PUBLIC DEBT AND ECONOMIC GROWTH IN EAST AFRICAN COMMUNITY

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Abstract

The study empirically investigated the relationship between public debt and economic growth in East African Community (EAC) from 2002 to 2020. The study deployed longitudinal research design and the analysis was carried out through autoregressive distribution lag model. The population of the study consisted of six countries in EAC, Kenya, Tanzania, Uganda, Burundi, Rwanda and South Sudan. It was observed that public debt positively and significantly influences economic growth in EAC. The findings imply that the governments should develop policies that would guide investment criteria in the member states. Proper implementation of policies would channel public debt in the productive sector of the economy. Therefore, debt is good for the economy but only when invested in productive sector of the economy. This paper provides up to date findings to support existing literature on public debt and economic growth using variables and empirical model which prior studies could not sufficiently cover in developing countries, and state that public debt positively influences economic growth in East African Community.

Key words: Public Debt, Economic Growth, East African Community.

1.1   Introduction

Public debt can be defined as government liabilities that require payment of principal and interest periodically or at the end of contractual period. The theoretical and empirical review of literatures indicates that public debt exerts neutral or positive effect on economic growth. On the other hand, over borrowing may increase doubts over future taxation and may lead to crowding out private investment, exposing countries to external shock (Park, 2015, Gomez and Sosvila, 2017). Whereas the ability of countries to develop depend on their level of indebtedness, public debt could have adverse effect on the economy if used in unproductive investments, consumption or if the productive capacity of the economy is less than growth process (Mwaniki, 2016). On the

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other hand, rising public debt may increase productive capacity of the economy, enhance effectiveness and influence economic growth. Therefore, the study sought to examine the relationship between public debt and economic growth in EAC.

The EAC was formed in 1967. The founding member states were Kenya, Tanzania and Uganda. Although resentment and tension between the member states led to its collapse in 1977, it was later revived in 2002 (Elke and Craig, 2019). Currently, Tanzania, Burundi, Kenya, South Sudan Rwanda and Uganda are members of EAC. The objectives of EAC are to foster political federation, custom union, monetary union and common market for East Africa (Byien, Vabheukelom and Kingombe, 2015). EAC is among the fastest growing economic integration in Sub Saharan Africa. The growth rate in terms of income per capita was 3.7% in EAC compared to 3.2% in Sub Saharan Africa (Sweta, Savena and Yabara, 2012). Even though regional economies experienced global financial crisis between mid-2007 and early 2009, EAC has recorded growth among Sub – Saharan Africa coutries (EAC, 2011), however, unregulated supply of money, high level of public borrowing and increased level of default in financial sector affect economic growth in EAC member states (Kamenchu, 2018). Therefore, the implications of regional integration under EAC for the overall welfare of its member states have been a subject of research in different areas.

The seminal paper by Babu, Kiprop, Kalio and Gesore (2014) contributed on the reason why there is an increase in the level of public debt in East African Community for the last decade. They argued that most public debt is long term in nature and either public or publicly guaranteed. Whereas the terms of borrowing have improved, the burden of public debt in EAC has not been addressed through explicit regional policy. Member states have individually negotiated with creditors in terms of loan procurement plan. However, a number of internal and external factors have contributed to inability of the region to meet the convergence for monetary integration as a solution to the current debt crisis (ADB, 2019). There has been a rise in government expenditure among the EAC partner states over the years. This has contributed to the use of borrowing as one of the alternatives to cover the deficits of the national budget as well as balancing the financial flows to finance state investments. The growing public debt in the region has raised conversation among policy makers as to whether EAC countries accumulation of public debt has majorly been attributed to the increase in government expenditure (Kwoba and, Kosimba, 2015). Further,

concerns have been raised on whether growth in public debt levels might lead to shifting of economic growth in the region especially as member countries makes effort toward deepening economic and political integration in EAC (Babu, Kiprop, Kalio and Gisore, 2014).

2.1   Literature Review

Discussion on whether government debt influences economic growth has attracted attention of many scholars. The debate on whether public debt exerts positive or negative influence on growth is still on course in the academic world. Some scholars believe that public debt exerts positive and significant influence on economic growth, while others argue that there is negative influence on the association between public debt and economic growth. Park (2015) explored the nexus between public debt and economic growth in developed economies. GMM dynamic was deployed as the analytical tool. It was established that government debt statistically connected with increased economic growth. The findings were supported by Rahma (2019) who examined how public debt and economic growth correlate. A review of 33 quantitative articles was conducted and analyzed. Positive relation was observed between public debt and economic growth. Consequently, the link between debt and economic growth was studied by Natwi and Erickson (2016) in Ghana. The study was carried out using Johansen integration model. Data was gathered from 1970 – 2012. The study confirms a positive and significant influence of government debt on economic growth in Ghana. The finding was in line with studies conducted by Bilan and Iuian (2015) and Checherita and Rother (2010).

