

ADFJ ISSN 2522 - 3186.

African Development Finance Journal

VOLUME 5 (3)

*Government Debt, Interest Rates, Fiscal Policy and
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Date Received: May, 09, 2023

Date Published: June, 12, 2023

Government Debt, Interest Rates, Fiscal Policy and Economic Growth in East Africa Community

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Abstract

Purpose - This study endeavored to examine the effect of government debt, interest rates and fiscal policy on economic growth in East African countries.

Methodology – Secondary data was collected from the World Bank library for the period 1980 to 2019 using a data collection sheet. The data collected was in reference to total debt, interest rates, budget deficit and economic growth for Kenya, Tanzania and Uganda. Step wise multi-regression data analysis was utilized given that the data was time series. Step wise multi-regression data analysis shows the single–partial effect of key explanatory variable on the outcome variable; if there are changes in the significance of the key explanatory variables as regressors are added; whether the signs of key explanatory variables change as regressors are added; averts multi-collinearity problem and enhances the study by providing more information on factors influencing the behavior of the outcome variable.

Findings - The outcome unveiled that government debt for Kenya, Tanzania and Uganda on economic growth were all not statistically significant. The effect of interest rate on the relationship between government debt and economic growth indicate Kenya and Tanzania were not statistically significant but Uganda results were statistically significant. The effect of fiscal policy on the relationship between government debt and economic growth indicate Kenya and Tanzania results were not statistically significant while Uganda results were statistically significant. The joint effect of government debt, interest rate and fiscal policy on economic growth indicates that results for Kenya were statistically significant while that of Tanzania and Uganda were not statistically significant.

Implications – High government borrowing has the effect of crowding out investors and potential rise in interest rates. The governments should strive to have a balanced budget if not a surplus budget in order to minimize borrowings.

Value – This research contributes to public finance practice majorly in regard to government borrowing, interest rates, fiscal policy and economic growth. Experts in finance will find this research prudent on the aspect of to what degree government debt, interest rates and fiscal policy affect the growth of the economy of East Africa. The research will also be of value to government practice of borrowing as its findings informs the government on whether the debt is hurting the economy or not and therefore the government is able to take appropriate measures and thereby adhere to the best practices.

Keywords: Government debt, Interest rates, Fiscal policy, Economic growth.

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Introduction

Governments all over the globe often borrow to finance their budget deficits. Government indebtedness is the summation of both domestic and external debt (Akram, 2010). Government debt performs a crucial part in financing huge development infrastructure projects while bridging a country's fiscal deficit (Cecchetti, Mohanty and Zampolli (2011). A huge level of government indebtedness has a risk associated with servicing default by the government by stating resource deficiency resulting to high interest rate levels (Siew and Yan, 2015). Fisher (1930) describes interest rate as the annual cost payable by the borrower to the lender in order to get a loan. Interest rate increase reduces the country's gross domestic product thereby slowing down the real sector growth (Udoka, Agwenjang and Tapang, 2012). An economic condition could be interpreted in relation to depression, recession and boom (Pailwar, 2008). The main goals attributed to fiscal policy are re-allocation and re-distribution of possessions (Musgrave, 1959). Governments use fiscal policy to regulate the level of expenditure while enhancing stability in the economy (Tanzi, 2006 and Perotti, 2007).

Government Debt

Foreign debt liability has remained important in strategy discussions while not so much consideration is given to internal indebtedness. Internal indebtedness mitigates the risk of foreign exchange, protects from adverse external shocks and triggers the growth of liquid and deep domestic financial markets (Del and Piero, 2003). Nonetheless, domestic indebtedness is known to have a crowding out effect on investment to high-risk private enterprise. Without undermining the gains of internal indebtedness, it is presumed to a greater extent to be considerably costly in comparison with foreign funding. This is so since the load of interest of internal indebtedness has the ability of consuming a nation's important income thereby crowding out the under privileged and development improving spending.

Interest Rate

The rate of lending modified by both expected and realized inflation is the real interest rate. It is the applicable price of utilizing presently instead of in the future (Lucas, 1978). Brealey et al., (2001) indicates that the charge at which the debtor pay out returns for using the funds advanced by the loaner is the rate of interest. The price of interest in an economy defines the charge of credit since it is the annual cost payable by the borrower to the lender in order to get a loan. The interest rate is normally indicated as being the proportion of the total amount loaned (Fisher, 1930). Keynes (1936) hypothesized that the price of interest

symbolizes the borrowing cost of finances in a given time period.

Fiscal Policy

The surplus of total state spending as compared to its revenue is known as fiscal deficit; therefore additional resource is ejected by the state in the economy relative to its tax collections believing that the rise in commercial activities would result in increased earnings to offset the deficit. Additionally it is specified as shortfall consumption or put simply, borrowing to offset surplus consumption above earnings (Black, 1997). The fiscal policy approach anticipates that the state will use deficits and surpluses in the budget cushion to avert the rate of tax from sharply changing (Battaglini and Coate, 2008). States will have shortfalls in moments of huge state expenditure requirements and excess when obligations are scant. The fundamental hypotheses are that states are philanthropic, that state expenditure require to change over time, and the burden expense of income tax are considered as a circular behavior of rate of taxation (Battaglini and Sargent, 2006). A good fiscal policy is a valuable criterion for long run success of the economy and governments require balancing their transactions and refraining from tax imposition burden which become a disincentive at the same time guaranteeing satisfactory and effective government service (Kuttel and Kugler, 2000).

