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Tax Revenue and Economic Growth: The Role of Public Financial Management

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Abstract

The study was conducted to assess the effect of tax revenue on economic growth in Tanzania. Specifically, the study looked at the extent to which corporate income tax and value added tax revenues affect economic growth, with the moderation of public financial management. The study utilized quantitative secondary data in a span of twenty-five (25) years period (1998-2022), sourced from the Tanzania Revenue Authority (TRA) and the World Bank databases. Informed by the statistical test results for regression assumptions, data analysis was carried out using STATA software version 17 and the Autoregressive Integrated Moving Average with Exogenous variable (ARIMAX) model was deployed for the time series data analysis. The finding revealed that corporate income tax has no significant effect on economic growth and the moderation effect of public financial management turns the effect into positive and significant. Again, the found-out effect of value added tax on economic growth is not significant and the moderation effect of public financial management turns the effect into negative and significant. Based on the study findings, the research suggests that the responsible government ministry should take a proactive approach to economic planning that considers the long-term implications of tax policies and public financial management practices. Furthermore, The Tanzania Revenue Authority (TRA) should consider reassessing the current corporate income tax and value added tax rate to identify the optimal balance that maximizes tax revenues while avoiding counterproductive effects on economic growth. Future research needs to make further determination of impact of other categories of taxes to the economic growth to get wider perspective and more explanatory appraisal of effect of other taxes on the economic growth.

Keywords: *Economic growth, corporate income tax, Value added tax, Public financial management, Tanzania*

Introduction

Tax is a compulsory payment made by from a portion of individuals or organization's income or wealth to the government (Ojong et al., 2016). It is the legal obligation that is imposed by the government on all economically active entities to fund government operations and expenditures (Fagbemi et al., 2010). Taxation is the key source of government revenue financing public services, like education, health and infrastructures (Afonso & Furceri, 2010). In that way, taxes contribute to productivity improvement, human capital development, and enhance the overall well-being of the people (Oyinlola & Adedeji, 2022). Better human capital and productivity produces valuable and quality goods that account into the growth of Gross Domestic Product (GDP). In that realization, the Tanzanian government has made efforts to improve tax revenue collections, through tax policy reforms (Fjeldstad, 2014), administrative reforms (Ahlerup, et al., 2015), legislative changes (Chindengwike, 2022; Kisimbo, 2013; Fjeldstad et al., 2019) as well as

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technological innovations such as EFDs, TIN and e-filing (Magese & Chindengwike, 2021; Mwilongo & Kachota, 2023).

The dataset from World Bank shows that between 1998 and 2022, Tanzania's tax collections grew by 373.68 percent. However, the outcomes in economic growth are by 46.38 percent1 in the same period, which is not responsive. This phenomenon raises intellectual curiosity to answer, why a spectacular growth in tax revenue does not translate to economic growth. The Keynesian theory predicts the role of government revenue on economic growth (Eichner & Kregel, 1975; International Monetary Fund, 2019). The institutional theory suggests the role of public financial management (Zucker, 1987; Peters, 2022) in the tax-growth nexus.

There is a large literature on the impact of taxation on economic growth metrics such as GDP/GDP growth/GDP per capita growth rate (Egbunike, Emudainohwo, & Gunardi, 2018; Dladla & Khobai, 2018; Babatunde, Ibukun & Oyeyemi, 2017; Kalaš, Mirović & Andrašić, 2017; Ogbonna & Appah, 2016; Saidin & Hamza, 2016; Macek, 2014). However, the question about the role of public financial management in the relationship is unanswered, particularly in the lenses of the institutional theory. Therefore, this study has filled this research gap through research, by examining the moderating effect of public financial management in the relationship between tax revenues collections (corporate income tax and value added tax) and economic growth in Tanzania.

This paper is organized according to sections. The introduction is covered in Section 1. Section 2 contains the literature review and the development of hypotheses. The literature review examines empirical evidence pertaining to effect of tax revenues on economic growth in Tanzania under the moderation of public financial management. Section 3 describes the methodology used to collect and analyze data. Section 4 presents the findings and results discussion. Section 5 presents the study's conclusion and recommendations.

Relevant Literature Review and Hypothesis Development

Corporate income tax, also known as corporate tax, is levied by governments on the income generated by business firms and corporations (Olufemi, Jayeola, Oladele & Naimot, 2018). Value Added Tax (VAT) is charged on the value added to goods and services at each production and distribution stage (Obeng et al., 2018). Economic growth is a dynamic process that signifies a nation's ability to produce

more goods and services year after year (Mwita, 2022). In measuring it, economic growth refers to the continuing increase in the volume of output in a country (Ivic, 2015). Public financial management (PFM) plays a pivotal role in the administration and control of funds aimed at fostering economic growth (Scott, 2020). It covers tax law, debt management, budget management, subsidies, and state-owned enterprises (Musau, 2022). This study used one indicator from the World Bank Development Indicators; "quality of budgetary and financial management rating."

