

Tax Revenue, GDP and unusual circumstances: The case of Kenya

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DOI: <https://doi.org/10.5281/zenodo.15813310>

Published Date: 05-July-2025

Abstract: The relationship between tax revenue and Gross Domestic Product (GDP) is a critical aspect of fiscal policy and economic development in Kenya. This study examines the impact of GDP growth and unusual economic circumstances on total tax revenue over the period from 1980 to 2020. The research adopts a quantitative approach and utilizes secondary data from various government publications and international organizations. The results reveal that GDP growth has a positive and significant effect on total tax revenue, with an elasticity of 51.9%. This indicates that an increase in GDP generally leads to a proportional increase in tax revenue. However, some unusual economic circumstances negatively affect tax revenue. Booms and peaceful elections were found to have a significant impact, reducing total tax revenue by 5.87% and 3.52%, respectively. The study's significance lies in providing valuable insights for policymakers, tax authorities, and researchers in Kenya. To manage the impact of unusual economic circumstances on total tax revenue, the government should focus on policy options that enhance the economy's resilience and flexibility through managing the unusual economic occurrences. The study recommends that policymakers carefully consider the effects of booms and peaceful elections on tax revenue and design appropriate strategies to maintain buoyancy between GDP and total tax revenue. Overall, this study contributes to the existing literature on tax revenue, GDP, and economic shocks in Kenya. The findings can inform evidence-based policymaking and promote a stable and sustainable revenue base for the country's economic growth and development.

Keywords: Total Tax Revenue, GDP, Unusual Economic Circumstances.

I. INTRODUCTION

Tax is the major tool that the government uses to raise revenue. In Kenya tax revenue comprises of different types of taxes including Value Added Tax, excise duty, individual income taxes and corporate taxes. This can include grants obtained from other governments as well as international institutions. However, taxes contribute the largest percentage amongst all other sources of Kenya's total revenue (Muraya, 2012). Tax revenue is a critical source of income for the government, enabling the financing of public goods and services, infrastructure development, and social welfare programs. The country's tax system has evolved to reflect its changing economic landscape and development priorities. In the 1980s, Kenya experienced an economic downturn due to factors like unfavourable global economic conditions, increasing external debt burdens, and internal political instability. These challenges directly affected tax collection efforts and the government's ability to generate revenue.

The relationship between a country's Gross Domestic Product (GDP) and its Total Tax Revenue is a critical aspect of fiscal policy and economic management. Over the past four decades, Kenya has experienced varying trends in total tax revenue. Economic challenges, policy changes, and external factors have shaped the country's revenue collection efforts. While Kenya has made progress in enhancing tax revenue through policy reforms and economic growth, persistent challenges related to corruption, tax evasion, and administration require continued attention. Related studies have been done by Ouma (2013). This paper explains the effects of GDP and the unusual circumstances on total tax revenue in Kenya. It aims to bridge gap left by Ouma (2013) by incorporating more macroeconomic shocks as represented by dummies.

Research Question:

How do the level of GDP growth and unusual economic shocks in Kenya impact the total tax revenue collection over a number of years?

Hypotheses:

Null Hypothesis (H0): There is no significant effect of GDP growth and unusual economic shocks on total tax revenue in Kenya.

Alternative Hypothesis (H1): There is a significant effect of GDP growth and unusual economic shocks on total tax revenue in Kenya.

Significance of the Study:

The findings of this study have important implications for policymakers, tax authorities, and economic researchers in Kenya. Understanding the impact of GDP on total tax revenue will provide insights into the effectiveness of existing tax policies, the responsiveness of the tax system to economic changes, and the potential for revenue generation to support public expenditure and development projects.

Moreover, the study can contribute to discussions on tax policy reforms and strategies to ensure a stable and sustainable revenue base for Kenya's economic growth and prosperity.

