Does Public Expenditure Financing Mode Matter for Economic Growth in Tanzania? A Co-integration and Error Correction Modeling Approach

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Abstract
This study examines whether public expenditure financing mode matters for economic growth in Tanzania. The study employed co-integration and error correction modeling approach to explore the short-run and long-run effects of various methods of financing public expenditure on economic growth. The study confirmed that the growth effects of public expenditure depends on its financing mode. The results show that public expenditure financed through tax revenue and non-tax revenue enhance growth. Though tax revenue financed expenditure has a marginal growth effect suggesting existence of high tax rates in Tanzania. Also, the results show that while public expenditure financed through external borrowing bolster growth, government spending based on internal borrowing and grants dampens economic growth. This outcome suggests that grants are tied with conditions that have adverse economic effects to recipient country and that government domestic borrowing crowds out private sector investment. In order to promote growth, government has to increase domestic resource mobilization by widening tax base, controlling tax revenue leakages and tapping more non-tax revenues. Moreover, in case of budget deficit, government revenues should be supplemented by commercial external borrowing rather than internal borrowing and grants.

Key Words: Public expenditure, Financing mode, Short-run, Long-run, Economic growth, Tanzania.
JEL Classification Codes: H00, C13

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1.0 Introduction

Until the mid of 1970s Tanzanian economy was characterized by relatively reasonable rates of real economic growth, a reasonably stable macroeconomic environment and a sustainable external resource balance. Between 1966 and 1975, the real GDP growth averaged 3.9% per annum and per capita income averaged 1.2% per annum. Also, between 1996 and 1975, inflation rate averaged 7.5% annually and the ratio of budget deficit to GDP averaged 4.2% per annum. This promising picture of relative stable macroeconomic environment changed significantly in the latter half of the 1970s and the first half of 1980s; which were characterized by declining growth rates, high inflation rate, widening current account and budget deficits, decline in gross domestic savings, increase in public sector debt and foreign exchange constraints (Kilindo *et al.*1999). The main contributing factors were Kagera war, world oil price crisis, government efforts to discourage private sector development, climatic change, poor transmission mechanisms of fiscal and monetary policies; weak institutional frameworks; and drastic and unfavorable changes in external conditions.

Tanzania adopted the Structural Adjustment Program, Economic Recovery Programme, and Economic and Social Action Programme in the second half of 1980s in response to economic crisis. The impetus of these economic reform programs was to promote economic growth and stability. As a result, between 1987 and 1991, GDP growth rebounded to 4.2% from 0.8% recorded between 1977 and 1983 and budget deficit reduced to 0.9% from 7.6% recorded between 1977 and 1983 (Tsikata, 2001). But, these limited achievements lived shortly as they were eroded in 1993-95 when a country enters into another crisis; GDP growth declined to 1.8%, public debt raised to 160%, revenues declined to 11% and budget deficit widened to 5.2% (BOT, 2015). Thus, the path of economic growth in Tanzania has not been smooth despite formulating and implementing various reform programs. A persistent rise in budget deficit reflects that domestic resource mobilization has not been commensurate with the level of public expenditure. Despite perceived importance of domestic revenue mobilization Tanzania is still unable to raise adequate revenues (Chimilila, 2018); suggesting that a reasonable share of public expenditure is financed by foreign resources. This paper examines whether public expenditure financing modes matter for growth in Tanzania.

There is consensus among economists that public expenditures must be financed through domestic or foreign sources, but the degree and relative potential output effects has been the subject of debates. Wiseman and Peacock (1955) believe that public expenditure does not increase in a smooth and continuous manner, but in jerks or step - like fashion due to availability of revenues. Narrow tax base and revenue leakage have often been cited as drivers for low domestic revenue generation. Keynesian (1936) hold that public expenditure enhance growth through multiplier effect, but this effect diminishes as taxation increases. If government gives a tax cut for the poor and middle class, multiplier effect can be quite high because almost all of the increased income would be spent (Stieglitz et al, 2006). Dual-gap theory states that occurrence of savings and trade gaps in an economy leads to a shortfall in productive investment needed to achieve a given level of output. To fill the gaps external sources of capital for investment are required to complement domestic resources (Chenery and Strout, 1966). But a sustained government borrowing crowds out private sector investments. Teles and Mussolini (2014) noted that productive government

expenditure contribute positively to economic growth, but this impact decreases as borrowing increases.

Scholars have devoted a great deal of empirical efforts investigating whether public expenditure financing mode matters for economic growth: Mabula and Mutasa (2019) Chimilila (2018); Mehrara and Farahani (2016); Benedict *et al.* (2012); Ouma (2019); Teles and Mussolini (2014); Adekunle *et al.* (2019; Patillo, Romer and Weil (2004); Schclarek (2004); Hammed and Arawomo (2020); Ramadhani, Jian and Pacific (2016); Mallik (2008); Konadu *et al.* (2016) and Yi *et al.* (2014). But most of the previous studies analyzed the relationship between tax revenues and economic growth. Despite its undeniable importance, tax revenue is surely not the only domestic public expenditure financing mode that government needs to consider when planning domestic resource mobilization. Also, most of these studies used official development assistance to examine the impact of foreign source on economic growth; thus failed to separate the effect of loans and grants. It is widely held that the causal effect of foreign aids on economic growth is contingent upon the nature of aids. Moreover, most of these studies used relatively short data periods which adversely affects the reliability of the results. This study, therefore, fills this gap in literature by investigating whether the mode of financing of public expenditure matter for economic growth in Tanzania. This information is important for budget preparation, authorization and execution particularly in deciding the right mode of financing public expenditure while trying to enhance economic growth.

The rest of this paper is organized as follows: Review of theoretical literature is presented in next section. This is followed by methodologies used to analyze whether public expenditure financing mode matter for growth. Thereafter, results of the research are chronologically presented and discussed. Last section is a summary of concluding remarks, area for further studies and policy implications.

2.0 Literature Review

2.1 Theoretical Review

Earlier than the great depression, government activities in an economy were seen as source of poor economic growth and macroeconomic instability. The classical school believed that government intervention in economic activity in any way will disrupt smooth functioning of the economic system. The classical economists advocated for laissez fair economic system in which market directs the type of goods and services an economy can produce and consume. In the classical economic system, the role of the government is limited to maintenance of law and order needed to ensure that free market functions well for equilibrium to be maintained. Failure of the market to restore equilibrium in 1930s put serious question mark on laissez fair economic thought. Keynesian revolution and subsequent emergence of the Keynesian economics in the late of 1930s revealed that public expenditure is a source of macroeconomic stability. Keynes in his general theory was able to convince even the classical scholars that increase in public spending, especially during economic recession will help to revive the economy back to equilibrium. Keynesian argued that increase in government expenditures or tax cut lead to substantial increase in GDP growth through multiplier effects in the economy. Therefore, Keynesian recommend rise in public spending or tax cut during economic slump and decline in spending and high tax during economic prosperity.