Keynesian economic theory explains the role of public policy prescription to address economic recession (Vernengo, 2020). The theory promotes the role of monetary and fiscal policies to stabilize the economy (Stockhammer & Ali, 2018), through the aggregate demand (Gali, 2018). That is, the level of aggregate demand plays an important role in determining the overall level of economic activity (Lavoie, 2022). Among the key drivers of aggregate demand are government spending (Gang et al., 2022; King, 2015) which is financed by taxation. Therefore, this theory, through government expenditure adequately backs the analysis of the effect of tax revenues on economic growth.

Institutional theory, as introduced by the work of of Brian Rowan and John Meyer in 1970s and latterly expanded in the 1980s by Paul DiMaggio and Walter Powell (Yang & Su, 2014) brings about a moderating perspective in the analysis of how the collection of tax revenues can affect the growth of the economy. The theory focuses on how established norms, influence organizations' behavior (Sjöstedt, 2015). It argues that organizations adopt institutionalized rules and practices to gain legitimacy and ensure their survival (Kostova & Marano, 2019). The theory assumes that rules regulate social behavior (Sahin & Mert, 2022) and organizations seek legitimacy through conformity to those rules (Korsakienė et al., 2015). In application, the government seek legitimacy (Locatelli et al., 2017) and thus, it is rule based. Any form of public financial malpractice is against the rules; it undermines economic growth efforts (Sasmal & Sasmal, 2016). The malpractices lower public confidence, undermine trust in government, and discourage the private participation in economic development process but when good public financial management is in place, even moderate tax revenues can translate into higher economic growth outcomes. This way, the institutional theory explains the decisive role public financial management in the relationship between tax revenues and economic growth.

There is abundant empirical research on the effect of corporate income tax on economic growth with mixed findings. Some studies found a positive effect (Saidin & Hamza, 2016; Saud, 2019), negative effect (Neog & Gaur, 2020; Macek, 2014) and no effect (Kalaš, Mirović & Andrašić, 2017). Similarly, the effect of value added tax on growth; studies found positive (Ogbonna & Appah, 2016; Ayoub & Mukherjee, 2019) and negative effect (Macek, 2014; Neog & Gaur, 2020). However, there is a gap in the explanation of the inconclusive findings. This study, inspired by the institutional theory, seeks to explain how public financial management moderates the relationship. This is because, also, empirical works existing takes public financial management (PFM) as an independent variable of growth, rather than the moderator of the relationship. In some studies, PFM had positive effects (Akoley & Wahid, 2022; Postula & Raczkowski, 2020; Pham et al., 2021), negative effect (Olaoye & Orimogunje, 2022; Oladipo & Olaoye, 2020), and no effect (Anamwude & Ajewole, 2022). Methodologically, this study uses the World Bank (2005) recommended measure of PFM (quality of budgetary and financial management rating), unlike most existing studies that used government expenditure and revenue which are typically the independent variables of this study. In light of these contradictory findings from previous empirical studies, the following null hypotheses were developed and tested by the study:

H_1: The public financial management moderates the relationship between Corporate Income Tax revenue and economic growth.

H_2: The public financial management moderates the relationship between Value Added Tax revenue and economic growth.

Research Methodology

This section covers the methodology applied for data analysis.

Scope, Target Population and Sample Size

This study focusses on Tanzania as a geographical context as one of the developing countries with a phenomenon of interest to be studied. The study covers data for the period of twenty-five years from 1998 to 2022 a range which covers well most of the transformations in taxation policies and statutes in Tanzania. However, for the nature of this study, target population and criteria for sample size selection are irrelevant as the researcher does not have the flexibility to select an area in a country, or even a country in the region to study the topic that is already focused in one country, Tanzania.

Data Source

The study used two types of data, the government revenue collections data and national macroeconomic data. The government revenue data was obtained from the Tanzania Revenue Authority databases, from internal source. Furthermore, the World Bank's World Development Indicators (WDI) database was the source of the macroeconomic variables used in the study.

Variables and Measurements

The study was guided by independent variable and Dependent variables as indicated by Table 1.

Table 1 Study Variables Measurements

Variable	Role	Measurement	Reference
Economic Growth	Dependent Variable	Percentage Growth in Per Capita Gross Domestic Product	Salami et al. (2015), Ogbonna and Appah (2016), Makamme (2015), Gashi *et al.*, (2018) and Szarowska (2013)
Corporate Income Tax	Independent Variable	Secondary data, recorded in million USDs and obtained from the database of TRA	Apelogun et al., 2015; Gashi et al., 2018; Macek, 2014; Kalas et al., 2017
Value Added Tax	Independent Variable	Secondary data, recorded in million USDs and obtained from the database of TRA	Macek, 2014; Neog & Gaur, 2020; Kadir et al., 2011; Saidin & Hamza, 2016; Ayoub & Mukherjee, 2019
Public Financial Management	Moderator	Secondary data, recorded in World Bank's World Development as "quality of budgetary and financial management rating." 1 = Low, 6 = High	World Bank (2005), WDI[3]
Trade Openness	Control variable	The sum total of total export value and total import value in millions USD, the secondary data variables, recorded in the database of the World Bank, World Development Indicators (WDI)	Babatunde et al. (2017), Neog and Gaur (2020) and Kalaš et al. (2017).
Interest Rate	Control variable	The secondary data recorded in the database of the World Bank, World Development Indicators (WDI) as Lending interest rate	Babatunde et al. (2017), Neog and Gaur (2020) and Kalaš et al. (2017).

