

# Debt and Economic Growth in Kenya: A Pre-COVID 19 Analysis

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**Abstract:** *This paper sought to establish the relationship between public debt and economic growth in Kenya over the period 1970 – 2019. Secondary data on domestic debt, external debt and GDP growth was obtained from the Central Bank of Kenya and the World Bank. The data collected was analyzed using both descriptive and inferential statistical procedures. The findings indicate that external debt has significant negative impact on economic growth in the long run with no noticeable effects in the short run. On the other hand, domestic debt was found to have significant negative effect on growth in the short run, and no significant impact on growth in the long run.*

**Keywords:** Debt, Economic Growth, Kenya

## 1. Introduction

According to the conventional perspective, the increase of public debt to finance government deficit can stimulate aggregate demand and economic performance in the short term, although when there is not a strict control of debt accumulation it could be possible to experience capital outflows and important output reduction in the long term. Some authors contend that in crisis periods, debt-financed expansionary fiscal policies should be implemented to maintain welfare and promote economic growth (Ramos-Herrera & Sosvilla-Rivero, 2017). On the contrary, some authors indicate that higher levels of public debt reduce significantly the economic performance and for this reason, austerity policies should be preferred to guarantee the confidence of economic agents and to improve their expectations. High public debt can adversely affect capital accumulation and growth via higher long-term interest rates. Focusing on empirical studies there is still no consensus on the relationship between debt and growth.

Government debt may have a positive or a negative impact on economic growth depending on its uses (Dritsaki, 2013). This could affect the economy positively when the government uses it for investment-oriented projects such as infrastructure, power, and the agriculture sector. However, it could have a negative impact when it is employed for private and public consumption. In general, a lower level of total government debt affects the economic growth positively, but this relationship becomes negative at high levels. The specific turning points are 35-40 percent for the debt-to-GDP ratio and 160-170 percent for the debt-to-exports ratio. The lower the first ratio (the higher the second ratio) the better is the impact on economic growth.

Public debt uncertainty reflects fiscal policy volatility (primary fiscal balance) and macroeconomic instability (in interest rate, exchange rate, inflation, and GDP) (Arsić, Mladenović, & Nojković, 2021). Most theoretical papers suggest a negative impact of fiscal uncertainty, first on private investments and then on the GDP growth. High volatility of fiscal deficit raises higher sovereign risk premium (thus increasing interest rates for both the

government and the companies); skews investments toward short-run gains, thus leading to human capital losses; and can, sometimes, also lead to deterioration of the quality of government services and higher volatility of inflation when the central bank is not fully independent. In brief, high volatility of fiscal deficit boosts the risks and the costs of doing business and leads to sub-optimal economic decisions, due to uncertainty, thus having a negative impact on economic growth. High volatility of fiscal policy can serve as an indicator for weak institutions.

The external debt stock of low- and middle-income countries has been rising steadily. External debt alone for Sub-Saharan Africa (SSA) countries has significantly increased from USD 240 billion in 2005 to 702 billion in 2020. The debt as a percentage of the Gross National Income was 43.7% in 2020, up from 23.4% in 2011 (World Bank International Debt Statistics, 2022). Like most Sub-Saharan African countries, Kenya's public debt has been soaring over the last ten years, due to rising Government spending. The World Bank's International Debt Statistics report 2022, shows that Kenya's external debt has grown by about four times rising from USD 8.86 billion in year 2010 to USD 38.19 billion in year 2020, placing Kenya among the highest accumulators of external debt.

The central question facing many policy makers in Kenya is: Do high levels of public debt reduce economic growth? Some have argued that expansionary fiscal policies that increase the level of debt may reduce long-run growth, and thus partly (or fully) negate the positive effects of the fiscal stimulus, while some policymakers have argued that high public debt has no effect on long-run economic growth. This dilemma is further exacerbated by the limited literature in Kenya on the relationship between public debt and economic growth. This study therefore seeks to answer this question in the context of Kenya, a developing country.

The remaining part of the paper is organized as follows: Section 2 briefly presents a review of the theoretical and empirical literature on public debt and economic growth. Section 3 presents the research methodology while section 4

presents the results and a discussion of the findings. Section 5 concludes the study and provides policy recommendations.

## 2. Literature Review

### 2.1 Theoretical Literature

The effect of public debt on economic growth of countries has attracted divergent views among experts. These differing views can be characterized into five key components (Abubakar & Mamman, 2020). The first view is grounded on the neoclassical theory of public debt, and argues that public debt has a negative effect on growth as a result of the crowding-out effect. Crowding-out effect is occasioned by an increase in interest rate owing to accumulation of public debt. Rising interest rate leads to a decrease in investment and ultimately lower economic growth (Abubakar & Mamman, 2020; Ferreira, 2009).