Keynesian argues that tax cuts can enhance growth if considerable attention is paid to who gets tax reduction. Tax cuts for the poor and middle class are likely to stimulate the economy far more than tax cuts for the wealthy, because the poor and middle class spend more of their tax savings on consumption while the wealthy can save their disposable incomes. Thus, if government gives a tax cut for the poor and middle class, the multiplier effect can be quite high because almost all of the increased income would be spent (Stieglitz *et al,* 2006). There is some disagreement among neoclassical about the extent to which tax cuts stimulate the economy. One strand argues that they do, as a result of increased household disposable income. But this strand also worries that when the government tries to intervene to strengthen the economy, it will get the timing wrong; it will fail to recognize the lags, and the effect of a tax cut will be felt just as the economy is facing inflation. Another strand believe that if tax cut leads to a fiscal deficit, which in turn, widens public debt, then households will increase their savings in recognizing that they will have to repay the debt in future (Stieglitz *et al,* 2006). However, this reasoning known as Barro - Ricardo hypothesis, may not be applicable in Tanzania because many households and firms are credit and cash constrained.

Public expenditures must be financed through revenue or borrowing, each with potential output effects. Wiseman and Peacock (1955) believe that public expenditure does not increase in a smooth and continuous manner, but in jerks or step - like fashion due to availability of revenues. Thus, revenue financed expenditures enhance growth, but this effect diminishes as tax rate increases. Heavy taxation reduces public revenue because it contributes to tax evasion and avoidance. Also, high taxes imposed on production and consumption of goods and services whose price elasticity of demand is elastic results to a decline rather than increase in government revenues. Sometimes, some socio-economic or other disturbance takes place, creating a need for increasing public expenditure which the existing government revenue cannot meet. This budget deficit is often financed through printing money or borrowing. Monetization of budget deficit increases monetary base, given a stable money multiplier, increase money supply and finally price and output, as in quantity theory of money (Friedman, 1968). Also, a sustained government borrowing from banking system to finance budget deficit increases interest rates that lead to a decline in private investments and consequently the volume of goods and services available in the economy hence poor growth.

Chenery and Strout (1966) developed the dual - gap theory to explain the aid - growth nexus. The first gap called savings gap is the difference between the amount of investment required to achieve a predetermined rate of growth and the available domestic savings. The second gap called trade gap comes about when there is a distance between import requirements for a given level of production and foreign exchange inflows. In this theory, the occurrence of savings gap or trade gap in a developing country leads to a shortfall in productive investment needed to achieve a given level of output. Therefore, to fill the gap external sources of capital for investment are required to complement the deficit, (Presbitero and Panizza, 2012). In addition to the saving - investment gap and the trade gap or foreign exchange gap, the fiscal gap is described as the difference between government revenues and budgeted government expenditures (Konadu, 2016). According to this theory, the existence of a fiscal deficit limits government efforts to stimulate private investment as a result of debt servicing and excessive domestic borrowing which crowds out private sector investment.

The debt overhang theory postulates that the debt overhang occurs if the external debt in a country exceeds a country's ability to repay given some future probability. The debt overhang theory was first coined by Myers (1977) in an attempt to explain the company's decision on borrowing. He verified that there is always a threshold at which a firm can borrow from capital markets even at a willingness of paying higher interest rates. Later on, other scholars like Krugman and Sachs associated this theory and applied the same concept to the debt situation of a country and its ability to meet debt servicing obligations and how debt relief would actually benefit the creditor receiving some payment. Krugman and Sachs stated that debt overhang exists when the country's debt service burden is so heavy such that a large portion of the current output builds up to foreign lenders that discourage investment (Sichula 2012). The higher the current debt servicing burdens the higher expected tax on households and investors that implies lower future private investment as the resources that would be otherwise available to investors are used for servicing debt. Disincentive to investment further hampers economic growth which virtually makes poor countries to be caught in the vicious circle of poverty. The Laffer curve, which is basically nonlinear and inverted U-shape, is a tool that is used to postulate the peak at which the debt overhang occurs (Mabula, 2019)

Taylor as cited in Bhatia (2008) stated that if debt is owed to citizens or governments of other societies, its payments represent deductions from national product, and standard of social welfare is also reduced. This does not mean that funds borrowed from abroad are unproductive to the borrowing economy**.** It means simply that investment of funds borrowed from abroad produces less net return to the borrowing economy than would similar investment of funds provided at home. Pigou in Bhatia (2008) agrees that loans raised from foreigners entail a burden represented in interest rate and sinking fund on future generations in the borrowing country. But interest rate and sinking fund on internal loans are merely transfers from one set of people in the country to another set, so that the two sets - future generations - are not burdened at all - it is the present generation that pays. The implication is that, when a community is faced with the two options, its choice determines the location of the real burden of the debt. If it chooses external loan, the burden is shifted to future generations; if it selects the internal loan, the present generation will bear the sacrifice.

2.2 Empirical Review

There exist numerous empirical works traced the relationship between public expenditure and growth. Chimilila (2018) examined the long term effects of domestic resource mobilization on economic growth in Tanzania. This study used macroeconomic data for a period of 20 years spanning 1996 to 2015. By estimating the autoregressive distributed lag model, error correction model and impulse response functions, the study found that domestic resource mobilization measured as tax to GDP ratio has significant positive long term effect on economic growth; suggesting that increased domestic resource mobilization enhances government ability to finance its budget for an enhanced growth. Although the short run effect is negative and statistically significant which indicate distortionary effects of taxes in the short run. Distortionary effects are in one way a result of a tax system that targets few easy to tax individuals and corporations due to a large informal sector. This study, however, used tax to GDP ratio as the only criteria for domestic resource mobilization; i.e. the study ignored the contribution of non-tax revenues on economic growth.

Hammed and Arawomo (2020) employed the structural vector autoregressive model to investigate the impact of oil shocks on manufacturing output in Nigeria via fiscal variables using annual time series data from 1981 to 2019. They found that government revenue is explained by oil price in both short-run and long-run while public expenditure explains revenue in the long-run, though very weak. This is an indication that spending by government can further generate more revenue in the long-run, particularly when directed to productive investments. Also, they found that government expenditure is not explained by its revenue; suggesting that public expenditure is largely financed through other means like internal and external borrowing. In addition, variations in price level is weakly explained by expenditure - indicating import-generating nature of inflation in Nigeria. Lastly, manufacturing output is jointly explained by inflation, revenue and oil price shocks. But this study assessed impact of fiscal variables on manufacturing output rather than total output. Furthermore, this study employed SVAR as opposed to ECM employed in the current study.