Economic Growth

The expansion in the economic scope to generate services and goods, in comparison from one time period to the next is the economic growth (Raisova and Durcova, 2014). Abbas (2005) indicates economic growth is the rise in price of services and goods adjusted for inflation by the economy in the market. Swan (1956) noted that economic expansion is the rise in the volume of services and goods created over the period in the economy. It is the growth of a state's earnings. Solow (1956) stipulates that the growth of the economy allows a nation to forecast business tendencies in the lengthy term and diverse state policies. It is an indication of the economic direction.

Research Problem

Governments have continually not succeeded in collecting enough income to fund their budgets and continue to depend on foreign and internal debts to fund their development operations (Abbas, 2013). Heavy borrowing by the government from the internal market causes the interest rates to hike as the financial institutions do not have enough resources remaining for extending loan to the individual

ownership which is considered to be risky. The financial inflow of the economy is influenced by rate of interest. Positive interest rate determination is seen as a necessity for a favorable and tenable finance (Buckler, 1999). The fiscal policy approach anticipates that the state will use deficits and surpluses in the budget cushion to avert the rate of tax from sharply changing (Battaglini and Coate, 2008).

The effect of foreign indebtedness was investigated by Kharusi and Ada (2018) on Oman economy while researching the connection among the economic growth and state's foreign indebtedness for the period 1990-2015. The findings indicated that unfavorable and important impact of external indebtedness on expansion of the economy of Oman. They had employed autoregressive distributed lag cointegration approach. Another study could be undertaken on a different economy to find out if the findings will be the same. Kaakunga (2006) examined fiscal policy impact on economic expansion of Namibia effective 1991-2004 and analyzed data by use of endogenous growth model. He found out that adjustment in government spending mix favorable to fruitful activities may point to stable government growth rate. An updated research could be done and preferably on different countries to see if the findings remain the same.

Sergey et al. (2017) researched on effects of rates of interest on the growth of economy in Russia by use of structural vector autoregression (VAR) and found out that huge real and nominal rates of interest may not impair the expansion of economy. Different methodology can be used to see if the results would remain the same. Sambiri et al. (2014) examined the rates of lending and its effects on the expansion of the economy in Kenya and found out that inflation and budget deficit impacted positively on the rates of interest in Kenya and that the impact was critical. Other variable like government debt and fiscal policy could be added and the outcome compared to see if it remains the same.

Empirical and theoretical studies are not conclusive on the effectiveness of government debt on the growth of the economy and in view of this; the current study is focused to cover government debt, interest rates and fiscal policy on the growth of the economy in East Africa. It was intended to discuss the research question: What is the effect of government debt, interest rates and fiscal policy on economic growth of East Africa?

Research Objectives

The main objective of the study was to establish the impact of government debt, interest rates and fiscal policy on economic growth in East Africa while the specific objectives are:

- (a) To examine the impact of government debt on economic growth in East African countries
- (b) To investigate the effects of interest rates on the relationship between government debt and economic growth in East African countries
- (c) To establish the effects of fiscal policy on the relationship between government debt and economic growth in East African countries
- (d) To examine the joint effects of government debt, interest rates and fiscal policy on economic growth in East African countries

Literature Review

The crowding out theory was introduced by Buiter in 1976. The theory asserts that expanding government sector expenditure has the results of diminishing expenditure in for-profit businesses. The increase in government expenditure funded through tax reduces personal expenditure. If taxes are not increased by the government, the government acquires loans that require to be paid with interest thereby increasing the interest rate which further reduces the investment of an individual. In regard to this hypothesis, private ownership expenditure reduces as a result of and relatively to state expenditure may not achieve in raising cumulative demand. As interest rates get bigger, the cost of borrowing can be afforded only by the state as the for-profit businesses get displaced from the market as government effectively takes a bigger and bigger share of current savings required for investment.

There is need to test whether crowding out theory may be applicable in East Africa as fiscal deficit has been growing over the years and that the countries have huge debts in both the domestic market as well as the external market. The study could test whether the huge debts are crowding out the private investments.

Myers (1977) first advanced the debt overhang theory while researching on the determinants of corporate borrowing. Krugman (1988) while studying the theory on debt overhang noted that there was a likelihood that forthcoming debt would exceed the country's repayment capacity, likely cost of servicing the debt will hinder any more external and internal investment as the revenue from productive venture layout would

be too little to improve the sector as the result of economic development would rise to the advancing nation. The investments both domestic and

Government indebtedness being a strain to coming generations may be the circumstance in East Africa since the expectation is that the funds acquired today will later be repaid with interest. Nonetheless, whether the public debt reduces the available lifetime consumption remains to be seen. In case the funds are put in projects that generate income, the available life time consumption may not be reduced. The application of the overhang debt theory may be viable in countries in East Africa if there is a possibility that anticipated debt will surpass the countries redemption capacity. Further a study needs to be undertaken to establish if the expected indebtedness servicing price will discourage more investment both external and internal. Even though the crowding out theory in the current study is the main theory, there is also the Keynesian and the loanable funds theory of interest rates that also support the study on investigating the link among state's indebtedness, interest rates and fiscal policy on economic development.