The second view holds that public debt has a positive effect on economic growth. This is founded on the view that the government borrows and allocates the funds towards economic-stimulating expenditure such as public investment, which leads to an increase in economic growth (Abubakar & Mamman, 2020; Armstrong-Taylor, 2019). This view supports the Keynesian theory of public debt. The theory holds that when investment is inadequate to ensure the attainment of full employment, borrowing and spending by the government leads to an increase in public investment which complements the inadequate private investment to stimulate economic growth (Abubakar & Mamman, 2020; Brown-Collier & Collier, 1995).

The third view is that public debt has a neutral effect on economic growth. This view is fronted by the Ricardian theory of public debt. The theory is grounded on the belief that individuals are prudent and can foresee that government borrowing is a postponement of taxation, and that the government will in the near future impose higher taxes to pay back the debt (Abubakar & Mamman, 2020). Consequently, individuals will not increase their consumption following government borrowing; they will instead increase their savings in order to be able to pay the future tax increase (Abubakar & Mamman, 2020).

The fourth view is that, in the short run, the effect of public debt on economic growth is positive, however, the effect becomes negative in the long run due to the crowding-out effect of capital (Abubakar & Mamman, 2020; Elmendorf & Mankiw, 1999). This view is fronted by the conventional theory which holds that the short-run positive effects are a result of a decrease in taxes which lead to the widening of deficits. The decrease in taxes creates more disposable income which in essence stimulates aggregate demand and economic growth (Abubakar & Mamman, 2020; Ferreira, 2014). In the long run, however, the sticky prices and wages that increased aggregate demand become less important. This necessitates the crowding-out effect on capital, leading to a negative relationship between public debt and economic growth (Abubakar & Mamman, 2020; Elmendorf & Mankiw, 1999).

The fifth view is that the relationship between public debt and economic growth is an inverted u-shaped curve, which is supported by the debt overhang hypothesis. According to this view, public debt at first produces an expansionary effect on the economy, however, if the debt accumulates beyond a certain level, investors will fear that the government will tax more to pay off its debts (Abubakar & Mamman, 2020; Cordella, Ricci, & Ruiz-Arranz, 2010; Pattillo, Poirson, & Ricci, 2004). This fear leads to low investments resulting in low economic growth (Abubakar & Mamman, 2020).

### 2.2 Empirical Literature

A brief review of the empirical relationship between public debt and economic growth is given below. Some studies have found that public debt impedes economic growth, while others report a neutral effect, and other studies show that public debt positively affects economic growth.

Senadza, Fiagbe, & Quartey (2017) examined the effect of external debt on economic growth in Sub-Saharan Africa (SSA). The study covered 39 SSA countries and used annual data covering the period 1990 to 2013. The study found that external debt negatively affects economic growth in Sub-Saharan Africa. McLean & Charles (2018) examined the genesis and evolution of debt and debt overhang in the Caribbean. The findings indicate that increases in debt result in a decline in economic growth for Caribbean economies. Caribbean economies did not demonstrate the traditional non-linear (bell-shaped) effect of debt on growth, where there is a range in which a positive relation between debt and growth exists.

Pegkas (2018) investigated the relationship between economic growth and several factors (investment, private and government consumption, trade openness, population growth, and government debt) in Greece. The results indicate a negative long-run effect of government debt and population growth on economic growth. The results also indicate that the relationship between debt and growth depends on debt breaks. Panizza & Presbitero (2014) examined whether public debt has a causal effect on economic growth in a sample of OECD countries. They found no evidence that public debt has a causal effect on economic growth.

Guei (2019) studied the relationship between external debt and economic growth in 13 emerging countries. The results show no robust effect of debt on economic growth in the long run; however, in the short run, external debt is negatively and significantly correlated to economic growth. Kourtellos, Stengos, & Tan (2013) examined the effect of public debt on growth in multiple regimes. The findings suggest that the relationship between public debt and growth is mitigated significantly by the quality of a country's institutions. When a country's institutions are below a particular quality level, then, more public debt leads to lower growth (all else equal). However, if a country's institutions are of sufficiently high quality, then, public debt is growth neutral. Festus & Saibu (2019) studied the effect of external debt on economic growth in Nigeria. The results indicate that external debt contribute negatively to growth in Nigeria.