[3] https://databank.worldbank.org/metadataglossary/country-policy-and-institutional-assessment/series/IQ.CPA.FINQ.XQ

Data Analysis and Model Specifications

The study utilized STATA Software Version 17 for time series data analysis and applies an Autoregressive Integrated Moving Average with explanatory Variable (ARIMAX). The results of diagnostic tests decided the type of the regression model to be estimated. The log transformed variables and using differencing, met the regression assumptions of linearity, normality, stationarity, multicollinearity, autocolleration and homoscedasticity. The OLS model is appropriate with an exception that it is suffering from two problems, the multicollinearity and autocorrelation. Dealing with multicollinearity requires stepwise regression. Also, running the ARDL model also suffer from multicollinearity problem as well as autocorrelation. Following low presence of autocorrelation, the ARIMAX model was deemed fit (Ifeanyichukwu Ugoh et al., 2021). Again, the probability of Wald X^2 was used to assess the significance of explanatory variables in the model being implemented (Baxromov & Alisher O'g'li, 2023). In this study, the probability value is equal to 0.0000 which is below the critical value of 0.05, showing that explanatory variables in general have a highly significant contribution to the variation of the dependent variable. Therefore, the decision was to estimate the ARIMAX model, in two models. The first, is a multiple regression ARIMAX model that put together all variables in the single model. The second is the ARIMAX model, that put together all variables in the single model but include further variables which explains the moderation effect of public financial management (Ghura, H. *et al.*,2019). The equations presented below were analyzed:

$EG_t = \beta_0 + \beta_1 CIT_t + \beta_2 VAT_t + \beta_3 CPIA_t + \beta_4 TO_t + \beta_5 INT_{t\,+\,\mu t}$ ....,,,,,,,,,,,,.(1)

$EG_t = \beta_0 + \beta_1 CIT_t + \beta_2 VAT_t + \beta_3 CPIA_t + \beta_4 MODCIT_t + \beta_5 MODVAT_{t\,+}\, \beta_6 TO_t + \beta_7 INT_{t\,+\,\mu t}$..,,,,,,,,,,,,,.(2)

Where:

- β_0 is a constant term, explaining the economic growth rate of Tanzania when all factors in the model are kept zero.
- βi is a coefficient of a particular variable, (where i = 1 to 7)
- MODCIT = CIT_t *x* $CPIA_t$ is the variable representing the moderating effect of public financial management between corporate income tax and economic growth
- MODVAT = CIT_t *x* $CPIA_t$ is the variable representing the moderating effect of public financial management between value added tax and economic growth.
- EG is economic growth rate (percentage growth of GDP per capita)

Findings and Discussion of Results

This section divided into two parts where by first part cover descriptive statistics while second part cover regression results and discussions.

Descriptive Analysis

On assessing effect of tax revenues on economic growth in Tanzania a descriptive analysis was undertaken to offer a comprehensive overview of the study variables. Tanzania has recorded an average economic growth rate of 5.84 percent annually, the lowest rate of 1.99 percent and the highest rate of 7.67. Figure **A.1** in the appendix section shows that the minimum economic growth rate was recorded in 2020, which can be explained by the economic recession driven by Covid 19 Pandemic (Mwamwaja & Mlozi, 2020). The World Bank (2023) documented the Sub-Saharan African economic growth to slow down from 3.6% in 2022 to 2.5% in 2023. Comparatively, the Tanzania's economic growth rate in 2022, which is 4.6% and the upward growing curve suggests the country's good economic performance, relative to the sub-Saharan African peers. The study findings are also consistent with the study of Magoti and Mtui (2020)

In revenue collections, the Tanzania's VAT have averaged at TZS. 2.19 trillion With TZS. 6.37 trillion As the highest and TZS. 0.15 Trillion as the lowest. Figure **A.2** in the appendix, shows a consistent growth in VAT revenue, recording a 171 percent annual growth between 1998 to 2022. The sharpest growth from 2020, followed government efforts to recover from Covid 19, through aggressive revenue collections. However, such astronomical growth in tax collections may be unhealthy to the economy; the later section of this chapter reveal if that is the case. The corporate income tax has averaged at TZS 0.87 trillion over the period of 25 years. Figure **A3** (appendix) shows the lowest revenue collected was in 2001, and the highest revenue collection was in 2022, with an overall growth of 417.14 percent annually, proving effectiveness of the tax administration. On average, the mean VAT is larger than the mean CIT collections by 151.72 percent. Also, the minimum value of VAT exceeds that of CIT by 200 percent, and the same for the maximum values is the gap of 91.3 percent. This proves the potential of VAT in the total government tax revenues in Tanzania (Figure **A4**). The study findings are also consistent with the study of Maganya (2020).

