

THE EFFECT OF NATIONAL PUBLIC DEBT ON ECONOMIC GROWTH IN KENYA

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DECLARATION

I declare that the work presented herein is my own and has never been examined before in another institution.

Signature



Date. 5th November 2021.

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This research proposal has been submitted for examination with my approval as the University supervisor.

Signature



Date. 17th November 2021.

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DEDICATION

This research work is dedicated to my mentors and supervisors at the University of Nairobi who have helped me complete this dissertation. They not only provided me with academic knowledge but also some guidance when I needed it most. I would also wish to dedicate this study to parents, siblings and friends for encouraging me to push to the very end.

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LIST OF ACRONYMS

AD	Aggregate Demand
CBK	Central Bank of Kenya
CPI	Consumer Price Index
EAC	East Africa Community
ERS	Economic Recovery Strategy
GDP	Gross Domestic Product
GNP	Gross National Product
IEA	Institute of Economic Affairs
IMF	International Monetary Fund
KNBS	Kenya National Bureau of Statistics
MTMDS	Medium-Term Debt Management Strategy
OLS	Ordinary Least Square
SAPs	Structural Adjustment Programs
US	United States

ABSTRACT

Kenya being a lower middle income country compliments tax revenue with government borrowing to finance its national development plans. In an attempt to add to available domestic resources, successive governments have relied on both domestic and external debt to finance the country's budget. In light of the growing concerns over Kenya's national public debt sustainability and its potential effect on the economy, this study aims at analyzing the effect of national public debt on economic growth in Kenya. Specifically, the study seeks to establish the effect of domestic debt and external debt on Kenya's economic growth. The study also seeks to draw policy recommendations on management of the national public debt in Kenya. Gross Domestic Product is the proxy for economic growth while domestic debt, external debt, inflation rate, exchange rate, capital stock and labor force are the explanatory variables. The study used time series data for the period 1990 to 2019. The data was extracted from the World development indicators and this data was harmonized with data extracted from the data bases of the Kenya National Bureau of Statistics. The data was analyzed through the Ordinary Least Square (OLS) regression technique. The findings indicates that domestic debt has insignificant negative effect on Kenyan economy while external debt has insignificant positive effect. The study concludes that internal debt has deleterious while external debt has positive effect on growth.

Keywords: Public debt, sustainable debt and economic development

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

The subject of public debt remains a topic of great interest today, as much as it has been, even in the past. In almost every economy globally, whether developed or developing, authorities are in a race to control rising fiscal deficits, with most resorting to public borrowing to plug the fiscal gaps. This in turn has seen public debt levels of many countries rising to worrying levels leading to calls for governments' action to reduce public debt (Aybarç, 2019). However, the question of how financing via public-borrowings influence a country's economic growth remains hotly contested among economic policy makers (Lee & Ng, 2015). Those who support massive government expenditure via deficits-spending financed through government borrowing, domestically or externally, cite their huge benefits economically. However, those opposed point to the serious problems that excessive public debts may have on the economy (Woo & Kumar, 2015).

The amounts of publicly borrowed funds constitute a significant part of modern day's governments' funding. Public debt portfolio is a mix of financing resources that are often complicated and if not properly managed can put into jeopardy a country's financial-wellbeing and its resource-base (Ndieupa, 2018). Public authorities have a responsibility of ensuring that the country's public debts level and how it expands remains within manageable levels and that its associated repayment conditions can be met within a country's affordable means (Ahlborn & Schweickert, 2018). A country has to ensure that it has sound strategies of controlling its debts levels. Sound public debt policies and measures can assist public-authorities keep an eye on their economies' exposure to a wide range of financial risks (Égert, 2015).

As observed by Fincke and Greiner (2015), most of the financial-related problems faced by nations and that have arisen in the course of history have been occasioned by poorly managed public debts especially with respect to the costs of the loans and inappropriate maturing durations as well as holding huge inadequately funded contingent liabilities. It's therefore argued that for nations to reduce their susceptibility to the dangers of excessive public debts holdings including disrupting the growth of the private sector, public authorities must exercise prudence in managing the public debts levels through instituting necessary policies and strategies that keep the public's debt-level at manageable levels (Chudik et al., 2017). Given the increasing growing concern on Kenya's public debt levels and a stagnating economy, and in light of the mixed findings on the public debt and economic growth nexus, the current research sought to offer insights on how Kenya's national public debt affects the country's economic growth. It is hoped that the findings of this study informs review of existing national fiscal policies.

1.2 Background of the Study

Managing a country's public debt level constitutes an important task within its general aggregate economic context as it affects its level of public spending and directly affects how stable the economy is (Teles & Mussolini, 2014). The Government of Kenya has a considerable portfolio of public debt dating back to the 1960s. This debt has been acquired from international circles (multilaterally, bilaterally, and commercially) as well as from internal sources via issuance of treasury bills and bonds, respectively. The mix and magnitude of Kenya's public debt has grown and varied through time as the country seeks to acquire funds that are within its ability to repay, and which carry lesser risks so as to fund its capital projects for attainment of its long-run developmental agenda (Mupunga & Le Roux, 2016). Furthermore, the risks attribute and expense of Kenya's debt-mix has been evolving during the same period, as a result of efforts to diversify

its avenues for funds especially in light of decreases in funds concessionally acquired as the country has been reclassified into lower-middle-income status and considering dynamics in international funds markets (Makau, Njuru & Ocharo, 2018).

For the period from Kenya's independence to 1970, the proportion of the country's debts sourced externally was at 21% of its total national output while debts sourced internally represented 7.2% making the country's debt to total national output to average 28.1% over the period. Debts acquired in these early periods were all sourced externally as existing market circumstances were not favorable for sourcing the funds internally. For the period 1971 to 1980, relative to the GDP, debts sourced externally were at 15.3% while loans acquired internally were at 13% making the average loans to total national output ratio to average 28.3% in that period. The 1970s-80s period was marked by global oil crises and booming coffee returns. There was a remarkable upsurge in Kenya's debts levels for the period 1981 - 1990. Relative to the country's total national output, loans acquired externally accounted for 35.8% while loans acquired internally represented 15.5% with the country's aggregate loans to total national output ratio averaging 51.3% with the remarkable growth in Kenya's debt to GDP ratio during this period being the result of 1982's political crisis as well as Structural Adjustment Programmes (SAPs) suggested by the Breton Woods institutions, IMF and World Bank from 1988. There were further increases in the 1991 - 2002 with loans acquired externally and internally respectively accounting for 44.8% and 16% of Kenya's gross national output - a time marked by instabilities in the economy attributable to the multiparty electoral processes of 1992 and 2002, Kenya's currency seriously depreciating against global major currencies occasioning sharp rise in the country's nominal debt, the multimillion Goldenberg-scandal and financial help from donor nations being cancelled (IEA, 2017).

An improved aggregate economic context in the 2003-2007 interval shows Kenya's debt position improve with the gross loans to total national output ratio averaging 49% with loans acquired externally accounting for 27.7% while those acquired internally accounting for 21.3% of the country's gross national output. This was helped by low levels of interest rates and inflation, an exchange rate that was stable and controlled budgetary gaps. In the succeeding interval of 2008-2019, the country's gross loans ratio relative to the total national output has been at an average of 49% with monies borrowed internally accounting for 26.5% of gross national output while funds borrowed externally account for about 22.5% of the nation's total national output. What is evident is that the country's debt position has been on an upward trajectory from 2008 to date, driven largely by increased spending on government owned/led capital-projects, the consequences of the electoral chaos of the 2007 polls as well as the crisis of the global financial system (IEA, 2017).

A closer look at the pattern of the country's debt situation depicts that in the immediate intervals after independence from 1963-1977, the ration of gross public loans to total national output remained somewhat stable and thereafter it fluctuated. From the analysis, it is evident that, in the years after independence, funds borrowed externally formed the main constituent of the country's total public debt. This however began to change in the 1990s with the component of funds borrowed internally beginning to rise with this continuing all the way to 2013 in which funds borrowed by the government accounted for 55.5% of the country's total public debt. This aligned with suggestions made in the 2010 Medium-Term Debt Management Strategy (MTMDS) which advocated for increasing the component of funds borrowed internally in the country's debt portfolio. The logic behind being minimization of being exposed to foreign exchange rate risks that come with borrowings made externally through increasing the maturing durations/term of

funds borrowed locally while supporting greater growth of the local financial sector and markets (Wanjuki, 2016).