Reinhart & Rogoff (2010) examined the experience of 44 countries spanning up to two centuries of data (1790-2009) on central government debt, inflation and growth. Their main finding is that high debt /GDP levels (90 percent and above) in both advanced and emerging markets are associated with lower growth outcomes. Presbitero (2012) investigated the impact of public debt on growth in developing countries. The results indicate that public debt has a negative impact on output growth until it reaches 90 per cent of GDP. Beyond this threshold, the effect of debt on growth becomes irrelevant. Chudik et al. (2013) investigated the long-run effects of public debt and inflation on economic growth using a sample of 40 countries covering the period 1965-2010. The results indicate that, if the debt to GDP ratio is raised and this increase turns out to be permanent, then it will have negative effects on economic growth in the long run. But if the increase is temporary, then there are no long-run growth effects so long as debt to GDP is brought back to its normal level. They did not find a universally applicable threshold effect in the relationship between public debt and growth. They only found statistically significant threshold effects in the case of countries with rising debt to GDP ratios.

Dritsaki (2013) examined the relationship between economic growth, exports and government debt of Greece over the period 1960-2011. The author investigates this relationship using the vector error correction models (VECM) and employ Granger causality technique in order to explore the presence of causality among these variables. The results show that both short and long run relationships exist among these variables. Specifically, the results show that there is a unidirectional Granger causality that runs from economic growth to government debt.

Arsić et al. (2021) find that the evolution of the public debt uncertainty has been influenced by economic growth in most of the economies considered. Findings about the level of dynamic correlation between the public debt uncertainty and the GDP growth indirectly serve as evidence relevant to capturing the impact of the debt growth on economic growth. High public debt uncertainty reflects a lack of consistency in conducting fiscal policy. It also serves as an indicator of macroeconomic instability (due to variability of the interest rate, inflation, and the exchange rate) that exerts a negative influence on the level of private investment. In some economies, the high variability of public debt emerges from weak institutions. Our econometric results imply that economic growth is affected positively by fiscal policy characterized by small fluctuations of public debt. Stability of economic growth benefits more from a fiscal policy based on well-defined rules than from fiscal policy characterized by unpredictable changes in government spending or taxes. Reduction in public debt uncertainty is achieved with more efficiency under stable macroeconomic conditions stemming from small variations in the interest rate, inflation, and the exchange rate.

Akram (2015) examines the consequences of public debt for economic growth and investment in the Philippines. However, the study also investigates the impact of certain other macroeconomic variables on economic growth and investment. The main finding that emerges from the present

study is that public external debt has negative and significant relationships with real GDP and investment, which suggests the existence of the debt overhang hypothesis. However, debt servicing has insignificant relationship with both investment and real GDP, depicting the non-existence of the crowding out effect. Domestic debt has a negative and significant relationship with investment and positive relationship with real GDP. The results are also suggestive of the fact that real GDP has been negatively affected by population growth and positively by openness and investment.

Some scholars have studied the effect of public debt on economic growth in Kenya. These studies include Musyoka (2017) who studied the effect of public debt on economic growth in Kenya. The study concluded that national debt is negatively related to economic growth in Kenya. On the other hand, Musyoka (2011) analyzed the relationship between debt servicing and economic growth in Kenya for the period 1970 - 2008, focusing on both Internal and External debt service. The results indicate that economic growth is not very much affected by external debt servicing. On the other hand, Osewe (2017) investigated the effect of external debt and inflation on economic growth in Kenya. The study concluded that external debt and inflation had no impact on GDP. Therefore, results from the studies on Kenya are mixed and inconclusive.

### 3. Research Methodology

Secondary data on domestic debt, external debt, GDP growth and other control variables was obtained from the Central Bank of Kenya and the World Bank over the pre-Covid 19 period 1970 – 2019. The data collected was analyzed by using both descriptive and inferential statistical procedures.

Following Akram (2015) the growth equation in reduced vector form can be written as:

$$GDPG_t = \alpha + \sum_{j=1}^k \delta_j x_{tj} + \sum_{m=1}^p \phi_m DEBT_{tm} + \epsilon_t$$

where  $GDPG_t$  is real GDP growth and  $t$  is time,  $\alpha$  represents intercept,  $x_{tj}$  is a vector of control variables,  $\delta_j$  is the vector of coefficients of control variables. The  $DEBT_{tm}$  is the vector of various public debt indicators,  $\phi_m$  is the vector of coefficients of public debt indicators and  $\epsilon_t$  is the classical error term.