The level of Public Financial Management (PFM) has a mean of 3.36, above the known median value of 3. The minimum value is 3, which is also the medium size was recorded in most years, 2011, 2012, 2014,

2016, 2017, 2018, 2019 and 2020-2022, and the maximum is 4.5 was recorded in two years, 2005 and 2006. **Figure A5** shows an over-time decline in the PFM. The trade openness has an average value of TZS. 13.5 trillion, minimum value was recorded in 2011 at TZS. 1.3 trillion and the maximum value in 2004 at TZS. 34.2 trillion (Figure A6). The mean lending interest rate was 16.81 percent annually, the highest lending rate was 22.89 percent in 2011 and the least was 14.14 percent in 2018 (**Figure A7**).

Table 4.1 Descriptive Analysis Results

Variable	Obs.	Mean	Std. dev.	Min	Max
Economic Growth (GDP per capita)	25	5.84	1.36	1.99	7.67
Value Added Tax (Million USD)	25	2.19	1.91	0.15	6.37
Corporate Income Tax (Million USD)	25	0.87	0.91	0.05	3.33
Public Financial Management (CPIA)	18	3.36	0.51	3.00	4.50
Trade Openness (Million USD)	25	13.50	9.99	1.30	34.20
Interest Rate	23	16.81	2.46	14.14	22.89

Source: STATA Data Analysis (2024)

Regression Model Analysis

Table 4.2 presents the regression results from the Autoregressive Integrated Moving Average with Exogenous Variables (ARIMAX) model. The probability of Wald X2 is used to assess the significance of explanatory variables in the model being implemented (Baxromov & Alisher O'g'li, 2023). In this study, the probability value is equal to 0.0000 which is below the critical value of 0.05, showing that explanatory variables in general have a highly significant contribution to the variation of the dependent variable.

Table 4.2 ARIMAX Model Regression Results

	Baseline Model		Robustness Model	
VARIABLES	**Direct**	**Moderation**	**Direct**	**Moderation**
CIT	-0.782	-25.71**	0.0414	-1.433
	(0.621)	(10.93)	(0.469)	(13.50)
VAT	-0.259	-0.230	-0.149	-0.00324
	(0.230)	(0.224)	(0.121)	(0.217)
CPIA	0.433	3.149***	-0.0976	-0.718
	(1.374)	(0.853)	(1.276)	(2.215)
MODVAT		-0.578***		0.0646
		(0.199)		(0.357)
MODCIT		21.71**		1.295
		(9.662)		(11.72)

TRADE	0.677	1.160**	1.215**	1.053
	(0.976)	(0.583)	(0.505)	(0.654)
INTEREST	0.715	1.188	1.382	2.093
	(3.330)	(1.712)	(1.666)	(1.886)
Constant	5.710*	15.16***	3.305*	0.00924
	(3.321)	(2.444)	(1.807)	(8.180)
Observations	15	15	14	14

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA Data Analysis (2024) **Note:** *p<0.10, **p<0.05, ***p<0.01

Corporate Income Tax and Economic Growth

In the baseline model, the effect of corporate income tax on economic growth statistically insignificant in Model 1 meaning CIT had no effect on economic growth. In the moderation model 2, the interaction of public financial management has turned the effect into positive and significant, with coefficient of 21.71 and the probability value of 0.025. In magnitude, the result implies that a percent increase in corporate income tax tend to increase economic growth by 21.71 percent and vice versa with the significance level at 5 percent as the probability value which is below 0.05. This finding is supported by the findings of the previous studies in the African context, such as Salami et al. (2014) and Ogbonna and Apah (2016) in Nigeria, found a positive effect of corporate income tax on economic growth. On the other hand the study contradicts by a few former studies (Neog & Gaur, 2020; Macek, 2014) while in other study there was no effect (Kalaš et al., 2017).

On the hypothesis testing the moderation effect of public financial management in the relationship between CIT revenue and economic growth is significant and thus we accept the hypothesis below:

> *H_1: The public financial management moderates the relationship between Corporate Income Tax revenue and economic growth.*

Value Added Tax and Economic Growth

Prior to moderation, the value added tax do not affect economic growth because it has no significant effect, due to p values being larger than 0.01 value added tax had an insignificant effect on economic growth, but the moderation of public financial management makes the effect of VAT on economic growth to be negative and statistically significant. The coefficient is – 0.57848 and the probability value is 0.004 meaning the

VAT has statistically negative significant effect on economic growth at significancy level of 1 percent. The results of study is supported by other studies like Neog and Gaur (2020) and Macek, 2014) but contradicts other studies in Salami et al. (2015) in Nigeria and Makamme (2015) in Zanzibar. Other studies that found a positive effect of VAT on economic growth are Szarowska (2013) in European Union, Gashi et al. (2018) in Kosovo, Saidin and Hamza (2016) in 27 Asian countries and Ayoub and Mukherjee (2019) in China. These studies concur with the Keynesian theory, which is an underlying framework of this study, but the current study findings are contrary to the theory.

On the hypothesis testing the moderation effect of public financial management in the relationship between VAT revenue and economic growth is significant and thus we accept the hypothesis below:

H1: The public financial management moderates the relationship between Value Added Tax revenue and economic growth.