Mehrara and Farahani (2016) investigated the effects of tax evasion and tax revenue on economic stability in 29 OECD countries. This study used data spanning from 1990 - 2013 and panel approach was applied estimate results. In the first step, using monetary approach, an index for tax evasion for OECD countries was constructed. In the second step, the effects of tax evasion and tax revenues on economic stability were studied. The results revealed that tax evasion and income tax rate has a U shape relationship. That is, as tax rate increase the probability of tax evasion would also increase. Also, it was found that tax evasion lead to economic instability, i.e. high tax rates increase the rate of currency holdings resulting to increase in tax evasion which in turns has an adverse impact on economic stability. Moreover, the study found that higher tax revenue positively contributed to economic stability for OECD countries, i.e. more tax revenues will be beneficial to a better economic condition. These results suggest that tax revenue financed public spending has positive effect on economic growth, but this effect diminishes as tax rate increases. This study, however, is based on panel regression analysis, which assumes that coefficients are the same for all countries in the sample, and therefore do not provide relevant policy lesson to a particular country.

Ouma (2019) investigated revenue effects of tax reforms, economic growth and political environment in Kenya using annual time series data for the period 1964 - 2016. Various techniques of analysis were employed: descriptive statistics, multi-segment regressions and non-linear regression. The results show that all taxes responded positively to each of the tax reforms; changes in all taxes were affected by the reforms because GDP was also growing; economic growth has positive significant effect on all the categories of taxes; Government effectiveness has positive impact on indirect taxes. Mwakalobo (2015) examined the dynamics of revenue generation in Tanzania, Kenya and Uganda using co-integration and error correction modelling approach. Results demonstrate that revenue generation is sluggish in Tanzania compared to Kenya and Uganda. Results reveal that these countries have the potential for generating more revenue, if could address weaknesses inherent in their tax systems. Computerization of tax collection; expansion of the tax base; address problems associated with tax revenue leakages; and instituting strong legal enforcements should be at the fore in the ongoing tax reforms so as to enhance tax revenue collection. These studies, generally, focused on the impact of economic reforms and economic activities on revenue generation rather than the impact of revenue mobilization on economic growth.

Konadu *et al.* (2016) analyzed the effect of foreign aid on economic growth in Ghana using time series data from 1972 to 2012. The ARDL approach to co-integration (bounds test) was employed followed by error correction modelling. From the results, labor, capital and government expenditure have positive impact on economic growth in Ghana in both the long run and the short run whereas foreign aid and interest payment on external debt have negative impact on growth. In order to derive a positive benefit of foreign aid, the study recommended provision of economic aid which is geared towards capital formation and skills development of labor through education and training rather than political aid since the results show that capital and labor have positive impact on economic growth. Also, Adekunle *et al.* (2019) examined aids effectiveness and development outcomes in Nigeria. The study revealed that gross capital formation positively and significantly impacts economic growth. Moreover, the results showed that foreign aid exhibits a positive relationship, but it is not seen to determine economic growth. The study concluded that past foreign aid to Nigeria has not been effective or it does not constitute what drives economic growth in the country. But, these studies failed to distinguish growth effects of foreign aids in the nature of loans and grants.

Patillo *et al.* (2004) investigated the channels through which debt affects economic growth for a panel dataset for 61 developing countries over the period 1969 – 1998. The results indicate that the negative impact of high debt on growth operates both through a strong negative effect on physical capital accumulation and on total factor productivity growth. On average, for high-debt countries, doubling debt will reduce output growth by about 1 percentage point and reduce both per capita physical capital and total factor productivity growth by somewhat less than that. In terms of the contributions to growth, approximately one-third of the effect of debt on growth occurs via physical capital accumulation and two-thirds via total factor productivity growth. The results are generally robust to the use of alternative estimators to control for biases associated with unobserved country - specific effects and the endogeneity of several regressors, particularly the debt variables. In particular, the results are shown to be compatible with a simultaneous significant effect of growth on debt ratios. The study concludes that, at high levels, borrowing is not desirable even if meant for productive projects. Teles and Mussolini (2014) found that productive government spending affects economic growth positively, but this impact decreases as borrowing increases.

Mabula and Mutasa (2019) explored the effect of public debt on private investment in Tanzania. Secondary data for the period of 1970-2016 were collected from National Bureau of Statistics (Tanzania), Bank of Tanzania, World Bank, and scholarly journals. An autoregressive distributed lag (ARDL) bound test to co-integration is used in this study. Results suggest a significant evidence of nonlinear long - run and short - run relationship between external debt and private investment. However, Granger causality test suggests that this relationship is rather a co-movement than causal. At 5% level of significance, there is no significant evidence of long run and short run relationship between domestic debt and debt service on one hand, and private investment on the other hand. However, the combined effect of domestic and external debt on private investment is statistically significant both in long run and short run. The study recommended government to adopt policies on project implementations to ensure positive returns of borrowed funds and monitoring of public debt, particularly external debt on which private investment is more responsive than domestic debt and debt service, despite its sustainability at present.

3.0 Methodology

3.1 Data

The study used annual time series data spanning from 1970 to 2019 collected from the Bank of Tanzania's (BOT) various Economic Bulletin. After compilation, the time series data were processed and analyzed by using SPSS and STATA. Time series analysis uses statistical techniques to identify the behavior of one or more variables in terms of statistical regularities in their own past behavior in order to estimate a pattern in the variable's evolution over time. The estimated pattern is important for forecasting, assuming that the pattern behaves the same in the future. Adams et al (1991) noted that observing events overtime enables researchers to draw inferences.

3.2 Operationalization of Variables

The study used real per capita income as a proxy for economic growth. Real per capita income is a ratio of real GDP to entire population. In accordance with the World Bank's income - based country classification scheme, real per capita GDP is the most common measure of overall level of economic activity (Todaro, 2009). GDP measures total value for final use of output produced by an economy usually expressed as total income earned by factors of production or total value added from all sectors of the economy or total spending by households, firms, government and foreigners.

Public expenditure was disaggregated into five (5) main components based on financing sources as follows: Tax revenue financed expenditures which include all expenses financed through taxes on income, property and capital transactions; and taxes on goods and services. Non-tax revenue financed expenditures which include expenditures financed through fines, fees, dividends, forfeitures, penalty and license, and selling of the state properties. Grants based expenditures which entail expenditures financed through donations, financial assistance and gifts. Domestic borrowing financed expenditure which include expenses financed through borrowing from public and private companies and individuals within the country. Foreign borrowing financed expenditures are those expenses financed through borrowing from international financial institutions and development partners abroad. All spending components were expressed as a ratio of GDP.