The basic conditional VECM equation for the relationship between public debt and economic growth can be written as:

$$\begin{aligned} \Delta GDPG_t &= \alpha + \gamma_1 yGDPG_{t-1} + \gamma_2 POPG_{t-1} + \gamma_3 GF CF_{t-1} \\ &+ \gamma_4 OPEN_{t-1} + \gamma_5 DCredit_{t-1} + \gamma_6 INFL_{t-1} + \gamma_7 DEBT_{t-1} \\ &+ \sum_{i=0}^p \tau \Delta POPG_{t-i} + \sum_{i=0}^p \sigma_i \Delta GF CF_{t-i} + \sum_{i=0}^p \phi \Delta OPEN_{t-i} \\ &+ \sum_{i=0}^p \beta \Delta DCredit_{t-i} + \sum_{i=0}^p \theta INFL_{t-i} + \sum_{i=0}^p DEBT_{t-i} + \epsilon_t \end{aligned}$$

where  $\alpha$  is intercept,  $\epsilon_t$  is the error term, similarly  $\gamma_1, \dots, \gamma_7$  are the long run coefficients  $\tau, \sigma, \beta, \text{ and } \theta$  are the short run dynamic coefficients. It is also worthwhile to define the

variables here: GDP growth (GDPG), external debt (EXTD), population growth (POPG), Gross fixed capital formation as percent of GDP (GFCF), inflation (INFL), openness (OPEN), and Domestic credit to private sector (DCredit). DEBT represents the debt variables included in the equation, basically external debt (EXTD) and domestic debt (DOMD).

#### 4. Data Analysis and Results

The relationship between debt variables and growth is shown in Figures 1 and 2. A negative relationship between debt and growth is visible. This is shown also in Table 1, where the correlation between external debt and growth and also between domestic debt and growth is negative.

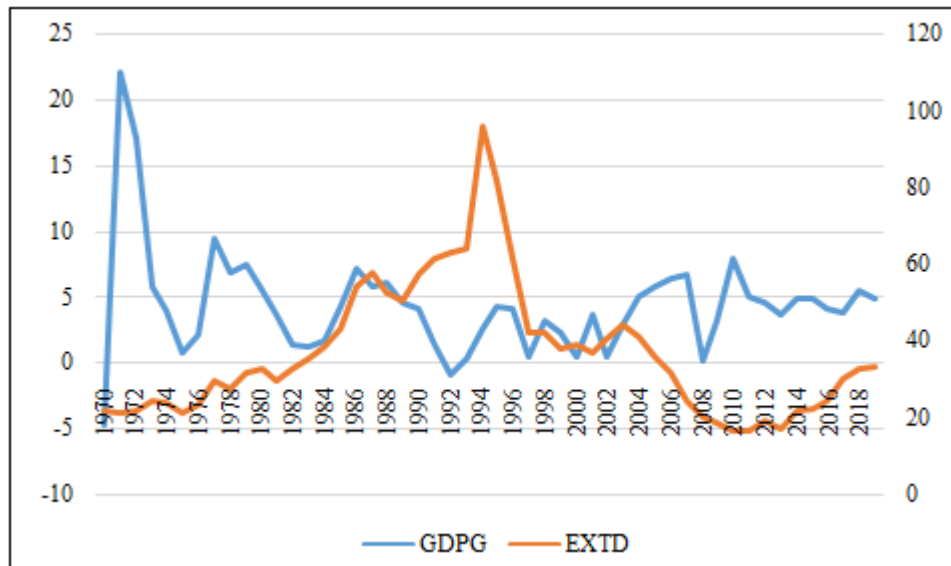


Figure 1: External Debt (EXTD) and Economic Growth (GDPG)