II. LITERATURE REVIEW**Trends in Total Tax Revenue**

The 1980s were marked by a decline in total tax revenue as a percentage of GDP in Kenya. Economic challenges, corruption, and inefficient tax administration contributed to this decrease. The government struggled to expand the tax base and enhance compliance, resulting in limited revenue collection (Kenya Economic Survey, various years). In mid-1990s to early 2000s, Kenya embarked on economic reforms, including liberalization and deregulation. These reforms aimed to stimulate economic growth and attract foreign investment. As a result, total tax revenue witnessed some improvements during this period, although it remained volatile due to fluctuations in global commodity prices and regional economic dynamics (World Bank, 2007).

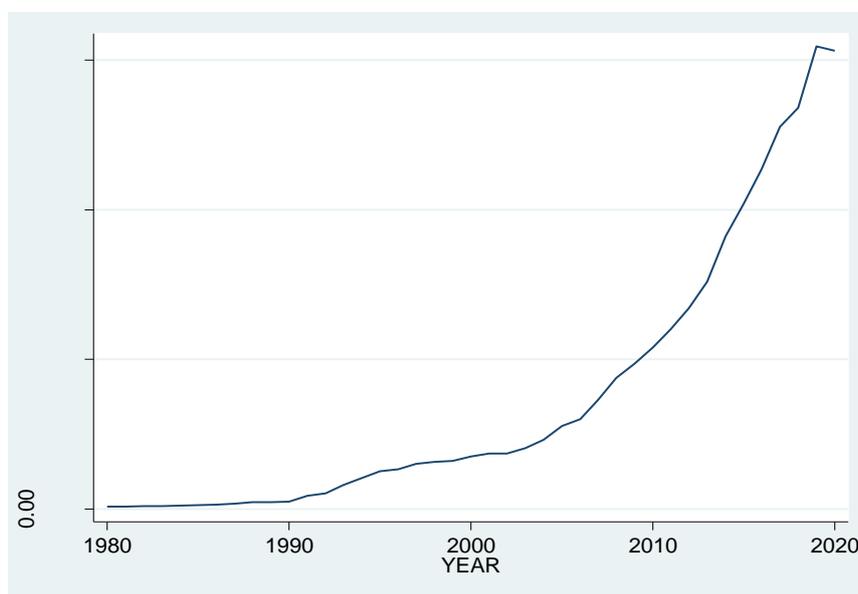


Fig. 1. Trends in Total Tax Revenue

The period between the mid-2000s and early 2010s saw relatively stable economic growth in Kenya because the government implemented various tax policy changes, including simplifying tax procedures, widening the tax base, and introducing new tax types. These efforts contributed to a steady increase in total tax revenue as a percentage of GDP (International Monetary Fund, 2013). However in the late 2010s and beyond Kenya continued to experience economic growth, driven by sectors like agriculture, tourism, and information technology. However, tax revenue faced challenges due to factors like tax evasion, corruption, and tax incentives provided to attract foreign investment (Africa Tax Administration Forum, 2020). While total tax revenue showed an upward trend, it was not as robust as desired to support the country's development aspirations fully. The factors Influencing Tax Revenue Trends include the following.

Economic Growth: The overall economic performance of Kenya has a significant impact on tax revenue trends. When the economy grows, businesses prosper, leading to increased profits and taxable income (Central Bank of Kenya, various years).

Tax Policy and Administration: Changes in tax policies and effective tax administration play a pivotal role in determining revenue collection. Well-designed tax policies that balance incentives for businesses and compliance mechanisms can positively impact revenue generation (Government of Kenya, various years).

Political and Institutional Factors: Political stability, governance, and the level of institutional corruption affect tax compliance and revenue collection efforts. A stable and transparent political environment is more likely to support effective tax administration (Transparency International Kenya, various years).

External Factors: Global economic conditions (war in Ukraine), commodity prices, and international trade dynamics can influence Kenya's tax revenue through their impact on exports, imports, and foreign investments (World Trade Organization, various years).

