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MODERATED ANALYSIS OF PUBLIC DEBT ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM AN EMERGING ECONOMY

David Owuor
School of Business and Economics, Department of Accounting and Finance
Jaramogi Oginga Odinga University of Science and Technology, Kenya
owuord82@gmail.com

Elijah Museve
School of Business and Economics, Department of Accounting and Finance
Jaramogi Oginga Odinga University of Science and Technology, Kenya
elijahmuseve74@gmail.com

Arvinlucy Onditi
School of Business and Economics, Department of Management and Economics
Jaramogi Oginga Odinga University of Science and Technology, Kenya
lucionditi@gmail.com

Abstract

The effect of Public Debt on Economic Growth is a debatable issue between scholars since the onset of the debt crisis in the 1900's. Public Debt is one of the main macroeconomic indicators which forms countries' image in the international markets. Public debt refers to the total of the nation's debts which covers debts of local and state and national governments indicating how much public spending is financed by borrowing instead of taxation. Government debt is one method of financing government operations, though not the only method as governments can also create money to monetize their debts, thereby removing the need to pay interests. The general objective of the study was to establish the effect of public debt on economic growth while specific objectives are specified herein. The study variables were premised on three theories: (neoclassical theory, debt overhang theory, liquidity constraints hypothesis in addition

to being supported by Harrod-Domar Model). It was revealed that, the moderating variable (Debt Servicing) was a good predictor of Economic Growth (GDS) since it had improved the R2 value compared to the unmoderated results. The findings affirmed the neoclassical theory, debt overhang theory and liquidity constraints hypothesis. In addition, the findings points to the need for policy framework on domestic debt obligation, cautious country expansionary fiscal Policy (tax cuts) and structuring of the Bond market with respect to volume traded considering both Public and Private sector segments for sustainable economic growth.
Keywords: Public debt; Economic growth; Debt servicing; Debt overhung; Harrod-Domar

INTRODUCTION

Public debt refers to the total of the nation's debts which covers debts of local and national governments indicating how much public spending is financed by borrowing instead of taxation (Makau, 2008). Government debt is one method of financing government operations, though not the only method as Governments can also create money to monetize their debts, thereby removing the need to pay interest (Martin, 2009). But this practice simply reduces government interest costs rather than truly canceling government debt and can result in hyperinflation if used unsparingly.

Government debt is created through various instruments including bonds, treasury bills, borrowing from commercial banks and overdraft from the Central Bank. (Klein, 1994) and (Ariyo, 1997) noted that a fundamental factor causing debt to rise is the reliance on external resources to complement capital formation in the domestic economy. The higher the interest payment and the heavier the deficit on the current account, the heavier the debt burden. Debt sourced finance represents funds with fixed contractual obligations which will require pledging future resources of the nation as collateral. In order to cope adequately in the long run, with servicing requirement, a nation’s debt service capacity must grow at a rate higher than that of its financial risk exposure. The non-debt resources on the other hand represent funds flow without fixed or compulsory servicing obligations on the government. The magnitude and regularity of such resources however, depend on foreign investors’ perception of the investment environment in the recipient country.

Public debt has been on an upward trend, but the debt-GDP ratio has been erratic and going beyond 100 percent in 1993. According to (Rother & Checherita, 2010), there exists a concave relationship between public debt and the rate of economic growth with the turning point of debt being at around 90-100 percent of GDP. This implies that the higher the public debt-GDP ratio, the lower is the long-term growth rate above this point. (Reinhart & Rogoff, 2010)

also found that when a debt-GDP ratio is below 90 percent, debt has a positive relationship with economic growth.