However, other scholars hold contrasting positions. They hold that public debt exerts negative influence on economic growth. This position was supported by Ahiborn and Schweicert (2016). The researchers conducted a study on the influence of public debt on economic growth. A panel data of 111 from OECD countries was collected from developed countries from 1971 – 2010. Haussmann test and pooled ordinary least square estimation model was employed to analyze data. Public debt was found to exert negative or neutral effect on economic growth. The finding was consistent with results obtained by Zouhair and Fatuma (2014). The scholars investigated debt and economic growth. Dynamic data from nineteen nations over a period from 1990 to 2011 were used. The analysis was carried out through Arellano bond dynamic panel data estimation. Public debt was found to negatively and significantly relate to economic growth. The outcome

was supported by Immole and Ehikioya (2012) who established the influence of debt on emerging economies. The analysis was carried out through panel data from 1980 to 2009. The study used ordinary least square regression model as the analytical tool to analyze the data. The results indicate negative influence of public debt on economic growth.

Research shows that it is highly unlikely for a country to run a surplus budget, and therefore, the acquisition of public debt becomes inevitable (Hilton, 2021). Whereas the acquisition of public debt is not the problem, building up public debt to unsustainable levels may suppress economic growth. Previous research on the effect of government debt on economic growth produced mixed findings. Consequently, other scholars argued that the inconsistent results on the relationship between public debt and economic growth arises due to estimated threshold that varies from one study to another, and providing inadequate insight regarding the effect of debt on growth (Maleka, Biyase and Zwane, 2019). The theoretical review provides that public debt and its service affect growth by discouraging private investment and alter the composition of public spending, further, it may have non – linear effects on growth through capital accumulation (Babu, Kiprop, Kalio and Gisore, 2014).

According to debt overhang hypothesis, public debt may grow to a level where future debt will be larger than the countries repayment abilities, therefore, expected debt service costs may discourage further domestic and sovereign investments. In this context, the potential investors may fear that the more the production, the more taxes may be levied on their produce, thus, less willing to incur investments cost (Jallod and Tarawache, 2021). Even though the issue of debt and its impact on economic growth and development remains a major concern for most developing nations, most of these countries are characterized by low level of domestic resource mobilization, low savings, low per capita income, large fiscal deficit, rising current account imbalance and high saving gap (Adom, 2016). Such a situation constraints developing economies to raise adequate resources required to promote investment and boost economic growth.

High public debt burden makes economy more vulnerable to shock, on the other hand, public debt overhang can constrain economic recovery, makes a country more prone to liquidity shock and defaults. Therefore, both theoretical and empirical literature suggests that high debt burden

impede long term growth (Panizza and Presbitero, 2013). However, most developing countries resort to borrowing with a view to complementing domestic savings and enhance their ability to undertake productive investment, though a number of empirical papers finds that the relationship between public debt and economic growth is non – linear and characterized by the presence of a threshold above which debt starts having a negative effect on economic growth (Mushbau, Mahmood, Ismail, Shamsuddin and Rashid, 2018).

According to Calderon and Fuentes (2013), there exist a non – linear relationship between public debt levels and economic growth. This implies that rising government debt has a positive growth effect when debt levels are low. On the contrary, these effects become negative when debt levels increase beyond a certain limit. A non – linear threshold could suggest that an increase in government borrowing competes for funds in the capital market which intern raises interest rates and crowds out private investments (Adom, 2013). This indicates that debt overhang theory on the relationship between public debt and economic growth is well grounded.

Whereas some scholars argued that the relationship between public debt and economic growth was positive (Park, 2015, Rahma, 2019, Natwi and Erickson, 2016), others noted negative influence of public debt on economic growth. This position was supported by Ahiborn and Schweicert (2016), Zouhair and Fatuma (2014) and Immole and Ehikoya (2012). The review therefore, indicates that the influence of public debt on economic growth has not been resolved and is still contentious. Therefore, this creates a knowledge gap which calls for investigation. The study sought to explore the relationship between public debt and economic in East African Community.

Most studies carried out in this area were done in developed economies (Benzooijien and Bekker, 2017, Park 2015, Antonakakis and Bandiger 2012 and Mirdala et.al. 2015). The developed countries have different macroeconomic condition like high income per capita, high level of industrialization and efficient technological infrastructure (Antonaskakis and Bandgen, 2012). Their findings may thus not apply to EAC where there is a different macroeconomic environment.