Gross Domestic Product (GDP) trends in Kenya

Gross domestic product (GDP) measures the value of final goods and services that are produced by a country in a given period of time. It serves as one of the key indicators that capture economic activities and overall economic health of a country. It has been recognized as one of the variables that determines tax revenue (OECD, 2008). During the 1980s and early 1990s, Kenya faced significant economic challenges, including external debt burdens, unfavourable global economic conditions, and internal political instability. These factors led to relatively modest GDP growth rates during this period (World Bank, various years). From the mid-1990s, Kenya implemented economic reforms aimed at liberalization and deregulation. These reforms, coupled with increased foreign direct investment and infrastructure development, contributed to more robust economic growth, leading to higher GDP growth rates (African Development Bank, various years).

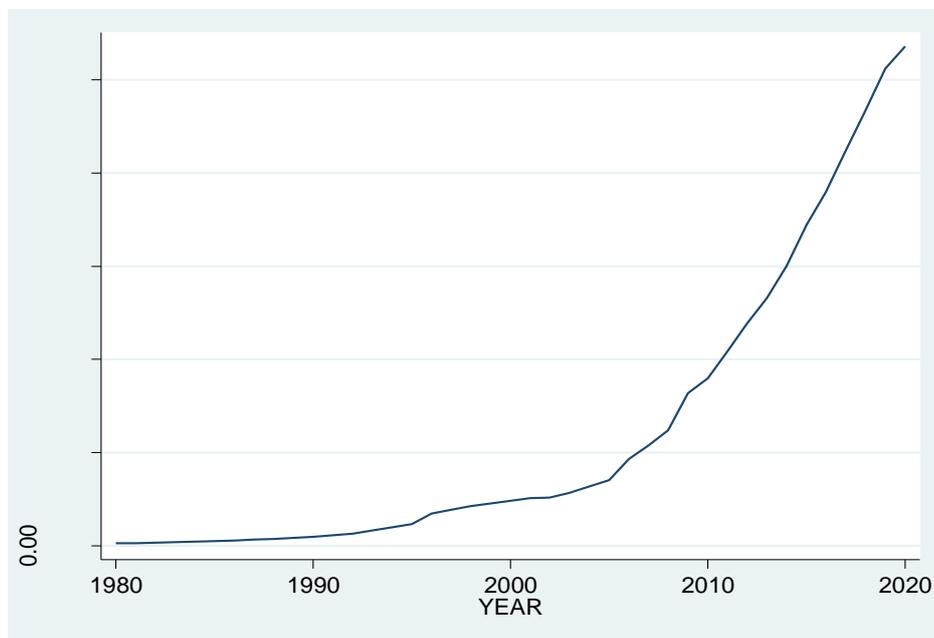


Fig. 2. GDP Trends in Kenya

Between the mid-2000s and early 2010s, Kenya witnessed relatively stable economic growth. The country's GDP growth rates improved further during this period, driven by the expansion of sectors such as agriculture, tourism, and information technology (Central Bank of Kenya, various years). In the late 2010s, Kenya continued to experience economic growth, albeit with some fluctuations. The country's GDP growth rates showed resilience, supported by increasing investments in infrastructure, digital economy, and industrialization (Kenya National Bureau of Statistics, various years). The factors influencing GDP Trends include the following.

Economic Policies: Government economic policies, including fiscal and monetary measures, play a significant role in influencing GDP trends. Sound economic policies that promote investment, export growth, and domestic consumption can positively impact GDP growth (International Monetary Fund, various years).

Sectoral Performance: The performance of various economic sectors, such as agriculture, manufacturing, and services, influences overall GDP growth. A diversified economy with robust performance across sectors contributes to sustained economic growth (World Trade Organization, various years).