That Kenya's level of public borrowings has consistently remained higher than anticipated by the MTDMS, is a clear illustration of non-adherence to set fiscal rules. Of concern being that the increase in Kenya's acquired loans is likely to remain in the intermediate interval due to significant infrastructural and energy-related capital-intensive projects envisioned under Vision 2030. A key characteristic of the rising debt levels has been raising Kenya's debt ceiling (Makau et al., 2018). What is required to reign on the country's ever rising debt position is for the authorities to enhance revenue mobilization to meet government spending requirements for a prolonged time-period. A country's aggregate economic context and its fiscal policy constitute important elements for reigning on a nation's public debt menace, though in the case of Kenya, this seems not to be working, largely because of indiscipline in adhering to existing public-debt management policies (Gicheru & Nasieku, 2016).

To guide decisions on acquiring of public borrowings and managing the country's fiscal gaps, Kenya has been implementing the Medium-Term Debt-Management Strategy from 2009. In addition, to reduce challenges and risks that come with public debt, a Debt Policy and Borrowing Framework, or simply 'the Debt Policy' has been developed. Its main aim being to make sure that the country meets its financing requirements and repayment conditions cost-effectively in the intermediate and long-run intervals while maintaining reasonable levels of risks. The debt policy's subsidiary aims being to further develop the local financial sector and markets while ensuring that the burden and gain of the country's debts is equitably shared by generations of today and later (Wanjuki, 2016).

Kenya's debt policy acts as a guiding framework for managing the country's public loans level and guides the treasury in debt-issuing processes, managing the country's debt-mix and in adhering to set laws and regulations on how loans are contracted and managed. The policy is hoped to lead to improved decision-making allowing policymakers to better articulate policy objectives, providing better clarity in relation to regulations of loans acquisition modalities and offering a clear illustration of government's commitment to long-run planning financially and capital-wise (Putunoi & Mutuku, 2013). Mwaniki (2016) observes that the policy places emphasis on adhering to laid down guidelines and regulations on managing of the national loans by concerned parties. This is a good signal to the credit/debt rating agencies and capital markets that the authorities are serious about keeping the country's debt at sustainable levels and hence that the country is unlikely to fail on its loan-repayment obligations.

According to the International Monetary Fund, the guiding fiscal rule is that a country's gross debts/loans shouldn't surpass half the value of its current total national output. This is the same threshold set in the EAC Monetary Union Protocol. Further, the EAC-protocol places limits regarding fiscal deficits at 3% of total national output, at 8% for general price increases and four and a half months of imports as the lowest reserve maintained (IMF, 2018). According to the IMF, Kenya's public debt has tremendously grown over the recent past largely due to investments in capital projects with a view of addressing a growing budget deficit and providing impetus to the economy's growth. Though much of Kenya's debts have concessional conditions, the country's much recent loans from commercial sources have considerable repaying requirements in immediate periods, 2017-2024. Further, the proportion of the country's total debts to its total national output has significantly grown touching 56.4% in 2018 and remains on the incline though it's expected to fall to about 54 – 55% in 2017–19 and then decrease in subsequent periods. The

IMF proposes that for low resource nations, their national public debts to GDP ratio shouldn't pass 40% (IMF, 2018).

CBK's and World Bank's data indicate that Kenya's annual economic growth rate have fluctuated from 4.2% in 1990 to lows of -0.8% and 0.2% in 1992 and 2008 respectively to highs of 6.9% in 2007 and 8.4% in 2010 to the most recent of 6.3% in 2018. However, over the same period, Kenya's national public debt has consistently risen to currently stand at Kshs. 5.3 trillion in 2019, with the percentage of public debt to nominal GDP increasing from 134.8% in 1990 to 56.4% in 2018 (CBK, 2019). Of greater concern is that, most recently, the National Assembly of Kenya approved the raising of the national public debt ceiling from 50% of the country's GDP to a fixed value of 9 trillion Kenya Shillings to enable the government to meet its financing requirements in the near-term (Ngugi, 2019). This might end up escalating the level of country's indebtedness to detrimental levels.

Over the years, Kenya has experienced rapid growth of its national public debt. To manage repayment of maturing loan obligations as well as financing of government expenditure, the government has turned to debt-rescheduling and use of costly short-term financing. Whereas the acquired debt funds are hoped to help improve Kenya's economic growth through infrastructure development, there is growing concern that the high level of public debt in Kenya may occasion a debt crisis injuring Kenya's prosperity prospects economically and financially (Ngugi, 2019). There is growing concern that the national public debt has reached critical levels and questions over Kenya's ability to meet its repayment obligations are beginning to gather momentum (Wanjuki, 2016). In addition, there are concerns that high public debt risks lowering the country's spending on capital projects and social programs as larger parts of government's revenues go to debt repayment (Ombuya, 2017).

1.3 Statement of the Problem

World over, the level of a country's national public debt is instrumental to its development economically, yet little emphasis has been accorded to this subject. The traditional sources of countries' expansion economically have been its human and physical capital, advancing technologies, competence and productivity of its workforce and their openness to international trade, and though these variables remain important, a country's public debt position is now regarded as also being key to its economic growth (Lartey et al., 2018).

Public debt in Kenya has been on increasing trajectory especially in the past decade. The Central Bank of Kenya has cautioned that continued escalation of public debt could adversely affect the country's economy as growing debt negatively affects the level of investments attributable to high interest rates. The CBK has also warned that excessive domestic borrowing risks crowding out the private sector. Increased level of country indebtedness also reduces the country's creditworthiness hence scaring off potential investors and foreign lenders (CBK, 2018). There has also been a concern that Kenya's public debt has reached critical levels putting at risk attainment of crucial goals of the nation including expansion of the economy by 10% annually and a stable fiscal policy as envisioned in the country's Vision 2030 (Makau et al., 2018).

Despite the extensive literature available on this study subject, the findings as to how a country's borrowings affect its economic growth remain inconclusive, with some studies reporting a positive relationship (Egbetunde, 2012; Antony, 2015); others reporting a negative relationship (Tchereni et al., 2013; Yusuf & Said, 2018) and others reporting no significant association between these two variables (Owusu-Nantwi & Erickson, 2016; Hussain et al., 2015). This highlights the need for more research on this study subject.

1.4 Justification

Kenya's increasingly rising public borrowings position is a cause of worry/concern as pointed out by Moodys (Kenya's credit rating score - Moody's, 2019). At the moment, there are even considerations by Moodys about downgrading Kenya's rating position with respect to debts acquisition due to its increasing inability to meet its loan repayment obligations. Projections by Moodys indicate that, if strong fiscal actions are not initiated, increasing public borrowings by Kenya's government will make the country's debt to GDP ratio exceed the sixty-percent mark by June 2020, in turn further rising the lending costs to the private sector. Kenya's deteriorating debt position is evidenced by its latest fiscal reports which showed that the Treasury utilized 19% of total government revenues to meet loan interest-payments alone, an increment from 10.7% 5-years ago. Moodys observes that Kenya's debt position will be worsened by growing revenue mobilization deficit and rising costs of borrowing.

These sentiments are shared by the Institute of Economic Affairs which notes that, in slightly over five-years, the current regime has seen the public debt rise to over Sh5 trillion from the previous regime's exiting position of Shs. 1.7 trillion, representing an increase of over 250% over the short tenure. The problem is the government's debt appetite does not seem to wane. This increasing national public debt position is problematic in that as more revenue goes to meeting the country's debt obligations, lesser and lesser is left for development expenditure and to keep things moving the government is likely to be forced into further borrowing - a vicious nasty cycle.

This research is insightful to Kenya's national policymakers in that it highlights how the country's economic growth is impacted by the level of national public borrowing. This study's results inform fiscal policy and strategies review on Kenya's national debt management and sustainability which is critical to its long-term economic growth. The study's results are beneficial

to both local and foreign investors whose investment decisions on government bonds depend on their assessment of the status of the economy as well as governments or country's ability to meet its debt-repayment obligations. This study offers policy recommendations on public debt management. It also offers valuable insights to other researchers and scholars with an interest on this study's research subject.