Public Financial Management, Trade Openness, Interest Rates and Economic Growth

The country policy and institutional assessment (dcpia), have no significance in model 1 but has a positive and statistically significant effect on economic growth (3.148553, p=0.000) in model 2. Thus, better public financial management improves economic growth rate. The moderation PFM and the direct effect of PFM on economic growth are supported by the previous studies on the direct relationship between PFM and economic growth (Akoley & Wahid, 2022; Postula & Raczkowski, 2020; Pham et al., 2021). However, the results are contrary to the findings of Olaoye and Orimogunje, (2022) and Oladipo and Olaoye (2020). The effect of trade openness on economic growth was found to be not significant on model 1 but positive and statistically significant effect on economic growth (1.160495, p= 0.047) in model 2. Also, the study has found that lending interest rate has no effect on economic growth (1.188096, p=0.4880) in both models.

Robustness Test

In the robustness models for direct relationship and moderating relationship were estimated and its results are in column four (4) and five (5) in Table 4.2 above. These models differ from the baseline model by the use of GDP growth rate to measure economic growth, as opposed to GDP per capita growth used in the baseline model. The purpose of estimating a robustness model was to check for consistency of findings,

ensuring that they are not only specific to a single measure of economic growth. The effects of variables on dependent variable are confirmed to be robust, as the results obtained are consistent across both GDP per capita and GDP.

In the baseline model, the effect all independent variables on economic growth were not statistically significant. The similar effect holds in the robustness model for direct relationship. This is the major similarity that holds the first model results to be robust. Additionally, for the moderation effects models, the effect of VAT and interest rate on economic growth are similar between baseline model (direct, moderation) and robustness model (moderation and direct) respectively. The minor variation between two models is in the significant effect of CIT, CPIA MODVAT and MODCIT which are in the moderation equation of the baseline model.

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Conclusions. Implications and Recommendations

Conclusions and Implications

The study examined the effects of corporate income tax and value added tax on Tanzania's economic growth and it assessed the moderation effect of public financial management in the relationships. Considering that tax revenues impact for economic growth the study has analyzed the moderation effect of public financial management on the relationship between of both CIT and VAT revenues and economic growth. In this thesis, time series data (for the period 1998-2022) were used to empirically examine the effect of tax revenue variables on the economic growth in the context of Tanzania Country. By developing a conceptual framework of Tanzanian Economic Growth with Taxation, this study analyzed the moderation effect of public financial management (i.e. the quality of budgetary and financial management rating) and tax revenues (i.e. Corporate Income Tax Revenue) collected during the year and VAT Revenues Collected during the same period. The main findings shed more light on the importance of the proper financial management of the collected tax revenues in order to translate them into economic growth in line with Keynesian Theory. Overall, public financial management showed that it behaves as a moderator between tax revenues and economic growth. In particular, the evidence from this study showed that tax revenues, such as Corporate Income Tax (CIT), are more likely to turn into an economic growth in Tanzania if there is proper financial management of public funds. Therefore, it is inappropriate for the Government and policymakers to rely on increasing the size of tax revenues without moderating effect of public financial

management which will ensure that collected resources are allocated, spent and managed in a proper manner in order to contribute to economic growth and development.

When examining the impact of the moderation of corporate income tax and public financial management shows an insignificant effect on economic growth in Model 1. The interaction with public financial management in Model 2 transforms into a positive and statistically significant one. This implies that effective public financial management can enhance the positive contribution of corporate income tax to economic growth, highlighting the importance of well-managed fiscal policies. Value-added tax (VAT) moderated by public financial management; the findings reveal no effect on economic growth. However, the moderation with public financial management reveals a negative and statistically significant effect at 1 percent, the results are in line with Lafer Curve theory. This suggests that the influence of public financial management has adverse impact of VAT on economic growth, emphasizing the need for careful management and policy adjustments in the tax system.

The Laffer Curve theory, as opposed to the Keynesian economic theory, offers a valuable framework for understanding the observed negative effects of VAT on economic growth. Further, from the findings, effective public financial management emerges as a crucial factor in shaping the impact of taxes on economic growth, with positive interactions observed in the case of corporate income tax and negative interactions with VAT. In this, the study highlights the importance of viewing tax-economic growth relation through the lens of institutional theory by using the role of effective public financial management. The findings further give light on the complex relationship between tax and economic growth, emphasizing the need for the following important considerations. First, the acknowledgement by policymakers on the potential drawbacks of both corporate income tax and VAT on economic growth, and thus the importance of optimizing tax rates. Moreover, the study highlights the pivotal role of robust public financial management in mitigating the adverse effects of taxes on economic growth. Attention to effective resource management and institutional frameworks is key to fostering economic growth in Tanzania.

Recommendations

The following recommendations aim to guide the the Government of Tanzania through Ministry of Finance, The Tanzanian Legislature and Tanzania Revenue Authority in leveraging the study's findings in long term economic planning and monitoring, tax laws reassessment and optimization of tax rates and policies,

enhancement of financial management practices, and strengthening institutional frameworks. Implementing these suggestions can contribute to fostering sustainable economic growth and ensuring that taxation plays a positive role in Tanzania's development agenda.