External Factors: Global economic conditions, commodity prices, and international trade dynamics also have an impact on Kenya's GDP growth. Fluctuations in these external factors can affect export earnings and overall economic stability (United Nations Conference on Trade and Development, various years).

Generally, GDP trends in Kenya since 1980 showcase the country's economic journey, reflecting both periods of growth and challenges. Economic reforms, government policies, and the performance of key economic sectors have been instrumental in driving GDP growth.

Unusual economic circumstances

'Unusual economic circumstances' refer to unique/exceptional or atypical situations that significantly deviate from the usual economic conditions or trends experienced by an economy. They can either be negative or positive shocks that Kenya as a country has experienced which might have significant repercussions on an economy such as a significant influence on the quantity of total tax revenue estimate presented over the years of analysis. Such circumstances include Global Financial Crisis, COVID-19 Pandemic, Natural Disasters, and Geopolitical Events among others.

Global Financial Crisis (2007-2008): The 2007-2008 global financial crisis was an unusual economic circumstance that originated in the United States' housing market and quickly spread worldwide. It resulted in severe disruptions to financial markets, banking systems, and international trade, leading to a global recession (International Monetary Fund, 2009).

COVID-19 Pandemic: The COVID-19 pandemic, which emerged in late 2019, caused widespread disruptions to economies worldwide. Governments imposed lockdowns, travel restrictions, and social distancing measures, leading to a significant contraction in economic activities (World Bank, 2020).

Natural Disasters: Major natural disasters such as earthquakes, hurricanes, or tsunamis can cause extensive damage to infrastructure, businesses, and livelihoods, impacting the affected region's economy for an extended period (World Bank, 2018).

Geopolitical Events: (Maandamano) Unforeseen geopolitical events, such as trade wars, sanctions, or political instability, can have profound effects on an economy, disrupting trade relationships and supply chains (European Central Bank, 2018).

These circumstances are often unexpected, rare, and have a substantial impact on the economy's performance, structure, and overall functioning.

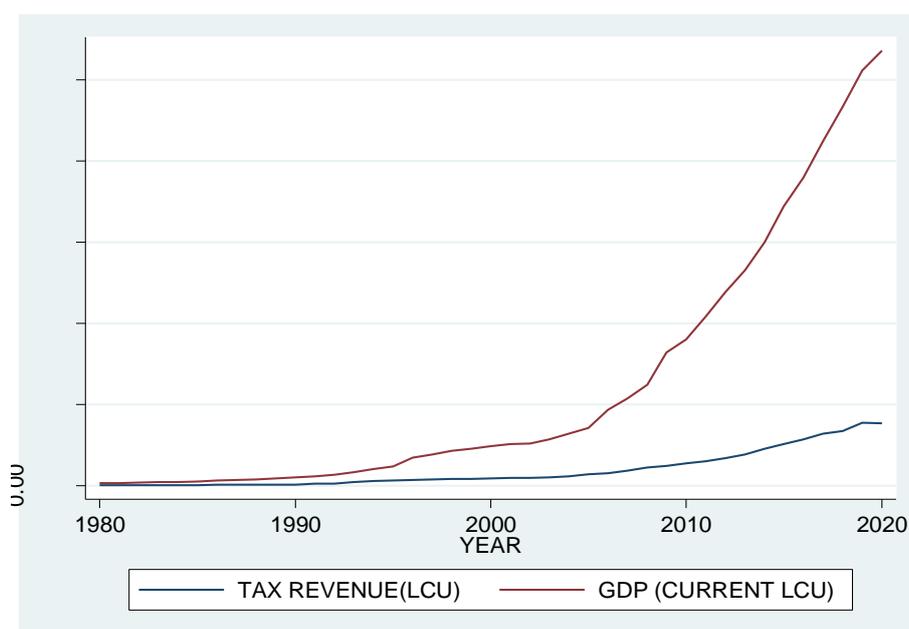


Fig. 3: Relationship between Total Tax revenue and GDP in Kenya

Theories on Total Tax Revenue:

Laffer Curve. The Laffer Curve, proposed by economist Arthur Laffer, suggests that there is an optimal tax rate that maximizes total tax revenue. According to the curve, at very low tax rates, tax revenue is low because there is little incentive for economic activity. Conversely, at very high tax rates, tax revenue decreases as economic activities decline due to disincentives caused by excessive taxation.

