment rate, and inflation were all considered independent factors in this study. The response variable that the researchers attempted to explain was the growth of the Kenyan economy. The data was collected on a quarterly basis over a period of twenty years (from January 2001 to December 2020). A descriptive research approach was employed in the study, with a VAR model used to examine the connection between the study variables. The data were analyzed using STATA. The study's findings yielded an R-square value of 0.1167, indicating that the chosen independent variables could explain 11.67 percent of the variance in Kenya's economic growth, while the remaining 88.33 percent was due to other factors not investigated in this study. The F statistic was noteworthy at a 5% level with a p=0.0234, according to the findings of the ANOVA. This suggests that the model was adequate for explaining economic growth. Further, the findings revealed that public debt had a positive and significant influence on Kenya's economic growth while unemployment rate had a significant negative influence. Interest rates and inflation did not exhibit a statistically significant impact on economic growth. The study recommends the need for policy makers to ensure that public debt is utilized properly as this will enhance economic growth. The study also recommends that there is need to manage the current levels of unemployment since they have a major impact on growth.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

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.

This study was anchored on Keynesian theory that proclaims that public debt can boost aggregate demand as well as driving growth. The core principle of the Keynesian approach is that more independent government expenditure, facilitated by borrowing, will spur growth via the multiplier effect (Renjith & Shanmugam, 2018). The Ricardian equivalence theorem, which asserts that borrowing's main objective is to smooth out expenditure or revenue, predicts a neutral correlation, is another theory directing the research. There is also crowding-out effect theory, which contends that increasing government borrowing will reduce investment as well as economic growth by boosting real rate of interest as well as private segment crowding out (Coupet, 2017).

Countries all the world rely on internal and external financing to meet their recurrent and development expenditure occasioned by budget deficits. Evidence shows that the debt limit is significantly low in developing nations compared to the developed ones. In Sub

Saharan Africa, the International Monetary Fund (2019) the government's unsustainable borrowing has become increasingly problematic in recent years, according to the economic outlook study, with incentives often pushing against debt transparency. 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 continent in the world. At the same time, the country has also recorded significant growth in development spending and economic growth (World Bank, 2020).

1.1.1 Public Debt

Public debt is the government's debts to creditors (Akram, 2010). It can either be internal or external. External is the one borrowed from external creditors such as bilateral and multilateral creditors and private entities like the Chartered Bank UK. Bilateral creditors are primarily nations like Germany, Japan, France, Italy, USA, and others. Multilateral creditors are the IDA, IFAD, European Economic Community, World Bank, IMF, European Investment Bank and AFDB (World Bank, 2018). Domestic debt is amounts borrowed from government instruments like Treasury bills, bonds, and others (UNCTAD, 2017). Murungi and Okiro (2018) affirm that internal borrowing is a form of fiscal financing, where the government raises funds through floating loans within the country. 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.

Public debt is an important tool used to implement monetary policy (Ariyo, 1997). Open market operations are utilized by the Central Bank engages in buying and selling public securities in an effort to control the liquidity of the market liquidity and offer stability to

the local currency. Liability instruments too play an important part in the financial market's development. The benchmark through which the private instruments are issued to private sector like corporate bonds is government debt. The issuance of securities by corporations takes place after the consideration of prevailing rates of interest on government securities like bonds. Debt instruments are used by the government to build investor confidence and obtain a secure return (Klein, 2010).

Comparing public debt to the economy's production or gross domestic product is one approach to quantify it. Debt is measured in absolute terms, which ignores a country's wealth as well as efficiency. A rich and increasingly fruitful nation can counter and incur massive public debt compared to a poor one. As a result, proportional to a country's GDP, rather than absolute terms, is a better indicator of debt. The debt-to-GDP ratio permits for valuable comparisons across time between countries in terms of a government's ability to service its obligations as well as manage its overall fiscal situation. Quicker GDP growth in comparison to rising debt can help maintain the debt-to-GDP ratio controlled. Less growth economically, on the contrary, yields a higher debt-to-GDP ratio (Matiti, 2013).

1.1.2 Economic Growth

Economic Growth (EG) denotes a rise in the average rate of output produce per individual generally measured on an annual basis (Boldeanu & Constantinescu, 2015). It also means the rate of change of output or national income in a given period of time. Economic growth also denotes growth in the production of goods as well as services during a specified time frame (David & Ampah, 2018). Economic growth is sometimes designated as an rise in per capita gross domestic product (GDP) or other aggregate income metrics (Ofor & Alagba, 2019). According to Haller (2012), the process of

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structural, quantitative and qualitative variations with a positive effect on the overall economy as well as the people's living standard can be termed as economic growth, and it follows a continuously ascending course. This can be effectively achieved through the utilization of readily available resources and a rise in capacity of nation's production which catalyzes economic growth (Berry, 2006).

