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## PUBLIC DEBT SERVICES AND ECONOMIC GROWTH: EVIDENCE FROM TANZANIA'S ECONOMY (1992-2021)

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**Abstract:** This study analyzed the impact of public external debt services on economic growth in Tanzania from 1992 to 2021. Debt overhand theory and Ricardian equivalence theory were reviewed to ascertain the impact of the variable on economic growth. Conceptual framework used economic growth as the dependent variable, public external debt servicing as the independent variable. A quantitative research design was used to conduct the research study, the design used due to the nature of the study as it required to measure variables through quantitative type of data. Study found, the public external debt service is positive and insignificant which means a unit increase of paying public external debt increase the growth of economy by 0.011. Moreover, the study revealed that there is relationship between economic growth and public external debt servicing, in both in short and long run relationship between these variables. The study concludes that the debt funds should be used wisely in production regimes which will boost internal final consumption, as it seen to have positive and significant relationship with the growth of economy will be assured. This will lead to the attainment of the payments of external debt services through strong economic fiscal policies. Study recommends, future research should be assessing the domestic public debt servicing in Tanzania.

**Keywords:** Public external debt Servicing, Economic Growth, and External Debt.

### INTRODUCTION

Developing countries facing the problem of financing their development projects due to the problem of fiscal deficit. Kamran et al (2021), Most of the developing countries depend on external resources in financing their budget because the internal resources cannot utilize the expenditures of the country. Despite of revenue collected from their own sources, but the funds are not enough to finance government activities for both recurrent and

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development projects (Yusuf & Said, 2018). External borrowing becoming the easiest way from foreign lenders, in the future as the funds borrowed need to be repaid not only principal but also with its interests. External debts are the funds owed to non-residents (IMF, 2012).

However, these debts have consequences when the countries are not well prepared to services the debts. Debt crisis generally emerges early 1980s, though caused by the failures of macro economy in early 1970s. According to Hurt (2015), The rapid growth in the external debt of developing countries first became biggest issue in the early 1980s, and it continued into the 21<sup>st</sup> century. The issue of started when the Organization for petroleum Exporting counties

(OPEC), experienced high profit from oil business money and invested in western commercial banks and later borrowed by developing counties during early 1970s.

Existence debt crisis and having the highly indebted countries, World Bank and IMF launched the program called Heavily Indebted Poor Countries (HIPC) Initiative in 1996 to make sure no poor country faces an unmanageable debt burden and to reduce the debt burden (Ali, 2011). These organizations set criteria for the countries to obtain the loans for the countries needed this assistance. Criteria like developing poverty reduction strategies, track record of reform and sound policies. Literature reviews on the impact of external debt payments on economic growth have shown the mixed opinions on the impacts of these payments on economic growth. In Tanzania, the origin of debt burden can be traced from 1960s up to 1980s. Basically, even Tanzania faces challenges like other Sub-Saharan Africa countries on payment of external debts after worldwide deterioration in economic performance during 1970s and 1980s. In 1986 Tanzania adopted Structural Adjustment Program (SAP), the program that supported by World Bank and IMF for mobilizing foreign donor support and restructuring the external debt. One of the reforms established was fiscal reforms for the purpose of broadening revenue collections and reduce budget deficit. For instance, the revenue to GDP ratio increased substantially, from an average of 18.3 percent in 1981-85 to 22.1 percent by 1991 after SAP (Agrawal et. Al, 1993).

Tanzania as the one of the developing countries resort their financial problem through borrowing as the way of financing the budget deficit. According to the BOT report of 2022, In the FY 2021/22 the government register the budget deficit of TZS 6,117.6 billion which covered by both domestic and foreign borrowing.

According to the joint World Bank-IMF report of debt sustainability analysis on August 2022 indicates that Tanzania's risk of external debt distress remains moderate and this, resulted from the recovering of pandemic which hit the macroeconomic stability.