In many countries, the underlying key issue behind economic development but which has mostly been ignored by empirical research is the issue of public debt. Traditionally, the main drivers of economic growth are the level and quality of a country's physical and human capital, technological advancement and the quality of the labor force as well as the country's level of openness to international trade. However, it is now universally accepted that a country's ability to grow also depends critically on its level of indebtedness (Blake, 2015). Kenya's public debt has been increasing rapidly owing to infrastructure-related borrowing with the overall gross public debt reaching 56 percent of GDP at end-2015. Whereas financing infrastructure - should address bottlenecks and boost sustainable growth, high levels of debt can potentially lead to debt crisis and pose a serious risk to the economic and financial stability (Goosen, 2013). Unsustainable debt levels present risks to government expenditures on development and social programs since a large proportion of tax revenue would be diverted to debt service. However, debt can create higher fiscal imbalances through greater debt servicing attributed, in part, to future increases in loans to repay existing debt. In addition, increased borrowing in the domestic economy can crowd out private sector investment. Indeed the recent pace of public debt accumulation has been rapid raising concerns.

Public debt increased five-fold between June 2003 and June 2016. The shift in the composition of public debt in favor of domestic debt has occasionally seen the rise of nominal interest rates and consequently crowding out of the private sector to the detriment of economic growth (Mwaniki, 2016). The government of Kenya is not only experiencing an increase in public debt but there has also been a drastic decline of economic growth over the past ten year. This is of great concern as large public debt figures are believed by many researchers to have adverse effects on economic growth. (Mill, 1989), argued that government borrowing was harmful because it destroys capital which could otherwise be used for productive employment. Several scholars have reviewed the relationship between public debt and economic growth but only used either domestic debt or foreign debt to regress on economic growth. The current study looked at the combined effect of domestic and foreign debt on economic growth.

Objectives of the Study

The general objective of the study is to establish the effect of public debt on economic growth. Specifically, the study intended to determine moderating role of debt servicing on the effect of public debt on economic growth

Hypothesis

Based on the above objective, the study seeks to test the following hypotheses;

H01: Debt servicing has no significant moderating role on the effect of public debt on economic growth

Significance of the Study

The most important input of this study was to postulate scientifically the nature of the relationship between debt and economic growth this comes at a time when there is a serious uptake of debt that is pushing the debt to GDP ratio higher and higher. This was further dissected into domestic and foreign debt and how they relate with economic growth. This bridged the gap of debt structuring since there are thoughts around not all debt is good debt which will be tested inferentially by this study.

This study is of much importance to the government since it provided insight on how its financial practices effect on the economic growth of the individual country. It also provided the much needed debt analysis so as to conclusively state how both the foreign and domestic debts affect economic growth.

Other economic agents and actors such as donors' investors and citizenry is also able to make more informed decisions. The study provided empirically based discussions as well as recommendations that are vital in decision making at all levels of engagement. Further it resulted on a policy framework that can guide on sustainable debt model for countries in the region.

Scope of the study

This study was undertaken in Kenya, by use of data spanning twenty years (1999-2019) this period spans three political regimes that had varied principles on government borrowing. The country is a regional power house has recently been classified as a middle income economy. The data was collected from the country's national treasury and central banks, CBK. Kenya is considered as an emerging country since it has since been regarded as a highly democratic country with government accountability also on the rise. Over the years the country has also experienced consistent implementation of sound and solid economic policies that has in turn generated much desired economic growth. Technological penetration has also been largely successful in Kenya with cell phone connectivity currently standing at 80% which is the highest in the continent. This study assessed the effect of public debt on economic growth with debt service as the moderating variable.

Limitations

Data available is also limited since more specific and comprehensive data keeping is a relatively new phenomena within the country. The study doesn't take into account foreign aid as well as foreign direct investments which have been shown to play key roles in economic growth and development as well as other non-debt instruments.

LITERATURE REVIEW

The Harrod–Domar Model

The Harrod–Domar model is a classical Keynesian model of economic growth. It is used in development economics to explain an economy's growth rate in terms of the level of saving and productivity of capital. It suggests that there is no natural reason for an economy to have balanced growth. The model was developed independently by Roy F. Harrod in 1939, and Evsey Domar in 1946, although a similar model had been proposed by Gustav Cassel in 1924. The Harrod–Domar model was the precursor to the exogenous growth model (Domar & Evsey, 1946).