Economic growth produces a legitimate expectation among investors and consumers of continued economic development. This inspires consumer spending and business investment which leads to a rise in the demand and money supply moving through the economy (Mogaka, Kiweu & Kamau, 2015). Economic growth makes simpler the way in which the population and society at large accesses the redistribution of incomes. The slight differences and swelling effects of the up-surging rates, grow for periods of one decade or more (Boldeanu & Constantinescu, 2015). Production of goods and services increases with an increase in the economic growth rate, goods as well as services production, is increasing and in turn, the number of job opportunities grows, unemployment rate reduce and the population's living standard's improves (Haller, 2012).

Economic growth is a measure of the rate of change in real gross domestic product (Berry, 2006). The most commonly used indicator is the GDP and is significant for the entire system of national accounting. It provides a better snapshot for an economy and the growth rate of its innumerable sectors causes a change in the economy. The comparative strength of business activities can accurately be recorded by the GDP and like a barometer, it can effectively measure all business activities (Aziz & Azmi, 2017). A rise in the real gross national income (GNI) can also accurately determine a nation's

economic growth, and is motivated by a rise in capital and/or population. To effectively intensify the real GNI per capita, a nation ought to raise the capital level, labor and the general efficiency of either capital or labor (Asabere, McGowan & Lee, 2016).

1.1.3 Public Debt and Economic Growth

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).

According to the crowding-out effect theory, government borrowing boosts credit market interest rates, forcing the private sector out of the market and so adversely affecting anticipated undertakings (Karazijiene, 2015). Rise in the public debt by rising real rate of interest as well as private segment crowding out, borrowing has the ability to reduce investment and economic growth (Coupet, 2017). According to the neoclassical hypothesis, a fiscal deficit has a negative impact on growth since it causes a fall in government savings or a rise in dissaving. This implies that movement in the rate of interest can influence the correlation between public sector borrowing and economic growth (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 & Mawejje, 2014).

1.1.4 Public Debt and Economic Growth in Kenya

Kenya is one of Sub-Saharan Africa's fastest-growing economies with an average annual growth of 5.4%, making it East Africa's largest economy but still lags behind the targeted 10% annual economic growth as envisioned 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 released the 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 are two schools of thinking on the effect of public debt on EG. Proponents hold that public debt is beneficial and necessary as it enhances development spending and thus stimulating economic growth. Those Opposed to borrowing have contended that the current trend of public debt is not sustainable and harmful to economic progress (Ndii, 2017; Mwere, 2018). Musyoka (2017) argues that borrowing to supplement budgets lacks substantial effect on economic growth. There's also the idea that public debt encourages development spending, which boosts economic growth. Achwoga (2016) for instance states that public debt and EG have a statistically significant relationship as public debt leads to development spending which has been found to have a substantial influence on EG.

In achieving Vision 2030 targets, Kenya began implementing a series of infrastructural projects like the Standard Gauge Railway (SGR), Lamu Port South Sudan-Ethiopia Transport project (LAPSSET) and geothermal project that need substantial amounts of funds that exceed the revenue collecting capacity of the government. The government resorted to borrowing to fill the revenue and required expenditure gap. Financing deficit is an appropriate tool when effectively financed and used wisely on programs that encourage self-sustenance (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 of 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 findings of studies on the correlation between public debt and EG have been inconsistent, demonstrating that the correlation is dependent on debt dynamics that vary by nation. Duran (2017) and Wibowo (2017) had interest on the effect of public borrowing and revealed a positive correlation between debt and EG. Topal (2014) examined 12 economies in Eurozone and discovered a positive association between government debt and EG whenever the debt-to-GDP ratio was less than 71.66 percent, but a negatively correlated when the debt-to-GDP ratio was greater than 71.66 percent. Because of differences in macroeconomic volatility and the use of domestic sector borrowing, the findings showed that government debt complexities vary across nations, and the correlation between debt and EG for a nation is more of an empirical inquiry than a pre-established guideline.

Within Kenya, Ochieng' (2018) sought to examine government domestic borrowing impact on the development of the Kenyan financial sector. This research presents a conceptual gap as economic growth was not incorporated as a variable. Musyoka (2017) on the moderating role of macro-economic factors argues that borrowing to supplement budgets does not substantially affect economic growth since this relationship is moderated by macroeconomic factors. Achwoga (2016) revealed that government debt and EG possess statistically significant connection. From the above reviewed local and global studies, it evident most studies provide conflict findings with some oscillating from negative to positive and other indicating no relationship at all. The studies also were carried using different methodologies in varying contexts making it difficult to generalize

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the findings to a particular context. In addition, local studies that have documented the interactions among public debt and EG in Kenya were carried before the rise in public debt to the current levels. This leads 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 study 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 use the recommendations of this study 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 polices on debt and EG. The policy making bodies may use the study recommendations to come with effective borrowing strategies to enhance economic growth. They may also use the findings of this study to come with effective regulation policies.