In Tanzania, Kasidi & Said (2013) working on Impact of External Debt on Economic Growth and the results came up from their study shows there is significant relationship between external debts and debts service on GDP. Marobhe (2018), in the study of impact of external debt and economic growth in Tanzania, reveals that there is negative relationship between debt servicing and economic growth in Tanzania. Elikana (2019), investigated the impact of public debt on economic growth in Tanzania and the results shows there is negative effects of debt servicing on the economic growth in Tanzania.

However, due to the continuous borrowing from the external creditors Tanzania's debts obligation of these payments rises from time to time despite relief received previous from the international creditors through HIPC initiatives. According to BOT (2003), Up to end of June 2003 following the implementation of Highly Indebted

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Poor Countries (HIPC) from world bank and IMF, the government successful cancelled debt amounting USD 745.1 million under the Paris Club debt relief initiated from the HIPC. Also, in 2002/2003, Tanzania received the debt relief from multilateral institutions amounting USD 72.4 million makes total of USD 220.1 million multilateral debt relief from 1999/00-2002/03. In 2002/03, Tanzania external debt service payments amounted to USD 112.4 million were paid, the payments were low due to debt relief Tanzania received from HIPC initiative (BOT, 2003).

The main objective is to evaluate the impact of the public external debt servicing on economic growth in Tanzania. Specifically, the examine the impact of the public external debt servicing on economic growth of Tanzania, the long run relationship between the public external debt service payments and economic growth of Tanzania and, establish the impact of public external debt and economic growth of Tanzania.

According to Debt overhang theory, when the country is highly indebted to the extent that the debt repayment capacity cannot be attained its economic growth and investment will be hindered. According to Yusuf & Mohd (2021), the theory assumes that, if the future government debt expected to be high than the ability to pay them, the expected debt service cost will discourage the investors as they expect the more investment on production the more the tax cut will be imposed to service the debts. The theory assumes that the total stock of public debt and its service affect economic growth by discouraging private investment or changing the composition of public spending. Debt service may discourage growth by pushing the public resources available for investment (Coccia, 2017).

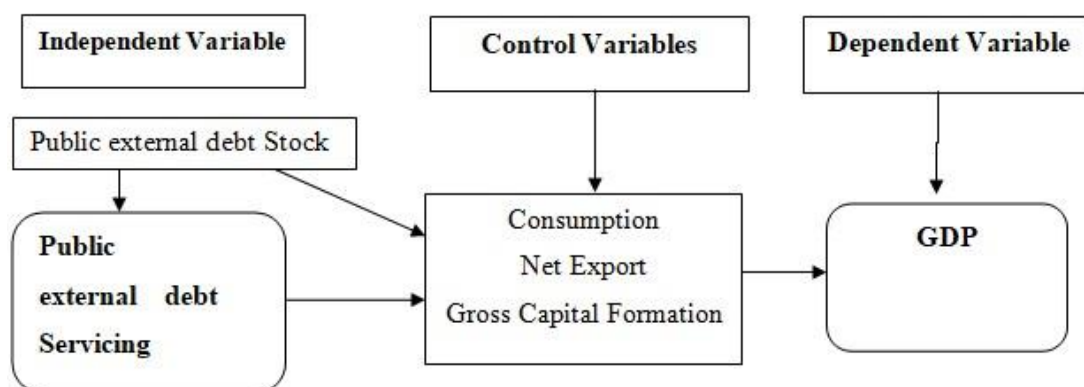
Ricardian equivalence theory developed by David Ricardo in 19<sup>th</sup> century and later elaborated by Professor Barro in 1974. The theory assumed tax and public debt as equivalent means of financing the government expenditures, thus when there is budget deficit debt can be the option of financing the gap and this resulted to the future high tax for recovering the debt. Means financing the government expenditures in present by debt it only postponed the taxation for future to be used for the repayment (Barro, 1974).