Recommendation to Ministry of Finance and Planning

The policymakers within government departments and Ministry of Finance (MoF), should adopt a proactive approach to economic planning that considers the long-term implications of tax policies and financial management practices. Establishing a framework for continuous monitoring and evaluation of the economic impact of taxation, as well as the effectiveness of public financial management initiatives, is key to availability of timely insights for policy adjustments. Additionally, fostering a collaborative dialogue between the public sector actors can facilitate a more inclusive and responsive approach to economic planning.

Recommendations to the Tanzanian Parliament

From the found-out significance of public financial management (CPIA) in enhancing the impact of taxation on economic growth, the government of Tanzania through its legislature should prioritize strengthening CPIA practices in a tailored way. This involves improving transparency, accountability, and efficiency in the allocation and utilization of public resources in both VAT and CIT revenues. The parliament has to oversee activities of the government through its Ministry of Finance in collaboration with relevant government agencies such as TRA to enhance implementation of robust financial management systems, leveraging technological advancements to enhance data accuracy and accessibility. Training programs for public officials can further reinforce the principles of good financial governance, ensuring that tax revenues are utilized efficiently to support economic development initiatives.

Recommendation to Tanzania Revenue Authority

The study's findings suggest a complex relationship between corporate income tax (CIT), value added tax (VAT) and economic growth, emphasizing the potential impact of tax optimization on economic activity. In light of this, the Tanzanian Revenue Authority should consider reassessing the current CIT and VAT rates to identify the optimal balance that maximizes revenue while avoiding counterproductive effects on economic growth. A thorough review, informed by the insights of the Laffer Curve theory, could guide lawmakers and policymakers in adjusting tax policies to ensure they are conducive to sustained economic

development. Continuous monitoring and periodic reassessments are essential to adapt to changing economic conditions and maintain an optimal tax regime, for a sustained growing economy.

Limitations of the study

The study is limited in two major areas; first, inability to accommodate other tax variables such as excise duty, personal income tax, capital gain taxes etc, Second the study was limited by the study's data, time series secondary data, but these studies at times requires a primary data collected through survey of the decision makers public sector, particularly revenue administration offices. However, delimitation of the study includes including major taxes in categories of direct and indirect taxes Moreover the use of credible sources such as data from TRA website and World Bank has ensured that reliable foundation of the analysis despite limitations.

Area for future Studies

The following are areas suggested for conducted future research in order to generate a more useful knowledge for the betterment of Tanzania's economy. First, there is a need for further analysis of other direct and indirect taxes to get impact of much of the taxes in Tanzanian context explaining the model. Secondly, there is a need for an in-depth analysis of public financial management practices, across different government revenue sources which may include interviewing the public officers to get the primary data to support the results obtained from secondary data. The study examine dimensions such as transparency, accountability, and efficiency in resource collection and allocation.

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Appendices

Figure A1

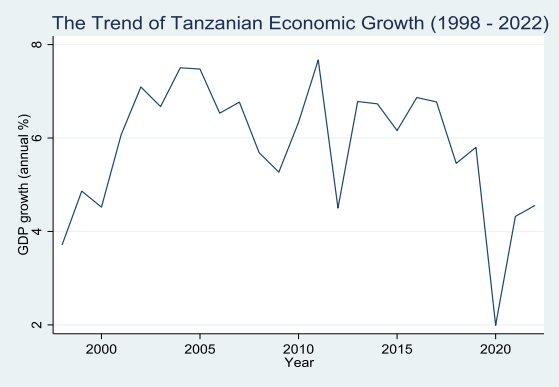


Figure A2

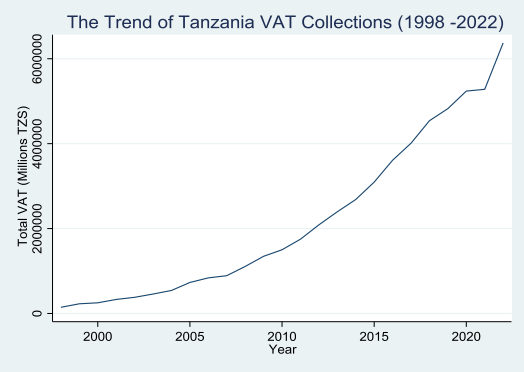
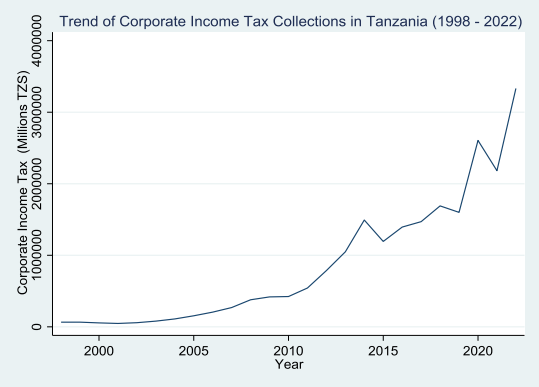


