Original Paper
https://doi.org/10.15826/jtr.2025.11.3.224

Implications of Tax Reforms on Tax Potential in Kenya: An Econometric Analysis

Irene Wanjiku Karuga ✉, **Moses Mutharime Mwito**, **Paul Joshua Mugambi**
University of Embu, Embu, Kenya
✉ *wanjikaruga@gmail.com*

ABSTRACT
Taxation serves as a crucial financial foundation for economic and social development, yet inefficient systems can impede compliance and efficiency. Kenya have implemented various tax reforms to increase revenue for public finance. However, despite the numerous tax reforms implemented, Kenya has continued to experience increasing budget deficit. This research therefore aims to examine the impact of tax reforms on tax potential in Kenya. The research examines the influence indirect tax reforms, direct tax reforms, and tax rate reforms has on tax potential in Kenya. The study utilized autoregressive distributed lag (ARDL) modeling to examine the short-term and long-term effects of tax reforms on tax potential in Kenya using annual secondary data spanning 52 years (1970–2022). The findings indicated that Kenya's tax structure is not elastic or buoyant. A positive connection was established between indirect tax reforms and tax potential in the long term. A positive relationship between direct tax reforms and tax potential was also established in the long run. Further, tax rate reforms was found to be insignificant in influencing tax potential in Kenya. The study also incorporated manufacturing as a share of gross domestic product and inflation as control variables. The results indicated a strong and positive correlation between manufacturing input and the potential for taxation over the long term. The findings offer valuable insights for policymakers in Kenya seeking to enhance tax revenue mobilization strategies. The positive relationship between indirect tax reforms and direct tax reforms, tax system being neither buoyant nor elastic emphasized the importance of creating and executing additional reforms, with particular emphasis on investing in those that enhance the tax system's resilience and connect it more directly to economic growth.

KEYWORDS
tax potential, tax elasticity, tax buoyancy, indirect tax reforms, direct tax reform, ARDL

JEL C01, C12, C22, H21

УДК 336.22

Влияние налоговых реформ на налоговый потенциал Кении: эконометрический анализ

Ирен Ванджику Каруга ✉, **Мозес Мутхариме Мвито**, **Пол Джошуа Мугамби**
Университет Эмбу, г. Эмбу, Кения
✉ *wanjikaruga@gmail.com*

АННОТАЦИЯ
Налогообложение служит важнейшей финансовой основой для экономического и социального развития, однако неэффективные системы могут препятствовать соблюдению требований и эффективности. Кения провела различные налоговые реформы, чтобы увеличить доходы государственных финансов. Однако, несмотря на проведенные многочисленные налоговые реформы, Кения продолжает испытывать растущий дефицит бюджета. Данное исследование направлено на изучение влияния налоговых реформ на налоговый потенциал Кении. В исследовании рассматривается влияние реформ косвенного налогообложения, реформ прямого налогообложения и реформы налоговых ставок на

налоговый потенциал Кении. В исследовании используется авторегрессионное моделирование распределенного лага (ARDL) для изучения краткосрочного и долгосрочного влияния налоговых реформ на налоговый потенциал Кении с использованием ежегодных вторичных данных за 52 года (1970–2022). Полученные данные свидетельствуют о том, что налоговая структура Кении не является эластичной и динамичной. Установлена положительная связь между реформами косвенного налогообложения и налоговым потенциалом в долгосрочной перспективе. В долгосрочной перспективе устанавливается положительная связь между реформами прямого налогообложения и налоговым потенциалом. Кроме того, было установлено, что реформы налоговых ставок не оказывают существенного влияния на налоговый потенциал Кении. Исследование также включает производство как долю валового внутреннего продукта и инфляцию в качестве контрольных переменных. Результаты указывают на сильную и положительную корреляцию между затратами на производство и налоговым потенциалом в долгосрочной перспективе. Полученные результаты дают ценную информацию для политиков в Кении, стремящихся улучшить стратегии мобилизации налоговых доходов. Положительная взаимосвязь между реформами косвенного налогообложения и реформами прямого налогообложения, поскольку налоговая система не является ни динамичной, ни эластичной, подчеркивает важность разработки и проведения дополнительных реформ, с особым акцентом на инвестиции, которые повышают устойчивость налоговой системы и более тесно связывают ее с экономическим ростом.

КЛЮЧЕВЫЕ СЛОВА
налоговый потенциал, налоговая эластичность, налоговая устойчивость, реформы косвенного налогообложения, реформа прямого налогообложения, ARDL

1. Introduction

All economies strive to achieve tax potential as it can ensure the availability of enough revenue to fund government projects and foster economic development. However, achieving tax potential has been elusive for most developed and developing countries and this has resulted to growing fiscal deficits. The growing fiscal deficits in the developing economies have been attributed to the expansion of government expenditure and weak revenue mobilization [1]. To address the deficits and enhance tax capacity, many countries around the globe have initiated tax reforms [2]. For instance, developing countries have embarked on tax reforms with elaborate tax structures designed to increase tax administration, provide an efficient, straightforward, and fair tax system, and generate sufficient tax revenue [3].

Tax revenue remains the most reliable and legitimate source of income for the government, unlike other sources such as debt, aid, financial assistance, and fees, which tend to be less dependable and sustainable. These alternative revenue streams are frequently erratic and unstable [4]. In Kenya, the taxation framework has experienced ongoing changes since independence, focusing on increasing its flexibility, ensuring revenue growth, and improving transparency within the system [2]. The necessity for the implementation of tax reforms is rooted on the need to boost the efficacy of tax collection and to consolidate the economic and social gains in the tax system [5].

In the fiscal year 1972–1973, the sales tax was introduced to generate more tax revenue and address the economic shock that arose from the oil crisis of the early 1970s resulted in decreasing tax revenue. In the fiscal year 1974–1975, the government instituted trade tax reforms to address the growing trade deficits caused by soaring oil prices and to shield the domestic manufacturing industry from competition with imports [1]. Later, the tax modernization program was adopted in 1986 to raise tax income to 22% of gross domestic product (GDP); however, in 1992, that goal was modified to 28% [6]. Sales tax was replaced with value-added tax in 1990 [7].

The Kenya Revenue Authority (KRA) was incorporated in 1995 as part of an organizational overhaul in tax management, primarily to centralize tax collection [8; 9].

As a result of reduced revenue collection linked to manual procedures, KRA proposed a "Revenue Administration Reforms Modernization Programme (RARMP)" in the 2004/2005 period [1]. The launch of the Simba system in 2005, the creation of the document processing center, the design of the customs oil stocks information system (COSIS), the roll-out of the electronic tax register to tackle the challenge of poor record keeping, and the inception of the integrated tax management system (ITMS) in 2008 to promote online registration, reduce compliance costs, and improve tax collection were some of the significant reforms implemented under the RARMP [2].

However, despite government's numerous tax reform measures, the actual tax revenue has continued to fall short of the expected revenue making it impossible for the government to offset the fiscal shortfall in the country [10]. As a result, the options for addressing fiscal shortfalls include increasing revenue through taxation, which necessitates the establishment of a tax system capable of generating sufficient income to support government expenditures [1].

As such, there have been numerous empirical studies on tax reforms. However, the majority of them [1; 6; 11; 12] have concentrated on tax revenue productivity and tax revenue mobilization without taking tax potential into account. Therefore, building on the previous research, the current study assesses tax capacity resulting from tax policy changes implemented from 1970 to 2022.

