INTEREST RATES AND TAX REVENUE PERFORMANCE BY THE KENYA REVENUE AUTHORITY

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ABSTRACT

Tax revenue contributes greatly to government's service delivery, the development of infrastructure, and growth of the economy. The tax revenue consolidation in Kenya is a constitutional responsibility of the Kenya Revenue Authority. However, while tax revenue in Kenya has consistently grown, it has always fallen short of the targeted collection despite the employment of various economic strategies, the use of different fiscal policies, attracting foreign direct investment, and tax reforms. For instance, in the financial year 2022/23, KRA's total collection of Kes 2.166 trillion fell short of the Kes 2.273 trillion target, signifying a deficit of Kes 107 billion. The research intended to find out the effect interest rate and tax revenue performance in Kenya. Anchored on the Khaldun's theory of taxation, the study adopted the positivist philosophy and an explanatory research design. Its focus was on the Kenya Revenue Authority as its target population, having been established through an Act of Parliament in the year 1995. Quantitative archival time-series data for interest rate were used from the period between 1996 and 2023, considering the availability of the associated relevant research data. The quantitative data were collected, cleaned, coded, and analysed using SPSS version 24 of the Stata software. Both descriptive and inferential statistical methods were important for data analysis. Descriptive analysis focused on mean, percentages, standard deviation, and frequencies. To assess how interest rate related to tax revenue performance in Kenya, inferential tests included correlation and multivariate regression. The study found that interest rate had a moderate, but statistically insignificant ($p>0.05$) effect on tax performance.

Key words: Interest rate, Tax Revenue Performance.

INTRODUCTION

Background of the Study

The Kenya Revenue Authority (KRA) is the principal government agency mandated with the Tax revenue serves as the fundamental source of income for governments around the world. Organisation for Economic Co-operation and Development (2023) describes tax revenue as income collected by governments from people and businesses through different kinds of taxes on things like earnings, goods, services. and property. The central basis for governments to collect tax revenues is to deliver essential public services including education, health care, water resources, security measures, roadways, and social safety nets for its citizenry (Oz-Yalaman, 2019). Therefore, in every country, tax laws necessitate that all individuals within a government's territory contribute by paying taxes (Onakoya et al., 2017).

Ng'ong'o (2021) found that interest rates are inversely related to tax revenue, indicating that it has had a strong and considerable detrimental impact on the tax revenue of Kenya. Shaukat et al. (2019) in supporting this position argue that increasing interest and inflation rates can stifle economic growth, thereby reducing overall economic activity. Iddrisu and Alagidede (2020) further assert that interest rates influence both credit and investment in a nation. As a result, higher interest rates tend to decrease investment levels, which may lead to reduced business operations and lower tax revenues.

Statement of the Problem

Revenue in Kenya has shown a general upward trend over the years though actual collections have frequently fallen short of projected targets. While some financial years have recorded marginal surpluses, such as FY 2020/21 and FY 2021/22, other periods have been marked by notable shortfalls, including FY 2016/17, FY 2017/18, FY 2022/23, and FY 2023/24. These fluctuations indicate inconsistencies in tax revenue performance despite sustained growth in the national budget and increased pressure on KRA to mobilise more revenue. The persistence of revenue shortfalls raises questions about the underlying economic factors influencing tax collection outcomes in Kenya.

Empirical evidence suggests that interest rates may play a significant role in shaping tax revenue performance. However, current research on the link between macroeconomic variables and tax revenue in Kenya present mixed and inconclusive findings. Ng'ong'o (2021) observed that interest rates negatively influence tax revenue and that GDP lacks a significant relationship with tax revenue, but the study concentrated on tax reforms and a limited period.

Collectively, these studies reveal gaps related to inconsistent findings, limited study periods, narrow variable focus, and methodological differences. Consequently, there is limited empirical evidence examining the combined effects of key macroeconomic variables on tax revenue performance in Kenya over an extended period, while accounting for the moderating role of foreign direct investment.

This examination, therefore, strives to remedy these shortcomings by scrutinizing the effect of interest rate on tax revenue performance in Kenya over the period 1996 to 2023. By doing so, the study aims to provide clearer and more consistent empirical insights that can inform fiscal policy and enhance the effectiveness of revenue mobilisation efforts by KRA.

Objectives of the Study

The study examined the effect of interest rates on total tax revenue in Kenya.