1.5 Objectives of the Study

The study's main aim was to analyze the effect of national public debt on economic growth in Kenya. The study's specific objectives included:

1. To examine how the domestic/internal debt affects Kenya's economic growth
2. To assess how the external debt affects Kenya's economic growth
3. To draw policy recommendations on management of Kenya's national public debt

1.6 Research Questions

1. What is the effect of domestic debt on Kenya's economic growth?
2. How does the external debt affect Kenya's economic growth?
3. What policy recommendations should be taken for management of Kenya's national public debt?

1.7 Scope of the Study

This research ascertains how Kenya's national debts affect the country's economic growth. The study specifically explored how Kenya's national domestic debt and external debt trends have affected its economic growth over a 30-year period running from 1990 to 2019.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This contains a description of theories informing the current research and an analysis of studies conducted by various scholars on the research subject. The chapter also expounds on gaps identified in the reviewed literature.

2.2 Theoretical Literature Review

2.2.1 The Debt Overhang Theory

This theory emanated from the work of Stewart C. Myers in 1977 as he looked at how financing via debts affected the value of entities in corporate finance. Myers examined the reluctance by corporates to maximally utilize borrowed funds to cater for their business operations despite use of debt being advantageous in regard of tax benefits as costs of borrowing are treated as allowable expenses. His explanation for this behavior was that accumulating borrowed funds adversely impacted the firms' abilities of making future investing decisions optimally (Kadiu, 2015). The argument being that loans accumulation makes businesses to be reluctant in engaging in ventures/undertakings with future potential positive yields given that part of realized gain would accrue to creditors/lenders in form of loan-repayments (Chudik et al., 2017). The theory, as ably described by Joy and Panda (2019), thus describes a case where rising public debt adversely affects individuals' decision on investing.

The theory, therefore, espouses that a country's public-debt level with its associated/accompanying repayment costs impacts a country's expansion economically as it discourages investing by private individuals as well as alters a nation's public spending plan (Jibran et al., 2016). Ahlborn and Schweickert (2018) explained that debt overhang is evident in

instances where a nation's burden of servicing its borrowed funds is high to the extent that a significant proportion of its immediate revenues goes to its lenders hence creating a disincentivizing investment. The theory thus hypothesizes that any future possibility of the burden of externally sourced funds exceeding a country's repayment ability implies that accruing loans-servicing costs are likely to disincentivize any additional local and foreign investments in turn harming economic growth (Woo & Kumar, 2015). Servicing of loans may adversely impact a country's growth through reducing public revenues that could instead have been allocated to developing much needed infrastructural-developments and advancing human capital (Owusu-Nantwi & Erickson, 2016). With debt overhang, there are fears among potential investors that any increased investments or growth in productive capacities is likely to be met with increased taxation to pay up national debts, making them reluctant to invest further currently for future gains (Woo & Kumar, 2015).

The theory's applicable to the Kenyan situation and hence is relevant to the current study. This is in light of the appreciation that as Kenya's public debt continues to grow to unprecedented levels, "debt overhang" will become "a leading cause of distortion in turn slowing down Kenya's economic growth". Kenya's growth economically would slow down because the country's economy could lose its attractiveness among potential investors. There's also the risk that the loans repayments could exhaust a significant part of Kenya's public financial resources making it harder for the country to get back to growth (Gicheru & Nasieku, 2016; Wanjuki, 2016). As suggested by Lee and Ng (2015) as well as by Saifuddin (2016), even with governments' institution of structural adjustment programs high public debts' adverse effects would still be experienced by many via a country's deteriorating economic outlook. The adverse effects of "debt overhang"

are largely seen via decreased investments not just in physical capital but as well in human and technological areas which also have huge implications on a country's expansion economically.

2.2.2 The Crowding-Out Effect Theory

A leading theory in economics, espoused by Buiter in 1976 in his paper "crowding out and the effectiveness of fiscal policy". The theory espouses the view that growing/expanding expenditure in public sector leads to a decrease in private sector expenditures. It therefore suggests an increment in government expenditures suppresses expenditures by the private sector (Balcerzak & Rogalska, 2014). As pointed out by Omitogun (2018), the perspective regarding the existence of crowding-out and its attendant problems to the economy lies at the heart of free markets economists' postulation that a large public sector indeed results in poor utilization of available resources. Crowding-out effect of government spending on non-public investing can be direct or indirect. Upsurge in interest rates and general price levels constitute the indirect form of crowding-out while decrease in private sector's available physical resources denotes the direct form of crowding-out (Kandil, 2017). When the government takes up substantial loans amounts, this in turn occasions increases in real interest rates, adversely impacting an economy's lending capacity, thereby disincentivizing enterprises from investing in long term capital projects that would have been done with borrowed funds given the increases in interest rates, which makes viable projects that would have been funded by borrowed monies extremely expensive, therefore unprofitable (Fincke & Greiner, 2015). The argument being that as the cost of borrowing escalates, there's a reduction in interest-sensitive spending like investments and consumption, and in this way, public sector's borrowing "crowds out" investment (Mwakalila, 2020).

The crowding out effects concept assumes that rising public debt utilizes a larger section of a nation's savings. The competition for limited lendable funds between the government and private

investors occasions an increase in the cost of money in turn adversely affecting levels of private investment as individual borrowers are crowded out of due to their inability to afford the cost of available limited funds. Limited available funds cause interest rates to significantly rise to a level that individual entities and persons are not able to compete with the government and/or its agencies leading to their crowding-out from the funds market. The economy, in turn, suffers due to not being able to adequately provide resources needed to spur investments (Checherita & Rother, 2010). Maghyereh, Omet and Kalaji (2005) argues that crowding out happens if governments over-participate in capital markets to a point in which it adversely impacts other players in terms of access to financial resources. The chains of events are excessive borrowing by the government leading to scarcity of available financing. This leads to a rise in interest rates which occasions cuts in funds borrowed privately which in itself lowers/impedes private investment (Ostry et al., 2015). Qureshi and Ali (2010) argued that the macroeconomic environment determines the extent of crowding out effect. Economic situation controls the extent of crowding out. Any increase of government expenditure with the economy at full production, usually results in upward movement of interest rates as public and private entities compete for limited resources accessible for application in investing, which occasions cuts in private investment and consumption. However, increases in government spending when the economy is operating under full production don't lead to competition with the private sector, hence no crowding out effect. Hence, in-sum, changing public expenditure patterns has greatest effect on a country's economy when it's operating under full production (Égert, 2015). This theory is relevant to the current study since increased levels of government domestic borrowing may lead to crowding out of the private sector in turn reducing levels of private investment in the economy which in turn adversely affects a country's economic growth.

2.2.3 Keynesian Theory

According to Keynesian theory formulated in 1936, a country's expansion economically relies on the level of investments and savings therein. Keynes argument being that low rates of savings in a country have a direct impact on the investment levels in that nation in turn adversely impacting its level of economic growth (Al-Zeaud, 2014). The theory states certain decisions and actions carried out together by a significant proportion of private persons and enterprises may distort total macroeconomic results, leading the economy to operate under full production, hence sub-optimal growth rate. As-such, proponents of this theory support active interventions by authorities to address problems to the economy occasioned by business cycles (Lartey et al., 2018). The argument by Keynes being that the Great Depression's troubles would be resolved via stimulation of the economy by combing 2 approaches, these being lowering the level of interest rates and increasing the level of government spending in the economy. Increased government investing in the economy spurs increased expenditures by the general public, which is accompanied by further increases in production and investment, resulting into a series of increased economic activities whose effects end up being larger than the initial government's investment (Moussa & Shawawreh, 2017).

This theory thus holds that low resource settings marked by inadequate levels of capital stocks at the start, are likely to experience higher growth rates as they begin at a point where they can accumulate large, introduced capital goods. This theory thus emphasizes on the need for nations to enhance their investments and savings levels, as higher savings levels boost the level of investments, which in turn drive the economic growth. However, owing to inadequate internal revenue mobilization in low- and middle-income countries coupled by the desire to improve their economies' growth prospects, the need for acquiring public debt is inevitable (Jibrán et al., 2016).