The Laffer Curve implies that there is a tax rate between these extremes where total tax revenue is maximized (Laffer, 1974).

Haig-Simons Income Concept. The Haig-Simons income concept argues that total tax revenue should be derived from taxing all forms of income, including wages, profits, rents, and capital gains. This theory advocates for a comprehensive and inclusive tax base that captures all economic activities to ensure fairness and efficiency in revenue generation (Haig, 1921; Simons, 1938).

Ability-to-Pay Principle. The ability-to-pay principle, proposed by economist Joseph Stiglitz, emphasizes that individuals and businesses should contribute to total tax revenue based on their ability to pay. This principle advocates for progressive taxation, where higher-income individuals are taxed at higher rates relative to their income, while lower-income individuals are taxed at lower rates. The approach aims to achieve a more equitable distribution of the tax burden (Stiglitz, 1982).

Tax Incidence Theory. The tax incidence theory examines how taxes are distributed between producers and consumers. It suggests that the economic burden of a tax is not solely borne by the party legally responsible for paying the tax. Instead, the burden may shift to other parties, depending on the relative price elasticities of demand and supply for the taxed goods or services. Understanding tax incidence is essential in assessing the impact of taxation on various economic agents and its implications for total tax revenue (Harberger, 1962).

Theories on GDP

Solow-Swan Growth Model. The Solow-Swan growth model, developed by Robert Solow and Trevor Swan, is a neoclassical theory that explains long-term economic growth in an economy. It suggests that GDP growth is influenced by the accumulation of physical capital, labor force growth, and technological progress. According to this model, economic growth will eventually reach a steady state, where the growth rate of GDP per capita stabilizes (Solow, 1956; Swan, 1956).

Real Business Cycle Theory. The Real Business Cycle (RBC) theory suggests that fluctuations in GDP and business cycles are primarily driven by real shocks, such as technology changes and productivity shocks. According to this theory, market forces and supply-side factors are the main drivers of economic fluctuations (Kydland & Prescott, 1982).

Theories on unusual circumstances:

Shock Absorption Theory. This concept emphasizes an economy's ability to absorb and recover from unexpected shocks. It includes analysing the resilience of financial systems, the flexibility of labour markets, and the effectiveness of fiscal and monetary policies in mitigating the adverse effects of shocks (Furceri & Mourougane, 2009).

Optimal Policy Response Theory. This theory focuses on identifying the optimal policy response to unusual economic shocks. It involves analysing the trade-offs between stabilization policies, such as fiscal stimulus and monetary easing, to mitigate the short-term effects of shocks while considering their long-term implications for inflation and debt sustainability (Ball, 2014).

List of empirical Studies and their findings

Kinyua, J.D, (2013). The relationship between tax revenue and economic growth in Kenya.

Findings- Significant relationship between total tax revenue and economic growth in Kenya

Mwangi, E.M, (2022). Impact of taxation on economic growth in Kenya.

Findings- Taxation has a negative, significant effect on economic growth.

Kimani, F (2022). The causal effect between tax revenue and economic growth in Kenya.

Findings- Tax revenue contributes significantly towards enhancing economic growth in Kenya.

Muriithi, C, (2013). The relationship between government revenue and economic growth in Kenya

Gisaina W, (2020). Effect of macroeconomic factors on tax revenue performance in Kenya (1991 – 2019).

Findings- GDP and government spending positively impacted tax revenue whereas, inflation was found to lower tax revenue

Collaku, L, & Hajdini, A (2023). Correlation between Tax Revenue and Gross Domestic Product; Evidence from developing economy.