Theoretical Framework

Khaldun's Theory of Taxation

The Khaldun's Theory of Taxation was hypothesised by Ibn Khaldun in the 14th century (Islahi, 2015). Chepkonga (2016), in his application of this theory, explains that it encourages governments to lower taxes levied on entrepreneurs to allow these businesses to grow and their profits to flourish, which eventually allows surplus income to the government from taxes. In other words, by lowering tax rates, businesses are granted a chance to grow, experience more

profits, increase investment through positive trade openness policies, and eventually have a higher taxable income. Islahi (2015) also asserts that at the core of the Khaldun's Theory is the need to lower taxes levied on entities able to undertake cultural enterprises as much as possible so that such parties or individuals become psychologically disposed to starting and running businesses with the confidence that they can yield profit from them. According to the theory, high rates of taxes lead to a decline in investments.

By decreasing the burden of taxation on enterprises, not only do businesses experience greater profits, but this also translates to firm growth, growth in the number of taxable businesses and investments, an escalation in volume of taxable income, and eventually growth in government tax revenue (Islahi, 2015). The theory has been criticised for a lack of depth of epistemological-analytical vision that can inform permanent historical understanding and explanation. However, its contribution to this study is that it highlights how lowering taxes can promote GDP, spur consumption, cut down on inflation, and encourage growth in the number of taxable investments, which positively determines the overall tax revenue for the government. As such, the theory addresses interest rate and tax performance.

Interest Rate and Tax Revenue

Drawing from existing literature, interest rate has also been argued to be a significant predictor of tax revenue (Shivanda & Obwogi, 2018; Ng'ong'o, 2021). Shivanda and Obwogi (2018) carried out descriptive research to establish how tax revenue performance in Kenya was impacted by macroeconomic variables. Using 1995 to 2016 (21 years) data employing descriptive and regression analysis, the researchers established a weak negative relationship (R=-0.12) between changes in interest rate and tax revenue that was not statistically significant (p=0.907>0.05). Specifically, the study suggested that within the Kenyan tax system, the interest rate affected the volume of tax revenue negatively. Shivanda and Obwogi (2018) study focused on the period from 1995 to 2016 (21 years) while the current study is based on the period 1996 to 2023 (28 years).

In a study conducted in Kenya, Ng'ong'o (2021) examined the impact of tax reform on the performance of the KRA and supported the previously mentioned findings regarding the correlation between interest rates and tax revenue. The researchers found that there exists a significant adverse association between interest rates and tax income in Kenya. Consequently, an escalation in interest rates led to a reduction in the total tax revenue collected in the country. While Ng'ong'o (2021) centred on tax reforms yet the current study focuses on multiple macroeconomic variables.

RESEARCH METHODOLOGY

Positivism was the paradigm embraced in this study, which provided a guiding framework for the research process. Park et al. (2020) explain that positivism puts emphasis on the use of scientific techniques and empirical evidence to comprehend and delineate concepts and is the choice philosophy for quantitative research.

This research employed an explanatory research design with the Kenya Revenue Authority as the unit of analysis

This research focused on Kenya Revenue Authority as its target population. The data of interest was drawn from the KRA as well as the CBK and KNBS. This was the corresponding time series data for interest rates and tax revenue for the period 1996 to 2023.

The study focused on the period 1996 to 2023, corresponding with the establishment and operationalization of the KRA following its formation by an Act of Parliament in 1995. This period provided 28 annual observations, which are adequate for time-series econometric analysis and sufficient to capture variations in macroeconomic conditions and tax revenue performance over time. The selected time span therefore offers a reliable basis for examining long-run relationships between macroeconomic variables, foreign direct investment, and tax revenue performance in Kenya.

Descriptive Statistics

Examining the annual data in Appendix 1 sourced from KRA, the analysis employed several statistical metrics that included the mean and the standard deviation. Other indicators comprised the variables' min and max values. Furthermore, skewness and kurtosis were examined. The summary descriptive statistics of the variables used in the model are as follows:

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Total Tax Performance	28	0.9979	0.0704	0.9100	1.2500
Interest Rate	28	10.3521	5.1501	2.9600	23.3200

Note: The table display the descriptive statistics drawn from the variables data showing the sample size (N), Mean, standard deviation, for total tax performance and interest rate as well as the minimum and maximum values for each variable.