Figure A3



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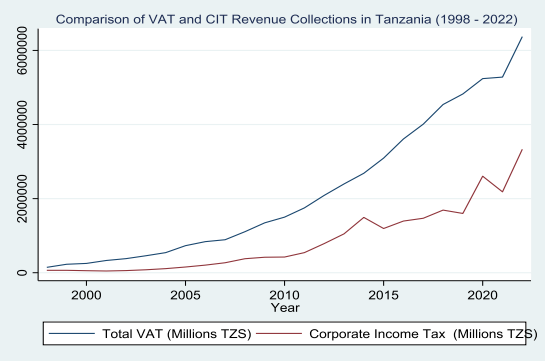
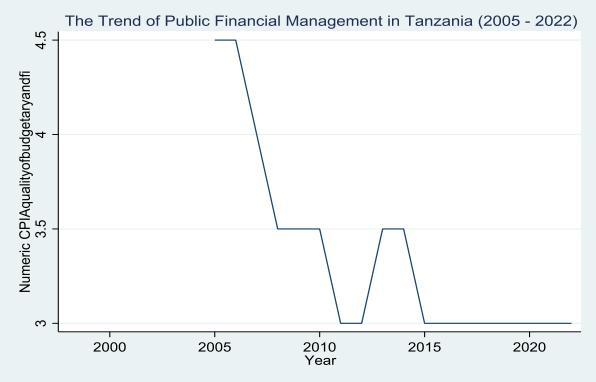


Figure A5



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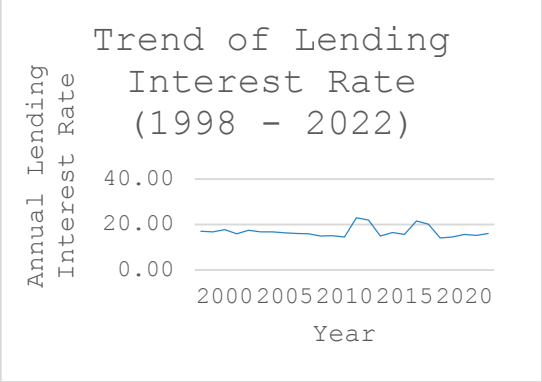

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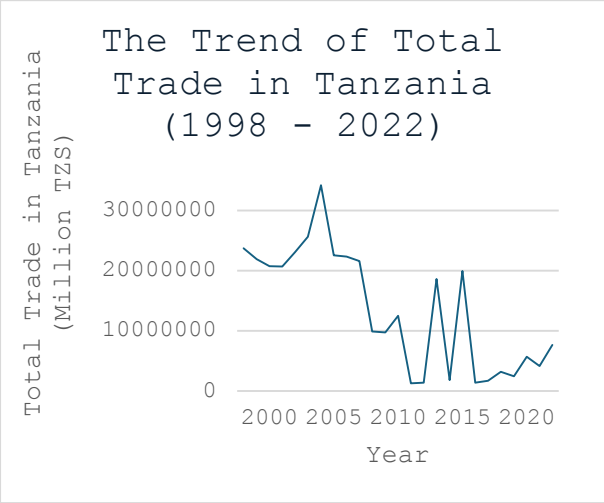
Figure A7



Appendix A2 STATA Regression Results

BASELINE MODEL RESULTS – Moderation Relationship

```
. arima growth vat dcit dcpia modvat moddcit d2trade d2interest, arima(1,0,0)

(setting optimization to BHHH)
Iteration 0:   log likelihood =  9.5722533
Iteration 1:   log likelihood =  9.7553897
Iteration 2:   log likelihood =  9.9333854
Iteration 3:   log likelihood =  10.312295
Iteration 4:   log likelihood =  10.345307
(switching optimization to BFGS)
Iteration 5:   log likelihood =  10.835654
Iteration 6:   log likelihood =  10.977836
Iteration 7:   log likelihood =  11.093973
Iteration 8:   log likelihood =  11.224917
Iteration 9:   log likelihood =  11.389166
Iteration 10:  log likelihood =  11.439439
Iteration 11:  log likelihood =   11.54531
Iteration 12:  log likelihood =  11.564637
Iteration 13:  log likelihood =  11.631186
Iteration 14:  log likelihood =  11.635748
(switching optimization to BHHH)
Iteration 15:  log likelihood =  11.638777
Iteration 16:  log likelihood =  11.638809
Iteration 17:  log likelihood =  11.638955
Iteration 18:  log likelihood =   11.63901
Iteration 19:  log likelihood =  11.639074
(switching optimization to BFGS)
Iteration 20:  log likelihood =   11.63911
Iteration 21:  log likelihood =  11.639235
Iteration 22:  log likelihood =  11.639354
Iteration 23:  log likelihood =  11.639492
Iteration 24:  log likelihood =  11.639648
Iteration 25:  log likelihood =   11.63985
Iteration 26:  log likelihood =  11.639896
Iteration 27:  log likelihood =  11.640036
Iteration 28:  log likelihood =   11.64004
Iteration 29:  log likelihood =  11.640041
```

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ARIMA regression

Sample: 2006 thru 2020 — Number of obs = 15
Wald chi2(8) = 113.02
Log likelihood = 11.64004 — Prob > chi2 = 0.0000

growth	Coefficient	OPG std. err.	z	P>|z|	[95% conf.	interval]
growth						
vat	-.2301068	.2243668	-1.03	0.305	-.6698575	.209644
dcit	-25.71293	10.92831	-2.35	0.019	-47.13203	-4.29383
dcpia	3.148553	.853197	3.69	0.000	1.476317	4.820788
modvat	-.5784844	.1985973	-2.91	0.004	-.967728	-.1892407
moddcit	21.70928	9.661541	2.25	0.025	2.773002	40.64555
d2trade	1.160495	.5834191	1.99	0.047	.0170143	2.303975
d2interest	1.188096	1.711646	0.69	0.488	-2.166669	4.542862
_cons	15.15724	2.443706	6.20	0.000	10.36767	19.94682
ARMA						
ar						
L1.	-.774097	.3524214	-2.20	0.028	-1.46483	-.0833637
/sigma	.1080247	.05856	1.84	0.033	0	.2228002

Note: The test of the variance against zero is one sided, and the two-sided confidence interval is truncated at zero.

