



EFFECT OF DEBT FINANCING ON ECONOMIC GROWTH AMONG EAST AFRICA COMMUNITY MEMBER COUNTRIES

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Abstract

Debt financing and economic growth relationship is mainly through capital accumulation, which leads to economic growth. However, high levels of debt can lead to debt overhang; crowd out private investment, leading to lower economic growth. In the last two decades, EAC member countries have witnessed unexplained disparities between economic growth and rise in debt levels. Studies on the debt and economic growth relationships have remained inconclusive mostly because of diverse study contexts and methodological variations. The studies allude to

positive relationships, negative relationships, U-shaped relationships and dual causality relationships. This study used a lagged multiple linear regression model to establish the effect of debt financing on economic growth in the EAC member countries. Premised on the Keynesian theory of public debt, the study embraced a panel longitudinal research design to examine the relationships. The study establishes statistically significant strong positive relationships between total debt and sustainable economic growth, domestic debt and sustainable economic growth, external debt and sustainable economic growth. The multiple regression model generated Adjusted R²= 0.8968, F = 258.815, p<0.05. This study therefore recommends EAC member nations to develop appropriate policy framework to improve debt market infrastructure and embrace debt finance in the execution of economic growth programs.

Keywords: Debt Financing, Total Debt, External Debt, Domestic Debt, Economic Growth, Sustainable Economic Growth

INTRODUCTION

The link between debt financing and economic growth is explained to be mainly through capital accumulation by Poirson, *et al.* (2014) and Schclarek (2004) while explaining the Keynesian theory with the affirmation that debt contributes to capital formation, which leads to economic growth. Therefore, acquiring debt for capital development is basic, like foundation of an organization, which will add to a profitable yield henceforth and positive financial development. As postulated in Keynes (1935), governments require financial resources for public expenditure. Governments can borrow to bridge the financial resources gap in the event domestic revenues are inadequate. The main proponent of borrowing affirms that debt contributes to economic growth through capital accumulation.

In Pattillo, *et al.* (2002), both positive and negative debt growth relationships are explained. The positive debt-growth relationship exists where debt is below certain levels of Debt-GDP ratio, while the negative debt-growth relationship takes effect above these thresholds. The positive relationship according to Poirson, *et al.* (2014) is through investments in country's assets and infrastructure such as roads, railways, schools, hospitals, buildings, and airports. The adverse effects of debt that leads to the negative relationships as identified in Arize, *et al.* (2014) include factors such as high interest payments, increased taxation to raise funds to repay the loans, diminishing national savings, spending cuts and high inflation rates.

Globally, the economic growth remained at 3.1% during the 2017 and 2018 period, with an anticipated slowdown in the next two years, largely because of global slack dissipates and the removal of policy accommodations by majority nations (World Bank, 2018). In the last

decade, the long-term debt from developed countries to poor countries increased by over 50 % to \$309 billion in 2017 due to increase in bond issuance (World Bank, 2019). In the EAC member countries, the average public debt as a percentage of GDP rose from 22% in 2010 to 34% in 2017 (World Bank, 2019). Public debt increase has raised concerns over debt sustainability among local policy makers and international lenders (International Monetary Fund, 2018). Annually, the EAC member countries have recorded an average of 4.2 % GDP growth (East African Community, 2017; World Bank, 2015). Expansions of government expenditure, inflation and rise in global interest rates have been cited as some of the causes of debt increase in the EAC member countries and Africa at large (Fole, 2003).

Research Problem

Governments borrow to fill national budgetary deficit especially where domestic revenue is inadequate. Public debt can be external debt or domestic debt (World Bank, 2015). In Poirson, *et al.* (2014) and Schclarek (2004), debt financing improves growth of the economy, mainly through capital accumulation. However, as borrowed from Krugman (1988), Musgrave (1959) and Myers (1977), high levels of debt can lead to debt overhang problem, trigger high interest rate and inflation rate which can crowd out private investment leading to low economic growth.

In the last two decades, the EAC member countries have witnessed unexplained disparities between economic growth and rise in debt levels. On average, annual economic growth remained at 4.2%, against a rise in debt levels from an average of 22% in 2010 to 34% in 2017 (East African Community, 2017; World Bank, 2019).