Empirical Review

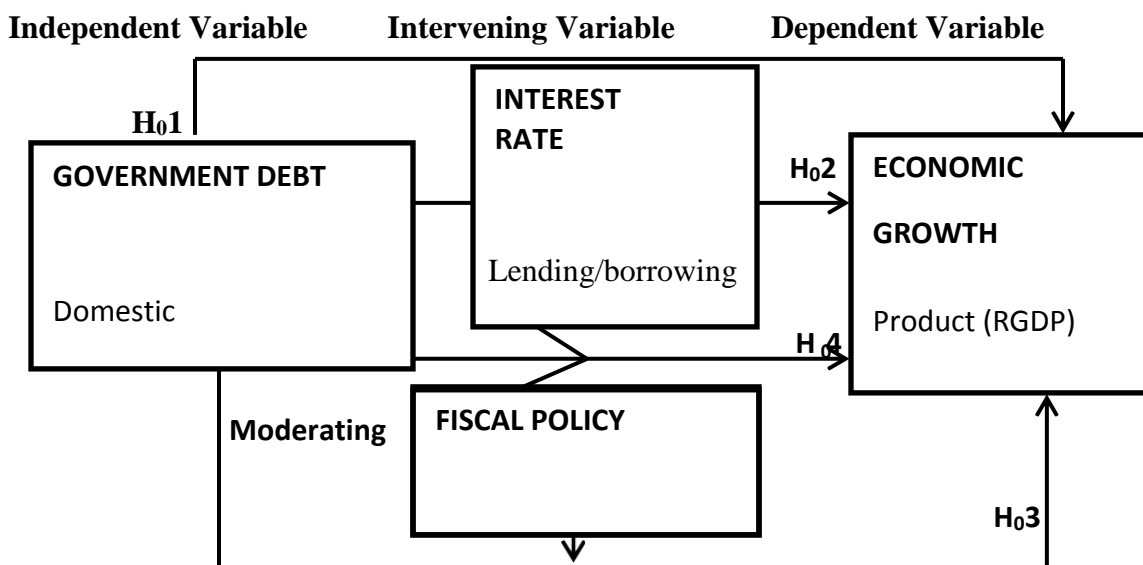
Obstfield and Rogoff model was used by Sene (2014) while he examined developing countries to find out if there is any tie-on equilibrium real exchange rate, interest rate, and external public indebtedness. Real rate of interest in the long-run tended to appreciate because of debt overhang. Patrowimolporn (2007) assessed the effect of rate of exchange and the rates of interest on indebtedness, servicing of borrowings and the management of national debt in Thailand by use of a simple differentiation technique. He found out that the unpredictability of the rate of exchange affected debt servicing for a remarkable amount in servicing of the debt was salvaged when the rate of interest was altered. Both studies were done in developed countries and therefore the need to undertake the research in developing countries and compare the results.

Sergey et al., (2017) used structural vector autoregression (VAR) while researching on effects of rates of interest on the growth of the economy in Russia and their outcome were that after the global financial crisis, the interest rates policy is efficient. End (2021) explored debt tectonics, fiscal policy and expectation – a fiscal credibility dissertation while using cyclically-adjusted indicators of credibility and found out that with depressed confidence in the state, independent representatives are likely to spend little, particularly when enticed to save by the huge level of government indebtedness. Different methodology could be used to find out if the results remain the same.

Sambiri et al. (2014) studied interest rates and its effectiveness on the economic expansion in Kenya using time series and their findings were that there was remarkable and favorable impact of inflation and budget deficit on the rate of interest in Kenya. Were (2001) researched on the effect of external indebtedness on the economy in Kenya utilizing regression time series and ascertained that foreign borrowing accumulation had an unfavorable impact on the growth of the economy and private assets. The variables could be increased to include both domestic and foreign debt, interest rates, fiscal policy and economic growth and the study could be broadened to include countries like Tanzania and Uganda.

Conceptual Framework

Figure 1: The Conceptual Model



Research Methodology

The analytical designs embraced in this research are the causal and cross-sectional designs. Zikmund (2002) postulated that determining the cause-and-effect relationship among variables is the main goal for undertaking causal research. The study used time series data for each of the three East African countries, namely Kenya, Uganda and Tanzania over the study period 1980-2019. Secondary data was collected from the World Bank library. A time series data perspective facilitated a comparative analysis to be carried out for a better understanding of policy formulation in the three countries concerning gross domestic product, debt level, interest rates and fiscal policy decisions. The study analyzed the data using

STATA 13 statistical data econometric package which was comprehensive enough to analyze all the data.