Further, there exist conflicting empirical findings on studies that examine tax elasticity and buoyancy. For instance, whereas Murunga et al. [1] and found that Kenya's taxation framework is inflexible yet resilient, Samwel& Isaac [13] established that the tax system in Kenya is unresponsive and lacks buoyancy. It is important to highlight that most empirical research on the impact of tax reforms on tax potential has focused on developed economies. As a result, there is insufficient evidence connecting tax reforms to tax potential specifically in Kenya.

This study was carried out with the view to assess the relationship between tax reforms and tax potential in Kenya for the period 1970-2022 utilizing the autoregressive distributed lag (ARDL) model. In line with the general purpose, the study has the following specific objective: (1) To establish the effect of indirect tax reforms on tax potential in Kenya; (2) To determine the effect of direct tax reforms on tax potential in Kenya; (3) To assess the effect of tax rate reforms on tax potential in Kenya.

To address the objectives, the study pointed out the following hypothesis:

H1: Indirect tax reforms have no effect on tax potential in Kenya.

H2: Direct tax reforms have no effect on tax potential in Kenya.

H3: Tax rate reforms have no effect on tax potential in Kenya.

This study contributes to existing literature in two ways.

First, it uses the autoregressive distributed lag model to estimate both the short-run and long-run effects of tax reforms on tax potential in Kenya.

Second, it applies the concepts of tax buoyancy and tax elasticity to determine whether the Kenyan tax system is buoyant or elastic. This analysis will provide important insights for policy implications within the framework of Kenya's tax system.

The organization of the paper is outlined as follows: Section 2 explores the literature review, while Section 3 outlines the econometric model and the dataset utilized in the analysis. Section 4 delivers the results, 5 presents discussion of the results, and Section 6 concludes the study with final thoughts and proposes policy recommendations.

2. Literature Review

2.1. Theoretical Literature Review

This study follows three theoretical assumptions.

First, Laffer theory, which was originally propounded by Laffer [14]. The theory demonstrates the connection between tax rates and the total revenue gathered by the government. The theory tries to arrive at an optimal tax rate beyond which tax revenues

for an economy tend to fall. When the tax rates exceed the optimum point, this may lead to tax evasion because taxpayers' incentives are suppressed, economic activity reduces, and the leisure hours increase [14]. The optimum tax revenue is, as the tax rate increases the tax revenue increases up to the optimum point then it starts to decline [15].

The Economic effect holds that lower tax rates engender a beneficial influence on output, employment and work, and, consequently, the tax base, by improving economic growth through incentives, while the arithmetic effect states that a reduction in the tax rate yields a proportionate fall in tax revenue, and vice versa Udeaja et al. [16]. Based on this argument, Kenya must revise its taxation structure to increase tax revenues but should be done carefully to avoid negative effects on productivity.

Second, Optimal Tax Theory, developed by Ramsey [17] and later extended by Mirrlees [18]. Optimal taxation theory also referred to a normative second-best policy analysis explores how a tax system should be designed to maximize social welfare while considering various constraints by Udeaja et al. [16]. The idea assumes that in any system of the economy whereby equality is respected, income taxes would be critical policy instrument. It also urges that progressive redistributive taxation is frequently tied to a man's income. This theory can be used to describe why the customs system requires it to be reformed so as maximize tax revenue. The basic critique of the theory of optimal taxation is the lack of a clear answer about the optimal level of taxes in which the consumers can maintain the highest possible level of preference, given the government needs for goods and services, competitive production relations, and the consumer's demand-supply reactions. It also ignores the efficiency and equity issue that arises from the cost of collection and enforcement of taxes [18].

Third, Classical Theory of Taxation, Smith advocated that the taxes levied on individuals should correspond to the advantage they gain from government services and that the tax system ought to be clear, dependable, and effective. This theory tackles the issues of who should be taxed, the appropriate amount, and the method of taxation. Classical theory of taxation also follows the basic or traditional supply side tax policy, where tax reforms are recommended which eliminate loopholes in tax system and lower nominal progressivity by Gandhi [19]. This theory is significant to this research as Kenya is anticipated to reform its tax system to target those who can afford to pay without placing an undue burden on taxpayers, to significantly boost total tax revenue.

2.2. Empirical Literature Review

2.2.1. Effect of indirect tax reforms on tax potential

The empirical analysis of tax systems and reforms reveals significant insights into the determinants of tax revenue and the impact of policy changes. The reliance on indirect taxes has expanded at the expense of direct taxes by Karingi et al. [20]. There are several studies in the reviewed literature that examined the impact of indirect tax reforms on tax revenue.

Benard et al. [21] estimated the correlation between tax policy changes and tax revenue in Kenya for the period 2001 and 2021. Using trends to analyze tax income as well as tax to GDP ratio in Kenya. The results revealed a significant increase in Kenya's tax revenue from tax reforms. It noted a shift towards direct taxes which increased both in absolute and as a portion of total tax revenue, indicating improved compliance and administrative efficiency. The study further noted that while indirect taxes traditionally dominated, the gap with direct taxes has narrowed leading to a more balanced revenue structure. However, the study used trends to evaluate tax policy changes on indirect tax revenue and thus the current study builds on this study by employing Autoregressive distributed lag (ARDL) technique which captures both the short-run and long-run relationship indirect tax policy reforms and tax revenue Kenya.

Kanyi & Karui [12] examined the effects of tax reforms on tax revenue in Kenya for the period spanning 9 years (2004–2013). The study employed the correlation study design

and trend analysis. The results revealed that domestic Taxes and Customs showed that all the coefficients of the model were positive and significant at 5% level of significance. Therefore, tax revenue can be predicted using domestic taxes and custom taxes. However, the study failed to integrate the indirect tax reforms direct tax reforms and thus the current study will improve on this study by integrating the tax reforms thus bringing a better understanding. Also, the study used few year for analysis that is 9 years. Therefore, the current study builds on this study by using a wider period spanning 52 years (1970–2022).

In the context of Kenya, the relationship indirect tax reforms and tax potential requires scrutiny, given the unique reforms that the government has implemented and the challenges the taxpayers face as most reforms affect their personal income. Understanding this connection is crucial for designing effective income-generating policies and formulating sustainable development strategies.

2.2.2. Effect of direct tax reforms on tax potential

The relationship between direct tax reforms and tax income is an important area of study for understanding how tax revenue is generated in Kenya. A well-structured tax system is one of the most effective ways to mobilize a country's internal resources, and it helps create an environment that fosters economic growth and development. Numerous studies have investigated the link between direct tax reforms and tax revenue capacity in Kenya, using various methodologies to reveal detailed insights.

Manyanza [22] examined the effectiveness of tax revenue for specific nations within the East African community for the period of study spanning 1984 to 2016 using ordinary least squares model. According to the research findings, the establishing of the East Africa Community (EAC) increased direct taxes on all chosen taxes in Kenya while increasing overall revenue, exercise tax, and direct tax in Uganda. In terms of productivity, integration raised Kenya's total revenue, VAT, and direct tax productivity while increasing Uganda's excise tax and direct tax productivity and decreasing Tanzania's. However, the study was centered on the integration between selected East African Community (EAC) in increasing tax revenue productivity. The present research builds upon this previous study by exploring Kenya's tax system reforms and how the direct tax reforms influence tax potential.