Neoclassical economists claimed shortcomings in the Harrod–Domar model—in particular the instability of its solution and, by the late 1950s, started an academic dialogue that led to the development of the Solow–Swan model. According to the Harrod–Domar model there are three kinds of growth: warranted growth, actual growth and natural rate of growth.

Warranted growth rate is the rate o at which the economy does not expand indefinitely or go into recession. Actual growth is the real rate increase in a country's GDP per year. Natural growth is the growth an economy requires to maintain full employment. For example, If the labor force grows at 3 percent per year, then to maintain full employment, the economy's annual growth rate must be 3 percent. Although the Harrod–Domar model was initially created to help analyze the business cycle, it was later adapted to explain economic growth. Its implications were that growth depends on the quantity of labour and capital; more investment leads to capital accumulation, which generates economic growth. The model carries implications for less economically developed countries, where labour is in plentiful supply in these countries but physical capital is not, slowing down economic progress. LDCs do not have sufficiently high incomes to enable sufficient rates of saving; therefore, accumulation of physical-capital stock through investment is low. The model implies that economic growth depends on policies to increase investment, by increasing saving, and using that investment more efficiently through technological advances. The model concludes that an economy does not "naturally" find full employment and stable growth rates. In terms of development, critics claim that the model sees economic growth and development as the same; in reality, economic growth is only a subset of

development. Another criticism is that the model implies poor countries should borrow to finance investment in capital to trigger economic growth; however, history has shown that this often causes repayment problems later (Domar & Evsey, 1957).

The endogeneity of savings: Perhaps the most important parameter in the Harrod–Domar model is the rate of savings. That depends on how much control the policy maker has over the economy. In fact, there are several reasons to believe that the rate of savings may itself be influenced by the overall level of per capita income in the society, not to mention the distribution of that income among the population. The model side lines the importance of debt in the economy which has seemingly overtime overtaken the savings in importance especially to the very countries that the model was prescribed for, the developing countries (Domar & Evsey, 1957).

RESEARCH METHODOLOGY

Research Design

Longitudinal design was used in the study. This design is suitable in tracking changes over time and to relate them to variables that might explain why the changes occur. Longitudinal research designs describe patterns of change and help establish the direction and magnitude of causal relationships. Measurements are taken on each variable over two or more distinct time periods. This allows the researcher to measure change in variables over time. It is a type of observational study and is sometimes referred to as a panel study.

Study Area

This research targeted economic data for a period of twenty years that was collected from Kenya National Bureau of statistics and Central Bank of Kenya (Nairobi).

Data Type and Source

The study utilized secondary data collected from the Kenya National Bureau of Statistics and the National treasury to analyze public debt. The study utilized annual data because Government Budgets are drawn annually and the deficits and surplus which are key determinants of borrowing are then developed. This annual data is also audited hence guarantees reliability.

Data collection Procedure and Research Instruments

The data was collected using data collection sheet which were edited and cleaned. The study period was from 1999/2000 to 2017/2018.

Sample size

Data was collected on monthly basis for a period of twenty years giving a total observation count of 240.

Validity

Data collection sheets were validated by the university supervisors before proceeding to collect the data. This was confirmed on the basis of content, constructs and face validity.

Data Analysis and Model Specification

Annual data collected was transformed into monthly data and converted into natural log so as to smoothen the data. E-views version 10 was used for analysis. Both descriptive and inferential statistics were employed in analysis of data. The paired t-test, a non-parametric test of differences developed by Sir Williams Gosset (Mugenda & Mugenda, 2003) were used in this study as a test of significance. The analysis was done at 0.05 level of significance. In order to determine the relationship between public debt and economic growth in Kenya, the researcher will conduct a time series analysis. Data analysis model (VAR) was extracted by utilizing the Johansen Cointegration Method.This test will be carried out to ascertain whether there were omitted variables. The study further utilized wald test to confirm correct specification of VAR. The null hypothesis for this test will be that there are no omitted variables. Accepting the null hypothesis implies there are no omitted variables hence the model is correctly specified. In its basic form, a VAR consists of a set of K endogenous variables $y_t=(y_{1t},\dots,y_{kt},\dots,y_{Kt})$ for $k=1,\dots K$. After including p lags of the endogenous variables, the VAR (p) model may be defined as:

$y_t=A_1y_{t-1}+\dots+A_py_{t-p}+CD_t+u_t$ ……………………………………………..(3.1)

where A_i are $(K\times K)$ coefficient matrices for $i=1,\dots,p$ and u_t is a K-dimensional white noise process with time-invariant positive definite covariance matrix, $E[u_tu'_t]=\Sigma_u$, such that

$E[u_t]=0 E[u_tu'_t]=\Sigma_u$ which is positive definite

The matrix C is the coefficient matrix of potentially deterministic regressors with dimension $(K\times M)$, and D_t is an $(M\times 1)$ column vector holding the appropriate deterministic regressors, such as a constant, trend, and dummy and/or seasonal dummy variables (Johansen, 1995, Lutkepohl, 2005 & kevinkotze.github., 2020)

The expression in equation 3.1 clearly suggests that the VAR model relates the k'th variable in vector y_t to past values of itself and all other variables in the system. This is in contrast with the univariate autoregressive models, which only relate a given variable to past values of itself. For

the current study, model 3.1 above will be transformed to model 3.2 by substitution as follows for the unmoderated model;

$yt=A1yt-1+\ldots+Apyt-p+CDt+ut$ ……..(3.2)

where Ai are (K×K) coefficient matrices for i=1,…,8 and ut is a K-dimensional white noise process with time-invariant positive definite covariance matrix, $E[utu't]=\Sigma u$, such that

$E[ut]=0$ $E[utu't]=\Sigma u$ which is positive definite .

Further, model 3.2 above will be transformed to model 3.3 by substitution for the moderated model as under;

$yt=A1yt-1+\ldots+Apyt-p+CDt+ut$ ……..(3.3)

where Ai are (K×K) coefficient matrices for i=1,…,9

In order to determine the relationship between domestic debt and economic growth in Kenya, the researcher will conduct a VAR analysis using the following simplified model

$Y\ t,\ 1 = \beta10 + \beta11X\ t\text{-}1 + \beta12X2\ t\text{-}2 + \ldots + \beta nnX6\ t\text{-}n + X7\ t,\ 1 + \mu$

$X1\ t,\ 1= \beta20 + \beta21Y\ t\text{-}1 + \beta22X2\ t\text{-}2 + \ldots + \beta nnX6\ t\text{-}n + X7\ t,\ 1 + \mu$

forAll X…

This model will be expanded into the following model:

$Y= \beta0+\beta1X1t+\beta2X2t+\beta3X3t+\beta4X4t+\beta5X5t + \beta6X6t +\beta7X7t + €$ …….(3.4)

Where: Y= Economic growth (Measured by real value of GDS)

X1= Treasury Bonds (Measured by total value in Kshs.)

X2= Treasury Bills (Measured by total value in Kshs.)

X3 = Government Stock (Measured by total value in Kshs.)

X4 = Overdraft at the Central Bank of Kenya (Measured by total value in Kshs.)

X5 = Advances from Commercial banks (Measured by total value in Kshs.)

X6= Bilateral Debt

X7= Multilateral Debt

Moderated Model considering debt servicing

$Y= \beta0+\beta1X1ti+\beta2X2ti+\beta3X3ti+\beta4X4ti+\beta5X5ti + \beta6X6ti +\beta7X7ti + \beta8X8ti+ €$……(3.5)

Where:

X8= debt servicing and

ti=1……20

Test the significance

In order to test the significance of the model in measuring the relationship between public debt and economic performance, Analysis of Variance (ANOVA) was conducted. On extracting the ANOVA statistics, the researcher considered the significance value at 5%.

Model Diagnostic Test - Normality

This test was done to ascertain whether the error term is normally distributed. It was carried out using Kurtosis and Skewness of the data.