Studies on the debt and economic growth relationships have remained inconclusive mostly because of diverse study contexts and variations in methodological applications. Positive relationships are established by Babu *et al.* (2014) in EAC, Putunoi and Mutuku (2013) in Kenya while negative relationships are established by Panizza and Presbitero (2014) among 17 OECD countries, Lee and Ng (2015) in Malaysia, Were (2001) in Kenya. Isibor, *et al.* (2018) in Nigeria however notes that external debt negatively affects the economy while internal debt positively affects the economy. A U-shaped debt-economic growth relationship is established among EU member countries by Mencinger, *et al.* (2014) while dual causality relationships are established by Egbetunde (2012) in Nigeria leading to the question; what is the exact relationship between debt financing and economic growth among the EAC member countries?

Research Objectives

The study sought to establish the effect of debt financing on economic growth in the EAC member countries. Guided by the research objectives, the study sought to test the following null hypotheses:

H₀₁: Total Debt financing does not significantly affect economic growth of East Africa Community member Countries

H₀₂: External Debt financing does not significantly affect economic growth of East Africa Community member Countries

H₀₃: Domestic Debt financing does not significantly affect economic growth of East Africa Community member Countries

LITERATURE REVIEW

The debt and economic growth nexus is explained in the Keynesian theory as well as several empirical studies discussed herein that arrive at conflicting conclusions and recommendations.

Theoretical Perspectives

Keynesian theory of public debt was established by Keynes (1935) and recommended that debt adds value instead of a risk for economic development of a country. In like manner, Keynes (1935) expound that acquiring debt for capital development is basic, like foundation of an organization, which will add to a profitable yield henceforth and positive financial development. The Keynes theory therefore encourages developing nations to borrow for purposes of economic development. The consequence of this theory is that nations that borrow but do not channel the funds towards capital buildup, may not realize the economic gain anticipated.

According to the Keynes theory, debt contributes to the economic growth, mainly through capital accumulation. As explained in Habib and Zurawicki (2002) capital formation can also be created through use of domestic revenue, foreign direct investments, international trade, foreign aid and external remittances for purpose of economic progress. It is also noted that economic development is not generally proportionate with huge borrowing in view of factors including political agitation and monetary flimsiness. Keynesian theory of public debt contributes to this study by elucidating the link between debt financing, capital formation and economic growth.

Empirical Review

Egbetunde (2012) studied the relationship between public debt and economic growth in Nigeria for the period ranging from 1970 to 2010. The study adopted the Vector Autoregressive (VAR) methodology. The study noted that public debt and economic growth have long-lasting relationship. The results implied that there is a dual causal relationship between debt and economic prosperity in the Nigeria context. The study concluded the relationship is affected by the extent to which the government uses the borrowed funds for the purpose of economic development.

Panizza and Presbitero (2014) examined the debt-economic growth relationship in a sample of 17 OECD countries. The study applied an instrumental variable method to establish a negative relationship between debt and economic growth. The study established that this relationship wanes once the debt is instrumented with a variable that intervenes in the interaction between foreign currency debt and exchange rate volatility.

Mencinger, *et al.* (2014) applied panel estimation method on a generalized economic growth model on data gathered for the years between 1980 and 2010 to test the debt and economic growth relationship. The study established a U-shaped debt-economic growth relationship. The relationship was found to be statistically significant, changing from positive to negative relationship at 80% to 94% debt ratio for long time EU member states and 53% to 54% for new member states.

Babu *et al.* (2014) applied multiple regression analysis to study domestic debt and economic growth in the EAC member countries between 1991 and 2010. The study showed positive debt-economic growth relationship. Babu *et al.* (2014) also used Cobb-Douglas technology model to confirm the relationships established. However, the analytical model did not capture autoregressive nature of the economic variables in the study.

Lee and Ng (2015) studied the debt-economic growth relationship in Malaysia covering the years between 1991 and 2013, using ordinary least squares regression method. The study established that high levels of debt have negative relationships with economic growth. In addition, excessive government consumption negatively affected the economic growth pointing at the need for the government to exercise prudence in management if its debt resources.