Ouma [2] analyzed the effect of tax reforms, economic growth and political environment on total tax, direct tax and indirect tax revenues using annual data for the period 1964–2016. Various techniques of analysis were employed: descriptive statistics, multi-segment regressions and nonlinear regressions. Results show that: all taxes responded positively to each of the tax reforms; changes in all taxes were affected by the reforms. However, the study failed to incorporate the effect of direct tax reforms on tax capacity in Kenya and thus the current study builds on it by incorporating the direct tax reforms on tax capacity. Further, the current study will build on this study by utilizing the ARDL technique which will provide the long term and short-term relationship between direct tax reforms and tax revenue capacity in Kenya.

Hakim [23] examines the direct taxes versus indirect taxes impact on economic growth and total tax revenue in a panel of 51 countries using the dynamic panel generalized method of moment (GMM) for analysis. The findings reveal that, direct taxes are significant and negatively correlated with the economic growth, while indirect taxes seem to have a positive but insignificant impact on the dependent variable. Additionally, this study also found a significant and positive contribution of direct taxes on the total tax revenue compared to indirect taxes. However, the study only investigated the impact of direct taxes and indirect taxes on economic growth and tax revenue but did not investigate direct tax reforms and indirect tax reforms influence tax potential in Kenya and therefore the current study improves on it by assessing the impact of direct tax reforms on tax potential in Kenya Spanning 52 years (1970–2022).

Ombasa [24] estimated the elasticity of direct taxes in Kenya for the period 2007 and 2017. The study employed the Error Correction Mechanism for data analysis. The results

revealed that direct taxes in Kenya are inelastic with elasticity value of 0.592 less than unit with an error correction coefficient of 0.7778. The study established that the direct tax revenue in Kenya is not responsive enough to changes in income growth since the coefficient of elasticity was less than a unity. However, the study only incorporated the elasticity of direct taxes and therefore the current study builds on this study by examining the influence of direct tax reforms on tax potential in Kenya. Further, the study uses very few years and thus the current study improves on it by using 52-year period between 1970 and 2022.

2.2.3. Effect of tax rate reforms on tax potential

Tax rate reforms are a critical factor influencing tax revenue performance in developing countries like Kenya. Empirical studies indicate that higher tax rates can significantly impair tax collection mechanisms and deter economic investments. When tax rates are elevated, taxpayers may feel burdened, leading to tax evasion and a decline in economic activities, as businesses become less profitable. There have been very few studies exploring the relationship between tax rate reforms and tax potential as a determining factor in Kenya.

Helcmanovská & Andrejovská [25] examined the effect of tax rates and tax revenues in the context of tax competitiveness in European Union (EU) for the period 2004 to 2019. Data was analyzed using multiple regression analysis. The study revealed that tax rates do not have a decisive influence on corporate tax revenues. However, the study did not take into consideration the effects tax rate has on tax potential in EU and therefore, the current study builds on this study by providing detailed information about the effects tax rate reforms have on tax potential. Further, the current study will improve this study by using ARDL model which will provide the short run and long run effects of tax rate reforms on tax potential in Kenya.

One of the attractions of a beneficial tax system is that tax revenue responds to movements in the level economic output. If tax revenues grow slower than the GDP, the tax system is deemed to be non-buoyant and vice versa [16]. There are several studies that explored the concept of tax buoyancy and elasticity.

Olukuru & Mandela [26] estimated the buoyancies of income tax, VAT, import tax, and excise tax in Kenya and South Africa from 1972 to 2014. Using an error correction model, they found that both countries have buoyant long-term tax systems, with revenues increasing as GDP grows. However, short-term buoyancy is lower, showing that tax revenues do not quickly adjust to economic changes.

Daniel et al. [27] estimated the responsiveness of Ghana's tax system to national income changes from 1970 to 2007 using the Dummy Variable Technique. They found that Ghana's tax system is both buoyant and elastic in the long run, with tax revenues growing more than proportionately with GDP. However, in the short run, buoyancy is lower than elasticity, indicating that tax revenues do not immediately adjust to GDP changes due to institutional and administrative delays.

Thuku et al. [5] examined the effects of tax reforms on tax buoyancy and elasticity in Kenya over a study period from 1963 to 2010. The study employed regression analysis on annual time series data. The modernizations that both revenue administration reform and modernization program (RARMP) and tax modernization program (TMP) had positive effects on both tax buoyancy and elasticity. However, this was not sufficient to help generate adequate revenue to finance the ever-rising government expenditure. However, this study only captured revenue administration reform and modernization program (RARMP) and tax modernization program (TMP) reforms and thus, the current study improves on this study by incorporating all tax reforms on both direct tax and indirect tax for the period ranging from 1970 to 2022.

Murunga et al [1] evaluated how responsive Kenya's tax system is to discretionary actions and GDP over a timeframe spanning from 1970 to 2018. The study utilized the vector error correction model. (VECM) to assess the tax system's performance by utili-

zing the principles of elasticity and buoyancy. The results indicated that the buoyancy coefficient of the tax system during the study period was 1.28, surpassing its elasticity coefficient of 0.91. Additionally, tax collection saw improvements due to tax policy changes. However, the study treated tax reforms as a single variable, which this analysis breaks down into indirect tax reforms, direct tax reforms, and tax rate reforms.

3. Methodology and Data

3.1. Methodology

3.1.1. Theoretical Framework

Elasticity and buoyancy are the two measures of tax revenue productivity of a tax system that are estimated in this study using the Prest [28] framework.

This study follows the Mansfield [29] symbolic representation of elasticities as follows:

$$E_t^Y = \frac{\Delta T_t}{\Delta Y} \cdot \frac{Y}{T_t}; \tag{1}$$

$$E_t^y = \frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k}; \tag{2}$$

$$E_{tk}B_k = \frac{\Delta T_k}{\Delta B_k} \cdot \frac{B_k}{T_k}; \tag{3}$$

$$E_t^y = \frac{B_k}{\Delta Y} \cdot \frac{Y}{B_k}, \tag{4}$$

where T_t – represents total tax revenue, T_k – represents tax revenue from k^{th} tax, Y – represents income measured by gross domestic product (GDP), B_k – represents the base of the k^{th} tax, Δ – represents the discrete change in the variable associated with it.

$$E_{ty} = \frac{T_1}{T_t}\left(\frac{\Delta T_1}{\Delta Y} \cdot \frac{Y}{T_1}\right) + \ldots + \frac{T_k}{T_t}\left(\frac{\Delta T_k}{\Delta Y} \cdot \frac{Y}{T_k}\right) + \ldots + \frac{T_n}{T_t}\left(\frac{\Delta T_n}{\Delta Y} \cdot \frac{Y}{T_n}\right). \tag{5}$$

Equation (5) indicates the overall elasticity of total tax revenue in relation to income is represented by the weighted average of the individual tax elasticities.

$$E_n^y = \left(\frac{\Delta T_k}{\Delta B_k} \cdot \frac{B_k}{T_k}\right) \cdot \left(\frac{\Delta B_k}{\Delta Y} \cdot \frac{Y}{B_k}\right). \tag{6}$$

Equation (6) indicates the elasticity of a specific tax can be expressed as the multiplication of the elasticity of that tax in relation to its base and the elasticity of the base concerning income.