3.3 Model

The endogenous growth model was adopted to examine whether public expenditure financing matters for economic growth. The model, as developed by Devarajan *et al*. (1996), generates an equation in which growth (Y) is a function of total spending to GDP ratio (G/Y) and a vector of shares of individual public spending categories within aggregate expenditure (G_C /G). The model reads as:

$$Y = \alpha_0 + \beta_S \left(\frac{G}{Y}\right) + \sum \beta_c \left(\frac{G_c}{G}\right) + \mu \qquad (1)$$

The problem with equation (1) is that aggregate government expenditure (G) and its components (G_c) would be perfectly collinear if not treated separately. Thus, to avoid perfect collinearity, total spending was not included in the regression model. Our basic regression model is, therefore, specified as:

$$GDP = \beta_0 + \beta_1\left(\frac{TX}{Y}\right) + \beta_2\left(\frac{NTR}{Y}\right) + \beta_3\left(\frac{DB}{Y}\right) + \beta_4\left(\frac{FB}{Y}\right) + \beta_5\left(\frac{GR}{Y}\right) + \mu \quad (2)$$

Where; GDP is real per capita gross domestic product, TX is tax revenue financed public expenditure, NTX is non-tax revenue financed public expenditure, DB is domestic borrowing financed public expenditure, FB is foreign borrowing financed public expenditure, GR is grants related government expenditure, Y is nominal gross domestic product, and μ is the classical error term.

3.4 Estimation

3.4.1 Unit Root Test

To examine the presence of the unit root the study used Phillips-Perron (P-P) non parametric test. A unit root test overcomes spurious regression, in which estimators and test statistics are misleading (Verbeek, 2004).Yule (1926) noted that unit root test overcomes spurious results that could persist in non-stationary series even if sample is large. The P-P test has an extra advantage over standard Dickey-Fuller (DF) test because the DF test results are sensitive to different lag lengths of the dependent variable, therefore, biased towards non-rejection of unit roots when the structural breaks are incorporated in the data set (Indraratna, 2003; Li, 2001). Moreover, the P-P test is adjusted to take into account serial correlations by using Newey-West (1994) covariance matrix.

3.4.2 Co-integration Test

To ascertain whether variables are co-integrated, the study employed Johansen method. Within Johansen co-integration test, both trace ($\lambda trace$) and maximum Eigen-value (λmax) statistics were used to ensure robustness of the results. The Johansen's approach is superior over the Engle and Granger two-step method because it enables testing multiple co-integrating vectors and thus it exploits all dynamic interactions of the variables included in the model (Verbeek, 2004). The trace ($\lambda trace$) and maximum eigenvalue e (λmax) statistics are defined in 3(a) and 3(b) respectively:

$$\lambda_{trace}(r) = -T\sum_{i=r+1}^{k}\log(1-\lambda_{i)} \quad (3a)$$

$$\lambda_{max}(r) = -T\log(1-\lambda_{r+1}) \qquad (3b)$$

Where: λ; is eigenvalue, T; is number of observations, and r; is rank such as 1, 2, 3…… n.

3.4.3 Error Correction Model

To analyze the short-run and long-run impacts of various approaches of financing public expenditure on economic growth, Autoregressive Distributed Lag model (ARDL) was specified as follows:

$$Y_t = \delta + \alpha Y_{t-1} + \beta_1 X_t + \beta_2 X_{t-1} + \varepsilon_t \quad (4a)$$

Where: Y; is economic growth measured in per capita terms, X; is a vector of government expenditure financing mode such as internal borrowing, external borrowing, grants, tax revenues, and non-tax revenues, ε_t; is a classical error term. However, if time series are not stationary, estimation of equation (2a) can generate spurious results. Therefore, with co-integrated but non-stationary time series data, the best alternative is to estimate error correction model (ECM) of the form:

$$\Delta Y_t = \theta + \beta_1 \Delta X_t + \gamma ECT + \varepsilon_t \qquad (4b)$$

Where: γ = (α-1); is adjustment coefficient i.e. coefficient on the error correction term. The expected value of adjustment coefficient is negative, which implies that there are dynamic stability in the long-run within error correction model; ECT = (Y_{t-1} - $\beta_2 X_{t-1}$), is error correction term, which can also be obtained from residuals of the co-integration equation. The coefficient β_1 can be interpreted as elasticity, showing short-run effect of independent variables (X) on dependent variable (Y).

The Johansen's maximum likelihood (ML) method was applied to estimate ECM. Given the existence of co-integration, all terms in ECM are stationary; therefore, standard regression techniques with their associated statistical inferences are valid (Green, 2003). The ECM was employed to capture short-run and long-run growth - effects of public expenditure financing mode because policymakers need to consider both short-run and long-run effects of their policy change decisions.

3.4.4 Granger Causality Test

To determine the direction of causality between government expenditure and economic growth, the granger causality test was conducted within vector error correction modeling approach. Although regression analysis deals with the dependence of one variable on other variables, it does not necessarily prove or imply causation (Gujarati, 2004). Moreover, our basic regression model assumes that public expenditure financing determines economic growth. In practice, however, growth rate of the economy may in turn determine public expenditure financing mode. Thus, to understand the nature of causality between public expenditure financing and economic growth, granger causality test was used. This test was developed by Toda and Yamamoto (1995) and it is widely used to examine direction of causality between two time series. This approach goes beyond the conventional F test because, recent studies have revealed that the F-test for determining joint significance of regression - derived parameters, used as a test of causality, is not statistically valid if the variables are non-stationary and the test statistics does not have a standard distribution (Gujarati, 1995).

Following Seabra and Flash (2005), granger causality test is implemented by estimating bivariate system:

$$InY_t = \alpha_O + \sum_{i=1}^{k+d} \alpha_{11} InY_{t-1} + \sum_{i=1}^{k+d} \alpha_{12} InX_{t-1} + \mu_{1t} \quad (5a)$$

$$InX_t = \alpha_O + \sum_{i=1}^{k+d} \alpha_{21} InX_{t-1} + \sum_{i=1}^{k+d} \alpha_{22} InY_{t-1} + \mu_{2t} \quad (5b)$$

Where: if $\alpha_{12} \neq 0$ and $\alpha_{22} = 0$ the Granger causality runs from X to Y. Conversely, if $\alpha_{12} = 0$ and $\alpha_{22} \neq 0$ the Granger causality runs from Y to X. A bilateral Granger causality, is suggested when sets of X and Y coefficients are statistically significant different from zero in both (5a) and 5(b). Finally, independence is suggested when sets of X and Y coefficients are not significant in both regressions.