The theory is very much relevant to current research since debt-servicing costs arising from huge public debts implies fewer resources available for investing in the economy in turn adversely affecting economic growth.

2.2.4 Ricardo's Modern Theory on Public Debt

This theory was postulated by David Ricardo in early 1820s. The outlook of Ricardo's theory on public debt from the traditionalists' viewpoint is that the theory does not lend support to governments' uptake of loans. Classical, including David Ricardo, in their support of the free market forces, were of the view that governments shouldn't interfere with the economy (Bilan, 2016). Hence, this theory's central premise is that expenditures by public-authorities are unproductive, and that the private sector tends to utilize resources more effectively than the public sector. To Ricardo and compatriots, accumulation of public debt impairs private-capital by taking resources away from productive-uses, negatively impacting capital-stock accumulating, in turn slowing an economy's growth (Tsoulfidis, 2017).

Ricardo's policy recommendations on the subject of national borrowings were, first, at no point should public-authorities fund their spending through public debts, and second, immediate actions should-be initiated to retire current public debts. Ricardo's opposition to use of taxation to service public debt was based primarily on his own economic arguments. Ricardo and proponents of the theory worried that high taxes charged for the aim of servicing government loans could scare away potential investments in the economy, hence their recommendation for immediate debt resettlement/retiring. In addition, gains arising from capital-growth made Ricardo advocate for public spending financed through taxes rather than one financed through public loans (Churchman, 2001).

Therefore, to achieve maximum growth in capital stocks, the theory argues that public spending should be kept at the lowest possible level. The theory holds the proposition that funding government spending using taxes is far better than doing so using borrowed funds as it helps reduce government inefficiency and wastage. Ricardo's argument was financing government activities via acquired loan funds postpones the tax burden allowing public authorities to conceal the real magnitude of their expenditure from the public. Thus, public debt tends to spur unwarranted extra spending by the government unproductively which harms capital growth.

This theory is applicable to the Kenyan case given Ricardo's valuable reflections on tax burden's allocation impacts that arise from public sector's borrowed funds. As espoused by Ricardo, the issue of public debt in Kenya should be addressed based on how it impacts the country's capital stock as well as on its effect on the country's rate of economic growth which reflect the country's future. In the prism of this theory, Kenya's high public borrowing may harm capital through not giving a true picture of the government's profligacy and distorting individuals' own level of personal wealth. Consequently, managing of the country's national debts in a better way and keeping public spending at sustainable levels now and in future periods will help enhance the country's economic prospects significantly. The theory is in support of the current research as currently ongoing arguments regarding Kenya's debt policy and its influence on the country's economic growth reflects similar arguments made in the times of Ricardo.

2.3 Empirical Review

This section reviews empirical studies done relating to the effect of public funds borrowed domestically and externally on countries' economic growth. The countries focused on in this review were selected on the basis of having an economic system and public debt structure that was close and comparable to Kenyan situation at the time the empirical studies were done. Much of

the studies reviewed were also conducted in developing countries as is the case of Kenya. The countries reviewed public debt position was characterized by high debt service, growing debt ratios and declining debt repayment capacities, at the time of the reviews.

Rabia and Kamran (2012) did a study that looked at how public loans sourced internally and externally influenced Pakistan's economic growth. The effects of the public loans sourced internally and externally on the nation's expansion economically covered the duration 1980 - 2010 and was estimated through the application of the Ordinary-Least-Squares (OLS) method. Suitability of the study data was gauged using various time-series related diagnostics. According to the results, public debts sourced domestically were found to negatively relate to the country's economic growth. Similarly, externally sourced public-loans were also found to negatively relate to the country's economic growth. However, the adverse effects of funds borrowed from outside the country on the country's expansion economically were greater than of the loans acquired internally.

Ali and Mustafa (2010) undertook a study whose intention was to explore how public debt impacted Pakistan's economic growth between 1970 and 2010. To achieve this, the researchers developed a function that measured the country's total national output against several proxies that included spending levels on education, formation of capital, available workforce and financing acquired externally. This research evaluated the effects of these variables both in the short-run and in the long-term. The main finding of the review was that financing acquired externally significantly and in a negative way influenced Pakistan's expansion economically both in the intermediate and in the long-term intervals. However, the immediate and long-term influence of growth in human capital as well as growth in capital formation were found to positively impact the country's total national output.

Maghyereh et al. (2005) undertook a study that evaluated how national debt affected a country's expansion in economic sense. The study was based on Jordanian data and employed an endogenous-growth-model. Study results showed that national loans acquired externally positively related with the nation's economic growth when the externally borrowed funds were below a given threshold, the said threshold being at 53% of the country's total national output. Beyond the threshold, growth in amounts of funds borrowed externally was seen to negatively correlate with the nation's total economic level. Similarly, in an investigation performed by Sheikh, Faridi and Tariq (2010) in Pakistan covering the period 1972 - 2009, funds borrowed domestically were found to negatively impact the country's economic growth.

In an empirical study based on select advanced and emerging economies for an interval stretching between 1970 and 2007, Kumar and Woo (2010) sought to find out how elevated levels of national debts affected the countries' expansion economically in the long term. The variables were public debt, population size, investment, and government size as independent variables while economic growth was the dependent variable. A time series regression model was applied in data analysis. The study's findings suggested that public debt negatively related with nations' growth economically, with the adverse effects of national debts being more pronounced among the emerging economies compares to its effects on the economies of the developed countries. Similar observations were made in the study by Qureshi and Ali (2010) who utilized time series OLS regression model to assess effects of public debt on Pakistan's economy between 1981 and 2008. The study established that public-debt significantly and negatively impacted the country's economy.

Kibui (2009) did a study that explored how national loan-funds sourced externally impacted Kenya's level of investment and its economy's growth for the duration between 1970 and 2007.

In the research, time series data for the said period was utilized touching on the varied study-variables. It was established that Kenya's public debt has been over/beyond set critical levels from 1982. Kenya's ratio of debt servicing was found to constitute a large part of the country's total national output. It was further established that the level of investing done publicly negatively related with the country's level of public loans sourced externally as well as with its ratio for debt-servicing. The study suggested that debt relief could be utilized to help improve the level of investments in the economy and to stir the country's economic growth. the study suggested that there was need for government action in areas of poverty eradication, and economic growth supportive initiatives such as export promotion, an investment-friendly operating context and working to improve investor confidence in the economy's prospects.

Adofu and Abula (2010) undertook a study to investigate implications of national loan-funds sourced domestically on the expansion of Nigeria's economy. The study covered the duration from 1986 to 2005. The study reported that loan-funds sourced domestically had a negative effect on national economic status of the country, hence required to be demotivated. The study argued that expansion of the country's tax net should be the way-forward. A similar study was executed in the Kenya by Maana et al. (2008) who also sought to know how national loans acquired domestically interacted with the country's economy using data for 1996 to 2007. It was established that the government's sourcing of public loans internally did not occasion crowding out of local investors largely due to the advanced state of the country's financial markets. According to the study, loans acquired domestically by the government seemed to positively correlate with growth of the economy, albeit insignificantly.

An empirical study performed by Abbas and Christensen (2010) looked at what was the optimum level of national loans sourced domestically in low resource settings that included countries in the

Sub-Saharan African region as well as those representing emerging economies for the duration 1975 to 2004. The study established that national loans sourced from internally and maintained moderately did significantly impact the said countries' level of expansion economically in a positive way. However, higher levels of public debts were found to adversely affect these countries' level of expansion in economic sense. Cholifihani (2008) studied the association of national loan-funds and the level of total national output within Indonesian economy through application of models that utilized time series data between 1980 and 2005. The proxies for the adopted model included the nation's total national output as the outcome variable run against servicing of loans, capital stock, workforce as well as human capital. The study showed the country was experiencing "debt overhang problem" as its loans position seemed to adversely impact its expansion economically in the long term.