According to equations (5) and (6), in a system that includes n taxes, the sensitivity of overall tax revenue to fluctuations in income is determined by multiplying the elasticity of the tax base concerning income by the tax-to-base elasticity for each individual tax, adjusted for the significance of that tax within the overall framework. Thus:

$$E_{ty} = \frac{T_1}{T_t}\left[\left(\frac{\Delta T_1}{\Delta B_1} \cdot \frac{B_1}{T_1}\right)\left(\frac{\Delta B_1}{\Delta Y_1} \cdot \frac{Y_1}{B_1}\right)\right] + \ldots + \frac{T_k}{T_t}\left[\left(\frac{\Delta T_k}{\Delta B_k} \cdot \frac{B_k}{T_k}\right)\left(\frac{\Delta B_k}{\Delta Y} \cdot \frac{Y}{B_k}\right)\right] + \\ + \ldots + \frac{T_n}{T_t}\left[\left(\frac{\Delta T_n}{\Delta B_n} \cdot \frac{B_n}{T_n}\right)\left(\frac{\Delta B_n}{\Delta Y} \cdot \frac{Y}{B_n}\right)\right]. \tag{7}$$

3.1.2. Empirical Model

Tax buoyancy and elasticity were calculated using equation (7), and a Cobb-Douglas production function is employed to connect tax revenue with national income as illustrated:

$$T = e^{\alpha} Y^{\beta} e^{u}, \tag{8}$$

where T – represents tax revenue, Y – represents GDP, u – represents error term, α – represents constants, and e – represents natural number.

For buoyancy, equation (8) is logarithmically transformed as:

$$\ln T = \alpha + \beta \ln Y + u, \tag{9}$$

where β is the buoyancy coefficient.

Historical tax revenue data needs to be modified to remove discretionary tax measures (DTMs) from the reported tax revenue to accurately estimate income elasticity. To achieve this, the proportional adjustment method (PAM) was employed. This method has been adapted by other studies such as [1]:

$$T_{i,j} = T_{j-1} \frac{T_{j-2,j-1}}{T_{j-1}} \cdots \frac{T_{2,3}}{T_3} \cdot \frac{T_{1,2}}{T_2}, \tag{10}$$

where T_j – denotes actual yield in the j^{th} year, $T_{i,j}$ – signifies the collection of the j^{th} year modified according to the structure of the i^{th} year selected as the base year and $T_{j-1,j} = T_j - D_j$; with D_j – representing the revenue impact (either positive or negative) in the j^{th} year due to the discretionary change occurring that year.

Equation (9) are re-specified to incorporate tax rate reforms, indirect tax reform, direct tax reforms and control variables:

$$\ln T = \alpha + \beta_1 \ln Y + \beta_2 TR + \beta_2 \ln IT + \beta_3 \ln DT + \beta_4 \ln Man + \beta_5 \ln infl + u, \tag{11}$$

$$\ln T^* = \alpha + \beta_1 \ln Y + \beta_1 TR + \beta_2 \ln IT + \beta_3 \ln DT + \beta_4 \ln Man + \beta_5 \ln inf + u, \tag{12}$$

where $\ln T$ is the natural log of tax revenue potential; $\ln T^*$ – represents natural log of adjusted tax revenue; TR – represents tax rate reforms; $\ln Y$ – represents natural log GDP; $\ln IT$ – represents natural log of indirect tax reforms; $\ln DT$ – represents natural log of direct tax reforms $\ln Man$ represents natural log of the manufacturing sector output and $\ln infl$ – represents natural log of inflation.

This research utilizes an ARDL model to assess the impact of tax reforms on tax potential in Kenya. The ARDL method is favored due to its various advantages, which include the capability to capture both the dynamic effects of lagged dependent variables and lagged exogenous variables, the use of a single reduced form equation to estimate long-term relationships, the ability to handle mixed order integration of I(0), I(1), or both, and its applicability to limited sample sizes while still yielding robust and consistent results [30].

For this study an ARDL model is specified as:

$$\begin{aligned} \Delta \ln T = {} & \alpha_0 + \beta_1 \ln T_{t-1} + \beta_2 \ln Y_{t-1} + \beta_3 TR_{t-1} + \beta_4 \ln IT_{t-1} + \beta_5 \ln DT_{t-1} + \\ & + \beta_6 \ln Man_{t-1} + \beta_7 \ln infl_{t-1} + \beta_8 \ln pop_{t-1} + \\ & + \sum_{i=1}^{k} \lambda_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{k} \lambda_{2j} \Delta \ln Y_{t-j} + \sum_{j=0}^{k} \lambda_{3j} \Delta TR_{t-j} + \sum_{j=0}^{k} \lambda_{4j} \Delta \ln IT_{t-j} + \\ & + \sum_{j=0}^{k} \lambda_{5j} \Delta \ln DT_{t-j} + \sum_{j=0}^{k} \lambda_{6j} \Delta \ln Man_{t-j} + \sum_{j=0}^{k} \lambda_{7j} \Delta \ln infl_{t-j} + e_{1t}, \end{aligned} \tag{13}$$

where β_1 to β_5 are coefficient of the long-run parameters, λ_{1j} to λ_{5j} – represent the coefficient of the short-run parameters j represents the number of variables in the model (where j = 1, 2, 3…), k – represent optimal lag order and e_{it} – represents the error term. To estimate the short run and long run interaction between tax reforms and tax potential in Kenya.

Equation (12) is rewritten as error correction model (ECM) version of ARDL model:

$$\begin{aligned}\Delta \ln T = {} & \alpha_0 + \sum_{i=1}^{k} \lambda_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{k} \lambda_{2j} \Delta \ln Y_{t-j} + \\ & + \sum_{j=0}^{k} \lambda_{3j} \Delta TR_{t-j} + \sum_{j=0}^{k} \lambda_{4j} \Delta \ln IT_{t-j} + \sum_{j=0}^{k} \lambda_{5j} \Delta \ln DT_{t-j} + \\ & + \sum_{j=0}^{k} \lambda_{6j} \Delta \ln Man_{t-j} + \sum_{j=0}^{k} \lambda_{7j} \Delta \ln infl_{t-j} + \delta_{6j} ECT_{t-j} + e_{1t}.\end{aligned} \quad (14)$$

3.2. Data

Data capturing annual time series from 1970 to 2022 was utilized for this study. The tax revenue to gross domestic product (*GDP*) ratio is used as a measure of tax potential (*T*), and tax rate reforms (*TR*) are measured using a dummy variable taking the value of 1 for the period after the incorporation of Kenya Revenue Authority (KRA) and 0 otherwise, total indirect tax revenue is used as a measure of indirect tax reforms, total direct tax revenue is used as a measure of direct tax reforms.

Data on tax revenue, tax rate reforms, and GDP were sourced from Kenya National Bureau of Statistics (KNBS) Economic Surveys from 1970 to 2022. Data on the revenue effects of discretionary tax changes were sourced from budget speeches. Manufacturing output and inflation are selected as control variables. Manufacturing output is measured using manufacturing output as a percentage change of gross domestic (GDP) and inflation is measured using consumer price index (CPI). Data on manufacturing output and inflation are sourced from World Development Indicators' databases of the World Bank. The variables were measured in Kenya Shilling (Ksh millions).

4. Results and Discussions

4.1. Unit Root Test

The research examined whether the variables contained a unit root by utilizing the Augmented-Dickey Fuller (ADF) and Zivot Andrews (Z-A) tests.