3.4.5 Diagnostic Tests

The Lagrange Multiplier (LM) test was employed to ascertain the presence of residual autocorrelation. The LM test was used instead of the popular Durbin Watson (DW) test because our regression model include lagged dependent variable. The DW test is biased towards accepting the null hypothesis of no autocorrelation when regressors include lagged dependent variable in the model (Mukherjee at al. 1998). The Jarque-Bera (JB) test was employed to establish whether residuals are normally distributed. The assumption of asymptotic normality of distribution and consistency is known to give satisfactory results (Maddala, 1987). The Chow test (F) was used to examine parameter stability or structural breaks. The Chow test was preferred to recursive residual test because structural break points were known. The chow test is efficient in testing parameter stability of regression model if structural break dates are known (Gujarati, 2004). The tests are as defined:

$$LM = \sum_{t=1}^{l} x\beta_t + \sum_{i=1}^{\rho} \varepsilon_{t-t\rho} + nt \quad (6a)$$

$$JB = n\left(\frac{s2}{6} + \frac{(k-3)2}{24}\right) \quad (6b)$$

$$F = \left(\frac{(RSSR - RSSU)/M}{(RSSU)/(n1 + n2 - 2M)}\right) \quad (6c)$$

Where; n is the sample size, s stands for skewness coefficient while k is kurtosis coefficient, ε_t is error term, RSSR refers to restricted residual sum of square; i.e. RSS from overall regression model and RSSU is unrestricted residual sum of square; i.e. RSS of pre-shock plus RSS of post-shock periods.

4.0 Results and Discussion

4.1 Unit Root Test

The study employed the Phillips - Perron (P-P) test to examine the presence of the unit root. The P-P test was carried out to each variable in log - level and log - difference. The results in Table 1 reveal that at their levels FB and GR were stationary while GDP, TX, NTX, DB, were not stationary. However, after taking first difference all variables became stationary at 1% levels of significance, as supported by their test statistics which are less than their corresponding critical values. The variables that were stationary at their levels are integrated of order zero 1(0) while

those became stationary after first differencing are integrated of order one 1(1). All variables integrated of order zero 1(0) were used in the co-integration analysis after taking their first differences.

Table 1: The Philips - Perron Test Results

	Levels		First Difference		Order of
Variables	Test Statistics	Critical Value	Test Statistics	Critical Value	**Integration**
GDP	0.564	-3.614	-6.226***	-3.621	1(1)
TX	-1.623	-3.614	-7.337***	-3.621	1(1)
NTX	-2.166	-3.614	-6.945***	-3.621	1(1)
DB	-2.690	-3.614	-7.894***	-3.621	1(1)
FB	-3.681***	-3.614	-8.431***	-3.621	1(0)
GR	-3.808***	-3.614	-4.770***	-3.621	1(0)

Note:

GDP: natural logarithm of per capita gross domestic product; TX: natural logarithm tax revenue; NTX: the natural logarithm non-tax revenue; DB: natural logarithm of domestic borrowing; FB: natural logarithm of foreign borrowing; GR: natural logarithm of grants; and *** indicates rejection of the "null hypothesis of non-stationary" at 1% significance levels

4.2 Lag Selection

Given the fact that the Johansen's co-integration analysis is very sensitive to the lag order applied, the study employed the Akaike Information Criteria (AIC), the Hannan - Quin Information Criteria (HQIC) and the Schwarz Bayesian Information Criteria (SBIC) to establish and select the optimum lag length. On the basis of the research results demonstrated in Table 2, the SBIC selects one (1) lag order whereas the AIC and HQIC select five (5) lag order. The maximized five (5) lags suggested by AIC and HQIC was chosen and applied as opposed to one (1) lag recommended by SBIC. This is because using too few lags leaves the models potentially miss-specified, and therefore is likely to cause serial autocorrelation in the residuals (Baum, 2013). Also, given large sample of the series, maximized five (5) lags can still preserve some degrees of freedom for estimation.

Table 2: Lag Selection Results

Lag Order	AIC	HQIC	SBIC
0	8.50	8.65	8.91
1	3.66	4.10	4.21**
2	4.48	5.20	7.64
3	4.42	6.14	9.47
4	2.06	4.45	8.49
5	-1.08**	1.80**	6.72

Note:

** indicates optimum lag length selected by respective criterion at 0.05 levels of significance.

4.3 Co-integration Test

Having established optimal lag order and confirmed that all variables are stationary after first differencing, Johansen test was applied to determine whether variables are bound together in the long-run. The co-integration test results in Table 3 show that both $\lambda trace$ and λmax test statistics rejected the null hypothesis of no co-integration ($r = 0$) against the alternative ($r \neq 0$). This is evidenced by test statistics of both $\lambda trace$ and λmax which are greater than the critical values at 5% significance levels. This implies that there exists long-run relationship among variables included in the model. In addition, the Johansen co-integration test reveals existence of more than one co-integrating vectors in the regression model. Both $\lambda trace$ and λmax statistics accepted the null hypothesis that there are at most three $r \leq 3$ co-integrating relationships. This is strongly substantiated by the test statistics which are smaller than their corresponding critical values at 5% levels of significance. Therefore, we conclude that there exist at most three ($r \leq 3$) co-integrating vectors.

Table 3: Johansen's Co-integration Test Results

Null Hypothesis	Trace Statistics	Critical Value	Max-Eigen Statistics	Critical Value
$r = 0$	218.70**	94.15	105.79**	39.37
$r \leq 1$	110.48**	68.52	64.08**	33.46
$r \leq 2$	49.96**	47.21	29.79**	27.07
$r \leq 3$	18.59	29.68	12.30	20.97
$r \leq 4$	9.29	15.41	8.58	14.07
$r \leq 5$	0.72	3.76	0.72	3.76

Note:

r represents number of co-integrating vectors; if there are k stochastic variables in the equation, there can be up to k-1 co-integrating vectors, i.e. $r = k-1$; if $0 < r < k$ there are r independent linear combinations, but it may not be easily to give economic interpretation of all relationships; if $r = k$ estimating ECM is not necessary; ** rejects the stated null hypotheses.

4.4 Co-integrating Vector

Given that variables are bound together in the long-run, Johansen (ML) method was used to estimate the interested co-integrating equation. The results in Table 4 reveal that there is a positive but marginal long-run effect of tax revenue financed public expenditure on economic growth. That is, one percentage point increase in public expenditure financed through tax revenue collection contributes to an increase of 0.19 percentage points in economic growth, holding other factors constant. The marginal growth - effect of tax revenue financed expenditure is due to existence of relatively high tax rates in Tanzania. The high tax rates exert greater negative tax multiplier effects that pulls back positive growth - effect of tax financed expenditures, consistent with Keynesian theory. This outcome supports the World Bank report (1996) that Tanzania's tax system comprises of high tax rates which had adverse effect on output through its impact on investment, saving and competitiveness of the economy. Also, it coincide previous finding by Mehrara *et al.* (2016) that tax revenue positively contributes to economic stability measured in standard deviation of GDP for OECD countries. But they argue that higher tax rates increase the rate of currency holdings

resulting to increase in tax evasion which in turns has an adverse impact on macroeconomic stability.