FINDINGS

Descriptive Statistics

Table 1: Descriptive Statistics and Normality Tests

Description	Advances	Bilateral	Bills	Bonds	CBK_ Overdraft	Debt_ Servicing	GDS	Gov_ Stock	Multilateral
Mean	23.77137	23.5765	23.2492	23.9853	22.12371	23.10811	23.2893	20.8765	24.11904
Median	23.59637	23.3248	22.9814	24.0502	22.02322	22.93294	23.6514	20.7583	23.89806
Maximum	25.40551	24.9647	25.0775	25.6125	23.35236	24.50784	24.6160	22.9918	24.98223
Minimum	22.43628	22.7823	22.3603	21.7304	21.79284	22.50184	21.9779	18.9383	23.28820
Std. Dev.	0.948529	0.63428	0.81735	1.13514	0.307868	0.537484	0.85270	0.76985	0.521136
Skewness	0.175523	0.84045	0.93117	-0.49223	1.679283	0.899618	-0.2277	0.17193	0.365928
Kurtosis	1.757588	2.55558	2.58798	2.22729	5.600388	2.708624	1.59447	3.30731	1.750140
Jarque-Bera	16.66821	30.2294	36.3813	15.6622	180.4197	33.22151	21.8291	2.12690	20.97764
Probability	0.000240	0.00000	0.00000	0.00039	0.000000	0.000000	0.000018	0.34526	0.000028
Sum	5705.128	5658.35	5579.82	5756.49	5309.690	5545.947	5589.45	5010.37	5788.570
Sum Sq. Dev.	215.0298	96.1528	159.666	307.963	22.65299	69.04458	173.777	141.650	64.90818
N	240	240	240	240	240	240	240	240	240

For the dependent variable GDS, the measures of central tendencies were as follows, the mean was (23.280), the median was established as (23.651) The dispersion statistics were generated as follows: standard deviation was (0.853). This high standard deviation illustrates that the data is widely spread-out. The Kurtosis statistic was determined as (1.594) which is below the value (3) which illustrates presence of symmetry. The skewness coefficient was (-0.228) this bespeaks that the variable is moderately skewed. Minimum was noted as (21.978) while maximum connoted as (24.616).

The moderating variable, debt servicing, confirmed the following statistics, mean was entrenched as (23.108). The mode was indistinguishably ambivalent while the median was inveterate as (22.933). Measures of dispersion acclaimed the following, the standard deviation was (0.537). The kurtosis coefficient was noted as (2.709) with skewness as (0.9) this indicates

that data was symmetrical but highly skewed. The maximum and minimum statistics were as follows (24.508) and (22.502) respectively.

Normality test was carried out using the following procedure: If skewness is less than -1 or greater than 1, the distribution is highly skewed. If skewness is between -1 and -0.5 or between 0.5 and 1, the distribution is moderately skewed. If skewness is between -0.5 and 0.5, the distribution is approximately symmetric. Kurtosis value of 3 and its neighbourhood illustrates presence of symmetry. High kurtosis coefficient indicated traces of auto-regressive cointegration (ARCH) effects in the series, which can only be modelled through time series analysis.

Unit Root Test

Stationarity test for the variables was determined using ADF test. The results revealed that, the data was not stationary at level since all the individual probabilities were greater than 0.05.Unit root test was then conducted on the first difference to establish if stationarity would be attained (Saunders et al., 2009). ADF stationarity results are as summarized in the tables 2a and 2b below:

Table 2a: Intermediate ADF Unit Root Test for Individual Effects 1849 Observations.

Series	Prob.	Lag	Max Lag	Obs
ADVANCES	0.9857	2	14	237
BILATERAL	0.9915	14	14	225
BILLS	0.9867	2	14	237
BONDS	0.5426	3	14	236
CBK_OVERDRAFT	0.9984	13	14	226
DEBT SERVICING	0.9767	3	14	236
GDS	0.6499	14	14	225
GOV_STOCK	0.6770	13	14	226
MULTILATERAL	0.9238	2	14	237
Method			Statistic	Prob.**
ADF - Fisher Chi-square			3.09917	0.9998
ADF - Choi Z-stat			4.28687	1.0000
** Probabilities for Fisher tests are computed using an asymptotic Chi Square distribution All other tests assume asymptotic normality				

Non stationarity was resolved by first differencing as articulated by Saunders et al (2009).The results are as summarized in table 2b.