3.1   Methodology

The study adopted longitudinal research design and applied auto regressive distribution lag model in the analysis. The longitudinal research design offers increased precisions of treatment of constructs by eliminating inter individual variation which is achieved by observing each subject under several treatments. It also examines individual changing responses over time and has a natural appeal for the study of changes associated with aging or development (Cook and Ware, 1983).

The population of the study consists of 6 countries in EAC. That is Uganda, Tanzania, Kenya, Burundi, Rwanda and South Sudan. However, South Sudan and Burundi was isolated from the population. This is because South Sudan joint EAC in April, 2016 (Zambakar, 2019) and Burundi had insufficient data which cannot sustain regression analysis. The investigation used secondary data. Quarterly time series data was collected from 2002 to 2020. Data on public debt and financial deepening was gathered from Central Bank of individual member states and GDP from the national bureau of Statistic of EAC states. The choice of secondary data was informed by its flexibility, empirically exercised on systematic methods with procedural and evaluation steps (Johnson, 2014).

3.2   Model Specification

Autoregressive Distribution Lag Model was deployed as an analytical tool. The descriptive statistic measured central tendency and variability. The time lag was determined by $dyt_{+s}/dx_{t} = dy_{t}/dx_{t-s} = \beta s$. Where, s is 0, 1, 2 which explain the influence of change in X at period t on the significant of Y in period t, t + 1, t + 2 ……t + n, β is beta. A significant test was done at the level 0.05. The general model was therefore,

$Y_{t} = f(X_{it})$ ……………………………………………………….………….............. (1)

Where: Y_{t} is economic growth at time t, X_{it} are macro-economic factors, i is 1, 2, 3………. n and t is time. To operationalize the model with the lag variable, the specific model would therefore be, $EG_{t} = f(EG_{-1} +, PDt, + PD_{t-1})$ ....…………...…………….…… (2)

Where, EG_{t} is economic growth measured by GDP at time t, PD_{1t}, is the macroeconomic factor at time t., t is time, t - 1 is the optimal lag.

Hypothesis to test the relationship between public debts on economic growth in EAC

$EG_{t} = \alpha_0 + \alpha_1 EGt_{-1} + \beta_1 PD_t + \beta_1 PD_{t-1} + e$ ……..........……………………………….... ……. (3)

Regress EG_t on PD_t, to proof β_1 is significant.

Where, EG_t is Real Economic Growth at time $_t$, PD_t is Public Debt at time t, β_1 is Coefficient, t is time, t - $_1$ is optimal lag, α_0 is Constant and e is Residual.

4.1   Results and Discussions

The table below presents the analysis of the relationship between public debt and economic growth in the EAC. Therefore, public debt is regressed on economic growth. Where, EG (-1) represents economic growth (lagged), PD – public debt (current), PD (-1) – public debt (lagged) and C is the intercept. The regression analysis on the effect of public debt on economic growth in the EAC is presented in Table 4.1 beelow.

Table 4.1: Regression Analysis on the influence of Public Debt on Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.164	0.232	-0.707	0.480
D(EG1(-1))	-0.374	0.053	-7.061	0.000
D(PD)	0.034	0.012	2.902	0.004
D (PD (-1))	0.016	0.012	1.379	0.169
R-squared	0.227	Mean dependent var		-0.226
Adjusted R-squared	0.216	S.D. dependent var		3.842
S.E. of regression	3.401	Akaike info criterion		5.305
Sum squared resid	2452.798	Schwarz criterion		5.367
Log likelihood	-568.899	Hannan-Quinn criter.		5.330
F-statistic	20.756	Durbin-Watson stat		2.152
Prob(F-statistic)	0.000			

From Table 4.1, results indicate that economic growth (-1) and public debt were significantly related to economic growth ($\alpha_1 = -0.374; \rho = 0.000$) and ($\alpha_2 = 0.034; \rho = 0.004$) respectively. This implies that, as the previous economic growth (-1) increases by one-unit, economic growth reduces by -0.347. However, as the current public debt rises by one-unit, economic growth also increases by 0.034. This confirms the findings of Rahma (2019), Natwi and Erickson (20160 and Park (2015) which indicate that public debt positively influences economic growth.

The R-square is 0.227. This indicates that the combined effect of public debt (both current and lagged) and lagged economic growth jointly contributed to 22.7% change in economic growth. The adjusted R square is 0.216 which indicates that economic growth (-1) and public debt both current and lagged are significant accounting for 21.6% change in economic growth. The F-statistics is 20.756 and a probability of 0.000. This implies that the model can be used for prediction even though the R square is low. The DW statistics is at 2.152. This means that there is no problem of autocorrelation within the estimates.