Also, the results show that public expenditure financed through non-tax revenue mobilization has a positive and statistically significant long-run impact on economic growth. This is substantiated by a positive and significant coefficient of 0.22; which means that, one percentage point increase in non-tax revenue financed public expenditure contributes to an increase of 0.22 percentage points in economic growth, holding other factors unchanged. But, this long-run inelastic positive contribution of non-tax revenue financed public expenditure on economic growth suggests that there has been consistently low non-tax revenue collection. The low non-tax yield reduced the expected Keynesian multiplier effect of its corresponding public expenditure in the economy. Thus, non-tax revenue collection efficiency is generally not satisfactory in Tanzania partly because of weak administration, corruption, lack of accountability and inadequate enforcement. Given vast wealthy natural resources such as minerals, wildlife, gases, and coastal zone there are ample fiscal spaces for increasing non-tax revenues in Tanzania apart from traffic and court fines which are not reliable.

A closer examination of the results reveal that grants based government expenditure relates negatively and significantly to economic growth in the long-run. The results show that, holding other factors constant, one percentage point increase in public expenditure financed through foreign aids in the form of grants reduces economic growth to the tune of 0.24 percentage point in Tanzania. This outcome reflects that most of the grants were donated on political rather than economic merits. Also, it seems that most of the foreign aids in the nature of grants were meant for improving social welfare rather than increasing public investments, which in turn, boost GDP growth. In addition, these findings suggest that, to a large extent, foreign aids in the name of "grants" were tied with stringent conditions that have adverse effects on long-run economic growth. For instance, *tied aids* are often spent on goods and services from donor country or a group of selected countries. With a typical Keynesian theoretical framework, grants spent on imported goods and services retard economic growth of the recipient country as it reduces productivity of the local infant industries but enhance GDP of the donor country via increase in exports.

The results reveal that, in the long-run, government expenditure financed through external borrowing contributes positively and significantly to economic growth. The results show that, holding other factors unchanged, one percentage point increase in public expenditure financed through foreign borrowing contributes to an increase of 0.47 percentage points in economic growth. This outcome reflects that most of the government expenditures financed through foreign borrowing have been used for productive investment rather than consumption and social welfare programs. This outcome was expected because most of the economic theories suggest that external borrowed funds used for productive investment purposes eventually increase production and hence GDP growth because the loans plus accrued interest rates are often repaid out of the increased production. These results are consistent with previous findings by Patillo *et al.* (2002 and 2004) that at low levels, total external debt affects economic growth positively for most developing countries.

Conversely, the study shows that, in the long-run, government expenditure financed through internal borrowing is growth retarding. The results reveal that one percentage point increase in government expenditure financed through domestic borrowing reduces economic growth to the tune of 0.17 percentage points. These results reflect that public expenditure financed through internal borrowing has crowding out effects, i.e. it crowds out private investment, which in turns, retards economic growth. That means, the more domestic financial institutions extends credit to public sector, the less they provide credit to private sector and the more the economic growth is affected adversely. These results coincide previous findings of Benedict et al. (2012) that domestic debt crowded out private sector lending and consequently affected economic activities adversely in Nigeria. Also, Blejer and Khan (1984) emphasized that the sources of finance for public investment such as taxes or debts may crowd out private investment hence reduce growth. High internal public debt, for example, crowds out private investments as it reduces credit available to private sector.

Table 4: Long-run Relationship

Variables	GDP			
	Coefficients	**Std error**	**Z**	**P > |Z|**
TX	0.1945	0.1252	1.55	0.099*
NTX	0.2235	0.0349	6.40	0.000***
DB	-0.1728	0.0288	-6.00	0.000***
FB	0.4772	0.0262	18.18	0.000***
GR	-0.2446	0.0517	-4.72	0.000***
CON	10.8038			

Note:

GDP: natural log of per capita gross domestic product; TX: natural log of tax revenue financed public expenditure; NTX: natural log non-tax revenue financed public expenditure; DB: natural log of domestic borrowing financed public expenditure; FD: natural log of foreign borrowing financed public expenditure; GR: natural log of grants financed public expenditure; ***, ** & * means significant at 1%, 5% & 10% levels, respectively.

4.5 Error Correction Model

The error correction model results summarized in Table 5 reveals that, in the long-run, the impact of government expenditure on economic growth depends greatly on the financing approaches used. This is substantiated by the negative and statistically significant coefficient of the error correction term, i.e. the speed of adjustment, 0.3015; which implies that about 30 percentage point of the last period's disequilibrium is corrected for in the following period. That is, GDP growth adjusts towards long-run equilibrium in response to changes in public expenditure financing mode, i.e. tax revenue, non-tax revenue, domestic borrowing, foreign borrowing and foreign aid in the form of grants. Also, the lagged dependent variable shows that there are partial adjustments in per capita income over time; implying that previous growth rate of the economy determines future growth in Tanzania.

Also, it is worth noting the short-run effects of various modes of financing government expenditure on economic growth. The results, show that, in the short-run, government expenditure financed through tax revenue mobilization relates positively and significantly to economic growth in Tanzania. These results suggest that positive multiplier effects of public expenditure outweighs negative multiplier effects of taxation as in Keynesian theory. These results, however, contradict previous findings by Chimilila (2018) that tax revenue has negative and significant short-run effect on economic growth in Tanzania. These discrepancies in findings may be highly associated with the fact that the previous research used short data periods 1996-2015 whereas the current study covers long data periods 1970-2019. Literatures in econometrics suggest that longer time series data provides more reliable findings than shorter time series data, given other factors are held constant.

Also, the results reveal that, in the short-run, public expenditure financed through foreign borrowing has a positive and significant effect on growth. Schclarek (2004) for a panel of 59 developing countries contradicted this position by observing that external borrowing has negative and significant impact on economic growth. The discrepancy in findings implies that the effects of external debt depends on its uses. Borrowing meant for unproductive activities retards growth while borrowing meant for productive activities has positive growth-effect because the loan plus accrued interest rate is often repaid out of the increased production. At high levels, however, borrowing is not desirable even if meant for development projects. Teles and Mussolini (2014) found that productive spending affects growth positively, but this impact decreases as borrowing increases.

By contrast, the results show that, in the short-run, increase in government expenditure financed through domestic borrowing has a negative significant effect on economic growth. This outcome reflects that a reasonable share of resources generated through domestic borrowing have been used to finance consumptions rather than public investments. Moreover, given the fact that government domestic borrowing involves shifting credit from private sector to public sector in an economy; then this outcome indicate that domestic debt affects private investment adversely in Tanzania. Mabula and Mutasa (2019) found no significant evidence of long run and short run relationship between domestic debt and private investment in Tanzania. However, the combined effect of domestic and external debt on private investment is statistically significant both in long run and short run.