Umaru, Hamidu and Musa (2013) did a study on the levels of Nigeria's development economically in the context of national loans sourced internally as well as externally, for the duration running 1970 - 2010. Results of the study revealed that national loans acquired domestically and externally had a negative association with the country's actual total national output albeit not in a significant way. Likewise, Safia and Shabbir (2009) looked at how loan-funds acquired externally affected the expansion economically of select countries from Africa. Twenty-four countries were included for review and data on their loans accounts and GDP-levels between 1976 and 2003 was analyzed. Panel data regression models were used to estimate the link between the variables of the study. Results showed that public loans externally sourced seemed to negatively relate with the country's level of economic growth.

An Indian study on how loan-funds acquired by the country's government related with the country's economy showed that monies borrowed externally positively impacted the country's

expansion economically though up to a certain extent. The study however noted that as the proportion of externally borrowed funds rose, this had negative effects on the country's level of activity economically, and particularly on level of individual firms' investing, as more and more public resources became committed to resettling the foreign debts. It was also observed that high servicing costs of foreign debts reduced government expenditure on crucial social services such as health and education. As such high costs associated with foreign debts' repayments slowed down the country's developing potential in turn hindering the growth of its economy (Bal & Rath, 2014).

On their part, Ajayi and Oke (2012) investigated implications of government borrowing from foreign sources on the expansion of Nigeria's developing-economy. The results clearly demonstrated that national loans acquired from external sources indeed hurt the country as they negatively impacted on the level of the country's total national output in turn decreasing income per capita for the country's residents. The consequences for high public debt sourced externally in Nigeria included loss of value for the country's currency, workers' go-slows, and regular strikes as well as a deteriorating education system and physical infrastructure. Huge external loan payments therefore impeded the growth of that nation's economy. According to the study, public debts especially when inappropriately utilized drain public resources which adversely impact a country's ability to expand economically.

Reinhart and Rogoff (2010) worked on an empirical investigation regarding effects of financial resources acquired via borrowing at a national level with the economic growth in 44 nations over a 100-years period. Results provided evidence to the effects that rising public debt levels were seen to negatively influence the levels at which both advanced as well as emerging nations were able to expand their economies. This became more pronounced as the countries' foreign-sourced national loans reached the 60% of their total national output. In a similar way, Putunoi and Mutuku

(2013) evaluated how domestically acquired public debts affected Kenya's level of growth economically between 2000 and 2010. Through application of various econometric tests, they observed that government borrowings acquired domestically played an influential role on helping Kenya's economy to grow. The research found evidence to the effect that domestically acquired loans positively and significantly influenced the growth of the economy.

Wanjuki (2016) also at how Kenya's public-debt impacted its ability to grow economically between 1980 and 2013. He used variables such as total debt service, inflation, actual cost of borrowing and real exchange rate using data from the CBK. He found that there was a negative association between repayments of loans, level of loans acquired domestically, cost of borrowing, inflation and the lagged-PIGR and Kenya's expansion economically. They however found a positive relationship between funds externally sourced, actual rate of exchange and level of investing and the country's level of economic growth. On their part, Gicheru and Nasieku (2016) evaluated public debts' effects locally covering 1996 to 2015, utilizing external debt, domestic debts and productive debts as the main variables. The study established a statically significant adverse association between debts sourced externally and the nation's economic growth, as well as significantly positive correlation existing between internal public and productive debts with economic growth.

2.4 Overview of Literature

A look at the highlighted empirical studies clearly illustrates that though lots of studies on public debt have been carried out, most focus on either fund acquired externally or internally and not on the aggregate funds borrowed. A good example being research undertaken by Putunoi and Mutuku (2013) and that by Maana et al. (2008) which dealt with either loans domestically acquired

or externally acquired and not the summation of the two. Further, most of the performed studies were cross-sectional in nature - mostly covering across various countries.

Despite the extensive literature available on this study subject, the findings as to how public debt affects economic-growth remain inconclusive, with some studies reporting a positive relationship (Egbetunde, 2012; Antony, 2015); others reporting a negative relationship (Tchereni et al., 2013; Yusuf & Said, 2018) and others reporting no significant association between these two variables (Owusu-Nantwi & Erickson, 2016; Gotcheak, 2018). This highlights the need for more research on this study subject.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The methodology chapter offers description of the materials and methods in application to make this research a success. It explains the study's theoretical framework; specifies the model for examining the association between study variables and elaborates on diagnostics that were performed to evaluate the appropriateness of the study's model.

3.2 Theoretical Framework

Theories on public debt and economic growth posit that debt can contribute positively or negatively to economic growth. Debt overhang theory indicates that debt has positive effects to economic growth and if it exceeds a certain threshold, it turns negative. The GDP growth, for example, is influenced by productivity which is affected by capital and labor.

It is argued that the choice of the indicators to represent the outcome as well as the predictor variables of a given research varies largely depending on individual scholar's assessment of what elements best represent the phenomenon under study. Kadiu (2015), for example, insisted that the level of real total national output is influenced by funds borrowed externally, costs of servicing borrowed funds, value of goods sold outside the country, general price-level, capital stock and human's productivity level. Rabia and Kamran (2012), on the other hand, shared the view that a country's total national output level varies according to gross internal consumption, investments, aggregate externally borrowed funds, costs of borrowed funds as well as aggregate internally borrowed funds. Therefore, it follows that any time a researcher wants to analyze the growth of a nation or nations, chooses the variables deemed to best represent the phenomenon. Reinhart and

Reinhart and Rogoff (2010), for example, suggested the following model to depict relationship between economic growth and its determiners.

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \varepsilon \quad (1)$$

In which, Y is the proxy of the level of economic growth while x_1, \dots, x_n represents indicators of possible predictor elements which depend on particular research.

The model (1) above was modified to include selected national public debt proxies to achieve the objectives of the study.

3.3 Empirical Model Specification

Applying Reinhart and Rogoff (2010) suggestion on economic growth representation model, the current research modeled total national output as being influenced by funds externally borrowed, funds internally borrowed, settlement of the loans, general price level, exchange rate, stock of capital and labor-force. This relationship was represented in function form as stipulated below.

$$GDP_t = f(ED_t, DD_t, Inf_t, EXR_t, CS_t, LF_t) \quad (2)$$

where:

GDP - Gross domestic product

ED - External debt

DD - Domestic debt

Inf - Inflation rate

EXR - Exchange rate

CS - Capital stock

LF - Labor force

ε - A stochastic error term

α_0 - the constant

$\alpha_1, \dots, \alpha_6$ - parameters under estimation

Linear specification of model (2) above was stated as follows:

$$GDP_t = \alpha_0 + \alpha_1 ED_t + \alpha_2 DD_t + \alpha_3 Inf_t + \alpha_4 EXR_t + \alpha_5 CS_t + \alpha_6 LF_t + \varepsilon_t \quad (3)$$

Introducing logarithm to the variables, the model (3) above was stated as follows.

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln ED_t + \alpha_2 \ln DD_t + \alpha_3 \ln Inf_t + \alpha_4 \ln EXR_t + \alpha_5 \ln CS_t + \alpha_6 \ln LF_t + \varepsilon_t \quad (4)$$

Table 1: Summary of the variables

Variable	Measurement	Expected sign
GDP	% Change annually	
External debt	gross funds externally sourced (in Kshs. billions)	Negative / positive
Domestic debt	Gross funds domestically sourced (in Kshs. billions)	Negative / positive
Inflation rate	Annual percentage change in Consumer Price Index(CPI)	Negative
Capital stock	Gross fixed capital formation (in Kshs. billions)	Positive
Labour-force	Gross workforce in a country	Positive
Exchange rate	Kshs - US dollar exchange rate	Positive/ negative

The selection of the variables depicted in Table 3.1 above also supported answering the question on drivers of public debt. This is based on IMF's assertion that low capital stocks, persistent rises

in general price-level, denominating a country's loans using foreign denominations, poor terms of trade, quickly maturing borrowings sourced externally, a high proportion of gross loans requiring to be serviced, low/declining foreign exchange reserves and high-income inequality constitute leading determinants of inability to settle maturing public debts within low resource nations (IMF, 2019).