Putnoi and Mutuku (2013) used a linear regression model to study debt and economic growth relationship in Kenya between years 2000 and 2010. The study established that domestic borrowing contributed to economic growth. This conclusion was contrary to a similar study in Kenya between 1970 and 1995, by Were (2001), who established that there is an adverse association between debt and economic development. Were (2001) observed that debt financing, affected private investments negatively, thereby confirming the crowding out effect.

Isibor, *et al.* (2018) studied the Nigerian government's debt and its impact on economic growth from 1982-2017 using the two-stage least square regression. In the first equation, debt variables and their slacks relapsed against GDP and the results showed that the external debt negatively affects the economy while internal debt positively affects the economy. For the second equation, GDP, total savings deposits in the Nigerian deposit money banks and capital expenditure was regressed against the internal debt. The outcome showed that variables have significant relationships with internal debt.

METHODOLOGY

The study adopted a positivistic philosophy since it makes use of the Keynesian theory, which proposes that debt adds value than risk to a country's economic prosperity (Keynes, 1935). The study embraced a panel longitudinal research design because it gave the researcher more data points which reduces collinearity and increases the degree of freedom among the explanatory variables (Hsiao, 2007). The longitudinal research design was adopted because the study variables namely the debt financing and economic growth changes over time. This design, therefore, allowed the collection of data on the same study variables repeatedly over a long period in order to establish the trend and relationship.

The target population of the study was the five member countries in the EAC namely Kenya, Uganda, Tanzania, Rwanda and Burundi. The study excluded the sixth member country namely the Southern Sudan that gained its independence from the Republic of Sudan in 2011 and therefore lacks data on the study variables. Because of the small dimension of the population, no sampling was done. The study utilized Secondary Panel data on the variables namely debt financing and economic development in the EAC member states for the period between 2000 and 2019. Data was obtained from WDI on the World Bank website. World Bank database was chosen, because it is an official institution, internationally accredited, reliable and easy to access through various electronic platforms.

Data analysis in Eviews and SPSS was useful in conducting the analysis and inferring the interpretations thereon. ARDL played a critical role in analyzing economic relationships because a change in an economic variable could have an effect immediately as well in the subsequent period (Pesaran *et al.*, 1999). The study adopted the ARDL model because it provides impartial estimates of the long-run model, has no restrictive assumptions and allows use of varied lags for the explanatory variables (Kharusi & Ada, 2018; Pegkas, 2018; Pesaran *et al.*, 1999).

The ARDL approach was analyzed as follows:

$$y_{it} = \sum_{j=1}^p \lambda_{ij} y_{it-j} + \sum_{j=0}^q \delta'_{il} x_{i,t-j} + \mu_i + \varepsilon_{it}$$

Where,

y_{it} is the dependent variable for country i and x_{ij} ($k \times 1$) are the vector explanatory variables for country i , δ_{ij} are ($k \times 1$) coefficient vectors, p and q are the optimal lag for the dependent and independent variables correspondingly, countries are represented by $i = 1, 2 \dots N$, time by $t = 1, 2 \dots T$, while μ_i denotes the fixed effects, ε_{it} is the error term.

A vector autoregressive (VAR) estimate was run to establish the optimal lag for each variable based on the AIC. Country comparative analysis was also undertaken in order to inform country specific conclusions and recommendations.

FINDINGS

The study sought to establish the trend movement of debt amount the EAC member countries. The time series trend movement for natural log for the five countries is presented in figure 1 below.

