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The Influence of Value Added Tax on Private Domestic Investment in Tanzania: Time Series Data (1998–2024)

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ABSTRACT

This study analyzes the influence of Tanzania's Value-Added Tax (VAT) on private domestic investment (PDI) from 1990 to 2024, utilizing the Vector Error Correction Model (VECM) as a data analysis technique to examine the relationships across both the short and long terms. Unit root, multicollinearity, autocorrelation, and stability tests were among the diagnostic procedures that guaranteed the validity and dependability of the model. The Public investment was used as a control variable in this study, which focuses on value-added tax (VAT). The results show a substantial inverse association over the long term between VAT and private domestic investment, indicating that greater tax burdens deter expansion and reinvestment. Although its long-term effect is still positive but statistically negligible, VAT has a short-term positive and statistically significant influence on PDI, suggesting that better VAT administration may encourage investment by raising government revenue and investor confidence. The strong positive correlation between public investment and PDI highlights the complementary role that both play in promoting the growth of the private sector. The study concludes that excessive Value Added Tax can impede private domestic investment, even though tax income generation is essential for public funding. To guarantee revenue growth without deterring private investment, it suggests larger tax bases through formalisation of the informal economy, improved VAT administration, and moderate VAT policy. These results offer crucial policy insights for striking a balance between Tanzania's investment-friendly tax regimes and fiscal sustainability study also recommended that, to lower business and individual tax burdens and draw in potential investors, the Tanzania Revenue Authority must restructure an appropriate corporate income tax policy. The VAT should be levied at a moderate rate, and the government can expand the tax base by formalizing Tanzania's sizable informal sector.

INTRODUCTION

Private domestic investment has a significant impact on how a nation develops politically, socially, and economically. It is a major force behind innovation, job growth, and productivity, particularly in emerging nations. According to empirical research, nations that encourage significant private investment typically see long-term economic expansion and structural change. An (2023). Environments that are conducive to investment are generally linked to greater degrees of resilience and economic diversity. Additionally, the private sector corruption in these nations is comparatively low, which improves productivity and long-term economic stability.

Investment in Tanzania recorded growth in foreign direct investment (FDI) inflows, increasing by 20.8% to USD 1,437.6 million in 2022. This growth was attributed to improved macroeconomic stability, infrastructure development, and regulatory reforms. Legal and institutional reforms include the enactment of the Tanzania Investment Act No. 10 of 2022, which reduced the local investment threshold, introduced longer fiscal incentives, and streamlined investment procedures via the Tanzania Electronic Investment Window. These reforms are part of a broader plan to enhance the business environment by reducing regulatory barriers and eliminating unnecessary fees (Investments, 2023).

Tanzania offers abundant investment opportunities in agriculture, mining, tourism, manufacturing, agro-processing, pharmaceuticals, real estate, livestock, and the blue economy. The government's concerted efforts in policy, infrastructure, and regulatory reforms have positioned Tanzania as a prime investment destination in Africa, with ongoing efforts to expand access to finance, develop land banks for investment, and improve coordination through centralizing investment institutions under the President's Office. Overall, these factors collectively contribute to a conducive taxation and investment environment aimed at sustainable economic growth and attracting both local and foreign investors (Investments, 2023).

According to H. E. *et al.* (2024), VAT is the principal source of government revenue collected from the importation of taxable products and services into Tanzania, as well as from the supply of goods and services on the Tanzanian mainland. The VAT rate was first implemented in 1998 at a standard rate of 20% and 0%. Over time, it was modified to 18% and 0%. Rather than addressing any problems with the distribution of the tax burden, the main goals of this rate reduction were to improve administration and increase voluntary compliance. VAT Since its establishment in 1998, it has been a crucial source of tax income for the government's

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finances. Because of compliance with VAT due to the implementation of the new VAT statute of 2014, which eliminated various exemptions, records from 2010–11 to 2019–20 demonstrate that this tax has contributed an average of 27% of total tax income annually. Additionally, the threshold for VAT registration increased from 20 million to 40 million to 100 million to 200 million.