The review will be of significance to the management of institutions that are tasked in 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 benefit from this

study 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 Ricardian equivalence theory, Keynesian theory, as well as neoclassical theory. Besides the three primary theories, there are several others that can be used to explore the correlation such as the crowding-out effect theory (Karazijiene, 2015). 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 Keynesian Theory

Keynes (1936) founded Keynesian theory which is the anchor theory for this study. The theory assumes that in an economy, resources are underutilized as well as insufficient credit (Lwanga & Mawejje, 2014). It goes on to say that a budget deficit and increased government expenditure causes a rise in total demand, resulting to idle resources utilization and a rise in production nationally. According to Renjith and Shanmugam (2018), borrowing by the public sector will increase total demand as well as encourage economic development. Borrowing is just a resources reallocation from taxpayers to

bondholders, and increasing government autonomous expenditure through debt procurement supports growth in output through the multiplier mechanism.

This theory is criticized for being self-contradictory. Governments are intended to boost spending in times of high unemployment in order to improve aggregate demand. As a result, governments may be forced to limit aggregate demand, resulting in inflation. The idea also downplays the importance of money in the economy (Renjith & Shanmugam, 2018). Furthermore, the theory has been chastised for claiming that government debt is unrelated to any real burden and has no bearing on economic growth (Metwally & Tamaschke, 1994).

This theory was pertinent to this research because it acknowledges public debt impact on infrastructure development and economic growth. According to Keynesian theory, Governments may be able to alleviate recessions via private sector borrowing and then reinvesting the funds. Because total expenditure has an impact on economic growth and stability, borrowing by the government to fund this spending is not damaging to the economy. This theory hypothesizes a positive effect of debt on EG.

2.2.2 Ricardian Equivalence Theory

Ricardian Equivalence as pioneered by Ricardo (1979) is concerned with the role of debt management in monetary policy, specifically whether the size and form of the debt impose any limits on the government's power to control monetary policy. It employs representative agent, infinite horizon, and comprehensive market assumptions macroeconomic models. Government debt degree has no effect on economic activity in these models. Households understand that a greater debt level today means higher taxes

in the future for any given expenditure pattern, and they save appropriately. Households can choose an adequate portfolio of assets to maintain their initial consumption plan in the event of a change in the government debt composition (Ricardo, 1979).

The Ricardian Equivalence Theorem is critiqued for its reliance on the assumptions that: Households understand that alterations in debt financing costs result in a change in future tax liabilities, allowing them to modify their consumption and savings to offset the effects of the government's budget constraint; taxes are non-distortionary, meaning that adjustments in taxes have no impact on economic behavior; taxpayers as well as bondholders are efficiently the same agents, so distributional concerns are irrelevant; and the private sector's investment portfolio decisions must include the same risk-return trade-offs as government securities, so that government borrowing does not create new investment chances that would otherwise be inaccessible (Wray & Tymoigne, 2008).

The theory was important to the current investigation since it assumes a debt-growth connection that is neutral. According to this theory, the fiscal deficit is irrelevant since it just serves to smooth off expenditures or income fluctuations. This theory was based on the idea that increasing future taxes with a present value equal to the debt's worth is one way to increase government debt.

2.2.3 Crowding-Out Effect Theory

McConnel and Brue (1990) proposed the theory. It claims that government borrowing boosts credit market interest rates, driving the private sector out of the market and so adversely affecting future investments (Karazijiene, 2015). By rising real interest rates, more public debt has the likelihood to decrease investment as well as economic

development (Coupet, 2017). The theory of crowding-out is a subset of the larger neoclassical theory that maintains that deficit financing causes investment to crowd out, resulting in lower capital formation. According to Hyman (2014), a persistent budget deficit takes funds out of the loan market, resulting in a reduction in national savings. National savings declines may raise real rates of interest, restrict investments, as well as slow economic growth.

The main limitation in this theory is that it presupposes complete resource utilization, which very few economies, including Kenya, have been able to achieve. Furthermore, it is inappropriate for this research because it only connects fiscal domination to private investment as well as savings. Furthermore, the theory has an assumption that fiscal deficits can only be financed by fiscal dominance, despite the fact that there are other options, such as borrowing via bilateral as well as multilateral institutions (Coupet, 2017).

This theory was pertinent to the present research because it realizes the importance of government borrowing to finance deficit budgets since financial institutions are left with little funds for private investors lending. If this theory holds true, government borrowing might have a detrimental influence on long-term economic growth by crowding out private investment. Consequently, when the government borrows from banks to expand spending, the interest rate may rise, affecting private investment and, ultimately, economic development. This theory hypothesizes a negative relationship between debt and EG.

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 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 unexpected change in interest rates has an impact 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 with the expected price level, with interest rates at the short-term representing the IFE.