A close examination of the results reveal that, in the short-run, government expenditure financed through non-tax revenue collection has a positive and significant impact on economic growth in Tanzania. That is, increase in public expenditure financed through non-tax sources enhances growth. The results, however, reveal that grants based government spending relates negatively and significantly to growth; implying that increase in government expenditure financed through grants is growth retarding. This outcome was expected because “there is no free lunch”, i.e. usually foreign aids in the form of grants are tied with several conditions that have adverse economic effects to the recipient country. These findings are also consistent with the previous findings by Mallik (2008) that foreign aid has a negative and significant impact on economic growth in the poorest and highly aid dependent African countries, namely; Central African Republic, Togo, Mali, Niger, Malawi and Sierra Leone. Also, Ramadhan et al. (2016) found a negative effect of

foreign aid on growth in Tanzania. But these studies failed to separate growth – effects of loans and grants.

Table 5: Error Correction Model Estimation Results

Variables	GDP			
	1	2	3	4
GDP	0.1403	0.5014	0.6015	0.0516
	(0.427)	(0.017)**	(0.003)***	(0.802)
TX	-0.2049	-0.0739	0.4396	0.5151
	(0.275)	(0.637)	(0.039)**	(0.008)***
NTX	-0.0244	0.1825	0.3114	-0.0231
	(0.712)	(0.080)*	(0.002)***	(0.799)
DB	-0.0462	-0.0084	0.0313	-0.1047
	(0.051)*	(0.737)	(0.260)	(0.000)***
FB	0.0639	0.0360	-0.0125	-0.0110
	(0.094)*	(0.022)**	(0.639)	(0.661)
GR	-0.0231	0.0975	-0.0844	-0.1906
	(0.770)	(0.158)	(0.048)**	(0.004)***
ECT	-0.3015			
	(0.016)**			
CON	0.1464			
	(0.032)**			

Note:

GDP: natural log of per capita gross domestic product; TX: natural log of tax revenue financed public expenditure; NTX: natural log non-tax revenue financed public expenditure; DB: natural log of domestic borrowing financed public expenditure; FD: natural log of foreign borrowing financed public expenditure; GR: natural log of grants related public expenditure; ECT: error correction term; CON: constant. Column 1 to 4 represents coefficient estimates of lagged variables and figures in parentheses are their corresponding p-values; ***, ** & * means significant at 1%, 5% & 10% levels, respectively.

4.6 Direction of Causality between Public Spending Financing Mode and Economic Growth

The granger causality test results in Table 6 demonstrate existence of one-way weak causality running from tax revenue financed public expenditure to economic growth. Likewise, there is one-way causality running from public expenditure financed through non-tax revenue to economic growth. Also, the study shows that there exist one-way causality running from grants to economic growth i.e. grants based public expenditure granger causes economic growth. The results, however, reveal bidirectional causality between external debt financed expenditure and economic growth. Similarly, there exists two-way causality between internal debt financed expenditure and economic growth.

Table 6: Granger Causality Test Results

Null Hypothesis	Chi2	Prob > Chi2
TX # GDP	7.80	0.098*
GDP # TX	0.86	0.927
NTX # GDP	9.30	0.054*
GDP # NTX	5.06	0.298
GR # GDP	15.84	0.048**
GDP # GR	0.89	0.926
FB # GDP	9.76	0.042**
GDP # FB	16.00	0.002***
DB # GDP	21.33	0.000***
GDP # DB	8.73	0.003***

Note:

GDP: natural log of per capita gross domestic product; TX: natural log of tax revenue financed expenditure; NTX: natural log non-tax revenue financed expenditure; DB: natural log of domestic borrowing financed expenditure; FD: natural log of foreign borrowing financed expenditure; GR: natural log of grants based public expenditure; ***, ** & * rejects the null hypothesis of "no causality" at 1%, 5% & 10% levels of significance, respectively.

4.7 Diagnostic Tests

As a last step, diagnostic tests were used to justify the research findings. The results in Table 7 demonstrate that there is no serial autocorrelation at lag order. This is substantiated by p-values of LM test which are greater than 5% levels of significance. The LM test results suggest that our basic regression model was correctly specified. Also, the results show that residuals are normally distributed as strongly supported by p-value of JB tests which is greater than 5% level of significance. The JB test results reflect that the data used followed normal evolution. Moreover, Chow test reveals that there is no structural breaks of known dates as computed F value does not exceed critical *F value obtained from F table at 5% level of significance. In general, the Chow test outcome implies that shocks or structural changes have not significantly affected estimation results.

Table 7: Diagnostic Test Results

LM Test			
1		2	
Ch2	Prob > Ch2	Ch2	Prob > Ch2
31.46	0.68	40.84	0.27
JB Test			
Ch2		Prob>Ch2	
17.38		0.14	
Chow Test			
1979		1993	
F	*F	F	*F
0.32	2.98	1.38	2.47

Note:

F-computed values, *F-critical values obtained from F table; 1 & 2 are respective lags 1979-Kagera war and first economic crisis, 1993-financial liberation and second economic crisis.

5.0 Conclusion

This study analyzed whether public expenditure financing mode matters for economic growth in Tanzania. The study applied co-integration and error correction modeling approach to explore the short-run and long-run effects of various public expenditure financing methods on economic growth.

The study confirmed that the growth - effects of government expenditure depends on its financing mode. The results show that public expenditure financed through tax revenue and non-tax revenue enhance growth. Though tax revenue has a marginal long-run effect due to existence of high tax rates. Also, the results show that while public expenditure financed through external borrowing bolster growth, government spending based on internal borrowing and grants dampens economic growth. This outcome reflects that grants are tied with conditions that have adverse economic effects to recipient country and that government domestic borrowing crowds out private sector investment. In order to promote growth, government has to increase domestic resource mobilization by widening tax base, controlling tax revenue leakages and tapping more non-tax revenues. Moreover, in case of budget deficit, government revenues should be supplemented by commercial external borrowing rather than internal borrowing and foreign aids in the nature of grants.

This study provides more insights relative to previous empirical works, but there is still a room for further research. The contribution of tax revenue on economic growth can be disaggregated based on type of tax, i.e. for example; income tax, VAT, etc. Likewise, contribution of non-tax revenue can be expanded by considering each non-tax source, i.e. for example; dividend, license, fees, fines, forfeitures, etc. This task is essential for revising the whole domestic resource mobilization system.

Reference.

Adekunle, I.A. Ogunade, A.O. Ayantola, A.N. and Alabi, M.O. (2019). Aids Effectiveness and Developmental Outcomes in Nigeria. *African Journal of Economic Review,* Vol. 7 No. 1, pp 206-2018

Barro, R. (1990), Government Spending in a Simple Model of Endogenous Growth', *Journal of Political Economy*, Vol. 98, pp. 103-117.