Tanzania's economic growth is mostly driven by tax collection. The government can spend on public services, infrastructure, and education thanks to increased tax revenue. By improving efficiency and compliance, tax administration systems can be strengthened, which will increase income even more. Improving policies is crucial to fostering an environment that benefits taxpayers and companies. When combined, these policies promote national economic growth that is sustainable (Kiwala *et al.*, 2023). VAT is necessary to achieve macroeconomic objectives and spur economic growth (Odu *et al.*, 2022).

Previous studies based on VAT contributions to a nation's real GDP have yielded mixed findings. Some studies, like those by Ristic *et al.* (2019) and Odu *et al.* (2022), contend that VAT is necessary to support economic expansion and accomplish macroeconomic objectives. According to the study, VAT has a major and beneficial impact on economic expansion.

However, other studies, such as those by Salim (2020), Chindengwike (2022), and Eze *et al.* (2020), show that value-added tax has a detrimental effect on economic growth. Hypothesize that the tax distorts the purchasing power of taxpayers, which in turn causes a fall in the nation's output. Two-thirds of Tanzania's total tax revenue comes from income tax and VAT (Semboja & Msafiri, 2022). These discrepancies are the policymaker in Tanzania, where weak revenue and narrow VAT continue to hinder economic progress. Without a clear understanding of how VAT influences the private domestic sector. This study aims to provide clearer answers by examining how VAT affects private domestic investment in Tanzania.

LITERATURE REVIEW

Theoretical Framework

Investment theory

Investment theory states that the policies developed and implemented can either attract or repel investment. Higher taxes decrease the marginal propensity to save, which leads to less investment, according to investment theory. Rising payroll or individual income tax rates result in lower personal savings. When the government expands beyond its ideal size, it can no longer provide enough benefits to counteract the growth-deterrent effects of higher taxes, which discourage saving, investing, and working. As a result, the government uses taxes as a tool to both promote and deter foreign investment. To boost investment in the nation, the government lowers the tax rate. The Keynesian school of thinking favors the flexible accelerator investment theory, a neoclassical theory that may be used to assess how macroeconomic factors affect private investment (Babu *et al.*, 2015).

Empirical Literature Review

Kamara (2023). The impact of tax reforms on Sierra Leone's economic growth and revenue mobilization between 1981 and 2018. ARDL-ECM models were employed in the study, which examined the impact of tax reforms on tax rates and the effects of these tax changes. The study's findings show that while the tax reforms have had some short-term positive benefits on international trade taxes, income taxes, and the goods and services tax, they have had some long-term negative effects on non-tax revenues.

Edame and Okoi (2014) use time series data from 1980 to 2010 to examine how domestic taxes affect private investment in Nigeria. International sources provide the majority of the study's data. The robust estimation and co-integration methodology is the estimation method used in this investigation. According to the estimation results, value-added tax has a substantial positive association with domestic investment, whereas corporate income tax has a considerable negative influence.

According to Umeokwobi and Nkoro (2019). Using modified ordinary least squares and the Autoregressive Distributed Lag (ARDL), this study investigates the connection between tax revenue and private domestic investment in Nigeria between 1980 and 2018. Private domestic investment (PDI) is the study's dependent variable, and corporate income tax (CIT), oil revenue, and non-oil revenue are its independent factors. Oil revenue represented oil taxes, whereas non-oil revenue represented non-oil taxes. These statistics were collected from secondary sources, including the World Bank database, the Central Bank of Nigeria, and the Federal Inland Revenue Service statistical bulletin. The results showed a long-term correlation between the variables stated above. Furthermore, the study found that while CIT significantly and favourably affects PDI, oil and non-oil had no discernible effect on PDI.

Conceptual Framework

The conceptual framework of this study was connected to the impact of VAT on private domestic investment in Tanzania. A conceptual framework is a diagrammatic representation that illustrates the relationships between the dependent and independent variables. The independent variable, control variable, and dependent variable are the three components of the conceptual framework. Value-added tax is one of the independent variables in the model, along with public investment as the control variable and private domestic investment as the dependent variable.