Analytical Model

The impact of government debt, interest rates and fiscal policy on economic growth on East African countries was designed using the following regression equation:

$$Y = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \beta_4\chi_4 + e$$

Where;

Y = Gross Domestic Product (DV)

β_0 = Model equation intercept

$\beta_1, \beta_2, \beta_3$ and β_4 coefficient of independent variables

χ_1 = Government Debt (IV)

χ_2 = Interest Rate (IV)

χ_3 = Fiscal policy (IV)

χ_4 = combine effect of all the independent variables (IV)

e = is the error term

Results and Discussions

Unit Root Test (Stationery Test)

Spurious Regression

Spurious regression figures for Kenya, Tanzania and Uganda are as indicated in the table 4.1. The thumb rule is that if the values of R-squared are greater than Durbin Watson statistics, it provides evidence that the series are non-stationery.

Table 1: Spurious Regression

	R-Squared	Durbin-Watson	Rule of Thumb Criteria	Conclusion on Series
Kenya	0.2106	2.232792	R/s<D/w	Stationery
Tanzania	0.3137	0.4937653	R/s<D/w	Stationery
Uganda	0.1533	2.181685	R/s<D/w	Stationery

Augmented Dickey-Fuller Test

The study carried out the Augmented Dickey-Fuller test to provide scientific evidence on the variable series stationery or unit root test as show below:

Table 2: Augmented Dickey Fuller Test at Level

	Gross Domestic Product	Total Debt	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Kenya						
Suppress Constant Term	-2.788 (1.950)*	2.623 (-1.950)*	-0.189 (-1.950)*	0.284 (-1.950)*	2.610 (-1.950)*	0.426 (-1.950)*
Trend Term	-5.123 (-3.548)*	0.137 (-3.548)*	-1.741 (-3.548)*	-2.524 (-3.548)*	-0.079 (-3.548)*	-2.090 (-3.548)*
Drift Term	-4.662 (-1.690)*	1.405 (-1.690)*	-1.578 (-1.690)*	-1.474 (-1.690)*	1.080 (-1.690)*	-1.427 (-1.690)*
Tanzania						
Suppress Constant Term	-1.586 (-1.950)*	1.174 (-1.950)*	-0.169 (-1.950)*	0.593 (-1.950)*	1.166 (-1.950)*	0.648 (-1.950)*
Trend Term	-2.426 (-3.548)*	-1.678 (-3.548)*	-2.642 (-3.548)*	-2.333 (-3.548)*	-1.621 (-3.548)*	-3.328 (-3.548)*
Drift Term	-2.797 (-1.690)*	-0.446 (-1.690)*	-1.309 (-1.690)*	-0.734 (-1.690)*	-0.475 (-1.690)*	-0.732 (-1.690)*
Uganda						
Suppress Constant Term	-3.434 (-1.950)*	1.719 (-1.950)*	0.272 (-1.950)*	1.366 (-1.950)*	1.645 (-1.950)*	0.249 (-1.950)*
Trend Term	-4.439 (-3.548)*	-2.048 (-3.548)*	-3.109 (-3.548)*	-3.304 (-3.548)*	-2.079 (-3.548)*	-2.882 (-3.548)*
Drift Term	-4.298 (-1.690)*	-1.164 (-1.690)*	-2.780 (-1.690)*	-2.983 (-1.690)*	-1.231 (-1.690)*	-1.489 (-1.690)*

Critical Figures in Parenthes*(5%) Significance Level

Test statistics figures not in Parenthes

Table 3: Stationery Test at Level

	Gross Domestic Product	Total Debt	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Kenya						
Suppress Constant Term	Stationery	stationery	Non-stationery	Non-stationery	Stationery	Non-stationery
Trend Term	Stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Drift Term	Stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Tanzania						
Suppress Constant Term	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Trend Term	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Drift Term	Stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Uganda						
Suppress Constant Term	Stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Trend Term	Stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery	Non-stationery
Drift Term	Stationery	Non-stationery	Non-stationery	Stationery	Non-stationery	Non-stationery

Table 3 show the hypothesis test results for all the variables series at options suppress constant term, trend term and drift term at level. The hypothesis test results are established on the relation between the absolute test statistics and the critical value at 5% significant level. The study carried out the difference

of all the series having confirmed that all the series at level other than gross domestic product for Kenya and Uganda are non-stationery.