Table 2b: First Differencing ADF Test Results for Individual Effects 1848 Observations

Series	Prob.	Lag	Max Lag	Obs
D(ADVANCES)	0.0000	1	14	237
D(BILATERAL)	0.0203	13	14	225
D(BILLS)	0.0000	2	14	236
D(BONDS)	0.0001	2	14	236
D(CBK_OVERDRAFT)	0.0000	12	14	226
D(DEBT SERVICING)	0.0001	2	14	236
D(GDS)	0.0031	13	14	225
D(GOV_STOCK)	0.0000	12	14	226
D(MULTILATERAL)	0.0000	1	14	237
Method			Statistic	Prob.**
ADF - Fisher Chi-square			180.144	0.0000
ADF - Choi Z-stat			-11.5055	0.0000

** Probabilities for Fisher tests are computed using an asymptotic Chi Ssquare distribution All other tests assume asymptotic normality

From table 2b above, all the variables had no unit root; stationary, upon differencing. All the individual probabilities were below 0.05.

Table 3: Correlation Analysis

	DADVA	DBILA	DBILL	DBOND	DCBK	DDEBT	DGDS	DGOV	DMULT
DADVA	1.000000								
DBILA	0.17	1.000000							
DBILL	0.56	-0.12	1.000000						
DBOND	-0.08	-0.03	-0.52	1.000000					
DCBK	-0.04	-0.27	0.07	0.01	1.000000				
DDEBT	0.04	0.08	-0.14	0.18	0.12	1.000000			
DGDS	-0.12	0.17	-0.06	-0.09	0.53	0.13	1.000000		
DGOV	-0.19	-0.17	-0.13	-0.06	0.80	0.14	0.38	1.000000	
DMULT	0.04	0.18	0.23	-0.40	-0.03	-0.06	-0.27	0.05	1.000000

The results from table 3 revealed that Debt servicing is positively correlated with economic growth as evidenced by their coefficients 0.13. This then implies that any change in the independent variables, will cause a proportionate change in the dependent variable with a positive magnitude of the individual variable coefficient.

Table 4a: VAR of the moderating role of Debt servicing on the effect of public debt on economic growth

Vector Autoregression Estimates	
Included observations: 237 after Adjustments	
Standard errors in ( ) & t-statistics in [ ]	
	DGDS
DGDS(-1)	0.183785
	(0.04741)
	[3.87660]
DGDS(-2)	0.137926
	(0.04744)
	[2.90720]
C	2.14E-05
	(0.00216)
	[0.00995]
DDEBT	0.065481
	(0.03102)
	[2.11062]
R-squared	0.647647
Adj. R-squared	0.632056
Sum sq. resids	0.095364
S.E. equation	0.020542
F-statistic	41.54023
Log likelihood	590.1575
Akaike AIC	-4.887405
Schwarz SC	-4.726440
Mean dependent	-0.007790
S.D. dependent	0.033865

Table 4b: Decomposed VAR of the moderating role of Debt servicing on the effect of public debt on economic growth