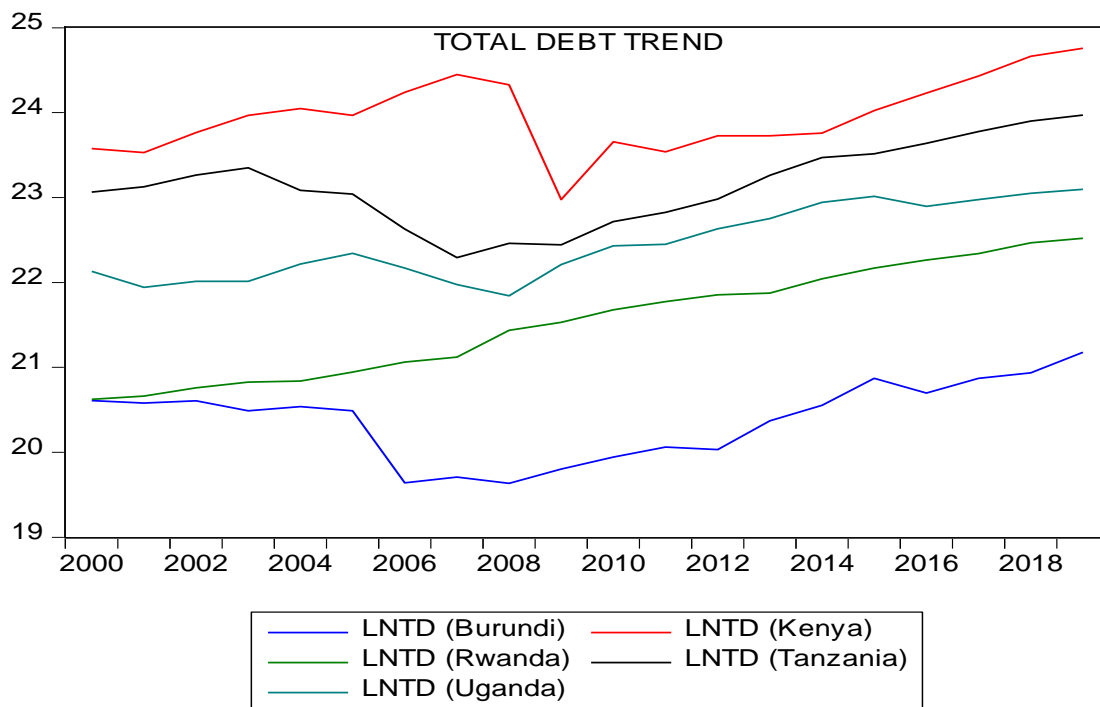


Figure 1: Movement of Total Debt

As presented in figure 1, Kenya leads the region in Total debt level, followed by Tanzania, Uganda, Rwanda and Burundi respectively. Kenya's Total Debt exhibited an increasing trend between years 2000 to 2007 when it declined slightly up to year 2009 after which it earnestly maintained an increasing trend to date. Tanzania total debt level increased between years 2000 to 2003 after which it declined up to year 2007. Thereafter, it has maintained an increasing trend to date. Uganda total debt level has an increasing trend over the years save for year 2001 and 2008 when it declined but earnestly picked an increasing trend. Rwanda total debt levels has been on an increasing trend throughout the period. Burundi debt levels declined between years 2000 to 2007 where after it has been on an increasing trend to date.

Generally, the levels of domestic debt for Kenya has exceeded the other EAC countries domestic debt levels except for year 2011 when it was lower than Tanzania domestic debt level and year 2012 when it was lower than both Tanzania and Uganda Debt levels. From the year 2000, domestic debt level for Rwanda and Burundi exhibited an increasing trend.