Most of researchers did research concerning the relationship or impacts of external debts and economic growth. Others focused on public debts and the economic growth. A review on the previous studies such as Lelya & Ngaruko (2021), Jilenga et al, (2016), Kasidi & Said (2013) and Marobhe (2018) focused on the impact and relationship of external/public debt and economic growth with different aspects especially time of the data used. Researchers focused on examining impact of external and internal debt stock on economic growth leaving the impact of debt servicing on growth of the economy.

## **CONCEPTUAL FRAMEWORK**

The conceptual framework below explains graphically the relationship between dependent and independents variables concerning this study. It shows the interlinks between these variables. In this study the dependent variable is Economic growth, and the independent variable is Public external debt servicing supported by control variables.

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**Figure 2.1: Conceptual Framework**

Source; Researcher (2023)

### METHODOLOGY Study Design and Sampling

The study used quantitative research design for establishing causal relationship between debt and economic growth. Due to the nature of the study, various econometrics tools needed to be tested and, in that sense, quantitative approach were needed to occupy the analysis. The researcher conducted this study in United Republic of Tanzania; this area used to obtain data which required by the study from 1992 up to 2021. Tanzania being among of the developing countries found in Sub-Saharan Africa depends on external debt to finance its obligations, studies needed to explore the significant of the debt payments for future sustainability of acquiring debts. In this study the researcher fetches the data ranged from 1992-2021 (30 observations) of public external debt service, real GDP and other economic variables included in this study. According to BOT report of 2022, Tanzania external debt stock hits USD 27,832.5 million, with public sector debt accounting for 73.5percent of the total debt, which means public external debt from external account to larger percent compared to other debt. Also, public external debt has more risk whenever default if is not paid on time, so researcher decided to check the impact of paying the public external debt to growth of the economy.

### Variables and Measurement Procedures

The growth of economic measured by the rate of real GDP in Tanzania, and GDP determined by debt service payment as main variable and other control variables researcher use in this study which are consumption, gross capital formation, and net export. Debt service payment includes payments of interests and principal in the given financial year, Net export measured through the difference between import and export of goods and services, gross capital formation used to determine the total investment and consumption measured by taking total payments of goods and services in a country. All these data are used in terms of US dollar, also the data transformed to log base 10 to make interpretable data and reduce skewness of the data for easily spot the pattern of the data in the distribution.

### Data Collection and Data Analysis

Secondary data used in this study; This data obtained from National Bureau of Statistics (NBS), and World Bank. The data were analyzed by STATA software. Regression model through ordinary least square was used to analyze the impacts of public external debt service on economic growth. The multiple regression was used.

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### Model Specification

The aim of this study was to assess the impact of public external debt services on economic growth. The linear regression model designed is adopted from the work of Yusuf & Mohd (2021), and the modified to complement the variables used in this study. Due to the nature of the data, the researcher decided to transform data to Logarithm (ln) so ascertain the easily interpretation of the results and to minimize the figures.

$GDP = \delta_0 + \delta_1 \ln EDS + \delta_2 \ln EDSV + \delta_3 \ln GCF + \delta_4 \ln NEX + \delta_5 \ln CMP + E_t$   $\delta_0$  = Constant,  $\ln GDP$  = Log of Growth Domestic Products,  $\ln EXDSTOCK$  = Log of Public External debt stock,  $\ln EXDSERVICE$  = Log of Public External debt services,  $\ln GCF$  = Log of Gross Capital formation,  $\ln NETEXPORT$  = Log of Net Export,  $\ln CONSUMPTION$  = Log of Consumption,  $E_t$  = Error term and  $\delta_1 \dots \delta_5$  are the coefficient of the regression equation.