Table 1 provides insights into the descriptive statistics regarding the study variables. The average tax performance ratio (target against actual collection) was determined to be 0.9979 (SD = 0.0704), with a maximum performance ratio of 1.2500 and a minimum of 0.9100. The findings indicate that the average tax performance for the 28 years focused on in this study remained below 100% (99.79%), which reflects a recurring deficit in targeted collection over the studied period.

Interest rate measured as annualized treasury bills averaged 10.3521 (SD = 5.1501) a maxi of 23.32% and a mini of 2.96%. The average interest rate being at slightly above 10% is an indication of accessible credit to foster economic activities and hence increased tax performance.

Diagnostic Tests

Stationarity Test

The visual inspection plot below shows the Tax Revenue Performance over time along with a 5-period rolling mean and rolling standard deviation. The plot helps to visually determine if the series is stationary (constant mean and variance over time).

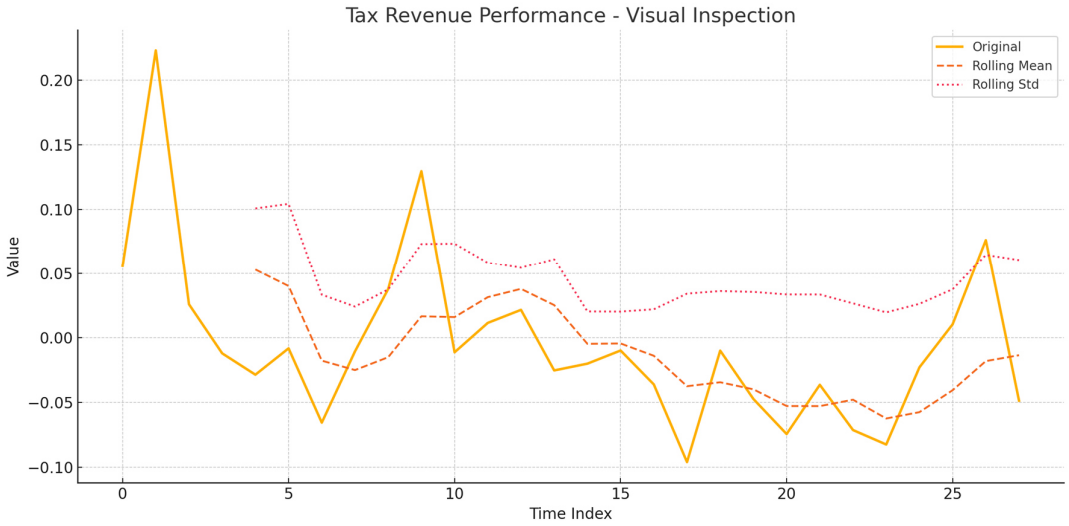

Figure 2: Tax Revenue Performance Visual Inspection

Note: The figure presents a visual stationarity inspection of the trend of tax revenue performance by KRA across time with the figure highlighting the trends between the original/actual values, rolling mean and rolling standard deviation with the graph showing that tax revenue performance was not stationary.

It is evident from Figure 2 that the rolling mean and standard deviation appear to change over time, indicating that the series is likely not stationary. Therefore, to statistically test for stationarity, the researcher further performed the Augmented Dickey-Fuller (ADF) with the results depicted below.

Autocorrelation

To test for autocorrelation, the Durbin-Watson Statistic Test was done and the results highlighted in Table 2 below.

Table 2: Autocorrelation Test

	Durbin-Watson statistic		
Model	**Autocorrelation**	**Statistic**	***p-value***
M_1	0.0830	1.8223	0.2189

Note: The table presents the results of the Durbin-Watson Autocorrelation Test signifying a mild positive autocorrelation (Durbin-Watson statistic = 1. 8223), that was statistically insignificant (*p-value* > 0.05).

The Durbin-Watson statistic was 1. 8223 as displayed in Table 2, indicating a mild positive autocorrelation. In addition, with *p-value* > 0.05, the outcome showed that the autocorrelation was not severe enough to violate regression assumptions.

Homoskedasticity

To test for homoskedasticity, the researcher conducted the Breusch-Pagan Test with the outcome summarized in Table 3 below.

Table 3: Breusch-Pagan Test

Breusch-Pagan	***df***	***SS***	***MS***	***F***	***p***
Regression	5	0.000168	3.37E-05	0.873547	0.5147
Residual	22	0.000848	3.85E-05		
Total	27	0.001016			

Note: The table presents the results of the Breusch-Pagan test for homoskedasticity. The outcome indicated the absence of heteroscedasticity since *p-value* > 0.05.