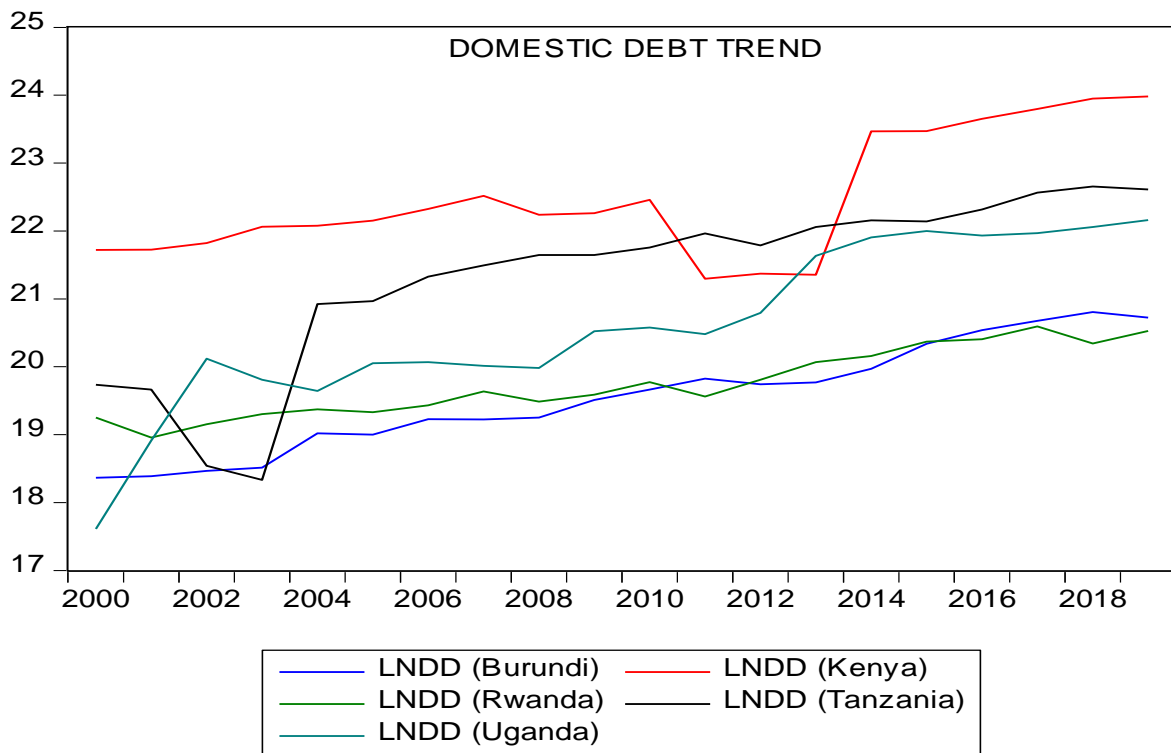


Figure 2: Movement of Domestic Debt

As presented in Figure 2, Kenya domestic debt level increased slightly between year 2000 and 2011. It then decreased between year 2011 and 2013 and thereafter increased after 2013 to date. Tanzania domestic borrowing declined between year 2000 and 2003 after which it

increased to date. Uganda domestic debt level recorded an increase over the period with a steep increase between 2000 and 2002.

As presented in Figure 3 below, the external debt for Kenya has been on an increasing trend from year 2000 to 2018 when it declined slightly. Tanzania, Uganda and Rwanda external debt levels declined between the years 2006 and 2007 mostly due to the global financial crisis after which its levels have exhibited an increasing trend. External debt trend for Burundi has declined since year 2008.