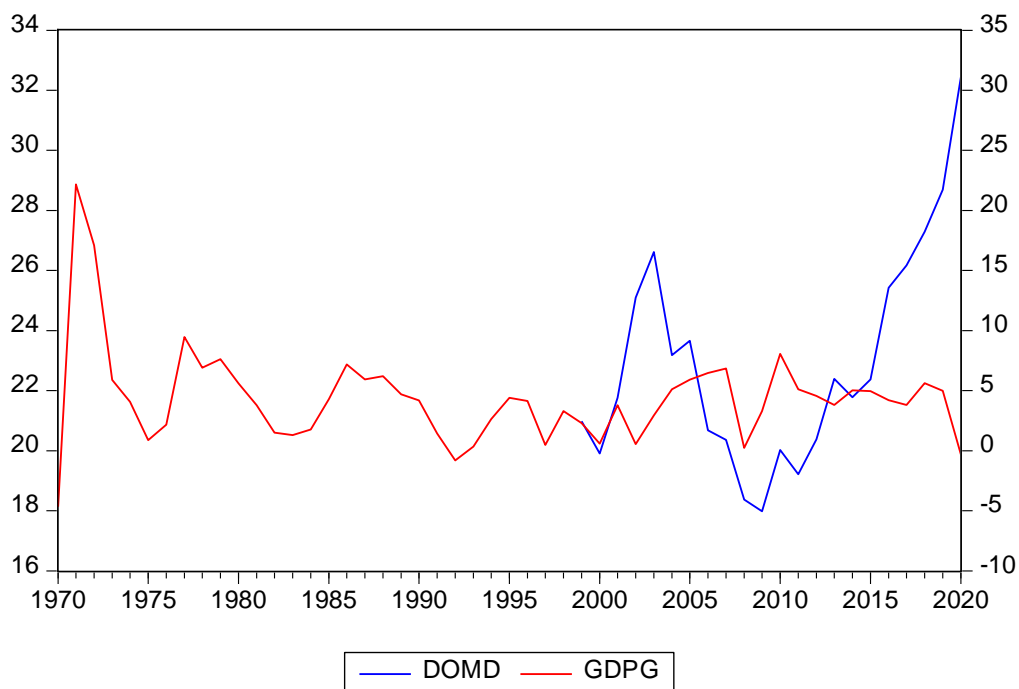


Figure 2: Domestic Debt (DOMD) and Economic Growth (GDPG)

Table 1: Correlations Between Growth and Debt Variables

	EXTD	DOMD	GDPG
EXTD	1.00	0.48	-0.33
DOMD	0.48	1.00	-0.21
GDPG	-0.33	-0.21	1.00

(GFCF), inflation (INFL), openness (OPEN – sum of exports and imports of goods and services as percent of GDP), and Domestic credit to private sector as percent of GDP (DCredit). It is evident that there is a mix of both stationary and nonstationary variables, justifying the use of autoregressive distributed lag model.

Unit root tests are carried out for GDP growth (GDPG), external debt as percent of GDP (EXTD), population growth (POPG), Gross fixed capital formation as percent of GDP

**Table 2: Unit root Tests**

Variable at Level	Augmented Dickey Fuller Test (t-value (prob.))	Comment
GDPG	-5.63(0.00)	Stationary
EXTD	-1.57(0.49)	Nonstationary
POPG	-0.71 (0.83)	Nonstationary
GFCF	-3.88 (0.0042)	Stationary
INFL	-3.99 (0.00)	Stationary
OPEN	-1.56 (0.50)	Nonstationary
DCredit	-1.39 (0.58)	Nonstationary
<b>First Difference</b>		
D(EXTD)	-7.15 (0.00)	Stationary
D(POPG)	-4023 (0.002)	Stationary
D(OPEN)	-8.35(0.00)	Stationary
DCredit	-8.07 (0.00)	Stationary

ARDL long run and short run models are estimated and presented below. Economic growth is regressed against external debt and domestic debt variables. The other variables enter the models as control variables. However, several control variables were excluded due to their insignificant impact on growth. The results for the growth model incorporating external debt are given in Tables 3-5. The selected ARDL model is ARDL (4,0,0) with restricted constant and no trend. The study covers the pre-Covid19 period, 1970-2019, a total of 46 observations for each variable.

From the results, it is evident that external debt has significant negative impact on economic growth in the long run (Table 3). Furthermore, gross fixed capital formation has significant impact on growth. The bounds test results attest the presence of the long run relationship between the variables, given the calculated F-value is higher than the critical value. These results are given in Table 4. The short run model shows no effect of external debt on growth (Table 5). It can be concluded that though no effects are noticeable in the short run, the long run implications are of concern. The model regressing growth and external debt passes all the diagnostic tests: normality (Jarque-Bera:  $F=0.09$  [Prob.=0.96]), serial correlation (Breusch-Godfrey Serial Correlation LM test  $F=0.82$ [Prob.=0.56]), heteroskedasticity (Breusch-Pagan-Godfrey test:  $F= 0.82$  [Prob.0.56]) and stability (Ramsey Reset test:  $F=0.85$ [0.36], CUSUM and CUSUM of Squares).