Table 4: Augmented Dickey Fuller Test at First Difference

	Gross Domestic Product	Total Debt	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Kenya						
Suppress Constant Term	-7.070 (-1.950)*	-1.686 (-1.950)*	-3.738 (-1.950)*	-5.144 (-1.950)*	-1.977 (-1.950)*	-5.079 (-1.950)*
Trend Term	-6.876 (-3.552)*	-2.858 (-3.552)*	-3.766 (-3.552)*	-5.063 (-3.552)*	-3.122 (-3.552)*	-5.109 (-3.552)*
Drift Term	-6.988 (-1.691)*	-2.537 (-1.691)*	-3.675 (-1.691)*	-5.097 (-1.691)*	-2.859 (-1.691)*	-5.058 (-1.691)*
Tanzania						
Suppress Constant Term	-5.825 (-1.950)*	-4.785 (-1.950)*	-4.655 (-1.950)*	-5.342 (-1.950)*	-4.735 (-1.950)*	-7.566 (-1.950)*
Trend Term	-6.315 (-3.552)*	-5.147 (-3.552)*	-4.559 (-3.552)*	-5.567 (-3.552)*	-5.067 (-3.552)*	-7.844 (-3.552)*
Drift Term	-5.991 (-1.691)*	-4.993 (-1.691)*	-4.607 (-1.691)*	-5.326 (-1.691)*	-4.922 (-1.691)*	-7.702 (-1.691)*
Uganda						
Suppress Constant Term	-6.970 (-1.950)*	-4.069 (-1.950)*	-3.401 (-1.950)*	-5.289 (-1.950)*	-4.062 (-1.950)*	-7.699 (-1.950)*
Trend Term	-6.740 (-3.552)*	-4.437 (-3.552)*	-3.442 (-3.552)*	-6.092 (-3.552)*	-4.404 (-3.552)*	-7.618 (-3.552)*
Drift Term	-6.865 (-1.691)*	-4.505 (-1.691)*	-3.360 (-1.691)*	-5.664 (-1.691)*	-4.472 (-1.691)*	-7.642 (-1.691)*

Critical Figures in Parenthes*(5%) Significance Level

Test statistics figures not in Parenthes

Table 4 shows the calculated test statistics and the critical results at 5% significance level with all the variable series at first difference. The null hypothesis tested is the variable series is non stationery (series has a unit root) at 5% level of significance and lagged differences at one.

Table 5: Stationery Test at First Difference

	Gross Domestic Product	Total Debt	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Kenya						
Suppress Constant Term	Stationery	Non-Stationery	Stationery	Stationery	Stationery	Stationery
Trend Term	Stationery	Non-Stationery	Stationery	Stationery	Non-Stationery	Stationery
Drift Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery
Tanzania						
Suppress Constant Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery
Trend Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery
Drift Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery
Uganda						
Suppress Constant Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery
Trend Term	Stationery	Stationery	Non-Stationery	Stationery	Stationery	Stationery
Drift Term	Stationery	Stationery	Stationery	Stationery	Stationery	Stationery

Table 5 show the hypothesis test outcome for all the variables series at options suppress constant term, trend term and drift term at first difference. The hypothesis test results are based on the comparison between the absolute test statistics and the critical value at 5% significant level with all the variables series at first differences.

Table 6: Im Pesaran-Shin Unit Root Test

Variable	Statistics	P-value	Stationery at level	Statistics	P-value	Stationery at first difference
Gross Domestic Indebtedness	-4.6372	0.0000	stationery	n/a	n/a	n/a
Government External Indebtedness	2.5348	0.9944	Non-stationery	-4.9476	0.0000	Stationery
Interest Rate	-0.7129	0.2379	Non-stationery	-4.5551	0.0000	Stationery
Government Domestic Debt	0.5873	0.7215	Non-stationery	-10.1897	0.0000	Stationery
Budget Deficit	-0.4062	0.3423	Non-stationery	-7.4144	0.0000	Stationery

Correlation Analysis

The correlation tables below indicate the summary statistics of correlation analysis for every variable in the series for Kenya, Tanzania and Uganda over the study period 1980 to 2019. Correlation analysis was performed to indicate if there is exact or linear dependence amid the independent variables in order to avert collinearity and multi-collinearity problems.

Table 7: Kenya Correlation Analysis

	Total Debt	Gross Domestic Product	Interest Rate	Fiscal policy	External Debt	Domestic Debt
Total Debt	1.0000					
Gross Domestic Product	0.3704	1.0000				
Interest Rate	-0.2175	-0.3357	1.0000			
Fiscal Policy	0.0308	-0.1458	-0.1150	1.0000		
External Debt	0.9973	0.3580	-0.1889	0.0214	1.0000	
Domestic Debt	0.8753	0.3989	-0.3745	0.0877	0.8374	1.0000

Table 8: Tanzania Correlation Analysis

	Total Debt	Gross Domestic Product	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Total Debt	1.0000					
Gross Domestic Product	0.3638	1.0000				
Interest Rate	-0.3888	-0.5674	1.0000			
Fiscal Policy	0.5003	0.4504	-0.4653	1.0000		
External Debt	0.9993	0.3540	-0.3706	0.4957	1.0000	
Domestic Debt	0.8951	0.4433	-0.5690	0.5011	0.8784	1.0000

Table 9: Uganda Correlation Analysis

	Total Debt	Gross Domestic Product	Interest Rate	Fiscal Policy	External Debt	Domestic Debt
Total Debt	1.0000					
Gross Domestic Product	-0.3063	1.0000				
Interest Rate	-0.0934	-0.1816	1.0000			
Fiscal Policy	0.7055	-0.0295	-0.2101	1.0000		
External Debt	0.9999	-0.3066	-0.0882	0.7012	1.0000	
Domestic Debt	0.2613	-0.0638	-0.3229	0.4215	0.2450	1.0000

Hypothesis Testing Results

The major research objective was the examination of the impact of government indebtedness, interest rates and fiscal policy on the growth of the economy in East African countries. The research precise objectives of the research were tested using step wise multi regression technique, estimation of the model results are as shown in the summary tables shown below.