Findings- Tax revenue growth could cause GDP growth, and GDP growth can cause tax revenue.

Ouma, D.O (2019). Revenue Effects of Tax Reforms, Economic Growth and Political Environment in Kenya.

Findings- 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;

III. METHODOLOGY

The paper adopted a quantitative research design to find out the effect of independent variables on the dependent variable, total tax revenue, which allowed effect conclusions to be arrived at. This paper included all the data on total tax revenue and GDP for Kenya covering the period 1980 to 2020. This period was chosen due to availability of data. No sampling was done therefore because of the small population of 41 elements, hence a census survey was resorted to. A census survey is where every element of the population is examined (Cooper and Schindler, 2011). The paper mainly used secondary data where data was collected from different government publications including statistical abstracts, World Bank Publications and OECD (Organization for Economic, Co- Operation and Development). Gross Domestic Product (GDP) data was mainly collected from the World Bank Development Report (2022), whereas data on total tax revenue was compiled from different sources including the World Bank Development Report (2022), OECD and statistical abstracts provided by KNBS.

Data analysis and presentation

Analysis of data was done by use of STATA by regressing the natural logarithms of total tax revenue against GDP and dummy variables where the model adopted by Sobel (1996) was utilised to measure changes in tax revenue due to changes in GDP. The tax revenue was however adjusted by use unusual occurrences which were presented by use of dummies. Logarithms are suitable in a model since they reduce OLS problems such as multicollinearity, heteroscedasticity and autocorrelation. The model that was adopted to estimate the base to GDP elasticity is presented was adopted from the study by Ouma (2013), and is presented as follows:

$$\text{Given that } T = e^{\alpha} e^{\sum r_i D_i} Y^{\beta} e^{\varepsilon}, \dots \dots \dots (i)$$

Introducing natural logarithms, then equation (i) becomes,

$$\ln T_t = \alpha + \beta \ln Y_t + r_1 D_1 + r_2 D_2 + r_3 D_3 + r_4 D_4 + r_5 D_5 + r_6 D_6 + r_7 D_7 + r_8 D_8 + r_9 D_9 + r_{10} D_{10} + r_{11} D_{11} + r_{12} D_{12} + r_{13} + \varepsilon_t \dots \dots \dots (ii)$$

Where T_t is the tax revenue at period t for all types of taxes, Y_t is the indicator for GDP and it represents the cumulative GDP at time t, D_i 's are the dummies representing unusual occurrences that have happened over the years of analysis. D_1 represent political instability, D_2 financial crisis, D_3 Tax Reforms, D_4 Booms, D_5 Ethnic Violence, D_6 Introduction of Kenya Revenue Authority, D_7 Elnino, D_8 Drought, D_9 Peaceful elections, D_{10} Post Election Violence, D_{11} New Constitution, D_{12} Inflation and D_{13} Covid-19. α is the constant for the model, β is elasticity, r_i 's (where $i = 1, 2, \dots, 13$) are the coefficients for dummy variables which also measure elasticity and ε_t is the white noise. To estimate elasticity of the coefficients, adjusted time series data for total tax revenue was used where dummy variables were utilised to remove effects of discretionary tax changes.

Stationarity test

Augmented Dickey-Fuller Test was used to test whether tax revenue and GDP data were stationary. It was established that the data was non-stationary at levels as well as when subjected to unit root test. Hence the Tax revenue data became stationary at its first difference, while GDP data became stationary at the second difference. Stationarity results are presented in table 1 and 2 below.