2.3.4 Unemployment

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 public debt, 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

Using Debt Overhang Theory, Musibau et al. (2018) surveyed the causal effect between foreign borrowing and economic development amongst ECOWAS nations using panel

data from 1980 to 2015. The estimates are based on Pedroni co-integration and panel causality estimation methodologies applied to a panel of 15 ECOWAS nations. The finding demonstrates that external debt and economic development in economically integrated member nations have both long as well as short run causation. Adjustments to long-run equilibrium occurs at a rate of 56%. Foreign loans, payment of interest on foreign loans, investing internally, as well as savings all short run triggered growth, according to the Granger causality results at lag 2. This study presents a contextual gap as it focused on external debt leaving a gap on the effect of internal 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

Achwoga (2016) surveyed effect of internal as well as foreign public debt on Kenya's growth economically. The research used a descriptive research design. Gathering of Secondary data was done from the World Bank, the Kenyan Central Bank, and global financial institutes such as the IMF and KNBS. Data analysis was done via EVIEWS version 7.2. The findings indicated that economic growth is negatively and significantly related to external debt. The results indicated significant and negative associations

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between GDP and domestic debt. The association between debt service and GDP was positive but not significant. Other results also specified that the association between debt service and GDP was positive and significant. Exchange rate had a negative and insignificant association with GDP. This study presents a contextual gap as it only considered Kenya leaving a gap on other EAC countries.

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

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be unaffected by market reforms. The research present a conceptual gap as it focused on domestic debt leaving a gap on external debt.

Mwangi (2017) sought to study how each type of debt, that is, internal and foreign borrowing impacts individually on growth of Kenya's economy. The study employed a modified Solow's growth model. Growth was explained by both domestic and external debt separately. Cointegration analysis was employed to empirically establish the incidence of a long-term correlation between GDP, and the selected variable. The research revealed that in the case of domestic debt, it has an insignificant but 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 study conceptual model comprises of 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.

Independent variable   **Dependent variable**
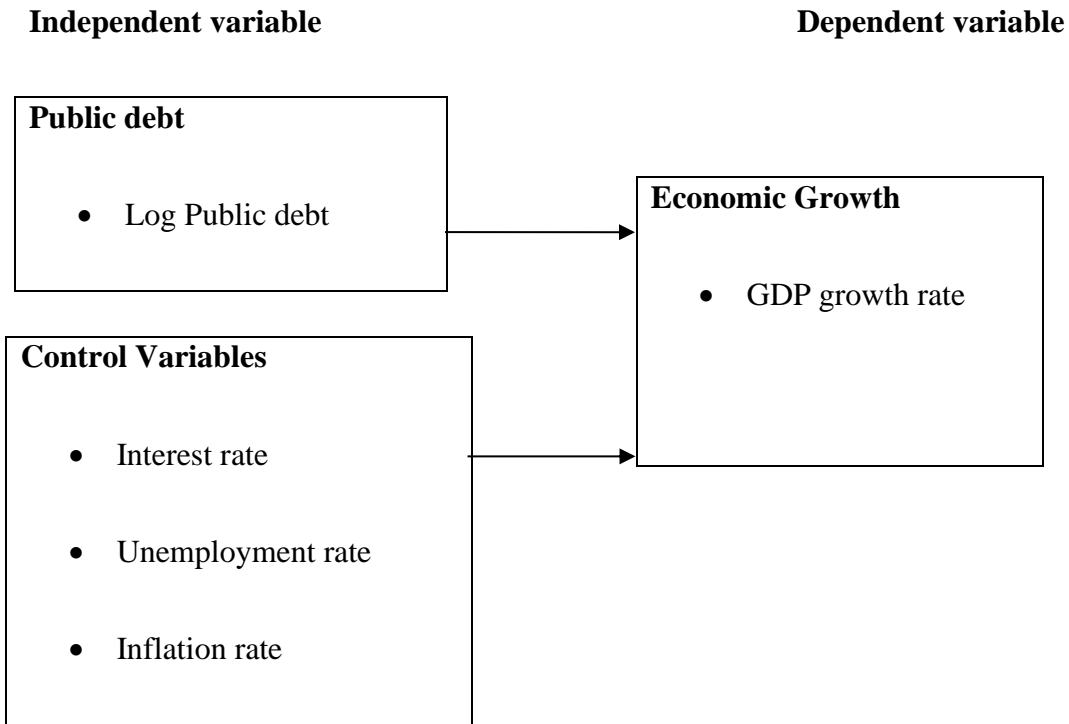
Figure 2.1: Conceptual Model

Source: Author (2021)

2.6 Summary of Empirical Review and Research Gaps

From the reviewed literature, it is evident 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 sector borrowing and economic growth and different theories when explaining the relationship between the study variables established different conflicting findings (Musiabu et al., 2018; Saungweme & Odhiambo, 2019; Njoroge, 2020).

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 (Kimolo & Onono, 2017; Mwangi, 2017; Ehikioya et al., 2020). At the contextual level, most studies on public sector borrowing and economic growth were done in 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 were 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

Both descriptive and explanatory research designs were used for this research. Explanatory design was used to establish the effect and interrelationship among the selected study variables. Descriptive design was used to describe variables of the study namely public debt as well as economic growth in terms of their mean and standard deviations. These designs were appropriate 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 used in this research. Secondary data was gathered through Central Bank reports and KNBS reports between January 2001 and December 2020 quarterly and captured in a data collection sheet. The 20-years 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; public debt, interest rate, unemployment rate, inflation rate as well as GDP growth rate.