Given that the data set in Table 4.1 above depicted the East African Community scenario, the country - specific ARDL extraction on the effect of public debt on economic growth, country specific is presented in Table 4.2 below. Where, EG (-1) represent economic growth (lagged), PD (-1) represent public debt (lagged), PD represent public debt (current) and C is the intercept.

Table 4.2: Indicates ARDL model on effect of Public Debt on Economic Growth, Country specific

	Kenya		Tanzania		Uganda		Rwanda	
Variable	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.06	0.506	-0.263	0.552	-2.209	0.007	-0.6	0.341
D (EG (-1))	-0.395	0.300	0.045	0.802	-0.227	0.132	-0.274	0.172
D (PD (-1))	0.014	0.57	-0.091	0.232	0.275	0.009	0.03	0.014
D(PD)	0.008	0.977	-0.123	0.081	0.201	0.003	0.003	0.81
R-squared	0.238		0.223		0.223		0.282	
DW	2.323		2.37		2.254		2.341	
F-statistics	7.168	0.000	6.33	0.001	5.655	0.002	4.326	0.011

From Table 4.2 above, Economic growth (-1) had no significant effect in all the E A C Countries namely Kenya, Rwanda, Uganda and Tanzania. Public debt (-1) had significant and positive effect on economic growth in Uganda and Rwanda ($\alpha_{23} = 0.275; \rho = 0.009$) and ($\alpha_{24} = 0.030; \rho = 0.014$) respectively. This suggests that a unit increase in the lagged values of public debts significantly increases economic growth in Kenya and Rwanda by 0.275 and 0.030

respectively. However, public debt is positive and significant in affecting economic growth in Uganda only ($\alpha_{33} = 0.201; \rho = 0.003$). This implies that a unit rise in the current value of public debt significantly leads to 0.201 increments in levels of current economic growth.

With regard to the current public debt, the results are in tandem with (Park, 2015; Rahma, 2019; Natwi & Erickson, 2016) who similarly observed that there was a significant and positive influence of public debt on economic growth. However, considering dynamism of public debt on economic growth, the study results also agreed with (Ahiborn & Schweicert, 2016. Zouheir & Fatuma, 2014) who observed that public debt (in case of lagged) exert negative influence on economic growth.

Cross - sectional dependence among the residuals was also conducted to confirm whether the units in the same cross - section were correlated. Table 4.3 below summarizes residual cross section dependence test.

Table 4.3: Residual Cross-Section Dependence Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	20.99402	6	0.0018
Pesaran scaled LM	3.173700		0.0015
Pesaran CD	2.408035		0.0160

From the outcome in Table 4.3 above, Pesaran, Scaled LM, Pesaran CD and Breusch-Pagan LM were significant meaning that there is homogeneity among the variables from the different countries. Since p – value in table 1.0 is 0.004 9<0.05. Therefore, the null hypothesis is rejected. There was a significant and positive influence of public debt on economic growth in the East African Community. The study found that public debt positively and significantly influences economic growth in the East African Community. This means that, when public debt increases by one-unit, economic growth would also increase by 0.034.

In conclusion, we can therefore affirm that public debt positively and significantly influences economic growth in East African Community. This result may help policy makers, economic and

financial experts and government officials to recognize contribution made by public debt in economic growth. Public debt can only add value to the economy when invested in the productive sector of the economy. Therefore, debt is good, but if invested in the productive sector of the economy, otherwise, debt overhang may set in.

However, the study experiences some data gap though it may not have affected the outcome of the investigation. Therefore, in order to mitigate paucity of data, future studies should consider annual time series data which are readily available in the World Bank website. On the other hand, other studies should explore different analytical methodologies to assess whether they can obtain similar outcome. Understanding the strength and direction on how public debt influences economic growth in East African Community can be improved by introducing moderating and mediating variables. Other researchers can continue to determine other factors which may affect the association between public debt and economic growth in East African Community. Since public debt and economic growth correlate positively and significantly, the study suggests that EAC member states need to mainstream borrowing policy in their respective states. The policy should outline the level of borrowing and the priority sector of investment which can yield positive return to the economy.

4.2   Policy Implications

Given the fact that public debt is positive and significant in influencing economic growth in EAC, and bearing in mind the effect of debt overhang theory, EAC member states should develop policies on the threshold of debt each member states should borrow. This process involved economic expert and legislative process. It would be therefore the responsibility of individual member states to engage in productive borrowing to ensure sustainability of government debt through controlled borrowing and regular servicing of debt from the proceeds of investments.

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