



Examining the Effect of Tax Reforms on Revenue Collection Performance in Uganda. The Mediating Role of E-Tax Innovation in Tax Administration

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Abstract: This study examines the effect of tax reforms on revenue collection performance in Uganda, with a focus on the mediating role of e-tax innovation in tax administration. The research employs a quantitative approach, utilizing a cross-sectional survey design to collect data from 350 active taxpayers across various industries in the Greater Mbarara region. The study investigates the impact of tax reforms, including VAT reforms, presumptive tax regimes, and technological innovations in tax administration, on revenue collection performance. Structural Equation Modeling (SEM) was used to analyze the relationships between tax reforms and revenue collection performance. The findings reveal a positive and statistically significant relationship between tax reforms and revenue collection performance ($\beta = 0.303$, Z-value = 4.801, $p < 0.001$). The study also highlights the importance of e-tax innovation as a mediating factor in this relationship. The research contributes to the understanding of tax reform effectiveness in developing countries, emphasizing the role of fairness perceptions, tax education, and technological advancements in improving tax compliance and revenue collection. The findings suggest that a comprehensive approach integrating these factors is crucial for enhancing Uganda's tax system efficiency and effectiveness. This study provides valuable insights for policymakers and tax administrators in Uganda and similar developing countries, offering recommendations for improving tax reform strategies and implementation to boost revenue collection performance.

Keywords: Tax reforms, Revenue collection, E-tax innovation, Uganda, Self-assessment systems, VAT reforms, Presumptive tax

1. INTRODUCTION

Tax administration reforms play a crucial role in revenue collection in developing countries like Uganda. Studies show that such reforms can lead to significant improvements in tax-to-GDP ratios (Akitoby et al., 2019). Key challenges in Uganda's tax system include unrealistic tax expenditures, corruption, poor governance, and structural weaknesses (Bachmann et al., 2022). To address these issues, measures such as enforcing anti-corruption policies, streamlining the tax system, and formalizing informal sectors are proposed (Bachmann et al., 2022). Factors influencing tax compliance include tax morale, compliance costs, and perceived government effectiveness (Musimenta et al., 2019). Improving governance quality and reducing corruption are essential for enhancing tax revenue collection (Arif & Rawat, 2018). Additionally, focusing on agricultural and industrial sector growth, as well as development expenditures, can positively impact tax revenue performance. Sustainable improvements in tax revenue mobilization require comprehensive reforms in both tax policy and administration (Akitoby et al., 2020)

Tax reforms play a crucial role in enhancing revenue collection and improving tax compliance. Studies across various countries have shown that comprehensive reforms, including both tax policy and administration changes, yield more significant and lasting improvements in revenue generation (Akitoby et al., 2019). Political commitment and stakeholder buy-in are essential for successful implementation of reforms (Akitoby et al., 2019). Reforms that simplify tax systems, reduce exemptions, and strengthen enforcement mechanisms have been particularly effective. However, the impact of reforms can vary, as seen in Ethiopia where post-reform tax buoyancy decreased. Nonetheless, reforms in areas such as Value Added Tax and customs enforcement have shown

positive effects on revenue collection in several countries (Munene & Nduru, 2016). Regular review and adaptation of tax systems are recommended to address emerging challenges and maximize revenue potential (Samuels & Duramany-Lakkoh, 2023)

This paper examines the effect of tax reforms in developing countries, particularly Uganda, focusing on small and medium enterprises (SMEs). Several studies highlight the importance of understanding tax reforms and their effect on revenue collection performance. Recent studies have examined the impact of digital innovations on tax compliance and revenue collection in developing countries. Electronic tax systems have been found to improve tax compliance among small businesses in Uganda, with adoption of e-tax systems partially mediating the relationship between attitudes towards e-tax and compliance (Night & Bananuka, 2020). In Peru, e-invoicing increased reported sales and VAT liabilities, particularly for small firms (Bellon et al., 2022). However, Uganda still faces challenges in tax revenue performance due to factors like corruption and system inefficiencies (Bachmann et al., 2022). Research has also examined psychological factors influencing tax compliance behavior among small businesses in Uganda (Kiconco et al., 2019) and the role of entrepreneurial networking and innovation in business performance (Sendawula et al., 2023).