3.4 Diagnostic Tests

Before moving on to equation estimation, diagnostic tests were done to ensure that there are no breaches of the 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 Multicollinearity Test

The research used a correlation matrix to assess multicollinearity, with an optimum multicollinearity threshold of 0.8 (Cooper & Schindler, 2013). In the absence of multicollinearity, infinite standard errors and indeterminate regression coefficients arise, resulting in huge standard errors. This will have an impact on the precision with which the null hypothesis is rejected or fails to be rejected. Tolerance levels as well as variance inflation factors (VIF) were also employed. Any multicollinear variables was standardized to reduce the degree of collinearity.

3.4.2 Autocorrelation

Wooldridge test for serial correlation was utilized in the research to find out the autocorrelation existence. Khan (2008) posits that overlooking serial correlation outcomes to inefficient parameter estimates as well as biased standard errors. The null hypothesis for this test was that there was no serial autocorrelation. Data that was discovered to have cross-sectional dependency was arrested by lagging the dependent variable.

3.4.3 Heteroskedasticity

If heteroskedasticity exist, it ought to be checked and adequately accounted for in the CLRM. The parameter estimates would be unbiased and the standard errors invalid if you run a regression analysis prior to checking for heteroskedasticity. In this research, the panel heteroskedasticity level was measured using the Likelihood Ratio test, which was developed by Cooper and Schindler (2013). The research utilized robust standard errors in the model where the data failed the test.

3.4.4 Normality Test

The residuals of the response variables are assumed to be normally distributed around the mean in normality tests (Khan, 2008). It was determined using the Kolmogorov-Smirnov or Shapiro-Wilk tests. If the data failed the test, the researcher transformed the variable using natural logarithms.

3.4.5 Stationarity Test

Stationarity means that the characteristics (variance, means) of the data will remain constant overtime. Non-stationary in time series data leads to spurious regression (Cooper & Schindler, 2013). The study tested for panel unit root using the Levin-Liu-Chu test. Robust standard errors were used where the data failed the test.

3.4.6 Optimal Lag Test

Determination of the optimal lag length is critical in time series data. With each successive lag, the degrees of freedom reduce and this can lead to unstable inferences (Burns, 2008). In this study, the optimum length of a lag was determined using Akaike information Criterion.

3.5 Data Analysis

In data analysis, STATA software was used. Tables presented the findings in 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. The relationship between the study variables was determined linearly using unrestricted vector autoregressive (VAR).

3.5.1 Analytical Model

The following equation will be 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 government borrowing per quarter

X_2 = Interest rate measured as average quarterly lending rate

X_3 = Unemployment measured as quarterly unemployment rate

X_4 = Inflation rate measured as quarterly inflation 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 determined the overall model's significance and this was achieved by means of ANOVA while a t-test determined coefficient significance.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

The current study's findings and results are summarized in this chapter. The goal was to establish how public debt influence 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 STATA software during a twenty-year period (2001 to 2020).

Table 4.1: Descriptive Statistics

	Obs	Minimum	Maximum	Mean	Std. Deviation
Economic Growth	80	-4.7000	8.7000	4.249406	2.2774763
Public debt	80	601022.4733	7233192.4400	2187723.553	1871863.239
Interest rate	80	5.9	19.7	11.358	3.9209
Inflation	80	1.9613	16.8333	7.791982	3.6138610
Unemployment rate	80	2.640	2.940	2.786	.056
Valid N (listwise)	80				

Source: Research Findings (2021)

4.3 Diagnostic Tests

Prior to running the regression model, diagnostics tests were performed. Multicollinearity, normality, autocorrelation, and heteroscedasticity test were all performed in this instance.

4.3.1 Multicollinearity Test

Multicollinearity develops in a multiple regression model when two or more predictor variables have a substantial relationship. It is undesirable for the independent variables to have large correlations. A collection of parameters is said to be completely multi-collinear for some of the parameters in case there is an exact linear connection.

Table 4.2: Multicollinearity Test

Variable	Collinearity Statistics	
	Tolerance	VIF
Public debt	0.382	2.618
Interest rates	0.377	2.653
Inflation	0.391	2.558
Unemployment rate	0.368	2.717

Source: Research Findings (2021)

VIF value was utilized when VIF values less than 10 are not multi-linear. There should be no strong connection between variables for multiple regressions to apply. From the results, all the VIF variables are < 10 as shown in table 4.2 suggesting that the independent variables have no significant statistical multi-linearity.

4.3.2 Normality Test

To see if the data was normal, researchers used the Kolmogorov-Smirnov and Shapiro-Wilk tests. The alternative and null hypotheses are listed below.

H0: the secondary data was not normal.

H1: the secondary data is normal

If the p-value is greater than 0.05, the investigator will reject the null hypothesis, and vice versa. Table 4.3 summarizes the results of the test.