3.4 Empirical Model Estimation Method

The time series data was analyzed through the Ordinary Least Square (OLS) regression technique. However prior to estimation, the data was subjected to rigorous econometric tests. To avoid spurious regression, the time series was subjected to unit root test using Augmented Dickey Fuller test (ADF). Also, other post estimation diagnostic tests were conducted to ensure that the OLS regression model does not suffer from econometric issues. These diagnostic tests are discussed in the next section below.

3.5 Diagnostic Tests

3.5.1 Stationarity Test

One of OLS regression's assumptions is that data being used is static. For a series to be regarded as being static, the moments of the series (mean, mode, and kurtosis) should be independent of time. Use of indicators that are non-static yields regression findings that make no meaning. In this research, stationarity was evaluated via application of Augmented Dickey-Fuller (ADF) unit root test. The null hypothesis of this test is the existence of a unit root (non-stationary). The absolute value of the ADF test statistic should be greater than critical ADF test statistic at either, 1%, 5% or 10% levels of significance, for the null hypothesis to be rejected.

3.5.2 Normality Test

Normality test checks whether the data in use is normally distributed. This occurs when most of the findings are close to the data's mean, implying that the data assumes a symmetrical shape (Wheeler, 2001). In this study, the Jarque-Bera test for normality was used to test whether model residuals were normally distributed.

3.5.3 Homoscedasticity

Homoscedasticity depicts similarity in variation values of an indicator as those of another indicator that estimates it (Garson, 2012). For the current research, homoscedasticity was estimated via use of Breusch-pagan/cook-weisberg test whose null hypothesis is there's equality in all error-variances while its alternate hypothesis is that error variances equate to multiplication of single or multiple variables. Data is homoscedastic if "Prob> Chi-squared" is > 0.05 (Bera & Jarque, 2012).

3.5.4 Multicollinearity

Multicollinearity is a test that checks if a study's predictor variables are closely related i.e., whether they correlate with each other. Regression assumes that there is no multicollinearity among the predictor variables being used, as this makes the model's estimates to be unstable while the model's standard errors become heavily embellished (Garson, 2012). For the current research, Variance Inflation Factor (VIF) values of ≤ 5 and Tolerance values of > 0.1 will denote absence of multicollinearity in the study's variables.

3.5.5 Autocorrelation

Autocorrelation depicts mathematically the levels of being similar of a certain time series with its own version which is a lagged for several subsequent time frames (Stangor, 2014). It was evaluated via use of the Durbin Watson test statistic (Black, 2010). It happens if errors in a regression model closely relate over a number of observations.

3.6 Data Analysis

Both empirical analysis and descriptive statistics were conducted. The data was analyzed using STATA 14.2 statistical software.

3.7 Data Type and Source

This research applied secondary annual time series data running from 1990 - 2019. The data was extracted from the World Development Indicators and Kenya National Bureau of Statistics database.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter mainly deals with data analysis. In particular, the descriptive statistics, empirical results, and their discussions are presented.

4.2 Descriptive Statistics

The descriptive statistics of the data of the variables utilized in this work is presented below in table 4.1, where the minimum, maximum, standard deviations and means are used to describe the variables.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
LnGDP	30	3.187986	.7837565	2.054979	4.575846
LnED	30	2.040627	.5139325	1.48011	3.167308
LnDD	30	7.079243	1.594166	3.972177	9.282365
LnCS	30	1.429319	.8973346	-.0261221	2.772608
LnLF	30	2.657713	.2934308	2.182562	3.166883
EXR	30	72.59213	21.0582	22.91477	103.4104
Inf	30	10.75027	8.543963	1.554813	40.78195

In Table 4.1 above, the LnGDP has a mean of 3.187986 and its standard deviation is 0.7837565.

Its minimum value is 2.054979 while maximum value is 4.575846. overall, LnDD has the highest mean value of 7.079243 amongst the variables expressed in logarithm form while EXR has the highest value of 72.59213 of the variables not expressed in their logarithm form. All the variables have the total number of observations being 30. The purpose for doing analysis of descriptive statistics in this study was for the purposes of visualizing data and not drawing any inferences because various diagnostic tests for ascertaining residuals of the model do not suffer from econometrics problems were conducted.

4.3 Results for Diagnostic Tests

4.3.1 Unit Root Test Results

Table 4.2 below shows the results after carrying out ADF test for unit root.

Table 3: ADF Test Results

Variable	Test Statistic	5% critical value	Test Statistic	5% critical value
	Level		First difference	
LnGDP	-2.775 (0.2062)	-3.588	-3.327 (0.0014)	-1.711
LnED	-1.295 (0.8891)	-3.588	-2.212 (0.0184)	-1.711
LnDD	-2.289 (0.4398)	-3.588	-4.477 (0.0001)	-1.711
LnCS	-3.151 (0.0945)	-3.588	-4.810 (0.0000)	-1.717
LnLF	-2.420 (0.3690)	-3.592	-1.870 (0.0368)	-1.711
EXR	-3.200 (0.0844)	-3.588	-4.986 (0.0000)	-1.706
Inf	-2.850 (0.0043)	-1.708		

Note: p-values are in brackets

After conducting unit root test using ADF test, as can be seen in table 4.2, all variables except inflation are integrated of order one, I(1). Inflation variable is stationary at level. This means that variables have mixed order of integration. Therefore, the variables that have integration order of one i.e., stationary after first difference were differenced once in order to avoid the spurious regression because this study adopted OLS model for estimation.

4.3.2 Normality Test Results

In order to ascertain the residuals from OLS model were normally distributed the Jarque-Bera test was employed in this study. The null hypothesis reads residuals are distributed normally. Its results are shown in Table 4.3 below.

Table 4: Jarque-Bera Test Results

Jarque-Bera normality test:	Chi (2)	Prob
	0.5931	0.7434
Jarque-Bera test for Ho: normality		

The outcome of Jarque-Bera test in table 4.3 above illustrates that the Chi2 is 0.5931 with its p-value being 0.7434. this p-value is insignificant and therefore the null hypothesis of normal distribution of the residuals of OLS model was accepted. This indicate that the model is robust with residuals being normally distributed.

4.3.3 Heteroskedasticity Test Results

Below in table 4.4, the result for heteroskedasticity is presented.

Table 5: Heteroskedasticity Test Results

chi2(1)	=	0.60	Prob > chi2	=	0.4398
Note: Ho: Constant variance					

The Breusch-Pagan/Cook-Weisberg test, as shown in table 4.4, has the p-value of chi2 of 0.4398.

This value is insignificant indicating that null hypothesis was accepted at all significance levels.

This clearly indicates that the variance does not vary with time and therefore, they are constant.

4.3.4 Autocorrelation Test Results

In table 4.5 below the results for autocorrelation using Breusch-Godfrey LM test is depicted.

Table 6: Autocorrelation Test Results

lags (p)	chi2	Df	Prob > chi2
1	0.790	1	0.3741
Note: H0: no serial correlation			

In table 4.5 above, it can be observed that the chi2 is 0.790 with p-value being 0.3741. This p-value is insignificant and therefore the null hypothesis of no serial correlation could not be rejected.

This means there is no autocorrection between the successive error terms.

4.3.5 Multicollinearity Test Results

Multicollinearity was tested using variance inflation factor. The results are presented in table 4.6 below.

Table 7: Test for Variance Inflation Factor Results

Variable	VIF	1/VIF
EXR	2.98	0.335350
D1.		
LnCS	2.60	0.385291
D1.		
Inf	1.55	0.647242
LnLF	1.25	0.802771
D1.		
LnED	1.20	0.832292
D1.		
LnDD	1.09	0.916960
D1.		
Mean VIF	1.78	

The rule of thumb when conducting multicollinearity test using variance inflation factor test is that if VIF is greater than 5, there is existence of multicollinearity. But if it is less, there is no multicollinearity. From table 4.6 above, it can be observed that none of the variables has the VIF greater than 5. The mean VIF is 1.78, further indicating absence of multicollinearity. Therefore, there was no multicollinearity detected among the variables used.

4.4 Empirical Results

This research work adopted OLS regression model for estimation. The results after regressing the variables are reported below in table 4.7.