System: Decomposed Moderated VAR				
Included observations: 237				
Total system (balanced) observations 237				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.183785	0.047409	3.876597	0.0001
C(2)	0.137926	0.047443	2.907203	0.0040
C(3)	2.14E-05	0.002156	0.009947	0.9921
C(4)	0.065481	0.031025	2.110623	0.0359
C(5)	-0.317945	0.107892	-2.946885	0.0035
C(6)	0.538927	0.069031	7.807064	0.0000
C(7)	-0.042665	0.055120	-0.774037	0.4397
C(8)	-0.295697	0.074494	-3.969383	0.0001
C(9)	0.517222	0.050678	10.20606	0.0000
C(10)	-0.062106	0.018217	-3.409172	0.0008
C(11)	-0.584589	0.096209	-6.076255	0.0000
Determinant residual covariance		0.000402		
Equation: DGDS = C(1)*DGDS(-1) + C(2)*DGDS(-2) + C(3) + C(4)*DDEBT + C(5)*DADVA + C(6)*DBILA + C(7)*DBILL + C(8)*DBOND + C(9)*DCBK + C(10)*DGOV + C(11)*DMULT				
Observations: 237				
R-squared	0.647647	Mean dependent var		-0.007790
Adjusted R-squared	0.632056	S.D. dependent var		0.033865
S.E. of regression	0.020542	Sum squared resid		0.095364
Durbin-Watson stat	1.310191	Log Likelihood		590.1575

The findings from Table 4b above shows the coefficients for the moderated VAR model. The model was reliable for forecasting since Log Likelihood criteria { 590.1575>30} revealed the goodness of fit. The model therefore was stated as;

GDS = 0.000214 + O.1838GDS_{t-1} + 0.1379GDS_{t-2} - 0.0427 T Bills - 0.2957 T Bonds – 0.3179 ADV + 0.5172 CBKOD – 0.0621GStock + 0.5390 Bilateral – 0.5846 Multilateral + 0.0655Debt Serv.

The results from Table 4b indicates that the regression weight of debt servicing on economic growth was 0.0655($p = 0.031 < 0.05$) indicating existence of a positive and significant effect of debt servicing on economic growth and hence the null hypothesis was rejected. This

means that debt servicing improves economic growth. The moderated output improved positively to a large extent coefficients of the unmoderated model as follows: C(1) by +0.001,C(2) by +0.004,C(3) by +0.000136,C(4) by +0.362603,C(6) by +0.589813,C(7) by + 0.240963, C(9) by +0.576196 and C(10) by + 0.52999. C(5) and C(8) changed negatively by 0.87036 and 0.81569 respectively. The model was therefore established as good for prediction since it had a high R-Squared value of 64.76% implying that GDS is jointly explained by the variables in the model up to 64.76 % while the remaining 33.24% could be explained by other variables not in the current study. The moderating variable is a good predictor of GDS since it has improved the R^2 value.

CONCLUSION

The objective of the study was to determine moderating role of Debt servicing on the effect of public debt on economic growth. The null hypothesis was therefore stated as follows; H0: Debt servicing has no significant moderating role on the effect of public debt on economic growth.

Debt servicing, confirmed the following statistics, mean was entrenched as (23.108). The mode was indistinguishably ambivalent while the median was inveterate as (22.933). Measures of dispersion acclaimed the following, the standard deviation was (0.537). The kurtosis coefficient was noted as (2.709) with skewness as (0.9) this indicates that data was symmetrical but highly skewed. The maximum and minimum statistics were as follows (24.508) and (22.502) respectively. The null hypothesis was therefore stated as follows; H0: Debt servicing has no significant moderating role on the effect of public debt on economic growth. The regression weight of debt servicing on economic growth was 0.0655($p = 0.031 < 0.05$) indicating existence of a positive and significant effect of debt servicing on economic growth and hence the null hypothesis was rejected.

The results indicate that the regression weight of debt servicing on economic growth was existence of a positive and significant effect of debt servicing on economic growth and hence the null hypothesis was rejected. This is in line with debt overhung theory that suggests that should a country be in a position where it cannot service the acquired debts then any repayments will negatively affect the investments hence negatively affecting the country's growth.

RECOMMENDATIONS AND FURTHER STUDY

The study recommends that the government should restructure current debts being serviced as well as those yet to begin the process of servicing so as to sustain and maintain the positive interaction of servicing and economic growth in both the long and short run. The study further

recommends that the national government should explore other financing alternatives other than debt since the debt to GDP ratio is currently dangling on the adverse boarder-line. There are a number of debt instruments that have impact on economic growth, this study recommends as areas for future study that other instruments are assessed so as to generate a wholistic overview of the economy with regards to debt interactions.

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