Table 4.3: Normality Test

	Obs	W	V	z	Prob>z
Economic growth	80	0.983	3.925	3.219	0.061
Public debt	80	0.928	16.183	6.555	0.058
Interest rate	80	0.445	125.183	11.372	0.082
Inflation rate	80	0.943	12.835	6.009	0.124
Unemployment rate	80	0.861	31.396	8.116	0.073

Source: Research Findings (2021)

The researcher relied only on the alternative hypothesis because the data had a p-value larger than 0.05 and was uniformly distributed. Data was subjected to statistical test and analysis like analyses of variance, regression and Pearson's Correlation analyses.

4.3.3 Autocorrelation Test

A serial correlation test has evaluated the connection of error terms in different time periods. In order to acquire appropriate model parameters, the Durbin Watson serial correlation test was employed to analyze autocorrelation in the linear panel, a significant problem in panel data analysis that must be considered. The findings below are.

Table 4.4: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.876a	0.1167	0.0818	0.316	1.814

Source: Research Findings (2021)

According to the null hypothesis, there is no first-order serial/auto correlation. The 1.814 Durbin Watson statistical is between 1.5 and 2.5 and indicates that there is no serial connection.

4.3.4 Heteroskedasticity Test

The Breusch-Pagan test is used to examine for heteroskedasticity. The null hypothesis was that error term variance is constant. Heteroskedasticity Test outcomes are shown in Table 4.5.

Table 4.5: Heteroskedasticity Test

Modified Wald test for group wise heteroskedasticity in regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (80) =   368.47
Prob>chi2 =   0.2428

Source: Research Findings (2021)

The null hypothesis of Homoskedastic error terms is not rejected, according to the results in Table 4.5, which are supported by a 0.2428 p-value

4.3.5 Stationarity Test

Stationarity test was utilized in determining if the statistical characteristics such as variance, mean, as well as autocorrelation change with the passage of time. Table 4.6 shows Levin-Lin Chu unit root test results.

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test			
Variable	**Hypothesis**	**p value**	**Verdict**
Economic growth	Ho: Panels contain unit roots	0.0000	Reject Ho
Public debt	Ho: Panels contain unit roots	0.0000	Reject Ho
Interest rate	Ho: Panels contain unit roots	0.0000	Reject Ho
Inflation rate	Ho: Panels contain unit roots	0.0001	Reject Ho
Unemployment rate	Ho: Panels contain unit roots	0.0000	Reject Ho

Source: Research Findings (2021)

The null hypotheses that: Panels contain unit roots were rejected for all variables since the p values were below 0.05, on the basis of the outcomes in Table 4.6. This meant that all of the variables' panel data were stationary.

4.3.6 Lag Specific Test

Determination of the optimal lag length is critical in time series data. With each successive lag, the degrees of freedom reduce and this can lead to unstable inferences. In this study, the optimum length of a lag was determined using Akaike information Criterion

Table 4.7: Lag Selection

Varsoc GDP growth rate								
Selection-order criteria								
Sample:2001q1-2020q4								Number of obs=80
LAG	LL	LR	DF	P	FPE	AIC	HQIC	SBIC
0	1487.04				5.10E+11	35.4771	35.512	35.5639
1	1119.62	734.82	9	0.016	1.00E+08	26.9434	27.083	27.2907
2	1105.21	28.836	9	0.024	9.00E+06	26.8144	27.058	27.4221
3	1096.22	17.965	9	0.109	9.00E+06	26.8149	27.1638	27.683
4	1088.76	14.927	9	0	9.30E+07	26.8514	27.3051	27.98

Source: Research Findings (2021)

The results n Table 4.7 show that the HQIC, SBIC and the LR test all chose two lags. This means that economic growth model will be explained by two lags.

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 positive and significant statistical connection between ($r = .268$, $p = .000$) between public debt and economic growth. Unemployment rate also has a considerable and inverse relationship to the

growth of the Kenyan economy (r = -.610, p = .000). 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 0.115 which is greater than a 0.05 threshold. The

results also revealed a negative but not significant association between inflation and

growth of the Kenyan economy.

Table 4.8: Correlation Analysis

		Growth	Public debt	Interest rate	Inflation	Unemployment rate
Growth	Pearson Correlation	1				
	Sig. (2-tailed)					
Public debt	Pearson Correlation	.268**	1			
	Sig. (2-tailed)	.002				
Interest rate	Pearson Correlation	.013	.179	1		
	Sig. (2-tailed)	.115	.270			
Inflation	Pearson Correlation	-.108	-.269	-.304	1	
	Sig. (2-tailed)	.078	.093	.056		
Unemployment rate	Pearson Correlation	-.610**	.568**	.060	-.436**	1
	Sig. (2-tailed)	.000	.000	.713	.005	
**. Correlation is significant at the 0.01 level (2-tailed).						
b. Listwise N=80						

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 4.9 displays the model summary statistics.