Benedict, I. and Ehikioya, I. (2012). Impact of Public Debt on an Emerging Economy: Evidence from Nigeria (1980 – 2009). *International Journal of Innovations Research and Development*, Vol. 1 No. 8 pp 105-120

Bhatia H.L. (2008). *Public Finance.* (Twenty sixth Edition). Vikas Publishing House, New Delhi

BOT (2015). 20 years of Independence (1961-1981) and various Economic Bulletins-December Issues

Chimilila, C. (2018). Domestic Resource Mobilization and Long-term Economic Growth in Tanzania. *African Journal of Economic Review,* Vol. 6 No. 1, pp 142-159

Devarajan S., Swaroop V. and Zou H. (1996).'The Composition of Public Expenditure and Economic Growth', *Journal of Monetary Economics*, Vol. 37, 313-344.

Engle, R. F. and Granger, C. W. (1987), Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica* Vol.55: 251-276..

Friedman, M. (1968), Money: Quantity Theory; in D.L. Sills (ed.), International Encyclopedia of Social Sciences, Macmillan/The Free Press, New York, Vol.10.

Granger, C. W. J. (1988). Some Recent Development in the Concept of Causality. *Journal of Econometrics,* Vol. 39, 199-211

Green, W.H. (2003). *Econometric Analysis*. (Fifth Edition). New York: Pearson Education Inc.

Gujarati D.N (2004), *Basic Econometrics*. (Fourth Edition). New York: McGraw-Hill Higher Education

Hammed, Y.S. and Arawomo, O. (2020). Oil Price Shock, Fiscal Policy and Manufacturing Sector in Nigeria: Evidence from SVAR. *African Journal of Economic Review,* Vol. 8 No. 3. Pp 66-83

Indraranta, Y. (2003): Measurement of Tax Elasticity in Sri Lanka: A Time Series Approach.

Johansen, S. (1988). Statistical Analysis of Co-integration Vectors. *Journal of Economic*

Dynamics and Control, Vol. 12: 231-254.

Johansen, S. and K. Juselius (1990). Maximum Likelihood Estimation and Inference on Co-Integration with Application to the Demand for Money. Oxford Bulletin of Economics and Statistics Vol.52: 169 –210.

Johansen, S. (1992). Co-integration in Partial Systems and the Efficiency of Single-Equation Analysis. *Journal of Econometrics,* Vol. 52, pp. 389-402.

Keynes, J.M. (1936). *The General Theory of employment. Interest and Money*. Macmillan, London.

Konadu, P.A., Junior, F.S. and Eric, A. (2016). The Effects of Foreign Aid on Economic Growth in Ghana. *African Journal of Economic Review,* Vol.4 No. 2, pp 248-261

Mabula, S. and Mutasa, F. (2019). The Effects of Public Debt on Private Investment in Tanzania. *African Journal of Economic Review,* Vol.7 No.1, pp 109-135

Maddala, G.S. (1992), *Introduction to Econometrics.* (Second Edition). New York: Macmillan Publishing Company.

Mallik, G. (2008). Foreign Aids and Economic Growth: Co-integration Analysis of Six Poorest African Countries. *Economic Analysis and Policy*, 38(2), pp 251-260

Marno Verkeek (2004), *A Guide to Modern Econometrics.* (Second Edition). England: John Wiley and Sons Ltd.

Mehrara, M. and Farahani, Y.G. (2016), The Study of the Effectiveness of Tax Evasion and Tax Revenue on Economic Stability in OECD countries. *World Scientific News,* 33:43-55

Moshi, H.P.B & Kilindo, A.A.L. (1999). The Impact of Government Policy on Macroeconomic Variables: A Case of Private Investment in Tanzania. Research Paper 89. African Economic Research Consortium, Nairobi

Mukherejee, C., White, H. & Wuyts, M. (1998). *Econometrics and Data Analysis for Developing Coutries.* New York: Routledge

Mwakalobo, A.B.S. (2015), Dynamics of Revenue Generation in Tanzania, Kenya and Uganda: A Co-integration and Error Correction Modeling Approach. *African Journal of Economic Review,* Volume 3 Issue 2, pp 15-37

Myers, S.C., (1977). Determinants of Corpotate Borrowing. *Journal of Financial Economics*, Vol.5, pp.147–175.

Nyoni, T. S., (1998), Foreign Aid and Economic Performance in Tanzania. *World Development*, Vol. 26, pp. 1235-1240.

Ouma, D. (2019). Revenue Effects of Tax Reforms, Economic Growth and Political Environment in Kenya. *African Journal of Economic Review,* Vol.7 No.1, pp 136-153

Patillo, C., D. Romer and D. N. Weil (2004), What are the Channels through which External Debt Affects Growth? IMF Working Paper, No. 04/15.

Presbitero, A.F. and Panizza, U., (2012). Public Debt and Economic Growth : Is There a Causal Effect ? POLIS Online Working Papers.ISSN 2038-7296.

Ramadhani, A.A., Jian, Z.H. and Pacific, Y.K. (2016), Impact of Foreign Aid on Tanzania Economic Growth: Time Series Approach. *Academy of Social Science Journal*,

Schclarek, A. (2004). *Debt and Economic Growth in Developing Industrial Countries* (On-line) cited 5 June 2016, available at http://www.nek.lu.se/publications/workpap

Seabra, F. and Flash, L. (2005). Foreign Direct Investment and Profit Outflows: Causality Analysis for the Brazilian Economy. Economic Bulletin, 6(1), pp. 1-15

Sichula, M., (2012). Debt Overhang and Economic Growth in HIPC Countries : The Case of Southern African Development Community (SADC). *International Journal of Economics and Finance*, Vol. 4 No. 10, pp.82–92.

Stiglitz, J. E, Ocampo, J.A, Spiegel, S, Davis, R.F. and Nayyar, D. (2006), *Stability with Growth: Macroeconomics, Liberalization and Development.* Oxford University Press, New York

Teles, V.K. and Mussolini, C.C. (2014), 'Public Debt and the Limits of Fiscal Policy to Increase Economic Growth', *European Economic Review,* Vol. 66, pp. 1-15.

Toda H.Y. and Yamoto, T. (1995), Statistical Inference in Vector Auto Regressions with Possibly Integration Processes. *Journal of Econometrics,* Vol.66: 225-250.

Todaro, P.M. and Smith, C.S. (2009), *Economic Development*. (Tenth Edition). England: Pearson Education Limited

Tsikata, Yvonne M. (2001): *"Owning economic reforms: A comparative study of Ghana and Tanzania",* WIDER Discussion Papers // World Institute for Development Economics (UNU-WIDER), No. 2001/53

World Bank (1996): "Tanzania: The Challenge and Welfare", *Report No. TZ. 14982*, The World Bank, Washington DC.

Yule, G. U. (1926). "Why Do We Sometimes Get Nonsense Correlations between Time Series? A Study in Sampling and the Nature of Time Series," *Journal of the Royal Statistical Society,* Vol. 89: 1–64.