This research examines the role of tax reforms and e-tax innovation in the relationship between tax administration and revenue collection performance in Uganda. The tax reforms, including VAT reforms, presumptive tax regimes, and technological innovations, are designed to improve the efficiency and effectiveness of the tax system. However, the impact of these reforms on revenue collection performance is influenced by factors such as tax complexity, taxpayer education, and the implementation of e-tax systems. The study investigates how these reforms and innovations mediate the relationship between tax administration practices and overall revenue collection performance, considering the unique challenges and opportunities present in Uganda's tax landscape.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. The Equity Theory

Research consistently shows that perceptions of fairness significantly influence tax compliance behavior. Fairness dimensions include distributive, procedural, and interactional aspects (Marshall et al., 2023). Distributive fairness, particularly exchange equity, has the strongest effect on compliance (Marshall et al., 2023). Procedural fairness, such as even-handedness and respectful treatment from tax authorities, also positively impacts compliance (Afshan & Siddiqui, 2021). Perceptions of system legitimacy mediate the relationship between fairness and compliance. Additionally, factors like tax literacy (Afshan & Siddiqui, 2021), trust in government (Febrian & Islami, 2020), and social norms (Hery & Jasman, 2019) contribute to compliance intentions. Interestingly, taxpayers are willing to pay more if they believe others are contributing their fair share. These findings suggest that fostering perceptions of fairness and equity in the tax system can effectively enhance voluntary compliance and improve revenue collection (Hassan et al., 2021).

Recent studies highlight the importance of perceived fairness in tax systems for improving compliance and revenue collection. Fairness perceptions are influenced by factors such as socio-economic status, cultural values, and institutional trust (Naslia & Yulianti, 2024). Tax reforms aimed at enhancing fairness can positively impact revenue collection, with dimensions like general fairness, preferred tax rates, and exchange with government significantly affecting compliance (Bin-Nashwan et al., 2020). However, perceptions of unfair tax burden distribution can hinder compliance (Belahouaoui & Attak, 2023). Modernizing tax administration systems through digitalization and administrative reforms can improve revenue performance. Factors such as respectful treatment from tax authorities, tax literacy, and equity considerations also play crucial roles in shaping compliance behavior (Afshan & Siddiqui, 2021). Nevertheless, challenges remain, as seen in Zimbabwe's presumptive tax system, which undermines both vertical and horizontal equity (Dube & Casale, 2019). Overall, these studies emphasize the need for fair, transparent, and efficient tax systems to enhance compliance and revenue collection.

Recent research on equity theory in tax reforms highlights the challenges of balancing efficiency and equity in taxation systems. Digital transformations and globalization have necessitated tax system reforms to address issues of fairness and social justice (Stepnoff & Kovalchuk, 2020). While some

argue for proportional taxation based on Adam Smith's ideas of justice and equity (Kim, 2023), others emphasize the importance of considering alternative welfare weights in tax reform models. Studies have shown that tax reforms often struggle to achieve both equity and efficiency goals simultaneously (Rodriguez, 2019). In developing countries, limited enforcement capacity and structural factors can lead to unexpected distributional impacts of taxes. Research suggests that policy measures promoting equity with minimal impact on efficiency should be prioritized. However, recent tax reforms have sometimes resulted in regressive distributions of tax benefits, particularly benefiting higher-income families (Chou & Fu, 2022).

Therefore, the literature guided the thesis formulation as follows;

H₀₂: Tax reforms do not have a statistically significant effect on revenue collection performance

2.2. Tax Reforms

Tax reforms in Africa and Uganda have aimed to increase revenue while balancing economic growth and equity concerns. Uganda implemented fiscal reforms in the 1990s to improve budget planning and aid management, resulting in increased tax effort and public spending (Bwire et al., 2017). However, challenges persist, including corruption, poor governance, and a large informal sector (Bachmann et al., 2022). Uganda's tax system, while conforming to international standards, still struggles with revenue performance (Bachmann et al., 2022). Studies have found that trade openness, industrial sector growth, and development expenditures positively influence tax revenue, while agriculture and foreign aid have negative effects (Mawejje & Munyambonera, 2016). Tax treaties with developed countries have been questioned for their impact on Uganda's ability to tax foreign investors. Overall, tax reforms in Africa have modestly increased GDP growth while reducing poverty and inequality, though challenges remain in improving tax collection and development (Mabugu & Simbanegavi, 2015).

2.3. VAT Reforms

Value Added Tax (VAT) has become a crucial component of tax systems in developing countries, particularly in Africa (Gerard et al., 2018). Studies show that VAT adoption has improved tax revenue collection in both developed and developing nations, with a stronger effect in Sub-Saharan Africa (SSA) and other developing countries (Houssa et al., 2017). VAT and Semi-Autonomous Revenue Agencies (SARA) have demonstrated positive impacts on non-resource taxes in SSA (Ebeke et al., 2016). However, some research suggests that VATs and Autonomous Revenue Authorities (ARAs) may have limited long-term effects on total tax revenues (Ahlerup et al., 2015). To maximize VAT effectiveness, experts recommend broadening the tax base by reviewing exemptions and exclusions (Cnossen, 2021). Additionally, improving institutional quality can enhance tax revenue collection, even before VAT adoption (Houssa et al., 2017). Overall, while VAT is not a solution for revenue shortages, it remains an important tool for domestic resource mobilization in developing countries (Acharya, 2016).