**Table 3: Long run Equation (External Debt-Growth)**

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXTD	-0.031596	0.013463	-2.346933	0.0241
GFCF	0.246541	0.071064	3.469270	0.0013
C	0.240956	1.644923	0.146485	0.8843
GDPG = -0.0316*EXTD + 0.2465*GFCF + 0.2410				

**Table 4: F-Bounds Test (External Debt – Growth model)**

Null Hypothesis: No levels relationship				
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.901376	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5
Actual Sample Size	46		Finite Sample: n=50	
		10%	2.788	3.513

		5%	3.368	4.178
		1%	4.695	5.758
			Finite Sample: n=45	
		10%	2.788	3.54
		5%	3.368	4.203
		1%	4.8	5.725

**Table 5: ARDL short-run / Error Correction Regression (External Debt- Growth)**

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPG(-1))	0.444969	0.130684	3.404932	0.0015
D(GDPG(-2))	0.241578	0.098765	2.445984	0.0191
D(GDPG(-3))	0.176113	0.071840	2.451464	0.0188
CointEq(-1)*	-1.228251	0.188069	-6.530856	0.0000
R-squared	0.516167	Mean dependent var	-0.019901	
Adjusted R-squared	0.481608	S.D. dependent var	2.485507	
S.E. of regression	1.789551	Akaike info criterion	4.084748	
Sum squared resid	134.5048	Schwarz criterion	4.243761	
Log likelihood	-89.94921	Hannan-Quinn criter.	4.144315	
Durbin-Watson stat	2.115432			

As given in Tables 6-8, domestic debt is regressed against economic growth. The selected ARDL model is ARDL (2,2,2), covering the period 1999-2019 with restricted constant and no trend. As indicated in the results (Tables 6-7), domestic debt has no significant impact on growth in the long run. In the short run though, it has significant negative effect on growth (Table 8). The Bounds test establishes presence of long run relationship thus lending credence to the results (Table 7). The model passes diagnostic tests of normality (Jarque-Bera test:  $F=0.56$ [Prob.=0.75]), Heteroskedasticity (Breusch-Pagan-Godfrey test:  $F= 0.91$  [Prob.0.55]) and stability (Ramsey Reset test:  $F=0.99$ [0.35], CUSUM and CUSUM of Squares).

**Table 6: Long-run Model (Domestic Debt-Growth)**

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOMD	0.181536	0.128814	1.409286	0.1891
GFCF	0.354073	0.131747	2.687523	0.0228
C	-6.445019	4.336762	-1.486136	0.1681
GDPG = 0.1815*DOMD + 0.3541*GFCF -6.4450				

**Table 7: F-Bounds Test (Domestic Debt-Growth)**

Null Hypothesis: No levels relationship				
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	6.368675	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5
Actual Sample Size	19		Finite Sample: n=35	
		10%	2.845	3.623
		5%	3.478	4.335
		1%	4.948	6.028
			Finite Sample: n=30	
		10%	2.915	3.695
		5%	3.538	4.428
		1%	5.155	6.265

**Table 8:** Short –run model (Domestic Debt-GDP growth)

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPG(-1))	0.510096	0.182138	2.800608	0.0188
D(DOMD)	-0.104505	0.198362	-0.526840	0.6098
D(DOMD(-1))	-0.691877	0.198726	-3.481558	0.0059
D(GFCF)	0.757380	0.194928	3.885428	0.0030
D(GFCF(-1))	-0.355912	0.227137	-1.566951	0.1482
CointEq(-1)*	-1.366271	0.237416	-5.754747	0.0002
R-squared	0.815936	Mean dependent var	0.230602	
Adjusted R-squared	0.745142	S.D. dependent var	2.607316	
S.E. of regression	1.316263	Akaike info criterion	3.639560	
Sum squared resid	22.52314	Schwarz criterion	3.937804	
Log likelihood	-28.57582	Hannan-Quinn criter.	3.690035	
Durbin-Watson stat	2.354640			

## 5. Conclusion

This paper established the relationship between public debt and economic growth in Kenya over the period 1970 – 2019. The findings indicate that external debt has significant negative impact on economic growth in the long run with no noticeable effects in the short run. On the other hand, domestic debt was found to have significant negative effect on growth in the short run, and no significant impact on growth in the long run.

It is therefore recommended that Kenya pursues external debt only for projects and programs that will have high impact on economic growth in the country, given that external debt has significant negative effect on growth in the long run. It is also recommended that the Kenyan Government acquires domestic debt in moderation given its short run negative effect on economic growth. In sum, it is recommended that an optimal mix of external debt and domestic debt be implemented in order to minimize adverse economic consequences, both in the short-run and long run.

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