Table 4.9: Regression Results

Source	SS	df	MS	Number of obs	=	80
		F(4, 75)			=	3.35
Model	238.532375	4	79.5107916	Prob > F	=	0.0234
Residual	1805.36345	75	23.7547823	R-squared	=	0.1167
				Adj R-squared	=	0.0818
Total	2043.89583	79	25.8720991	Root MSE	=	4.8739

	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Public debt	8.823779	3.571506	2.47	0.016	1.710509	15.93705
Interest Rate	.384829	.647455	1.82	0.086	1.90168	0.443765
Inflation	-.514515	.3173845	-1.62	0.109	-1.14664	0.117611
Unemployment rate	-12.29149	5.327244	-2.31	0.024	-22.9016	-1.68136
_cons	34.94928	1.77014	19.74	0.000	31.42374	38.47482

Source: Research Findings (2021)

The results for model fitness showed that the R square was 0. 1167. This meant that the variables public debt, interest rate, inflation and unemployment rate explained only 11.67% of the variation in the dependent variable economic growth. The remaining 88.33% could be explained by other factors that were not included in this study. The results for ANOVA showed that the whole model that is used to explain the relationship between the independent variables and the dependent variable is significant (p=0.0234).

As per the results in Table 4.8 the variable public debt has a positive and significant relationship with economic growth in Kenya as explained by a beta coefficient (β) of 8.823779 and a p value of 0.016 which was less than 0.05. The study also reveals that the variable unemployment rate has a negative and significant relationship with economic growth in Kenya as explained by a beta coefficient (β) of -12.29149   and a p value of 0.024

which was less than 0.05. The other independent variables did not have a significant influence on economic growth as shown by p values above 0.05.

4.6 Discussion of Research Findings

The goal of this study 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 and regression analysis were used to examine the relationships between the independent and dependent variables.

The Pearson model revealed a weak and significant link between public debt and economic growth. Interest rates showed a positive but not significant association with the growth, according to the data while inflation showed a negative 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 considered account for 11.67 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 0.0234, which is less than 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 Musibau et al. (2018) who surveyed the causal effect between foreign borrowing and economic development amongst ECOWAS nations using

panel data from 1980 to 2015. The estimates are based on Pedroni co-integration and panel causality estimation methodologies applied to a panel of 15 ECOWAS nations. The finding demonstrates that external debt and economic development in economically integrated member nations have both long as well as short run causation. Adjustments to long-run equilibrium occurs at a rate of 56%. Foreign loans, payment of interest on foreign loans, investing internally, as well as savings all short run triggered growth, according to the Granger causality results at lag 2.

This study is also in agreement with Murungi and Okiro (2018) who 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.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The primary purpose of the research was to determine how public debt influence 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, and 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 and KNBS and processed using Stata program. The research utilized data over a period of 20 years.

The findings revealed a positive 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 negatively 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 0.1167, which means that the predictors chosen may explain 11.67% of growth changes in the Kenyan economy, whereas 88.33% of growth changes relate to other factors not addressed by this study. The research revealed that

independent factors combined had a significant influence on economic growth. ANOVA emphasizes that the F statistic with p=0.0234 is significant at 5 percent level. This demonstrates that the model was capable of capturing the impact of independent variables on the growth of the Kenyan economy.

The regression results further revealed that public debt has a positive and significant relationship with economic growth in Kenya as explained by a beta coefficient (β) of 8.823779   and a p value of 0.016 which was less than 0.05. The study also reveals that the variable unemployment rate has a negative and significant relationship with economic growth in Kenya as explained by a beta coefficient (β) of -12.29149   and a p value of 0.024 which was less than 0.05. The other independent variables did not have a significant influence on economic growth as shown by p values above 0.05.

5.3 Conclusion

The results of the research indicate that Kenya's economic growth is positively affected by public debt. The research finds that an increase in public debt leads to a significant increase 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 adverse impact on growth, the impact is not statistically meaningful. Interest rate was also found not to have a significant influence 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 11.67% of the growth variations. The finding that the independent factors account for 11.67% of changes in the economic growth means that the non-model variables explain 88.33% 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 findings of this study are in agreement with Rahman et al. (2019) who 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.

5.4 Recommendations

The results have shown that public debt has a positive and substantial impact on Kenya's growth. This means that the economy will expand with an increase in public debt. The study recommends the need for policy makers to ensure that the public debt being raised is used for development spending as this will have a positive impact 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 inflations negatively impact 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 20 years from 2001-2020 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 using the model, such as erroneous and misleading results resulting from a change in variable value. 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 establish 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 20 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.

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APPENDICES

Appendix I: Research Data

Year	Quarter	Economic Growth	Public debt	Interest rate	Unemployment rate	Inflation
2001	1	3.78	601,022.47	19.67	2.910	5.74
	2	3.78	609,887.29	19.67	2.910	5.74
	3	3.78	605,607.98	19.67	2.910	5.74
	4	3.78	608,670.18	19.67	2.910	5.74
2002	1	0.55	607,809.46	18.45	2.940	1.96
	2	0.55	611,910.44	18.45	2.940	1.96
	3	0.55	622,898.42	18.45	2.940	1.96
	4	0.55	626,807.40	18.45	2.940	1.96
2003	1	2.93	633,440.19	16.57	2.940	9.82
	2	2.93	659,593.01	16.57	2.940	9.82
	3	2.93	699,538.39	16.57	2.940	9.82
	4	2.93	710,919.68	16.57	2.940	9.82
2004	1	5.10	710,414.91	12.53	2.910	11.62
	2	5.10	722,804.87	12.53	2.910	11.62
	3	5.10	749,465.42	12.53	2.910	11.62
	4	5.10	749,552.32	12.53	2.910	11.62
2005	1	5.91	732,136.00	12.88	2.860	12.65
	2	5.91	736,502.19	12.88	2.860	14.49