Table 10: Summary Hypothesis Testing Results Table-Kenya

Study objectives	Hypothesis	Variables	Coefficient	P-value F-value	Interpretation of Statistical Significance level at 5%
Examine the impact of government indebtedness on the expansion of the economy	There is no statistically significant impact of government indebtedness on the expansion of the economy	Government Debt	-1.767745	P=0.393	Not statistically significant
Determine the effect of interest rates on the relation among state borrowing and the expansion of the economy	There is no statistically no significant effect of interest rate on the relation among state borrowing and economic expansion	Interest Rate	-2.944637	P=0.571	Not statistically significant
Determine the impact of fiscal policy on the association among government debt and the expansion of the economy	There is statistically no significant impact of fiscal policy on the relation among government indebtedness and economic growth	Fiscal Policy	-0.1805984	P=0.398	Not statistically significant
Examine the joint effects of government debt, rate of interest and fiscal policy on the economic growth	There is no statistical significance joint impact of state indebtedness, interest rate, and fiscal policy on economic growth	Joint effect; government debt, interest rate fiscal policy	-2.16096 -3.173146 -0.330145	F=0.0303	Statistically significant

Table 10 gives the summary result for Kenya. The effect of state indebtedness on expansion of the economy has a coefficient of -1.767745 and a p-value of 0.393 and it is not significant statistically. The impact of

interest rate on the relation between state borrowing and economic expansion has a coefficient of -2.944637 and p-value of 0.571 and it is not significant statistically. The effect of fiscal policy on the relation amid state indebtedness and economic development has a coefficient of -0.1805984 and a p-value of 0.398 which was not significant statistically while the joint impact of state indebtedness, interest rate and fiscal policy on economic expansion were -2.6096, -3.173146 and -0.330145 respectively with a p-value of 0.0303 which is significant statistically at 5%.

Table 11: Summary Hypothesis Testing Results Table-Tanzania

Study objectives	Hypothesis	Variables	Coefficient	P-value F-value	Interpretation of Statistical Significance level at 5%
Explore the impact of state indebtedness on the expansion of the economy	There is no statistically significant impact of government borrowing on economic growth	Government Debt	0.3330114	P=0.516	Not statistically significant
Explore the effect of interest rates on the relation among state indebtedness and economic expansion	There is statistically no significant effect of interest rate on the relation among state indebtedness and economic growth	Interest Rate	0.2612431	P=0.899	Not statistically significant
Determine the impact of fiscal policy on the relationship among state borrowing and the expansion of the economy	There is statistically no significant effect of fiscal policy on the relation between state borrowing and economic growth	Fiscal Policy	0.0292681	P=0.872	Not statistically significant
Examine the joint impact of state indebtedness, rate of interest and fiscal policy on the growth of the economy	There is no statistical significance joint effect of state indebtedness rate of interest, and fiscal policy on the growth of the economy	Joint effect; government borrowing, interest rate fiscal policy	0.4015829 -1.268525 0.0267586	F=0.4688	Not statistically significant

Table 11 gives the summary results for Tanzania. The effect of state borrowing on the expansion of the economy has a coefficient of 0.3330114 and a p-value of 0.516 and it is not significant statistically. The impact of interest rate on the relation between state borrowing and the expansion of the economy has a coefficient of 0.2612431 and p-value of 0.899 and it is not statistically significant. The impact of fiscal policy on the relation among state indebtedness and the growth of the economy has a coefficient of 0.0292681 and a p-value of 0.872 which is not significant statistically while the joint impact of state indebtedness, interest rate and fiscal policy on economic growth were 0.4015829, -1.268525 and 0.0267586 respectively with a p-value of 0.4688 which is significant statistically at 5%.

Table 12 gives the summary results for Uganda. The effect of state indebtedness on the expansion of the economy has a coefficient -1.312675 of and a p-value of 0.289 and it is not significant statistically. The impact of interest rate on the relation between state borrowing and the expansion of the economy has a coefficient of 5.862665 and p-value of 0.164 and it is not significant statistically. The impact of fiscal policy on the relation among state indebtedness and the economic expansion has a coefficient of 0.5321955 and a p-value of 0.531 which is not significant statistically while the joint impact of state indebtedness, interest rate and fiscal policy on economic expansion were -1.190644, -5.104993 and -0.2437575 respectively with a p-value of 0.0943 which is not significant statistically at 5%.

Table 12: Summary Hypothesis Testing Results Table-Uganda

Study objectives	Hypothesis	Variables	Coefficient	P-value F-value	Interpretation of Statistical Significance level at 5%
Examine the impact of government indebtedness on the expansion of the economy	There is no statistically significant impact of government indebtedness on the expansion of the economy	Government Debt	-1.312675	P=0.289	Not statistically significant
Determine the effect of interest rates on the relation among state debt and the	There is statistically no significant effect of interest rate on the relation	Interest Rate	5.862665	P=0.164	Not statistically significant

expansion of the economy	among government indebtedness and economic growth				
Explore the impact of fiscal policy on the relation between state borrowing and the expansion of the economy	There is no statistically significant impact of fiscal policy on the relationship among government indebtedness and the expansion of the economy	Fiscal Policy	0.5321955	P=0.531	Not statistically significant
Examine the joint impact of state indebtedness, rate of interest and fiscal policy on economic growth	There is no statistical significance joint impact of state indebtedness, rate of interest, and fiscal policy on economic growth	Joint effect; government debt, interest rate fiscal policy	-1.190644 -5.104993 -0.2437575	F=0.0943	Not statistically significant