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```
. arima LGDPG vat dcit dcpia d2trade d2interest, arima(1,0,0)

(setting optimization to BHHH)
Iteration 0:   log likelihood =  6.8466757
Iteration 1:   log likelihood =  6.8552077
Iteration 2:   log likelihood =  6.8726157
Iteration 3:   log likelihood =  6.9033274
Iteration 4:   log likelihood =  6.9201093
(switching optimization to BFGS)
Iteration 5:   log likelihood =  6.9219661
Iteration 6:   log likelihood =  6.9340792
Iteration 7:   log likelihood =  6.9566984
Iteration 8:   log likelihood =  6.9759001
Iteration 9:   log likelihood =  6.9899718
Iteration 10:  log likelihood =  7.0018056
Iteration 11:  log likelihood =  7.0022738
Iteration 12:  log likelihood =  7.0023895
Iteration 13:  log likelihood =  7.0024031
Iteration 14:  log likelihood =  7.0024038

ARIMA regression

Sample: 2006 thru 2019                          Number of obs     =         14
                                                Wald chi2(6)      =      20.06
Log likelihood = 7.002404                       Prob > chi2       =     0.0027
```

LGDPG	Coefficient	OPG std. err.	z	P>|z|	[95% conf.	interval]
LGDPG						
vat	-.1494283	.1208359	-1.24	0.216	-.3862622	.0874057
dcit	.041435	.4689965	0.09	0.930	-.8777811	.9606512
dcpia	-.0975918	1.276172	-0.08	0.939	-2.598844	2.40366
d2trade	1.21474	.5049761	2.41	0.016	.2250055	2.204475
d2interest	1.381932	1.666442	0.83	0.407	-1.884234	4.648098
_cons	3.304571	1.806509	1.83	0.067	-.2361219	6.845263
ARMA						
ar						
L1.	-.2687841	.5212205	-0.52	0.606	-1.290358	.7527894
/sigma	.1463415	.0544783	2.69	0.004	.0395659	.2531171

Note: The test of the variance against zero is one sided, and the two-sided confidence interval is truncated at zero.

ROBUSTNESS MODEL RESULTS – Moderation Relationship

```
. arima LGDPG vat dcit dcpia modvat moddcit d2trade d2interest, arima(1,0,0)

(setting optimization to BHHH)
Iteration 0:   log likelihood =  9.6470809
Iteration 1:   log likelihood =  9.8538168
Iteration 2:   log likelihood =  9.9205365
Iteration 3:   log likelihood =  9.9278741
Iteration 4:   log likelihood =  9.9564804
(switching optimization to BFGS)
Iteration 5:   log likelihood =  10.008268
Iteration 6:   log likelihood =   10.04059
Iteration 7:   log likelihood =  10.046778
Iteration 8:   log likelihood =   10.04739
Iteration 9:   log likelihood =   10.05615
Iteration 10:  log likelihood =  10.057118
Iteration 11:  log likelihood =  10.057438
Iteration 12:  log likelihood =  10.057494
Iteration 13:  log likelihood =  10.057498
Iteration 14:  log likelihood =  10.057499

ARIMA regression

Sample: 2006 thru 2019                          Number of obs     =         14
                                                Wald chi2(8)      =      56.50
Log likelihood = 10.0575                        Prob > chi2       =     0.0000
```

LGDPG	Coefficient	OPG std. err.	z	P>|z|	[95% conf.	interval]
LGDPG						
vat	-.0032405	.2170052	-0.01	0.988	-.4285628	.4220818
dcit	-1.432732	13.50045	-0.11	0.915	-27.89312	25.02765
dcpia	-.7183051	2.215203	-0.32	0.746	-5.060023	3.623412
modvat	.0645627	.3572542	0.18	0.857	-.6356427	.7647681
moddcit	1.295284	11.71697	0.11	0.912	-21.66956	24.26013
d2trade	1.052938	.6542244	1.61	0.108	-.229318	2.335194
d2interest	2.093189	1.885965	1.11	0.267	-1.603234	5.789612
_cons	.0092432	8.179734	0.00	0.999	-16.02274	16.04123
ARMA						
ar						
L1.	-.4702408	.6733322	-0.70	0.485	-1.789948	.8494661
/sigma	.1169209	.0483742	2.42	0.008	.0221092	.2117326

```
Note: The test of the variance against zero is one sided, and the two-sided
      confidence interval is truncated at zero.
```