TABLE I: TOTAL TAX REVENUE STATIONARITY RESULTS

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. dfuller TaxRev_d1, drift regress lags(0)
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Dickey-Fuller test for unit root          Number of obs   =          39
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	Test Statistic	Z(t) has t-distribution		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-3.105	-2.431	-1.687	-1.305

p-value for Z(t) = 0.0018

D.TaxRev_d1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TaxRev_d1						
L1.	-.4091755	.1317601	-3.11	0.004	-.6761468	-.1422042
_cons	1.65e+10	8.23e+09	2.00	0.053	-2.17e+08	3.31e+10

Table 1 shows that the log of total tax revenue became stationary in its first difference with a significant level of 5 percent since p-value=0.004.

TABLE II: GDP STATIONARITY RESULTS

```
. dfuller GDP_d2, drift regress lags(0)
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Dickey-Fuller test for unit root          Number of obs   =          38
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	Test Statistic	Z(t) has t-distribution		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-10.105	-2.434	-1.688	-1.306

p-value for Z(t) = 0.0000

D.GDP_d2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
GDP_d2						
L1.	-1.592856	.1576376	-10.10	0.000	-1.91256	-1.273152
_cons	2.62e+10	2.28e+10	1.15	0.257	-2.00e+10	7.25e+10

Table 2 shows that the log of GDP became stationary in its second difference with a significant level of 1 percent since p-value=0.001.

IV. RESULTS AND DISCUSSION

An appropriate linear regression model was adopted and analysed using Ordinary Linear Regression (OLS) method. Total tax revenue (ln Tax revenue_d1) was regressed on the independent variable GDP (lnGDP_d2) and the dummies (political instability, financial crisis, Tax Reforms, Booms, Ethnic Violence, Introduction of Kenya Revenue Authority, Elnino, Drought, Peaceful elections, Post-Election Violence, New Constitution, Inflation and Covid-19). Regression analysis results are presented in table 3 below.

TABLE III: REGRESSION MODEL

Source	SS	df	MS			
Model	105.503975	14	7.53599821	Number of obs =	39	
Residual	40.4686389	24	1.68619329	F(14, 24) =	4.47	
Total	145.972614	38	3.84138457	Prob > F =	0.0007	
				R-squared =	0.7228	
				Adj R-squared =	0.5610	
				Root MSE =	1.2985	

logTaxRev_d1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
dipolitica~y	1.070621	1.020726	1.05	0.305	-1.036054	3.177295
d2financia~s	-1.653364	1.836175	-0.90	0.377	-5.443044	2.136316
d3taxreforms	-.0453254	.6724573	-0.07	0.947	-1.433209	1.342558
d4booms	-5.867617	1.339483	-4.38	0.000	-8.632174	-3.103059
d5ethnicvi~e	-1.602091	1.653522	-0.97	0.342	-5.014792	1.81061
d6kra	1.35471	1.352554	1.00	0.327	-1.436825	4.146244
d7elnino	-2.11892	1.633134	-1.30	0.207	-5.489543	1.251702
d8drought	-.122663	.7388643	-0.17	0.870	-1.647604	1.402278
d9peaceful~s	-3.516596	1.334599	-2.63	0.015	-6.271072	-.7621194
d10pev	1.20447	1.649997	0.73	0.472	-2.200957	4.609897
d11newcons~n	-.3592215	1.543838	-0.23	0.818	-3.545546	2.827103
d12inflation	-.0463711	1.372695	-0.03	0.973	-2.879475	2.786732
d13covid19	-1.808831	1.391112	-1.30	0.206	-4.679945	1.062283
lnGDP_d2	.518679	.1258145	4.12	0.000	.2590107	.7783474
_cons	11.26674	2.976103	3.79	0.001	5.124362	17.40911

39 observations were used in this analysis and the results indicate that the specified model was statistically significant since the F statistic is 0.0007. However, adjusted R-squared of 0.5610 indicate that 56.1 percent of the variation in total tax revenue is explained by the explanatory variables (GDP) and the dummies. The coefficients of ln GDP, political instability, introduction of KRA and post-election violence are positive, exhibiting a positive relationship with Total tax revenue, while coefficients of financial crisis, tax reforms, booms, ethnic violence, elnino, drought, peaceful elections, new constitution, inflation and covid-19 have negative signs implying a negative relationship with total tax revenue. However only three variables were found to have a significant effect on the dependent variable total tax revenue. The variables include ln GDP and booms with significance level of 1 percent each and peaceful elections with significance level of 5 percent.