4.1.1. Augmented-Dickey Fuller Unit Root Test

The results shown in Table 2 demonstrate that the variables are integrated of zero order, denoted as I(0), and first-order, denoted as I(1).The natural log of tax potential ($\ln T$), natural log of adjusted tax potential ($\ln T^*$), natural log of GDP ($\ln Y$) natural log of indirect tax reforms ($\ln IT$), natural log of direct tax reforms ($\ln DT$), tax rate reforms (*TR*) and natural log of manufacturing sector ($\ln Man$) exhibits stationarity at first difference. Conversely, the natural logarithm of inflation ($\ln infl$) remains stationary at both its level and first difference.

Table 2. Results for the ADF

Variables	Lags	t-statistic	Critical Values			Remarks
			At 1%	At 5%	At 10%	
$\ln T$	1	–1.683	–3.579	–2.929	–2.600	
$\Delta \ln T$	1	–5.169***	–3.580	–2.930	–2.600	I(1)
$\ln T^*$	3	–0.233	–3.587	–2.933	–2.601	
$\Delta \ln T^*$	3	–3.876***	–3.594	–2.936	–2.602	I(1)
$\ln Y$	1	–1.381	–3.579	–2.929	–2.600	
$\Delta \ln Y$	1	–5.094***	–3.580	–2.930	–2.600	I(1)
$\ln IT$	1	–2.824*	–3.579	–2.929	–2.600	
$\Delta \ln IT$	1	–4.279***	–3.580	–2.930	–2.600	I(1)

Table 2. (end)

Variables	Lags	t-statistic	Critical Values			Remarks
			At 1%	At 5%	At 10%	
ln*DT*	1	–0.885	–3.579	–2.929	–2.600	
Δln*DT*	1	–4.232***	–3.580	–2.930	–2.600	I(1)
TR	1	–1.042	–3.579	–2.929	–2.600	
Δ*TR*	1	–5.000***	–3.580	–2.930	–2.601	I(1)
ln*Man*	1	–1.745	–3.579	–2.929	–2.600	
Δln*Man*	1	–4.891***	–3.580	–2.930	–2.600	I(1)
ln*infl*	1	–4.415***	–3.579	–2.929	–2.600	I(0)
Δln*infl*	1	–8.350***	–3.580	–2.930	–2.600	

Note: The significant level *, **, *** corresponds to 10%, 5% and 1% respectively.

Table 3. **Results for Zivot Andrews (Z-A) unit root test**

Variable	Year of structural break	t-statistic	Critical value			Decision
			1%	5%	10%	
ln*T*	1997	–7.837	–5.34	–4.80	–4.58	I(1)
ln*T**	2004	–7.325	–5.34	–4.80	–4.58	I(1)
ln*Y*	2011	–7.152	–5.34	–4.80	–4.58	I(1)
ln*IT*	2005	–8.473	–5.34	–4.80	–4.58	I(1)
ln*DT*	1996	–6.059	–5.34	–4.80	–4.58	I(1)
TR	1994	–6.275	–5.34	–4.80	–4.58	I(0)
ln*Man*	1996	–5.944	–5.34	–4.80	–4.58	I(1)
ln*infl*	1995	–6.388	–5.34	–4.80	–4.58	I(0)

4.1.2. Zivot Andrews Unit Root Test

Zivot & Andrews [31] created a test for unit roots that accounts for structural break. In Table 3, 1997, 2004, 2009, 2005, 1996, 1994, 1996, and 1995 represents the structural break points. The results indicate that the natural log of tax potential ln*T*, natural log adjusted tax revenue ln*T**, natural log of GDP ln*Y*, natural log of indirect tax reforms ln*IT*, natural log of direct tax reforms ln*DT*, and natural log of manufacturing output ln*Man* are stationary at first difference. Contrary to the ADF test, tax rate reforms *TR* are stationary at the level. The natural log of inflation ln*infl* is stationary at level.

4.2. Lag Length Selection

The research employed the Akaike Information Criterion (AIC) to determine the most suitable lag length for cointegration. From table 4, lag 1 and lag 3 is the best optimum maximum lag for both buoyancy and elasticity models respectively as indicated by the AIC. Therefore, the buoyancy model is constructed using a lag structure of (1, 1, 1, 1, 1, 0, 0) and the elasticity model is constructed using a lag structure of (2, 3, 1, 2, 0, 0, 0) which was determined to be the most effective and efficient choice for this study.

4.3. Bounds Cointegration Test

Table 6 shows that the F-statistic exceeds the upper bound critical value (I (1)) across all significance levels. This provides evidence of cointegrating relationship among the variables.

Table 6. Bounds Test for Cointegration for Buoyancy and Elasticity Models

Test Statistic	Value	K
F-statistic (Buoyancy model)	6.789	6
F-statistic (Elasticity model)	4.479	6
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

4.4. ARDL Regression Model

The ARDL regression in table 8 reveals several key findings. Key variables such indirect tax reforms and direct tax reforms to the tax potential exhibit significant effects. Indirect tax reforms and direct tax reforms show a positive relationship with tax potential in the long run. This suggests that if either indirect tax reforms or direct tax reforms tend to increase, tax potential will increase. Conversely, in the short run, if either indirect tax reforms or direct tax reforms increase tax potential will decrease as the result reveals that in the short run both indirect tax reforms and direct tax reforms are negative and significant.

Tax rate reforms are negative and insignificant in the long run. This suggests that tax rate reforms do not directly influence tax potential in the long run. However, tax rate reforms show a positive and significant relationship with tax potential in the short run. This positive relationship suggests that if tax rate reforms increase in the short-run, tax potential will tend to increase. Manufacturing output and inflation were included as control variables. Manufacturing output reveals a positive relationship with tax potential. This suggests that as manufacturing output increases tax potential will rise. Inflation shows an insignificant relationship with tax potential. *Gdp* shows that the tax system is not buoyant as the coefficient is less than unity (Table 8).

Table 8. Results of the ARDL Regression Model for Buoyancy

Cointegrating form			
Long-run coefficients			
Variable	**Coefficient**	**Std. error**	**t-statistic**
ln *Y*	–0.873351***	0.1634549	–5.34
ln *IT*	0.4542951***	0.0690267	6.58
ln *DT*	0.45933113***	0.150679	3.05
TR	–0.1271163	0.0795402	–1.60
ln *Man*	0.3901341**	0.1912	2.04
ln *infl*	0.0311285	0.0308495	1.01
Short run coefficient			
ln *Y*	–0.3994501**	0.1914195	–2.09
ln *IT*	–0.1856369*	0.108802	–1.71
ln *DT*	–0.2248973*	0.1225823	–1.83
TR	0.2548495***	0.092084	2.77
ECT	–0.633686***	0.121889	–5.20
C	2.490254***	0.7976772	3.12

Note: The significant level *, **, *** corresponds to 10%, 5% and 1% respectively.

Table 9. Results of the ARDL Regression Model for Elasticity

Cointegrating form			
Long-run Coefficients			
Variable	**Coefficient**	**Std. error**	**t-statistic**
ln *Y*	–0.9080597***	0.1114517	–8.15
ln *IT*	0.1210168***	0.0428245	2.83
ln *DT*	0.6272024***	0.1109766	5.65
TR	–0.068824	0.0454809	–1.51
ln *Man*	–0.0176577	0.1024135	–0.17
ln *infl*	0.0016762	0.0201528	–0.08
Short-run Coefficients			
Δln *Y*	–0.4243547***	0.1465718	–2.90
Δln *Y*(–1)	0.3818041***	0.126713	3.01
Δln *Y*(–1)	–0.2371144**	0.105543	–2.25
Δln *IT*	0.4260461***	0.067679	6.30
Δln *DT*	–0.0705002	0.099298	–0.71
Δln *DT*(–1)	–0.2342571***	0.0840799	–2.79
Δ *TR*	0.0341817	0.0260885	1.31
ECT	–0.5931798***	0.1168176	–5.08
C	3.700549***	0.8460576	4.37

Note: The significant level *, **, *** corresponds to 10%, 5% and 1% respectively.