Effect of Government Debt on Economic Growth (H_01)

The effect of state borrowing on economic expansion (H_01) findings, specifically for Kenya and Uganda concur with the study findings by Were (2001) which investigated the impact of foreign borrowing on boosting of Kenyan economy using regression and time series and found out that foreign indebtedness accumulation has an unfavorable effect on the economic expansion and private assets. The results also concur with the findings of Umary, Aminu and Musa (2013) study on foreign indebtedness and internal indebtedness effect on the increase of Nigeria economy using OLS. Their finding revealed that foreign indebtedness showed an unfavorable effect on Nigeria's growth of the economy. The study by Kharusi and Ada (2018) was investigating the effect of foreign indebtedness on Oman's economy. The result findings

however differ with Tanzania which found out that state indebtedness has a favorable effect on economic expansion.

Effect of Interest Rate on Economic Growth (H_02)

The effect of interest rate on the rise of the economy (H_02) findings particularly for Kenya, differ to those of Sambiri et al., (2014) that found out that rates of interest had a favorable and compelling impact the growth of the economy employing time series approach. Sambiri et al., (2014) investigated rates of interest and its effectiveness on Kenya's development of the economy. However, the current research finding results indicated a notable effect on interest rate on economic expansion for Uganda and Tanzania, and which concur with Sambiri et al., (2014) study findings that interest rate were efficient on economic expansion. The current research results of Kenya findings deviate from the results of Sergey et al., (2017) on the effect of interest rate on Russia's development of the economy utilizing structural vector autoregressive found out that interest rates were efficient and had a favorable impact on the Russian development of the economy after the financial crisis. Nonetheless Tanzania and Uganda findings provide evidence to support the results of Sergey et al., (2017).

Effect of Fiscal Policy on Economic Growth (H_03)

The effect of budget deficit on the expansion of the economy (H_03) findings found Tanzania had a favorable impact of budget deficit on the expansion of the economy contradict the findings by Kaakunga (2006) that found out that budget fiscal deficit inversely relate to the economic growth rate in Namibia. He used endogenous growth model to explore the effect of fiscal policy on the development of the economy in Namibia (1991-2004). However, in the current study of Kenya and Uganda the adverse effect of budget deficit on the development of the economy concur with the study results of Kaakunga (2006). The present research findings that fiscal policy had an unfavorable effect on economic development support the results by Nganga, Chevallier and Ndiritu (2019) who found that un-sustained or passive fiscal policy management was more assertive on economic expansion. The research by Nganga, Chevallier and Nderitu (2019) was examining monetary and fiscal policies coordination in Kenya.

Conclusions and Recommendations

Based on the findings Kenya economic growth was adversely affected by the government debt even though the adverse effect was not significant. The result suggests borrowing by Kenya was not desirable for the expansion of the economy. These findings tend to indicate that in Kenya, rise in rate of interest had a positive impact on the development of the economy. The results also suggest that interest rate as intervening variable on the relation among state indebtedness and economic growth was not significant to change the relation among state borrowing and the expansion of the economy for Kenya. These findings suggest that Kenya fiscal policy adversely affected economic growth. Fiscal policy as a moderating variable among state debt and economic growth had no significant effect on the relation among state borrowing and the expansion of the economy for Kenya. The implication was that fiscal policy did not change the relation among state indebtedness and economic growth for Kenya. The outcome tends to suggest that for Kenya all the three variables jointly were adverse on the growth of the economy. However, Kenya outcome suggest that the joint impact of state debt, interest rate and fiscal policy had a significant effect on economic growth.

Tanzania government indebtedness was supportive of the economic growth even though it was not significant. Tanzania increase in interest rate adversely affected economic growth. These results also suggest that interest rate as intervening variable on the relation among state indebtedness and economic growth was insignificant to change the relation among state debt and economic growth for Tanzania. Tanzania had positive impact on economic growth. Fiscal policy as a moderating variable among state borrowing and the development of the economy had no significant effect on the relation between state borrowing and the expansion of the economy for Tanzania. The implication was that fiscal policy did not change the relation among state borrowing and the development of the economy for Tanzania. The joint impact of the variables was positive to the expansion of the economy. The joint impact of state debt, rate of interest and fiscal policy was not significant on economic development for Tanzania.

Uganda rise of the economy was adversely affected by the government debt even though the adverse effect was not significant. The borrowing for Uganda was not desirable for the economic expansion. The Uganda rise in rate of interest adversely affected economic growth. The findings also suggest that interest rate as intervening variable on the relationship among state debt and economic growth was not significant to change the relation among state borrowing and the expansion of the economy for Uganda. Uganda fiscal policy had favorable impact on economic growth. For Uganda, the fiscal policy as a moderating variable

had a significant effect on the relationship among state borrowing and rise of the economy and therefore fiscal policy alter the relation between state borrowing and development of the economy. The results show that for Uganda all the three variables jointly were adverse on the growth of the economy. Uganda joint impact of state indebtedness, interest rate and fiscal policy was not significant on economic growth.