From the regression results, GDP has an elasticity of 51.9 percent, while booms and peaceful elections reveal negative elasticity due to the negative coefficients of -5.87 and -3.51 respectively. This means that any increase in GDP generally led to increase in total tax revenue by 51.9 percent while the booms and peaceful elections reduced total tax revenues. The study by Musgrave and Musgrave (1989) supports this positive effect of GDP on total tax revenue. According to the Economic Survey (1990), the negative effect of coffee and tea booms that were experienced in 1989 could be due to abolition of tax on these two commodities which apparently reduced the total amount of exercise duty in the financial year 1989/90.

Peaceful elections revealed a 5 percent significance level with a negative effect on total tax revenue of -3.52. Peaceful elections were experienced in 2002 during the regime changes from former Kenya president Daniel Moi to Mwai Kibaki. This negative effect could be due to pre-election uncertainties experience which affected most economic activities in most sectors in Kenya such as the banking, manufacturing, export processing zones and transport amongst other sectors. This may have resulted into a significant reduction in the amount of corporate taxes collected in 2002 compared to 2001 (Kenya Economic Survey, 2003).

V. CONCLUSION

The paper sought to examine effect GDP and unusual circumstances on total tax revenue. It has been established that among all the identified circumstances, only two of them had a significant effect on total tax revenue. The circumstances are peaceful elections and booms as shown by their estimated elasticities D_4 and D_9 . Recommendations are that the government should put an effort towards managing the various economic shocks to allow increased buoyancy between total tax revenue and GDP. In addition, the policymakers need to carefully consider the effects of booms and peaceful elections on tax revenue and design appropriate strategies to maintain buoyancy between GDP and total tax revenue. Overall, this study contributes to the existing literature on tax revenue, GDP, and economic shocks in Kenya. The findings can contribute towards enabling evidence-based policymaking and promote a stable and sustainable revenue base for the country's economic growth and development in general.

REFERENCES

- [1] Cooper, D., & Schindler, P.P., (2011). Business Research Methods. McGraw-Hill, New York.
- [2] Economic Survey (1990).
- [3] Muraya, N. (2012). Taxation and revenue stability in Kenya. Retrieved on 22 January 2023 from <http://erepository.uonbi.ac.ke/bitstream/handle/11295/63071/taxation%20and%20revenue%20stability%20in%20kenya.pdf?sequence=3>
- [4] Mansour, M. (2014). A Tax Revenue Dataset for Sub-Saharan Africa: 1980-2010. Retrieved on 22 January 2023 from <https://ferdi.fr/dl/df-NaGTBKqzHUcyvUacbeA9Urvs/ferdi-i19-a-tax-revenue-dataset-for-sub-saharan-africa-1980-2010.pdf>
- [5] Kenya Economic Survey (2003).
- [6] Musgrave, R., and Musgrave, P., (1989). Public finance in theory and practice (5th ed.). New York: McGraw-Hill Book Co.
- [7] OECD (2008). Revenue Statistics 1965-2007, OECD, Paris. OECD (2008). Taxation and Economic Growth, Economics Department Working Papers, No. 620, OECD, Paris.
- [8] OECD (2021). Revenue Statistics 2001-2020, OECD, Paris. OECD (2021). Data extracted on 22 Jan 2023 14:08 UTC (GMT) through <https://stats.oecd.org/Index.aspx?DataSetCode=REVKEN#>
- [9] Sobel, R., (1996). Measuring the growth and variability of tax bases over the business cycle. National Tax Journal, 49, 534–52.
- [10] World Bank Development Report (2022).