The results in Table 9 reveal that indirect tax reforms have a positive and significant relationship with tax potential both in the short run and long run. This positive relationship suggests that as indirect tax reforms increase, tax potential tends to rise. Direct tax reforms show positive relationship with tax potential only in the long run and an insignificant relationship in the short run.

However, tax rate reforms reveal an insignificant relationship with tax potential both in the short run and in the long run. This suggests that tax rate reforms do not have a direct influence on tax potential both in the long run and short run. Manufacturing output and inflation shows an insignificant relationship with tax potential both in the long run and short run. GDP reveals that the tax system is inelastic since the coefficient is less than unity.

4.4. Diagnostic Tests

The Breusch-Godfrey Lagrange Multiplier (LM) test is utilized to assess whether the residuals of a regression model show signs of serial correlation. The results revealed no evidence for serial correlation, as the *p*-value of 0.35 and 0.57 are greater than all significance levels. To test for variations in variance of the ARDL model residuals the white test is employed where the findings revealed no heteroskedasticity in the residuals. The Ramsey RESET test is used to find specification errors in model [32].

Since the p-value of 0.81 and 0.69 exceeds all significance levels, the null hypothesis of well-specified model is accepted. In order to assess the normality of the residuals, the Jarque-Bera test was conducted, and the results indicate that the residuals follow a normal distribution. The results are summarized in Table 10.

Table 10. ARDL Diagnostic Test Results for Buoyancy and Elasticity models

Problem	Test	P-value		Conclusion
		Buoyancy model	Elasticity model	
Serial correlation	Breusch-Godfrey LM	0.5312	0.5710	No serial correlation
Heteroskedasticity	White test	0.4347	0.4334	There is homoscedasticity
Specification error	Ramsey RESET	0.8063	0.6969	Model is well specified
Normality	Jarque-Bera Test	0.1551	0.1013	Normally distributed

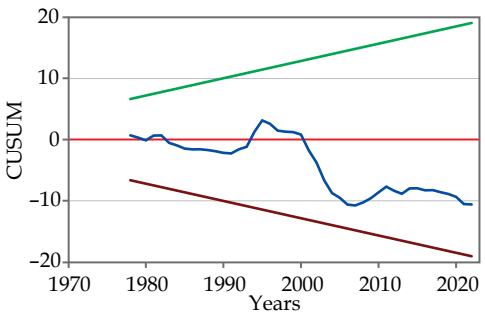

Figure 1. CUSUM Test Plot

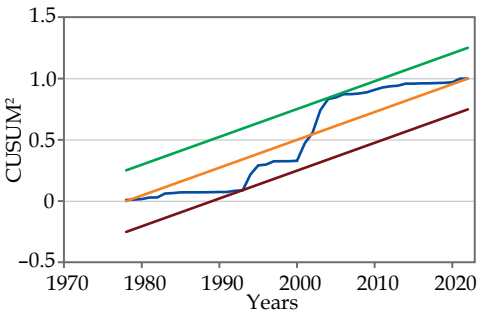

Figure 2. CUSUM of Squares

4.5. Stability Test

To evaluate the stability of the coefficients in the autoregressive distributed lag (ARDL) model, this research utilized the Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ) tests, as outlined by [33]. The coefficients related to both the long-term and short-term are deemed stable if the CUSUM and CUSUMSQ plots stay within the 5% significance level. Figure 1 illustrates a stable model, as the CUSUM lines remain within the 5% significance level.

5. Discussion

5.1. Results for ARDL Regression Model for Buoyancy

Table 8 presents the empirical results of the ARDL regression buoyancy model, the findings revealed a negative buoyancy of 0.87. This indicated that Kenya's taxation system lacks buoyancy, as the coefficient was below one. The coefficient implies that if the natural log of gross domestic product (GDP) increases by 1%, tax revenue collection decreases by 0.87%. These results align with that of [13]. However, it is contrary to the results of [1] and [6].

A positive relationship is established between tax potential and indirect tax reforms, with the indirect tax reforms coefficient demonstrating statistical significance at 1%. A 1% change in indirect tax reforms increases tax potential by 0.45%. The discovery aligns with the results of [2]. A positive significant relationship between direct tax reforms and tax potential is established. This positive relationship implies that if direct tax reforms increase by 1%, tax potential increases by 0.46%. These findings align with the findings of [2]. However, the findings are contrary to the findings of [34]. Tax rate reforms were found to be negative and not statistically significance on tax potential. This finding was contrary to the finding of [25].

Manufacturing output was found to be positive and significant. This positive relationship between the manufacturing output and tax potential implies that if the manufacturing output increases by 1%, tax potential increases by 0.39%. The significance

of manufacturing output reflects a more concentrated, complex, and formalized business activity that is more amenable to tax collection. The finding conforms to the findings of [35]. However, it is contrary to the findings of [22]. Inflation was found to be positive though not statistically significant on tax revenue collection. These findings align with the findings of [6] and [3]. However, this finding is contrary to the finding of [35] who established that inflation was negative and significant.

In the short-run, increases in indirect tax reforms were also found to decrease tax potential contrary to the long-run findings. Contrary to the long run, direct tax reforms are negative and statistically significant in the short run. The negative relationship between direct tax reforms and tax potential implies that if direct tax reforms change by 1%, tax capacity decreases by 0.22%. This finding is in line with the finding of [12]. However, the finding is contrary to the findings of [24]. The coefficient for ECT (–1) is negative and demonstrates significance at the 1% level, suggesting a long-term relationship between the variables.

5.2. Results for ARDL Regression model for Elasticity

Table 9 presents the ARDL regression results for elasticity, the results showed a negative significant elasticity coefficient of 0.91. This implies that Kenya's tax system is inelastic. Further, the results showed that if GDP increases by 1%, the adjusted tax revenue to GDP ratio decreases by 0. 91%. This finding confirms the findings of [1; 6; 22].

A positive significant relationship between indirect tax and adjusted tax revenue to GDP ratio was established. This implies that if indirect tax reform increases by 1% adjusted tax revenue to GDP ratio increases by 0.12%. This finding is in line with the finding of [7]. Direct tax reforms were also found to be positive and significant. This positive relationship implies that if direct tax reforms change by 1%, adjusted tax revenue to GDP ratio increases by 0.63%. This finding aligns with the findings of Ombasa et al. [24]. A negative and insignificant relationship between tax rate reforms and adjusted tax revenue was established. A negative though insignificant relationship between the manufacturing output and adjusted tax revenue to GDP ratio was established. These findings are contrary to the findings of [35].

In the short term, there is a meaningful and positive correlation between indirect tax reforms and adjusted tax revenue to GDP ratio is established supporting the long-run findings. Direct tax reforms, tax rate reforms, and inflation were found not to be significant. The coefficient of the error correction term (ECM (–1)) is negative and has a statistically significant value hence offering additional evidence for the presence of co-integration among the variables [36].

5.3. Hypothesis Tests

Acceptance of *H1*: The hypothesis that indirect tax reforms significantly affect tax potential is accepted. The regression results indicate a strong positive relationship, confirming that more indirect tax reforms lead to increased tax income in Kenya.