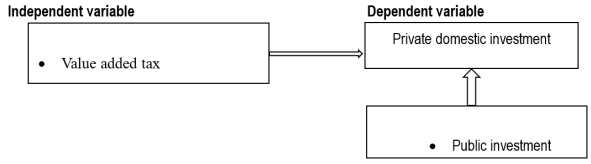

Figure 1: Conceptual Framework

MATERIALS AND METHODS

The study was conducted in Tanzania to indicate the influence of VAT on private domestic investment from 1998-2024. The study used a time series design, in which certain variables were measured over a period. Due to differences in data collection methods, missing records, or institutional reorganization, complete and reliable economic statistics for 30 years may not always be available in developing countries like Tanzania (McLnnan *et al.*, 2021). The 26-year period chosen for the study is the longest continuous and reliable series available, guaranteeing improved data quality and long-term comparability.

The analysis for this study was time series secondary data. Data were collected through the Documentary review by reviewing the reports and records from government offices or ministries which serve as the study's data sources for the influence of VAT on private domestic investment from 1998 to 2024. These include information on value-added tax and private domestic investment, as well as the private sector's GFCF as a percentage of GDP. The Tanzania Revenue Authority (TRA) provided the value-added tax. Documentary review was used as a data collection method, and a checklist was used as the data collection tool. To explain any potential association between tax revenue levels and private domestic investment (PDI), this study was based on secondary time series data of VAT and PDI by using a Vector Error Correction Model (VECM) as data analysis technique. The Vector Error Correction Model (VECM) look like:

$\Delta PDI_t = \beta_0 + \beta_1 \Delta PDI_{t-1} + \beta_2 \Delta VAT_t + eEC_t + \mu_t$

Where,

PDI = Private domestic investment

VAT =Value added tax as a ratio of total tax revenue

PU Public investment (control variable)

EC Error correlation term

μ = Error Term

β_0- β_2 = Coefficients

Operationalization and Measurement of Variables

Table 1: Variables Measurement

Variables	Definitions	Measurement
Private domestic investment	Total amount spent within a nation's boundaries by private companies and households on capital goods (such as new buildings, machinery, homes, and inventory adjustments).	Private Domestic Investment is equal to the sum of Business Investments, Landlord Investments, and Changes in Business Inventories
VAT	It is applied to products and services at every step in the supply chain where value is created, from the point of original manufacturing to the point of sale.	Total VAT collected throughout time by the government, expressed as a percentage of GDP or total taxable consumption.
Public Investment	Government investment in the construction of long-term, fixed assets like buildings, infrastructure, and other initiatives that deliver public goods and services	The Public Investment Ratio equals the total public investment divided by the Gross Domestic Product, multiplied by one hundred percent.

RESULTS AND DISCUSSION

Descriptive statistics

Descriptive analysis is briefly interpreted in the paper before a thorough econometric analysis is presented. In addition to providing straightforward summaries of the data, descriptive statistics highlight the fundamental characteristics of the data and give quantitative descriptions. The variable's maximum, minimum, standard deviation, and mean values are summarised in the table below (Table 1). Each of them is expressed in the variable's initial value.

Table 2: Descriptive analysis

Stats	Privat~t	VAT	Public~t
Mean	17.72957	15.31268	4.16638
Variance	113.4255	37.8831	3.410838
SD	10.65014	6.154925	1.846845
Min	.7633165	3.547208	1.337685
Max	33.22	28.43252	6.995074
Skewness	-.4295472	.0397265	-.0853139
Kurtosis	1.760454	2.909307	1.566145

Significant variation in the Value Added Tax was found by the descriptive statistics, indicating a range of effects on economic growth. The value-added tax's high mean and standard deviation suggest significant income potential, which shows variations in how taxes are applied. Overall, the results point to the necessity for focused policy interventions by indicating that these VAT influence private domestic investment.

Statistical Assumption Tests

Several tests were carried out to get the data ready for analysis and make sure the study yielded reliable results. Tests are therefore provided in the next subsection.

Test of multicollinearity

Since the Centered VIF value in the Table is less than 10, it may be inferred that there is no multicollinearity in the regression model and that it is practical to use.