From Table 3, the Breusch-Pagan Test p-value was 0.5147 meaning that p-value > 0.05. This in essence, indicated the absence of heteroscedasticity and that and thus the error terms are homoskedasticity.

Normality

By carrying out the Shapiro-Wilk Test, the researcher was intent on assessing the normality and constant variance across the variables' datasets. The outcome is exhibited in Table 4 below.

Table 4: Shapiro-Wilk Test

	Shapiro-Wilk	***P-value* of Shapiro-Wilk**
Total Tax Performance	0.8263	0.0003
Interest Rate	0.8257	0.0003

Note: The table presents the results of the Shapiro-Wilk Test for normality. Residual distribution of the data is normal where *p-value > 0.05* and not normal where *p-value < 0.05.* Evident from Table 4 shows that the *p-value* for interest rates were < 0.05, Khatun (2021) explains that when *p-value > 0.05,* then the residual distribution of the data is normal; however, when *p-value < 0.05* then the residual distribution of the data is not normal, hence lacking normality. Hence, the interest rates are lacking in normality.

Inferential Analysis

Multiple Regression Analysis

The regression model without moderation yielded the following results.

Table 5: Base Model Summary - Total Tax Performance

Model	R	R^2	Adjusted R^2
M_1	0.4498	0.2023	0.0636

Note: The table presents the highlights the base model summary for Total Tax Performance showing the correlation coefficient R, the coefficient of determination denoted as R^2, And the Adjusted R-squared (Adjusted R^2) and their linked number of predictors in the regression model.

According to Table 5, the correlation coefficient R= 0.4498 signifies the connection between the study variables, demonstrating a moderate relationship of 44.98% at a 5% significance level. The coefficient of determination denoted as R^2, represents how much changes in the dependent variable is caused by changes in the independent variables. The R^2 indicated that 20.23% of the variation in tax performance in Kenya is accounted for interest rate.

Table 6: Base Model's ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	0.0271	4	0.0068	1.4584	0.2472
	Residual	0.1068	23	0.0046		
	Total	0.1339	27			

Note: The table shows the ANOVA results including the F-statistic and the p-value for the determination of the overall significance level of the regression model. M_1 includes Interest Rate.

Table 6 demonstrated that the association between tax performance and interest rates produced an F statistic value of 1.4584 along with a significance (*p-value*) of 0.2472. Since the *p-value* is greater than 0.05, this finding indicates that the independent variables (Interest Rate) were not statistically significant predictors of tax performance in Kenya throughout the examined study period.

Table 7: Regression Coefficients and Statistics

Model		Unstandardized	Standard Error	Standardized	t	p
M_1	(Intercept)	0.9609	0.0948		10.1381	0.0000
	Interest Rate	0.0053	0.0026	0.3875	2.0248	0.0546

Note: The table displays the results of the regression analysis between the dependent variable (tax revenue performance) and the independent variables (interest rate) including the t-statistic and the p-values.

From Table 7, the p-values for all predictor variables >0.05. This suggests the absence of a significant connection between all the selected independent variables tax performance in Kenya within the study period. While it may be argued that only interest rate was marginally significant (p = 0.0546) the interest rates had no statistically significant effect. Drawing from equation 1, the relationship is fully depicted in the regression equation 5 below.

$$TR_t = 0.9609_t + 0.0775INT_t$$

As such the interpretation of the information depicted above signifies that a unit increase in interest rate yielded a 0.03875 increase in tax performance.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concluded that while managing an average of 99.79% KRA failed to meet its annual targeted total tax revenue, inflation rate only moderately explained this inability, accounting for only 20.23% of the variation in tax performance.

Recommendations

Considering that the study determined that the interest rates exhibited statistically insignificant low to moderate relationships with tax performance, over reliance on interest rates would not guarantee that KRA would achieve its annual tax revenue targets. As such the emphasis of the organisation should be on structural reforms such as tax administration efficiencies and tightening the noose on corruption and non-compliance rather than focussing on interest rates. In addition, it is imperative for KRA to implement workable tax reforms within a recognizable legal framework. Therefore, policy makers need to consider putting in place policies that can enhance structural reforms and tax revenue collection efficiencies at KRA. This will ensure that the institution is safeguarded under law to enforce such reforms.

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