Acceptance of *H2*: The hypothesis that direct tax reforms significantly affect tax potential is accepted. The findings illustrate that the more direct tax is reformed contributes positively to tax income especially in the long-term in Kenya.

Rejection of *H3*: The hypothesis that tax rate reforms significantly affect tax potential is rejected. The regression analysis shows no significant effect, indicating that more tax rate reforms do not meaningfully influence tax revenue generation potential in Kenya.

This study does have some limitations. Firstly, the sample size is confined to Kenya, which may hinder the generalizability of the results to other countries. Secondly, the research focuses solely on tax reform as a determinant of tax potential, overlooking other influential factors such as institutional and structural elements. Nonetheless, despite these constraints, this study offers valuable insights into the influence of tax reforms on tax potential in Kenya.

6. Conclusion

The research analyzes how tax reforms have influenced Kenya's tax potential from 1970 to 2022, using the Autoregressive Distributed Lag (ARDL) modeling technique. The findings of this study successfully address the research objective of identifying the tax reform that increase tax revenue generation capacity in Kenya. The findings from the ARDL model indicate that the Kenyan tax system lacked productivity during the timeframe analyzed, despite numerous reforms and initiatives implemented. This was evidenced by buoyancy and elasticity being less than unity both in the short-run and long-run.

The theoretical significance of these results lies in their contribution to the existing body of knowledge on public finance and economic development, particularly within the context of Kenyan economy. The study confirms the importance of reforms in indirect taxes and direct taxes as exerted a positive and substantial influence on tax potential in the long run both in the buoyancy and elasticity models. The manufacturing output was found to be positive and significant in the long-term for the buoyancy model. Inflation was found to be insignificant factors affecting tax potential in Kenya for both the long-term and short-term across both buoyancy and elasticity models.

In addition, the results indicated a negative correlation between tax rate reforms and tax capacity in Kenya, particularly in the long term for the buoyancy model. The research suggests that there is still potential for enhancements to create a tax system that better responds to economic growth.

From a practical standpoint, these findings offer valuable insights for policymakers in Kenya seeking to enhance tax revenue mobilization strategies. The positive relationship between indirect tax reforms and direct tax reforms, the tax system being neither buoyant nor elastic emphasizes the importance of creating and executing additional reforms, with particular emphasis on investing in those that enhance the tax system's resilience and connect it more directly to economic growth. Positive association between the manufacturing sector and tax potential emphasizes that policymakers can design more effective tax policies that can assist in promoting the expansion of domestically produced goods and broaden the tax base, as an increased tax base enhances tax potential.

References

1. Murunga J., Wawire N.W., Muriithi M.K. Tax revenue productivity of tax reforms in Kenya. *International Journal of Economics and Finance*. 2021;13(12):42–54. https://doi.org/10.5539/ijef.v13n12p42

2. Ouma D. Revenue effects of tax reforms, economic growth and political environment in Kenya. *African Journal of Economic Review*. 2019;7(1):136–153. https://doi.org/10.22004/ag.econ.285003

3. Kamasa K., Nortey D.N., Boateng F., Bonuedi I. Impact of tax reforms on revenue mobilisation in developing economies: Empirical evidence from Ghana. *Journal of Economic and Administrative Sciences*. 2025;41(1):1–15. https://doi.org/10.1108/JEAS-01-2022-0011

4. Kebede T.N., Tona D.D., Fitamo T.L. Practice, Opportunities, and Challenges of Electronic Tax System from Taxpayer's Perspective: Evidence from Ethiopia. *Journal of Tax Reform*. 2025;11(1):6–24. https://doi.org/10.15826/jtr.2025.11.1.189

5. Chika O.V., Oshiogwemoh D., Promise E. Impact of tax reforms on economic growth of Nigeria (2000–2021). *Goodwood Akuntansi dan Auditing Reviu*. 2022;1(1):79–95. https://doi.org/10.35912/gaar.v1i1.1506

6. Thuku G.K., Manyasa E.O., Wawire N.H., Omondi O.V. Effects of tax reforms on buoyancy and elasticity of the tax system in Kenya: 1963–2010. *International Journal of Economics and Finance*. 2014;6(10):97–111. https://doi.org/10.5539/ijef.v6n10p97

7. Timothy K. The Effect of Social Norms on Value Added Tax Compliance among Small and Medium Enterprises in Embu Town. *Journal of Finance and Accounting*. 2024;4(4):11–20. https://doi.org/10.70619/vol4iss4pp11-20

8. Wawire N. Determinants of value added tax revenue in Kenya. *Journal of Economics Library*. 2017;4(3):322–344. https://doi.org/10.1453/jel.v4i3.1391

9. Eissa N.O., Jack W. Chapter. 6 Tax Reform in Kenya: Policy and Administrative Issues. In: Gordon R. (ed.). Taxation in Developing Countries. New York Chichester, West Sussex: Columbia University Press; 2010, pp. 198–219. https://doi.org/10.7312/gord14862-009

10. Murunga J., Muriithi M.K., Wawire N.W. The Size of the Informal Sector and Tax Revenue in Kenya. *Journal of Economics and Public Finance*. 2021;7(5):15–35. https://.doi.org/10.22158/jepf.v7n5p15

11. Muriithi M.K., Moyi E.D. The revenue impact and elements of tax reforms in Kenya. *African Journal of Economic Policy*. 2006;8(2):1–11. https://doi.org/10.4314/ajep.v8i2.24271

12. Kanyi P., Kalui F. The effects of tax policy reforms on tax revenue in Kenya. *Strategic Journal of Business & Change Management*. 2014;2(31):601–620. https://doi.org/10.61426/sjbcm.v1i2.53

13. Kemboi L.K. *On Efficiency, Equity, and Optimal Taxation: Reforming Kenya's Tax System*. Institute of Economic Affairs; 2024. 36 p. https://doi.org/10.2139/ssrn.4990451

14. Laffer A.B. *The Laffer Curve: Past, Present, and Future*. Backgrounder No. 1765. Heritage Foundation; 2004. 16 p. Available at: https://www.heritage.org/taxes/report/the-laffer-curve-past-present-and-future (accessed: 09.06.2025).

15. Howard M., La Foucade A., Scott E. *Public sector economics for developing countries*. 2nd ed. University of the West Indies Press; 2001. 420 p. https://doi.org/10.37234/nkjosbni

16. Udeaja E.A., Yusuf M., Offum P.F. Estimating Tax Buoyancy for Nigeria in the light of Emerging Tax Reforms. *Journal of Tax Reform*. 2025;11(1):25–38. https://doi.org/10.15826/jtr.2025.11.1.190

17. Ramsey F.P. A Contribution to the Theory of Taxation. *The Economic Journal*, 1927;37(145):47–61. https://doi.org/10.2307/2222721

18. Mirrlees J.A. The theory of optimal taxation. *Handbook of Mathematical Economics*. 1986;3:1197–1249. https://doi.org/10.1016/S1573-4382(86)03006-0

19. Gandhi V.P. 9 Tax Structure for Efficiency and Supply-Side Economics in Developing Countries. In: *Supply-Side Tax Policy: Its Relevance to Developing Countries*. USA, International Monetary Fund; 1987, pp. 225–249. https://doi.org/10.5089/9780939934911.071

20. Karingi S.N., Wanjala B. *The tax reform experience of Kenya*. WIDER Research Paper No. 2005/67. 2005. 23 p. Available at: https://hdl.handle.net/10419/63292 (accessed: 09.06.2025).