Table 8: OLS Results

Independent variable: LnGDP						
			Number of obs	=	29	
			F(6, 22)		40.25	
			Prob > F		0.0000	
			R-squared		0.9165	
			Adj R-squared		0.8937	
D.LnGDP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LnED						
D1.	.0193259	.0959553	0.20	0.842	-.1796731	.218325
LnDD						
D1.	-.0039602	.0171081	-0.23	0.819	-.0394403	.0315199
LnCS						
D1.	.304114	.0761024	4.00	0.001	.1462873	.4619407
LnLF						
D1.	2.134865	.7489918	2.85	0.009	.5815506	3.688179
EXR						
D1.	-.0108671	.0021086	-5.15	0.000	-.0152401	-.0064941
Inf						
Inf	-.0014624	.0010905	-1.34	0.194	-.003724	.0007993
cons	.0211942	.0253241	0.84	0.412	-.0313247	.0737131

In table 4.7 above, probability of the F-statistic is highly significant indicating that this model is suitable. Also, measure of goodness of fit which is denoted by R² is 0.9165 and Adjusted R² is 0.8937. This indicates that model is well fitted because 91.65% of disparities of dependent variable can be explained by independent variables used in this study.

From the regression results in Table 4.7 above, it is clear that LnCS, LnLF and EXR are statistically significant at all levels of significant while other variables, which are LnED, LnDD, and INF, are statistically insignificant. The coefficient of LnED is 0.0193259 and that of LnDD is -0.0039602. This means that increasing ED by US \$ 1 billion increases the GDP by US \$ 0.0193259 billion while increasing DD by Kshs. 1 billion reduces the GDP by US \$ 0.0039602, ceteris paribus. Similarly, the values of the coefficients of LnCS, LnLF, EXR and Inf are 0.304114, 2.134865, -0.0108671, and -0.0014624, respectively. This implies that increasing CS by US \$ 1 billion

increases GDP by US \$ 0.304114 billion while increasing LF by US \$ 1billion increases GDP by US \$ 2.134865 billion, other variables being constant. On the other hand, EXR and Inf coefficients are -0.0108671 and -0.0014624 respectively, implying that increasing them by 1% reduces GDP by 1.08671%, and 0.14624% respectively, *ceteris paribus*.

4.5 Discussion of the Results

The estimation of the model began by establishing stationarity of the variables so as to ascertain their order of integration in an attempt to avoid spurious regression. The outcome showed that all the variables were stationary at first difference except the inflation variable which was found to be stationary at level. For the purposes of estimation, the variables that were found to be stationary at first difference, their first differences were taken. Then, the model was estimated employing OLS regression. After regression, a couple of diagnostic tests were conducted. These diagnostic tests indicated that the model was not affected by econometric issues of autocorrelation, heteroskedasticity, normality and multicollinearity.

The results for OLS regression indicate that external debt does not have significant effect on GDP. Its coefficient was found to be positive and statistically insignificant meaning that it affects Kenyan economic growth positively. This indicate that borrowing from outside the country is favorable in Kenya. However, its insignificant effect means that these debts are not generating enough returns to enable it to cover the cost of borrowing. It can also be argued that there is much wastage either in consumption or corruption of the borrowed funds because of these insignificant effect results. However, its positive effect indicates that at least a proportion of these borrowed funds from external sources are utilized in funding ventures that are generating some income. These results agree with that of Maghyreh et al. (2005) whose findings indicate externally sourced funds in Jordan has a positive effect on its economy. Also, a research work carried out in Kenyan context

by Gicheru and Nasieku (2016) and Wanjuki (2016) indicate that externally borrowed finances exert a significant positive effect on its economic expansion. However, these results contradict findings of various researchers who found borrowing from other nations had adverse effects on the economic growth in nations where research was conducted. For example, Ali and Mustafa (2010) and Rabia and Kamran (2012) findings in Pakistan shows that external debt negatively affects its economic growth. Another study carried out in Nigeria by Umaru, Hamidu and Musa (2013) indicate that borrowed funds from other countries has insignificant negative effects on Nigerian economy. Also, Safia and Shabbir (2009) did conduct a study in 24 African economies and realized that external debt exerted negative effect on economic growth of these countries.

The coefficient of domestic debt is negative and statistically insignificant. This implies that domestic debt has a negative effect on GDP. This shows that there is too much borrowing internally in Kenya. Hefty domestic borrowings increase pressure on interest rate and so on investments (Ongeri B.O, 2021). Thus, making bank lending rates to shot up. In effect, the cost of borrowing escalates hence lowering private sector investment and, in the end, slowing economic growth (Ongeri B.O, 2021). These results are in line with crowding out effect theory that indicate when a country result to massive borrowing internally, then this leaves little resources for private sector borrowing hence causing liquidity constraint in the country hence leading to crowding out effect on private sector investment. The results agree with a number of works carried out by various researchers in different countries facing different economic situations. To begin with, a research work by Sheikh, Faridi and Tariq (2010) and Rabia and Kamran (2012) in Pakistan yielded similar results with current study that borrowing internally exert negative impact on economy. Adofu and Abula (2010) and Umaru, Hamidu and Musa (2013) research, on the other hand, found insignificant negative effect of domestic debt on Nigerian economy. Wanjuki (2016) findings in

Kenya indicate that domestic debt negatively affects its economy. In same breadth, these results are opposite to findings of Maana et al. (2008), Mutuku (2013), and Gicheru and Nasieku (2016) in Kenya who indicated that internal borrowings positively influence economic growth. Also, these results refute Abbas, and Christensen (2010) whose findings indicate positive effect of internal borrowings in SSA and other emerging economies.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter consist of summary of the findings, conclusions, policy implications and suggestion for further studies.

5.2 Conclusion

This research work was geared towards establishing the effect of public debt on economic growth in Kenya. It narrowed down into investigating the effect of domestic debt and external debt on economic growth in Kenya. The first objective of this research work was to examine how the internal debt affects Kenya's economic growth. The results indicate that the internal debt negatively affect the economic advancement in Kenya. More so, the negative effects are insignificant. The second objective was to assess how the externa debt affects Kenya's economic growth. The results show that borrowings from abroad have insignificant positive effect on Kenyan economic growth. The study concludes that the internal public debt influences economic growth negatively in Kenya. On the other hand, External public debt has insignificant positive effect on economic growth in Kenya.

5.4 Policy Implications

It was discovered that borrowing internally in Kenya poses adverse effect on its economic growth. The findings also indicated that borrowing externally poses positive effect on the economic expansion. These effects, however, were insignificant. This begs for government to explore various avenues of funding its budget deficit which can be done through improvement of current revenue base other than resulting to massive internal or external borrowings. There is need for government to diversify its sources of revenue in order to scale down borrowings from within and outside the country. To reap the benefits of funds borrowed from other countries, the Kenyan government needs to ensure that the debt management systems are accurate. This can be done by incorporating the information technology in debt management systems. The body mandated to manage public debt should be ran with utmost accountability and transparency. Also, the external debt should be utilized in better ways and in development initiatives that would enhance future streams of national income.

This study has laid focus on effects of public borrowing both domestically and externally. There is need to ascertain effects caused by servicing these domestic and external debts. Therefore, in future further studies ought to be carried out particularly focusing on domestic and external debt servicing. Also, these studies can incorporate domestic and external debt by private sector.