Table 3: Test of multicollinearity

Variable	VIF	1/VIF
Value Added Tax	1.53	0.655588
Public Investment	1.22	0.822190
Mean VIF	1.50	

Unit Root Test Results

Testing for unit roots and stationarity in the variables is essential to obtaining a meaningful regression with time series data. The ADF method is used to test the stationarity of the variables in this model. All four (3) variables are non-stationary at the level data and a log transformation, according to the results of the ADF test for stationarity. After the initial discrepancy, the data became stationary.

Table 4: Unit Root Test Results

ADF at Level				
	T-test	**Critical value**	**P-Value**	**Remark**
Private Domestic	-1.768	-3.568	0.7199.	Not Stationary
VAT	-2.256	-2.980	0.1866.	Not Stationary
Public Investment	-4.397	-3.568	0.2550	Not Stationary
ADF at 1st Difference				
Private Domestic	-4.706	-3.572	0.0007.	Stationary
VAT	-3.066	-2.983	0.0291.	Stationary
Public Investment	-5.064	-3.572	0.0002.	Stationary

Vector Error Model analysis (VECM) Estimation Results

Short-run relationship

The results indicate that the error correction term (ECT) should have a negative sign (-.1156951). The ECM coefficient suggests that the speed of ECT in the end per year would correct the deviation by any of the explanatory variables in the short run. As discussed in the methodology section, the ECM coefficient indicates the speed at which any short-term deviation from equilibrium is restored to equilibrium in the dynamics model. As a result, there is a short-term relationship among the variables that influence private domestic in Tanzania.

Table 5: Short-run relationship.

	Coefficient	**Std. err.**	**z**	**P>z**	**[95% conf. interval]**	**Interval**
D_Private_Domestic_Investment-cel						
L1.	-0.1157	0.09078	-1.27	0.021	-0.2936	0.06224
Private Domestic Investment						
LD.	-0.2507	0.28601	-0.88	0.381	-0.8113	0.30988
L2D.	-0.2788	0.28507	-0.98	0.328	-0.8375	0.27992
L3D.	-0.2884	0.27911	-1.03	0.301	-0.8354	0.25866
Value Added Tax						
LD.	0.30866	0.14781	2.09	0.037	0.01897	0.59836
L2D.	0.22113	0.15929	1.39	0.165	-0.0911	0.53333
L3D.	0.09133	0.14415	0.63	0.526	-0.1912	0.37387
Public Investment						
LD.	-0.8884	1.01221	-0.88	0.38	0.38	1.09545
L2D.	-0.9612	0.89705	-1.07	0.284	-2.7194	0.79703

L3D.	-0.2585	0.84471	-0.31	0.76	-1.9141	1.39712
_cons	1.73237	0.60944	2.84	0.004	0.5379	2.92684

LD means the number of lugs, and Cel means the Error correlation term

Long-run Relationship

The coefficient for private domestic investment is 1, which often means that it is the reference variable or that it has been normalized to unity for model identification. As is common with the cointegration equation in error correction models, its statistical elements are left out. Value Added Tax (VAT): The coefficient is -0.1856, which indicates that, when all other variables are held constant, a one-unit increase in VAT is linked to a 0.1856 drop in the dependent variable over time. However, because the p-value (0.487) is significantly higher than 0.05 and the confidence interval ([-0.7092, 0.33789]) includes zero, the effect is statistically negligible.

Public Investment: The coefficient is -7.2945, meaning that, when all other factors are held constant, a one-unit rise in Public Investment corresponds to a significant long-term drop in the dependent variable of 7.2945 units. The confidence interval ([-8.971, -5.618]) does not include zero, a big z-value, and a very low p-value (0) all demonstrate that this effect is statistically significant. Constant (_cons): This value, which is -2.8762, represents the dependent variable's baseline when all independent variables are equal to zero. As usual, no additional statistics are given for _cons.