### ANALYSIS AND PRESENTATION OF FINDINGS Descriptive Statistics

The Table below shows the summary of descriptive statistics of each variable. **Table 1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
lnGDP	30	10.31467	.3810035	9.63	10.83
lnEXDSTOCK	30	9.867667	.2194771	9.39	10.28
lnEXDSERVICE	30	8.256	.4431751	7.54	9.19
lnGCF	30	9.8	.4337646	9.26	10.45
lnCONSUMPTION	30	10.21167	.3240698	9.64	10.65
lnNETEXPORT	30	9.052	2.296891	-3	9.69

**Source:** Study Findings, (2023).

### Unit Root (Stationarity) Test

The results from Augmented Dickey-Fuller (ADF) tests reveals that log of variables are nonstationary at level  $I(0)$  before differencing which mean the variable do not contain a unit root except the log of Net Export because test statistics are greater than critical value as we reject null hypothesis which states variable has a unit root i.e stationary. But, at first difference  $I(1)$  the variables are stationary as the test statistic ADF values of each variable are less than the critical value of 5% significance level except the log of public external debt servicing.

### Test for Cointegration

To assess the existence of long-run relationship between the dependent and independent variables Johansen test used.

**Table 2: Results for Johansen Tests for Cointegration**

Johansen tests for cointegration							
Trend: constant				Number of obs =		29	
Sample: 1993 - 2021				Lags =		1	
trace	critical	rank	parms	LL	5% eigenvalue	statistic	maximum value
6	161.26122		.	100.2813	94.15		0
1	17	178.85008	0.70270	65.1036*	68.52		

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2	26	193.8754	0.64521	35.0529	47.21					
3	33	201.97154	0.42785	18.8607	29.68					
4	38	208.80348	0.37573	5.1968	15.41	5	41	211.17083	0.15063	0.4621
3.76										
6	42	211.40187	0.01581							

**Source:** Study Findings, (2023).

From the table 4.4, the trace statistic value of maximum rank 0 is greater than critical values (100.28>94.15) which indicates there is cointegration as we reject the null hypothesis of zero cointegration. Therefore, rejects the null hypothesis meaning there is cointegration equations in the model. This result indicates that there is relationship between public external debt service and economic growth of Tanzania. This result is similar with the study conducted done by

Yusuf & Said (2018. At rank 1, the trace statistic is less than critical value (65.10<68.52) which means accept null hypothesis of one cointegration between variables.

## Ordinary Least Square (OLS) Results

Data from 1992 to 2021 were analyzed in OLS to assess the impact of external debt on economic growth in Tanzania. Results presented in the Table 3.

**Table 3: Ordinary Least Square (OLS) Regression Results**

Source	SS	df	MS	Number of obs	=	30
Model	4.20365165	5		F(5, 24)	=	3310.98
Residual	.84073033	24		Prob > F	=	0.0000
	.006094117			R-squared	=	0.9986
	.000253922			Adj R-squared	=	0.9983
				Root MSE	=	.01593
Total	4.20974577	29				
	.145163647					
lnGDP	Coef.	Std. Err.	t	P> t	[95% Conf.	
	Interval]					
lnEXDSTOCK	-.0503561	.0376339	-1.34	0.193	-.1280286	
	.0273163					
lnEXDSERVICE	.0110597	.0163304	0.68	0.505	-.0226445	
	.0447639					
lnGCF	-.0175918	.0225162	-0.78	0.442	-.064063	
	.0288795					
lnCONSUMPTION	1.214867	.031578	38.47	0.000	1.149693	
	1.280041					
lnNETEXPORT	.001671	.0013579	1.23	0.230	-.0011315	
	.0044736					
_cons	-1.528289	.2041359	-7.49	0.000	-1.949604	-
	1.106973					

**Source:** Study Findings, (2023).



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From table 3 of Ordinary Least Square (OLS) the findings reveal that, the coefficient of log of final consumption is positive and statistically, this result proposes that the increase in the level of final consumption can stimulate economic growth.

The results show that any increase in 10% of the level of final consumption can stimulate the growth of economic by 1.21. The coefficient of log of public external debt service is positive and statistically insignificant which means 10% increase of paying public external debt increase the growth of economy by 0.011.