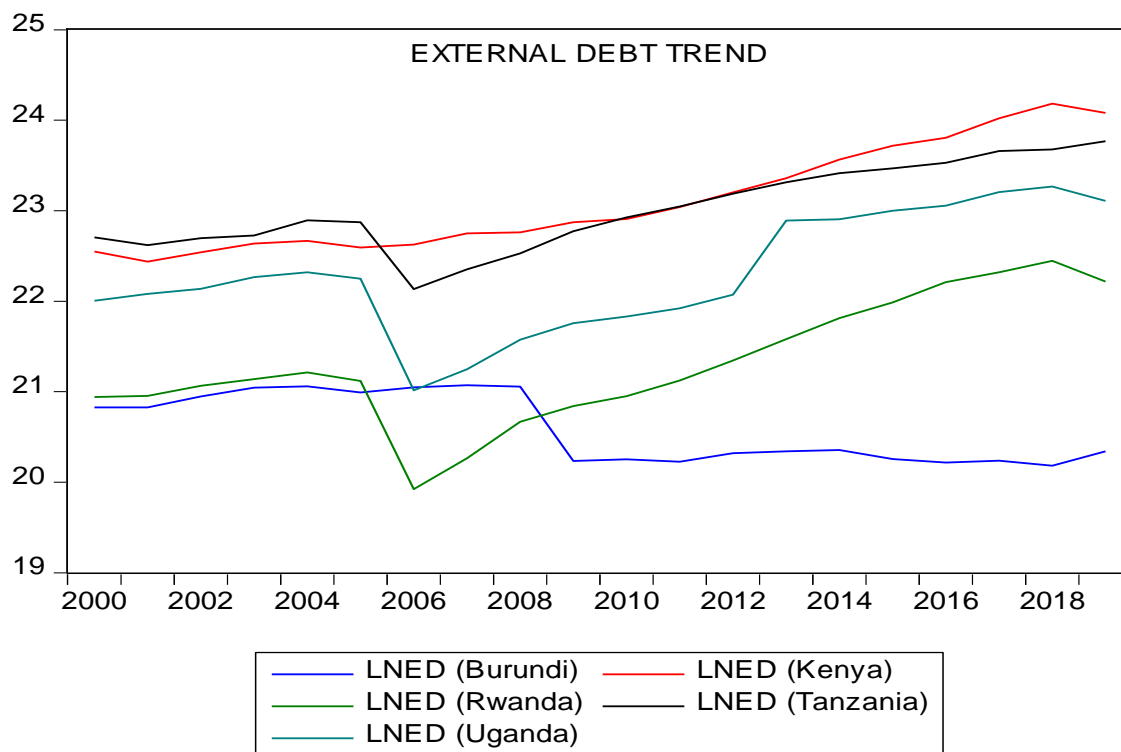


Figure 3: Movement of External Debt

Generally, regional countries’ sustainable economic growth has been on an increasing trend save for Burundi where the sustainable economic growth levels exhibit a near stagnation trend over the period. Kenya sustainable economic growth index leads the regional pack followed by Tanzania, Uganda, Rwanda and Burundi respectively.

In figure 4 below, the sustainable economic growth for Kenya, Tanzania, Uganda and Rwanda declined in year 2009 when compared to the general increasing trend exhibited in earlier years.

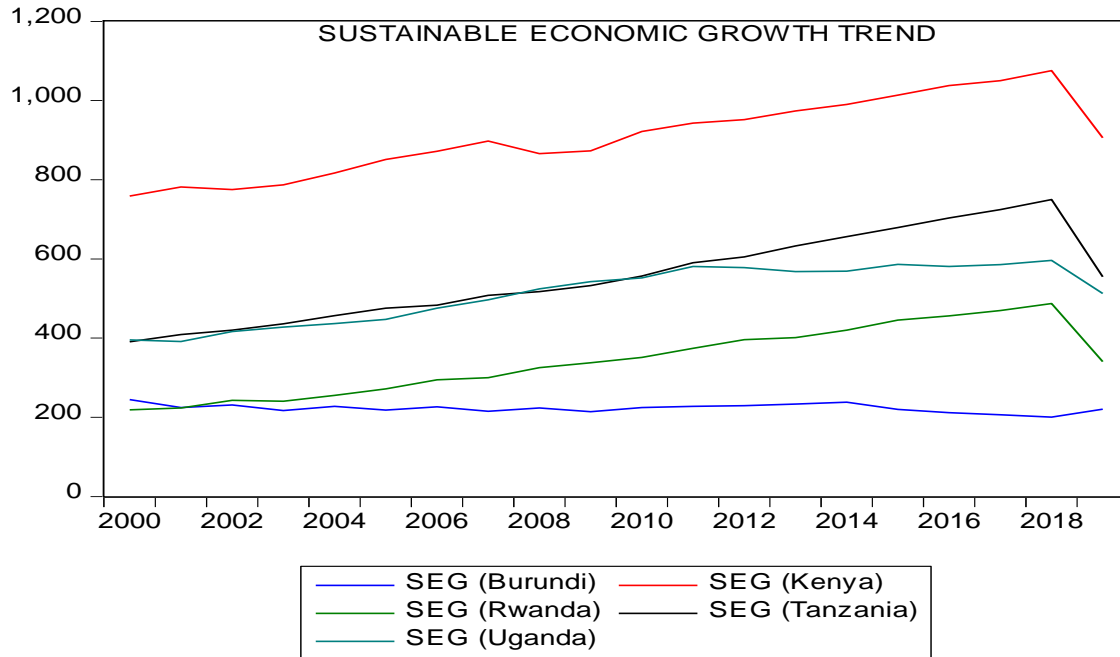


Figure 4: Movement of Sustainable Economic Growth

As presented in table 1 below, there are statistically significant strong positive relationships between total debt and sustainable economic growth ($r=0.904$, $P<0.05$), domestic debt and sustainable economic development ($r=0.839$, $P<0.05$), external debt and sustainable economic development ($r=0.834$, $P<0.05$), domestic debt and total debt ($r=0.789$, $P<0.05$), external debt and total debt ($r=0.902$, $P<0.05$), domestic debt and external debt ($r=0.759$, $P<0.05$).