21. Benard O., Sheeja S.R., Muringi W.R., Becil O.C. A Comprehensive Review of Tax Policy Changes and Tax Revenue in Kenya. *Asian Journal of Economics, Business and Accounting*. 2024;24(9):245–260. https://doi.org/10.9734/ajeba/2024/v24i91490

22. Manyanza R.M. *Analysis of Tax Revenue Productivity for Selected Countries in the East African Community*. Doctoral dissertation, Kenyatta University; 2020. 222 p. Available at: http://ir-library.ku.ac.ke/handle/123456789/21493 (accessed: 09.06.2025).

23. Abd Hakim T., Karia A.A., David J., Ginsad R., Lokman N., Zolkafli S. Impact of direct and indirect taxes on economic development: A comparison between developed and developing countries. *Cogent Economics & Finance*. 2022;10(1):214–423. https://doi.org/10.1080/23322039.2022.2141423

24. Ombasa W.K., Ondieki L.A., Kimutai J. A mathematical approach to determination of tax elasticity as a measure of direct tax productivity in Kenya. *International Journal of Financial Management and Economics*. 2019;2(2):75–84. https://doi.org/10.33545/26179210.2019.v2.i2a.35

25. Helcmanovská M., Andrejovská A. Tax Rates and Tax Revenues in the Context of Tax Competitiveness. *Journal of Risk and Financial Management*. 2021;14(7):284. https://doi.org/10.3390/jrfm14070284

26. Olukuru J., Mandela B. Tax Buoyancy: A Comparative Study Between Kenya and South Africa. In: Biekpe N., Cassimon D., Mullineux A. (eds) *Development Finance: Innovations for Sustainable Growth*. Palgrave Macmillan, Cham; 2017, pp. 51–72. https://doi.org/10.1007/978-3-319-54166-2_3

27. Daniel K.T., Bekoe W., Senahey S. Emmanuel E.A. Tax reforms and revenue mobilization in Ghana. *Journal of Economic Studies*. 2016;43(4):522–534. https://doi.org/10.1108/JES-01-2015-0007

28. Musgrave R.A., Musgrave P.B. *Public finance in theory and practice*. 5th ed. New York: McGraw-Hill; 1989. 627 p. Available at: https://desmarais-tremblay.com/Resources/Musgrave%20Richard%20A.%20and%20Musgrave%20Peggy%20B.%201989%20%281973%29%20Public%20Finance%20in%20Theory%20and%20Practice_5th%20ed.pdf (accessed: 09.06.2025).

29. Mansfield C.Y. Elasticity and Buoyancy of a Tax System: A Method Applied to Paraguay. *IMF Staff Papers*. 1972;19(2):425–446. Available at: https://link.springer.com/article/10.2307/3866368 (accessed: 09.06.2025).

30. Chamisa M.G., Sunde T. Key determinants of tax revenue in Zimbabwe: assessment using autoregressive distributed lag (ARDL) approach. *Cogent Economics & Finance*. 2024;12(1):2386130. https://doi.org/10.1080/23322039.2024.2386130

31. Zivot E., Andrews D.W.K. Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business & Economic Statistics*. 2002;20(1):25–44. https://doi.org/10.1198/073500102753410372

32. Sharaf M.F. The asymmetric and threshold impact of external debt on economic growth: new evidence from Egypt. *Journal of Business and Socio-Economic Development*. 2021;2(1):1–18. https://doi.org/10.1108/jbsed-06-2021-0084

33. Brown R.L., Durbin J., Evans J.M. Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society Series B: Statistical Methodology*. 1975;37(2):149–163. https://doi.org/10.1111/j.2517-6161.1975.tb01532.x

34. Owino O.B. The effect of custom and excise duties on economic growth in Kenya. *International Journal of Scientific and Research Publications*. 2019;9(1):530–546. https://doi.org/10.29322/IJSRP.9.01.2019.p8564

35. Mawejje J., Sebudde R.K. Tax revenue potential and effort: Worldwide estimates using a new dataset. *Economic Analysis and Policy*. 2019;63:119–129. https://doi.org/10.1016/j.eap.2019.05.005

36. Hussein M.A., Hmood M.Y. Utilizing the Error Correction Model to Investigate the Impact of Fluctuations in Bank Deposits on the Money Supply. *Journal of Al-Rafidain University College for Sciences*. 2025;56(1):545–556. https://doi.org/10.55562/jrucs.v56i1.49

Acknowledgements

The authors would like to express their gratitude to Prof. Igor A. Mayburov (Editor-in-Chief) and the anonymous reviewers for their valuable time, insightful critiques, and constructive feedback, all of which significantly enhanced this work. Additionally, the authors acknowledge that no financial support was received for this research.

Information about the authors

Irene Wanjiku Karuga – MSc. Economics, Department of Economics, School of Business and Economics, University of Embu, Kenya (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0009-0006-8909-944X; e-mail: wanjikaruga@gmail.com

Moses Mutharime Mwito – Ph.D., Economics, Lecturer, Department of Economics, School of Business and Economics, University of Embu, Kenya (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0000-0001-8001-9091; e-mail: mwito.moses@embuni.ac.ke

Paul Joshua Mugambi – Ph.D., Economics, Lecturer, Department of Economics, School of Business and Economics, University of Embu, Kenya (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0000-0003-0927-4991; e-mail: mugambi.paul@embuni.ac.ke

For citation

Karuga I.W., Mwito M.M., Mugambi P.J. Implications of Tax Reforms on Tax Potential in Kenya: An Econometric Analysis. *Journal of Tax Reform*. 2025;11(3):713–730. https://doi.org/10.15826/jtr.2025.11.3.224

Article info

Received *May 10, 2025*; Revised *June 17, 2025*; Accepted *July 18, 2025*

Благодарности

Авторы выражают благодарность проф. И.А. Майбурову (главному редактору) и анонимным рецензентам за их ценное время, содержательную критику и конструктивные отзывы, которые значительно улучшили нашу работу. Кроме того, авторы признают, что для этого исследования не было получено никакой финансовой поддержки.

Информация об авторах

Ирен Ванджику Каруга – магистр экономики, факультет экономики, Школа бизнеса и экономики, Университет Эмбу, Кения (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0009-0006-8909-944X; e-mail: wanjikaruga@gmail.com

Мозес Мутхариме Мвито – Ph.D. в области экономики, преподаватель кафедры экономики, Школа бизнеса и экономики, Университет Эмбу, Кения (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0000-0001-8001-9091; e-mail: mwito.moses@embuni.ac.ke

Пол Джошуа Мугамби – Ph.D. в области экономики, преподаватель кафедры экономики, Школа бизнеса и экономики, Университет Эмбу, Кения (Meru-Nairobi Hwy, Embu, Kenya); https://orcid.org/0000-0003-0927-4991; e-mail: mugambi.paul@embuni.ac.ke

Для цитирования

Karuga I.W., Mwito M.M., Mugambi P.J. Implications of Tax Reforms on Tax Potential in Kenya: An Econometric Analysis. *Journal of Tax Reform*. 2025;11(3):713–730. https://doi.org/10.15826/jtr.2025.11.3.224

Информация о статье

Дата поступления *10 мая 2025 г.*; дата поступления после рецензирования *17 июня 2025 г.*; дата принятия к печати *18 июля 2025 г.*