Year	Quarter	Economic Growth	Public debt	Interest rate	Unemployment rate	Inflation
	3	5.91	755,772.95	12.88	2.860	14.37
	4	5.91	748,715.44	12.88	2.860	10.92
2006	1	6.47	746,769.63	13.64	2.770	8.99
	2	6.47	766,603.85	13.64	2.770	7.02
	3	6.47	796,267.30	13.64	2.770	5.67
	4	6.47	799,589.93	13.64	2.770	6.15
2007	1	6.85	797,758.05	13.34	2.690	5.54
	2	6.85	807,516.76	13.34	2.690	4.54
	3	6.85	827,075.02	13.34	2.690	4.58
	4	6.85	844,504.92	13.34	2.690	4.40
2008	1	0.23	862,269.92	9.00	2.660	5.38
	2	0.23	868,923.95	9.00	2.660	8.63
	3	0.23	870,135.01	9.00	2.660	11.92
	4	0.23	921,237.75	9.00	2.660	15.22
2009	1	3.31	982,882.23	8.38	2.830	16.83
	2	3.31	1,023,361.69	8.00	2.830	15.92
	3	3.31	1,071,799.88	7.75	2.830	13.39
	4	3.31	1,117,708.23	7.00	2.830	10.30
2010	1	7.40	1,138,810.11	6.75	2.860	7.85
	2	8.50	1,202,999.20	6.75	2.860	5.87
	3	7.50	1,264,628.46		2.860	4.71

Year	Quarter	Economic Growth	Public debt	Interest rate	Unemployment rate	Inflation
				6.00		
	4	8.70	1,308,350.66	6.00	2.860	4.03
2011	1	5.90	1,373,256.36	5.88	2.860	4.16
	2	5.40	1,432,569.58	6.25	2.860	6.01
	3	5.40	1,545,223.90	7.00	2.860	9.02
	4	3.80	1,540,868.24	15.16	2.860	12.78
2012	1	3.90	1,533,513.57	18.00	2.860	15.83
	2	4.80	1,613,471.03	18.00	2.860	16.29
	3	5.00	1,679,299.44	14.75	2.860	14.30
	4	4.50	1,772,629.84	11.00	2.860	10.70
2013	1	3.60	1,792,191.44	9.50	2.870	7.26
	2	4.70	1,894,544.20	8.50	2.870	5.04
	3	3.70	2,005,166.36	8.50	2.870	4.56
	4	3.20	2,085,537.59	8.50	2.870	5.39
2014	1	4.90	2,153,244.43	8.50	2.820	6.20
	2	5.90	2,242,643.66	8.50	2.820	6.83
	3	5.10	2,368,960.24	8.50	2.820	7.24
	4	4.30	2,404,835.14	8.50	2.820	6.98
2015	1	4.80	2,607,759.43	8.50	2.800	6.67
	2	5.00	2,786,764.29	8.50	2.800	6.66
	3	4.70	2,921,328.60	11.50	2.800	6.39

Year	Quarter	Economic Growth	Public debt	Interest rate	Unemployment rate	Inflation
	4	5.30	3,059,870.51	11.50	2.800	6.44
2016	1	3.80	3,247,134.36	11.50	2.760	6.84
	2	3.80	3,474,664.61	10.50	2.760	6.59
	3	4.40	3,643,034.56	10.50	2.760	6.47
	4	4.80	3,765,815.72	10.00	2.760	6.40
2017	1	5.40	3,962,068.80	10.00	2.690	6.48
	2	3.30	4,262,087.59	10.00	2.690	7.72
	3	3.20	4,452,690.13	10.00	2.690	8.32
	4	3.50	4,565,639.89	10.00	2.690	8.15
2018	1	5.20	4,803,395.57	10.00	2.640	7.36
	2	6.00	5,012,383.04	9.50	2.640	5.68
	3	5.30	5,121,798.62	9.00	2.640	4.70
	4	6.00	5,245,123.80	8.50	2.640	4.60
2019	1	4.80	5,385,485.97	8.50	2.600	4.67
	2	5.90	5,666,489.00	8.50	2.600	5.04
	3	4.80	5,992,058.94	8.50	2.600	5.32
	4	4.40	6,035,330.37	8.50	2.600	5.19
2020	1	4.40	6,185,808.33	7.75	2.980	5.62
	2	-4.70	6,593,517.20	7.00	2.980	6.12
	3	-2.10	7,033,825.89	7.00	2.980	5.89
	4	1.20	7,233,192.44		2.980	5.54

Year	Quarter	Economic Growth	Public debt	Interest rate	Unemployment rate	Inflation
				7.00		