Table 1: Correlation Analysis

	SEG	LNTD	LNDD	LNED
SEG	1			
LNTD	.904**	1		
LNDD	.839**	.789**	1	
LNED	.834**	.902**	.759**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The prediction equation derived from the study objective was given as:

$$SEG_t = \alpha + \beta_1 TD_2 + \beta_2 DD_2 + \beta_3 ED_2 + \varepsilon$$

Table 2: Debt Financing and Sustainable Economic Growth

Dependent Variable: LNSEG				
Method: Panel Least Squares				
Periods included: 18				
Cross-sections included: 5				
Total panel (balanced) observations: 90				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNED	0.015817	0.036153	0.437500	0.6628
LNDD	0.064943	0.019696	3.297253	0.0014
LNTD	0.293019	0.030639	9.563583	0.0000
C	-2.061933	0.356290	-5.787228	0.0000
R-squared	0.900284	Mean dependent var		6.132769
Adjusted R-squared	0.896805	S.D. dependent var		0.503761
S.E. of regression	0.161828	Akaike info criterion		-0.761137
Sum squared resid	2.252198	Schwarz criterion		-0.650035
Log likelihood	38.25118	Hannan-Quinn criter.		-0.716334
F-statistic	258.8153	Durbin-Watson stat		0.453360
Prob(F-statistic)	0.000000			

The result of the regression model is presented in Table 2 above. The multiple regression model generated Adjusted $R^2 = 0.8968$, $F = 258.815$, $p < 0.05$. The outcome of the regression analysis thus infer that 89.68% of changes in sustainable economic growth may be attributed to variations in debt financing practices amongst the EAC member countries. The relationship as per the model is statistically significant ($p < 0.05$).

First, as presented in Table 2, the regression model shows a statistically significant positive relationship between total debt and sustainable economic growth ($\beta = 0.293$, $t = 9.563$, $p < 0.05$) inferring that for every unit increase in total debt financing, there is an expected increase in sustainable economic growth by 0.293 units.

Secondly, the regression model in table 2 shows a statistically significant positive relationship between domestic debt and sustainable economic growth ($\beta = 0.064$, $t = 3.297$, $p < 0.05$) meaning that for every unit increase in domestic debt, there is an expected increase in sustainable economic growth by 0.064 units.

Thirdly, the positive relationship between external debt and sustainable economic growth presented in table 2 is not statistically significant ($\beta = 0.015$, $t = 0.437$, $p > 0.05$) inferring that for every unit increase in external debt, there is an expected increase in sustainable economic growth by 0.015 units.

CONCLUSIONS

In summary, the study established a statistically significant positive relationship between total debt and economic growth, a statistically significant positive relationship between domestic debt and economic growth and a non-statistically significant positive relationship between external debt and economic growth. Based on these findings, the EAC member nations should develop appropriate policy framework that embraces debt finance in the financing of economic growth programs.

Since the study establishes statistically significant positive relationships between domestic debt and sustainable economic growth, then government policy makers should put in place efforts to improve the domestic debt market infrastructure and encourage domestic investor participation so as to benefit from the long term effects of debt finance. Caution is however required not to crowd out the private sector of finance as the government borrows in the domestic market to finance the sustainable development goals. Governments have also attracted external finance for financing development initiatives. However, the study finds that the relationship is positive but is not statistically significant. Policy makers and external development partners should relook at the terms of the specific facilities channeled for development in the region.

The study findings confirm the propositions in Keynesian theory of Public debt by Keynes (1935) that postulated the benefits of debt as opposed to its liabilities for economic prosperity of a nation. The findings are consistent with earlier arguments in Egbetunde (2012), Babu et al. (2014) and Pesaran, et al. (1999) that debt necessitates economic growth in a distributed lag framework. However the findings are a departure from Lee and Ng (2015) in Malaysia who found high levels of debt having negative relationship on economic growth. The differences could be attributed to differences in country specific factors such as governance that could impact the relationship.