REFERENCES

- Abbas, S. A., & Christensen, J. E. (2010). The role of domestic debt markets in economic growth: An empirical investigation for low-income countries and emerging markets. *IMF Staff Papers*, 57(1), 209-255.
- Adofu, I., & Abula, M. (2010). Domestic debt and the Nigerian economy. *Current Research Journal of Economic Theory*, 2(1), 22-26.
- Ahlborn, M., & Schweickert, R. (2018). Public debt and economic growth – economic systems matter. *International Economics and Economic Policy*, 15(2), 373-403.
- Ajayi, L.B., & Oke, M.O. (2012). Effect of external debt on economic growth and development of Nigeria. *International Journal of Business and Social Science*, 3(12), 297-304.
- Ali, R., & Mustafa, U. (2010). External Debt Accumulation and Its Impact on Economic Growth in Pakistan. *The Pakistan Development Review* 51:4 PartII, pp. 79–96.
- Al-Zeaud, H.A. (2014). Public debt and economic growth: An empirical assessment. *European Scientific Journal*, 10(4), 55-62.
- Aybarç, S. (2019). Theory of Public Debt and Current Reflections. In *Public Economics and Finance*. IntechOpen.
- Bal, D.P., & Rath, B.N. (2014). Public debt and economic growth in India: A reassessment. *Economic Analysis and Policy*, 44(3), 292-300.
- Balcerzak, A.P., & Rogalska, E. (2014). Crowding Out and Crowding In within Keynesian Framework. Do We Need Any New Empirical Research Concerning Them? *Economics & Sociology*, 7(2), 80-93.
- Bilan, I. (2016). Overview of the Main Theories on the Economic Effects of Public Indebtedness. In *European Integration-Realities and Perspectives Proceedings* (pp. 356-362). Editura Universitară Danubius.
- Checherita, C., & Rother, P. (2010). The impact of high and growing government debt on economic growth: An empirical investigation for the Euro Area. *IMF Working Paper No. 10/1237*

- Chirwa, T. G., & Odhiambo, N. M. (2016). Macroeconomic determinants of economic growth: A review of international literature. *South East European Journal of Economics and Business*, 11(2), 33-47.
- Cholifihani, M. (2008). A co-integration analysis of public debt service and GDP in Indonesia. *Journal of Management and social sciences*, 4(2), 68-81.
- Chowdhury, A. Y., Hamid, M. K., & Akhi, R. A. (2019). Impact of Macroeconomic Variables on Economic Growth: Bangladesh Perspective. *Information Management and Computer Science (IMCS)*, 2(2), 19-22.
- Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2017). Is there a debt-threshold effect on output growth? *Review of Economics and Statistics*, 99(1), 135-150.
- Churchman, N. (2001). Ricardo and Modern Public Debt Theory. In *David Ricardo on Public Debt* (pp. 111-121). London: Palgrave Macmillan.
- Egbetunde, T. (2012). Public debt and economic growth in Nigeria: Evidence from granger causality. *American Journal of Economics*, 2(6), 101-106.
- Égert, B. (2015). Public debt, economic growth, and nonlinear effects: Myth or reality? *Journal of Macroeconomics*, 43(1), 226-238.
- Fincke, B., & Greiner, A. (2015). Public debt and economic growth in emerging market economies. *South African Journal of Economics*, 83(3), 357-370.
- Gicheru, G., & Nasieku, T. (2016). Impact of public debt on Kenya's economic growth. *International Journal of Economic and Business Review*, 3(2), 1-8.
- Hussain, M.E., Haque, M., & Igwike, R. (2015). Relationship between economic growth and debt: An empirical analysis for Sub Saharan Africa. *Journal of Economics and Political Economy*, 2(2), 262-276.
- Ibi, E. E., & Aganyi, A. (2015). Impacts of external debt on economic growth in Nigeria: a VAR approach. *Journal of Business Management and Administration*, 3(1), 1-5.
- Jibran, K., Ali, A., Hayat, U., & Iqbal, A. (2016). Public debt and economic growth in Pakistan: A reassessment. *Pakistan Business Review*, 18(2), 307-324.

- Joy, J., & Panda, P. K. (2019). Pattern of public debt and debt overhang among BRICS nations: An empirical analysis. *Journal of Financial Economic Policy*, 7(1), 43 - 49.
- Kadiu, F. (2015). Public debt and Economic Growth, Case of Albania. *Balkan Journal of Interdisciplinary Research*, 175.
- Kandil, M. (2017). Crowding out or crowding in? Correlations of spending components within and across countries. *Research in International Business and Finance*, 42, 1254-1273.
- Kibui, P. (2009). Impact of external debt on public investment and economic growth in Kenya (1970-2007). Unpublished MBA Project, University of Nairobi.
- Kumar, M.S., & Woo, J. (2010). Impact of high public debt on long run economic growth for a panel of advanced economies (1970-2007). *Economics and Management*, 14(3), 71 - 79.
- Lartey, E. Y., Musah, A., Okyere, B., & Yusif, N. (2018). Public debt and economic growth: Evidence from Africa. *International Journal of Economics and Financial Issues*, 8(6), 35.
- Lee, S.P., & Ng, Y.L. (2015). Public debt and economic growth in Malaysia. *Asian Economic and Financial Review*, 5(1), 119-126.
- Maana, I., Owino, R., & Mutai, N. (2008). Domestic Debt and its Impact on the Economy-The case of Kenya. 13th Annual African Econometric Society Conference. Pretoria, South Africa.
- Maghyereh, A., Omet, G., & Kalaji, F. (2005). External Debt and Economic Growth in Jordan: The Threshold Effect. *International Economics*, 56(3), 337- 355.
- Moussa, T.A, & Shawawreh, A.M. (2017). The Impact of Public Debt on the Economic Growth of Jordan: An Empirical Study (2000 - 2015). *Accounting and Finance Research*, 6(2), 114-120.
- Mwakalila, E. (2020). Crowding Out of Private Sector in Tanzania: Government Expenditure, Domestic Borrowing, and Lending Rates. *Emerging Economy Studies*, 6(1), 123-135.
- Ndieupa, H.N. (2018). How Does Public Debt Affect Economic Growth? Further Evidence from CEMAC Zone. *Asian Research Journal of Arts & Social Sciences*, 5(1), 1-8.
- Omitogun, O. (2018). Investigating the Crowding Out Effect of Government Expenditure on Private Investment. *Journal of Competitiveness*, 10(4), 136-150.

- Ongeri, B.O. (2021). Issues of public debt management in countries - A Kenyan experience. *International Journal of Scientific Research and Innovative Technology*, 8(2), 17-30.
- Ostry, M. J. D., Ghosh, M. A. R., & Espinoza, R. A. (2015). When should public debt be reduced? New York: International Monetary Fund.
- Owusu-Nantwi, V., & Erickson, C. (2016). Public debt and economic growth in Ghana. *African Development Review*, 28(1), 116–126.
- Pegkas, P. (2018). The effect of government debt and other determinants on economic growth: The Greek experience. *Economies*, 6(1), 10-19.
- Putunoi, G.K., & Mutuku, C.M. (2013). Domestic debt and economic growth relationship in Kenya. *Current Research Journal of Economic Theory*, 5(1), 1 - 10.
- Qureshi, M.N., & Ali, K. (2010). Public debt and economic growth: Evidence from Pakistan. *International Research Journal of Finance and Economics*, 5(3), 100-108.
- Rabia, A., & Kamran, M. (2012). Impact of domestic and external debt on the economic growth of Pakistan. *World Applied Sciences Journal*, 20(1), 120-129.
- Reinhart, C., & Rogoff, K. (2010). Growth in a Time of Debt. NBER Working Paper, No. 15639.
- Saifuddin, M. (2016). Public debt and economic growth: Evidence from Bangladesh. *Global Journal of Management and Business Research*, 8(1), 36-43.
- Sheikh, M.R., Faridi, M.Z., & Tariq, K. (2010). Domestic debt and economic growth in Pakistan: An empirical analysis. *Pakistan Journal of Social Sciences (PJSS)*, 30(2), 373-387.
- Tchereni, B.M., Sekhampu, T.J., & Ndovi, R.F. (2013). The impact of foreign debt on economic growth in Malawi. *African Development Review*, 25(1), 85 - 90.
- Tsoufidis, L. (2017). Classical economists and public debt. *International Review of Economics*, 54(1), 1-12.
- Umaru, A., Hamidu, A., & Musa, S. (2013). External debt and domestic debt impact on the growth of the Nigerian economy. *International Journal of Educational Research*, 1(2), 70-85.

Wanjuki, N. (2016). *Effect of Public Debt on Economic Growth in Kenya*. Nairobi: Kenyatta University Publications.

Woo, J., & Kumar, M. S. (2015). Public debt and growth. *Economica*, 82(328), 705-739.

Yusuf, S., & Said, A. O. (2018). Public Debt and Economic Growth: Evidence from Tanzania. *Journal of Economics, Management and Trade*, 21(1), 1-12.