The governments of Kenya, Tanzania and Uganda should design and implement debt, interest rate, and fiscal policies where the government should restrain its expenditure to sustainable levels by avoiding a budget fiscal deficit in order to lower its dependence on external and internal debts financing which tends to pressurize the interest rate level thereby adversely affecting economic growth. Governments should aim at widening the tax base by coming up with policies aimed at reducing the deficit financed by borrowing. Government financing laws need to be put in place in order to ratify any borrowing requirement. This will assist in monitoring all financing by ensuring all borrowing is put towards capital project financing that contribute to economic growth.

Finally, the adverse impact of state borrowing on economic development constitutes crowding out effect through enormous financing on the local market. Individual investment is the driver of the growth of the economy but as the crowding out effect increases, its input to gross domestic product thereby decline. When private enterprise incomes are declining, state's internal taxation receipts and revenue from exports are likewise inclined to decline, giving rise to fiscal gap expansion. Governments may therein reduce its control on the local market so as to boost finances for investment which leads to reduced interest rates.

References

- Akram, N. (2010). Impact of public debt on the economic growth of Pakistan. *Journal of Economic Literature*, 6(3), 22-43.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), 103–125.
- Black, J. (1997). *Oxford Dictionary of Economics*. New York, USA: Oxford University Press.
- Cecchetti, S.G., Mohanty, M.S., & Zampolli, Z. (2011). *The real effects of debt*. BIS Workingpapers No 352, 1-34.

- Cohen, D. (1993). Low investment and large LDC debt in the 1980's. *The American Economic Review*, 83(3),437-449.
- Del, V.C., & Piero, U. (2003). *The development of domestic markets for government bonds, the future of capital markets in developing countries*. Washington, DC: Brookings Institution Press, ISBN 0-8157-5299-7, 2003, P 45-76
- Devereux, M., & Love, D. (1994). The effects of factor taxation in a two-sector model of endogenous growth. *The Canadian Journal of Economics*, 27(3), 509-536.
- Eduardo, C., & Dande, C. (2011). Public investment in developing countries: A blessing or a curse? *Journal of Comparative Economics*, 39(1), 65–81.
- Kaakunga, E. (2006). The impact of fiscal policy on economic growth in Namibia. *Sajems*,9(1), 102-112.
- Keynes, J.M. (1936). *The general theory of employment, interest and money*. Macmillan press.
- Kuttel, D. & Kugler, P (2003). Tales of Fiscal Policy, *RISEC*, 50: 91-108.
- Leith, C., & Wren, S. (2005). Fiscal stabilization policy and fiscal institutions. *Oxford Review of Economic Policy*, 21(4), 584-597.
- Lucas, R. E. (1978). Asset Prices in an exchange economy. *Econometrica*, 46(6) 1429-45.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5, 147-175.
- Ng'ang'a, W.I., Chevallier, J., & Nderitu, S.W. (2019). *Investigating fiscal and monetary policies coordination and public debt in Kenya: evidence from regime-switching and self-exciting threshold autoregressive models*. Economics Discussion Papers, No2019-40, Kiel Institute for the World Economy.
- Pailwa, V. (2008). *Economic environment of Business*. Prentice Hall of India, Private Limited, New Delhi.
- Perotti, R. (2007). *Fiscal policy in developing countries: A framework and some questions*. World Bank Research Working Paper No. 4365.
- Rothbard, M. (1983). *The mystery of banking*. Auburn, Alabama: Ludwig von-Mises Institute, 2nd ed. 111–13.
- Sambiri, M.J., Otieno, M.K., Mwangi, M., Ogiyo, C.O., & Rombo, K. (2014). Lending rates and its impact on the economic growth in Kenya. *Journal of Economics and Sustainable Development*,5(19), 89-98.

- Sene, B. (2014). *The impact of debt overhang on equilibrium real exchange rate in developing countries: A theoretical model*. EURISCO Working Paper, No. 04-17.
- Sergey, D., Alexandra, B., Pavel, T., & Elena, S.M. (2017). *The effect of interest rates on economic growth*. Gaidar Institute for Economic Policy, 2017-303.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65-94.
- Swan, T. (1956). Economic growth and capital accumulation. The economic record. *The Economic Society of Australia*, 32(2) 334-361.
- Udoka, C., Agwenjang, R., & Tapang, K. (2012). An empirical analysis of the effect of interest rate management policies in Nigeria 1970-2010. *Journal of Business and Management*, 4(6) 5-10.
- Umary, A., Aminu, A., & Musa, S. (2013). External debt and domestic debt impact on the growth of the Nigerian economy. *International Journal of Educational Research*, 1(2), 2306-2323.
- Were, M. (2001). *The impact of external debt on economic growth in Kenya: An empirical assessment*. WIDER Discussion Paper, No. 2001/116. The United Nations University World Institute for Development Economics Research (UNUWIDER), Helsinki.