RECOMMENDATIONS FOR FURTHER STUDIES

As a contribution to further research, the study proposes that since there are positive and negative impacts of the various elements of public debt on economic growth, there may be country specific factors that determine debt productivity. A study should be modelled on the optimal mix of debt and the turning point (threshold) at which the positive effects of public debt reverts to negative effects.

REFERENCES

- Arize, A. C., Kallianotis, I. N., Liu, S., Malindretos, J., & Panayides, A. (2014). National Debt and Its Effects on Several Other Variables: An Econometric Study of the United States. *International Journal of Financial Research*, 5(4), 98-113.
- Babu, J., Kiprop, S., Kalio, A. M., & Gisore, M. (2014). External Debt and Economic Growth in the East Africa Community. *African Journal of Business Management*, 8(21), 1011–1018.
- East African Community. (2017). *EAC Development Strategy (2016 - 2021)*. Arusha: East African Community.
- Egbetunde, T. (2012). Public debt and economic growth in Nigeria: Evidence from granger causality. *American Journal of Economics*, 2(6), 101-106.
- Fole, A. . (2003). The Historical Origin of African Debt Crisis. *Eastern Africa Social Science Research Review*, 19(1), 59–89.
- Habib, M., & Zurawicki, L. (2002). Corruption and Foreign Direct Investment. *Journal of International Business Studies*, 291–307.
- Hsiao, C. (2007). *Panel Data Analysis : Advantages and Challenges* (2nd ed.). Cambridge: Cambridge University Press.
- International Monetary Fund. (2018). *Kenya: Article IV Consultation and Establishment of Performance Criteria for the Second Review Under the Stand-by Arrangement*. Washington, D.C: International Monetary Fund.
- Isibor, A. A., Babajide, A. A., Akinjare, V. A., Oladeji, T., & Osuma, G. (2018). The effect of public debt on economic growth in Nigeria: An empirical investigation. *International Business Management*, 12(6), 436-441.
- Keynes, J. M. (1935). *The General Theory of Employment, Interest and Money*. United Kingdom: Palgrave Macmillan.
- Krugman, P. (1988). Financing Vs Forgiven a Debt Overhang. *Journal of Development Economics*, 29(3), 253–268.
- Lee, S. P., & Ng, Y. L. (2015). Public debt and economic growth in Malaysia. *Asian Economic and Financial Review*, 5(1), 119-126.
- Mencinger, J., Aristovnik, A., & Verbic, M. (2014). The impact of growing public debt on economic growth in the European Union. *Amfiteatru Economic Journal*, 16(35), 403-414.
- Musgrave, R. A. (1959). *The Theory of Public Finance*. New York: McGraw-Hill.
- Myers, S. C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5(2), 147–175.
- Panizza, U., & Presbitero, A. F. (2014). Public debt and economic growth: is there a causal effect?. *Journal of Macroeconomics*, 41, 21-41.
- Pattillo, C., Poirson, H., & Ricci, L. (2002). *External Debt and Growth*. Washington, D.C: International Monetary Fund.
- Poirson, H., Ricci, L. A., & Pattillo, C. A. (2014). *What Are the Channels Through Which External Debt Affects Growth?* Washington, D.C: International Monetary Fund.
- Putunoi, G. K., & Mutuku, C. M. (2013). Domestic Debt and Economic Growth Nexus in Kenya. *Current Research Journal of Economic Theory*, 5(1), 1–10.
- Schclarek, A. (2004). *Debt and Economic Growth in Developing and Industrial Countries* (Vol. 46). Lund: Lund University.
- Were, M. (2001). *The Impact of External Debt on Economic Growth in Kenya An Empirical Assessment* (No. 2001/116 WIDER Discussion Papers). Helsinki: World Institute for Development Economics.
- World Bank. (2015). *World Development Indicators*. Washington, D.C: World Bank.
- World Bank. (2018). *Combating Corruption*. Washington, DC: World Bank.
- World Bank. (2019). *International Debt Statistics 2019*. Washington, D.C: World Bank.