The results differ from the study conducted by Kasidi & Said (2013), where the external debt servicing has negative relationship with the economic growth of Tanzania and external debt stock had positive relationship with the economic as 10% increase in external debt stock impacted the growth of Tanzania by 0.36 from the data range of 1990 to 2010. The regression indicates that external debt and debt servicing has positive effect, and both are statistically significantly to the model on economic growth. Also differ with the study conducted by Marobhe (2018), the results indicate that external debt service is a negative relationship with economic growth and significant to the model as indicated by the p-value of 0.000. **Vector Error Correlation Model (VECM)**

From the table 4 the results indicate, in the long run, log of public external debt services has a negative impact on the economic growth of Tanzania as its coefficient has 0.45 while the log of other variables i.e public external debt stock, gross capital formation, final consumption, and net export has positive impact on economic growth as its coefficients had negative sign.

### Table 4: VECM Results

Identification: beta is exactly identified

Johansen normalization restriction imposed

beta	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
_cel						
lnGDP	1	.	.	.	.	.
lnEXDSTOCK	-.8725227	.1539218	-5.67	0.000	-1.174204	-.5708414
lnEXDSERVICE	.4490118	.0620389	7.24	0.000	.3274178	.5706057
lnGCF	-.4111265	.0630865	-6.52	0.000	-.5347738	-.2874792
lnCONSUMPTION	-.830535	.0921406	-9.01	0.000	-1.011127	-.6499428
lnNETEXPORT	-.0260908	.0051409	-5.08	0.000	-.0361667	-.0160149
_cons	7.319673	.	.	.	.	.

**Source:** Study Findings, 2023

Nb; positive coefficient means negative impact on dependent variable, and negative coefficient means positive impact on dependent variable.

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS Summary of the Findings

Ordinary Least Squares (OLS) were employed to examine the impact of public external debt service on economic growth of Tanzania from 1992 to 2021. The results from OLS regression analysis revealed that, the performance

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model is high with R-squared (0.9986), reflecting those changes in economic growth in Tanzania is explained by the explanatory variables involved in this study by 99.86%.

Also, the results show that the coefficient of log of public external debt service is positive and statistically insignificant which means 10% increase of paying public external debt increase the growth of economy by 0.011. Only final consumption is positive and statistically, this result proposes that the increase in the level of final consumption can stimulate economic growth. Johansen co integration used to test for the cointegration, and the result indicates there is cointegration as we reject the null hypothesis of zero cointegration. This means there is relationship between the economic growth, public external debts service, and other independents variables. Also, the estimations of coefficients of VEC Model reveals that there is long run relationship between public external debt servicing and economic growth of Tanzania, but the association has a negative impact on the economic growth of Tanzania as its coefficient has 0.45. the tests also indicate other log of variables used in the study has positive long run relationship with economic growth including the log of public external debt stock. **Conclusions**

## **and Recommendations**

According to DSA report 2022, ‘‘external debt burden indicators continue to remain below the thresholds under the baseline, indicating that Tanzania’s debt remains sustainable in the medium and long-term’’. This cannot guarantee the impact of high debt management for the future despite the results shows there is positive relationship between the growth of economy and the public external debts service as the payments of this debt increase also the economy grows but remember the test is insignificant and impacted by low unit as it only 10% increase of public external debt service payment impact only 1.1% of growth of economy.

Public external debt stock is negatively related to the economic growth as the increase of public debt stock by 10% negatively impacted the growth of economy by 5%. This predicting the risky of taking more external debt in the future, this may lead to slow economic growth since more of the income will be used for servicing the debt incurred.

The study recommends strong monetary and fiscal policy which will ensure the stable economy. Final consumption as it seen to have positive and significant relationship with the growth of economy will be assured when there is existence of strong tax policy, inflation control and strong currency. Researcher proposes other scholars to study on the impact of both domestic and public external debt service in the economic growth of Tanzania.

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