Table 6: Long-run Relationship

beta	Coefficient	Std. err.	z	P>z	[95% conf.	interval]
_ce1						
Private_Domestic_Investment	1	.	.	.	.	.
VAT	-0.1856	0.26711	-0.69	0.487	-0.7092	0.33789
Public Investment	-7.2945	0.85536	-8.53	0	-8.971	-5.618
_cons	-2.8762	.	.	.	.	.

Discussion of findings

From the results in Table 6, Value Added Tax (VAT) was only statistically significant at the first lag because the probability values (0.004) and (0.05) were less than each other were. In the short run, however, the second and third lags were not statistically significant because the probability values were greater than 0.05. A one-unit increase in VAT led to a 0.308 increase in Private Domestic Investment, while all other variables remained constant. This suggests that the VAT collected is probably being utilised to build infrastructure or enhance the business climate, two examples of measures that boost investment and encourage private investors to make greater domestic investments. It also shows that, in the short run, VAT does not deter investment; rather, it may suggest increased economic stability and government income capability, which instills confidence in private sector investment.

This result was connected to Chindengwike (2022), examining, using Tanzania as a case study, the impact of value-added tax revenue on private domestic investment in developing nations. The study examined annual time series data from 1998 to 2020 and discovered that private domestic investment and VAT had a short-term favourable impact. The value-added tax has a strong positive correlation with private domestic investment, according to Ngangnchi and Joefendeh (2023), who focused on research on the effects of domestic taxes on private domestic investment in Cameroon.

The study found a positive relationship between value-added tax and private domestic investment, although it was not statistically significant at 5% over the long term. This suggests that a small but significant rise in private domestic investment occurs in Tanzania as a result of the VAT percentage increase. The long-term asymmetric impact of VAT on domestic investment in Nigeria is the focus of this study, which is in line with Yusuf and Mohd (2020). When it comes to private domestic investment, the impact of VAT is negligible.

Extra Chindengwike (2022), who examined the impact of value-added tax revenue on private domestic investment in developing nations using Tanzania as a case study, disagrees with this result. The results showed a negative long-term relationship between private domestic investment and the value-added tax. The investigation revealed a negative correlation between the value-added tax parameter estimate from 1998 to 2020 and the level of investment.

CONCLUSION

The purpose of this study was to investigate the influence of VAT on private domestic investment and Value Added Tax. The study looks at the relationship between private domestic investment in Tanzania and one independent variable: value-added tax, and the control variable was public investment. According to the data, Tanzania has seen a notable increase in private domestic investment over the previous thirty years, which has been bolstered by increased investor confidence and economic stability. VAT revenues, however, have varied significantly, indicating susceptibility to changes in policy, economic downturns, and administrative difficulties. With a first lag coefficient of 0.3087 and a p-value of 0.037, the

VECM results demonstrate that VAT has a positive and statistically significant impact on private domestic investment in the short term. Long-term findings show that corporate tax has a statistically significant detrimental impact on domestic private investment. In particular, there is a 1.3447 unit drop in private investment for every 1% increase in corporate tax. The results showed that value-added taxes had both short-term and long-term favorable influences on private domestic investment. The study found a favourable correlation between the parameter estimates of value-added tax and the amount of investment. Although the value-added tax brings in money for the government, this money will be used to develop social services and infrastructure, which in turn encourages or boosts investor profits.

Recommendation

To increase effectiveness, openness, and compliance, the government should update and fortify its tax administration frameworks, paying special attention to business taxes and VAT. To support long-term economic development, reliable, predictable, and sustainable revenue inflows can be ensured by improving digital tax systems, closing loopholes, and expanding the tax base. To draw in private investors, the government should improve the tax structure and implement progressive tax reforms. Provide openness, streamline VAT procedures for private investment, and use VAT revenues to enhance public services that assist economic activity to preserve and increase the effectiveness of VAT administration, which has a strong beneficial influence on private investment. Instead of changing tax rates frequently, the government should concentrate on preserving a steady and predictable tax climate for corporations.

In order to lower business and individual tax burdens and draw in potential investors, the Tanzania Revenue Authority must restructure an appropriate corporate income tax policy. The VAT should be levied at a moderate rate, and the government can expand the tax bases by formalising Tanzania's sizable informal sector.

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