2.4. Presumptive Tax Regime in Uganda

Uganda introduced presumptive tax in 1997 and has since implemented several reforms to simplify the system and improve compliance among small businesses (Jouste et al., 2021). Recent interventions, such as the Taxpayer Register Expansion project and e-filing, have positively impacted the number of presumptive taxpayers. However, challenges persist, including complexity, low revenue generation, and ineffective enforcement (Jouste et al., 2021). The tax system's impact on small businesses is significant, as they represent a high proportion of the effective tax base. Factors like widespread tax evasion, arbitrary assessments, and domestic social phenomena continue to erode the tax base (Sebikari, 2014). To address these issues, researchers suggest further simplification, such as implementing a low-rate flat tax system, which could potentially increase short-term revenue and attract more presumptive taxpayers over time (Jouste et al., 2021).

2.5. Tax Education

Tax education plays a crucial role in improving tax compliance and revenue collection performance. Multiple studies have found that taxpayer education positively influences tax collection and compliance (Mu et al., 2023). Effective tax education can reduce tax evasion and psychological

egoism among taxpayers (Mu et al., 2023). Radio and television have been identified as strong channels for tax education. However, challenges such as tax fraud, non-compliance, and corruption in tax administration hinder optimal revenue collection (Owenbiugie & Owenbiugie, 2020). To address these issues, governments should implement innovative strategies, including public awareness programs and collaboration between revenue authorities and the education sector. Additionally, integrating tax education into school curricula and adopting advanced technologies can enhance tax compliance and revenue collection (Mu et al., 2023).

2.6 Technological Innovation in Tax Administration

Technological innovation in tax administration has significantly improved efficiency, transparency, and compliance across various countries. E-filing systems have enhanced tax collection processes, though full adoption faces challenges related to trust and security concerns (Maphumula & Njenga, 2019). The integration of information technology has led to improved operations and service delivery in tax administration (Olatunji & Ayodele, 2017). In Mexico, the implementation of electronic invoicing has reduced paper usage and improved control over taxpayer operations (Flores-Guajardo et al., 2021). Indonesia's digitalization efforts have increased taxpayer participation, but server maintenance issues persist (Rahmi & Gangodawilage, 2022). Estonia's tax administration has successfully leveraged modern technologies (Belahouaoui & Attak, 2024). In the United States, AI and blockchain technologies are revolutionizing tax compliance and fraud detection, although challenges such as data privacy concerns remain (Adelekan et al., 2024). Overall, technological advancements in tax administration offer numerous benefits but require ongoing development and stakeholder engagement.

2.7. Tax Complexity

Tax complexity is a growing concern for both firms and governments worldwide. The Tax Complexity Index (TCI) measures this complexity across countries, considering both tax code and framework aspects (Hoppe et al., 2020). Key drivers of complexity include transfer pricing regulations and tax audits (Hoppe et al., 2020). Tax-reducing sections of the U.S. tax code tend to be more complex, potentially leading to underutilization of tax benefits (Swenson et al., 2024). Increased complexity is associated with higher levels of corruption, tax evasion, and income inequality (Saptono et al., 2024). Recent international tax reforms, such as the OECD Pillar One and Two Blueprints, may inadvertently increase complexity (Colliard et al., 2021). While tax preparation software can manage computational complexity, it may contribute to the "black box" nature of the tax system (Walker, 2022). However, technology also offers potential solutions to restore transparency and improve tax planning, particularly for lower-income taxpayers (Walker, 2022).

3. METHODOLOGY

This study utilized a quantitative approach to investigate the impact of tax reforms on revenue collection performance in Uganda, focusing on commercial enterprises in the Greater Mbarara region. A cross-sectional survey design was employed to gather data at a single point in time, allowing for an examination of the current state of tax reforms and their effect on revenue collection as shown in figure 3-1.

The research targeted a population of 8,560 active taxpayers in the Greater Mbarara region, as recorded in the Uganda Revenue Authority tax register. This population encompassed various industries across eight districts and municipalities. Using stratified random sampling, a sample of 350 respondents was selected, ensuring representation from economically significant taxpayers contributing at least 100 million Uganda shillings annually in tax remittance.

Data collection was conducted through a structured questionnaire, with items adapted from previous relevant studies and measured on a five-point Likert scale. The questionnaire underwent pilot testing to ensure clarity and reliability. The reliability of the constructs was confirmed through Cronbach's alpha analysis, with all values exceeding 0.70.

The survey was conducted between January and March 2024, with questionnaires distributed to various firms accompanied by an explanatory cover letter. Out of 380 distributed questionnaires, 350 usable responses were obtained, yielding a high response rate of 97.2%. This robust sample provided a comprehensive dataset for analyzing the relationship between tax reforms and revenue collection performance in the region.

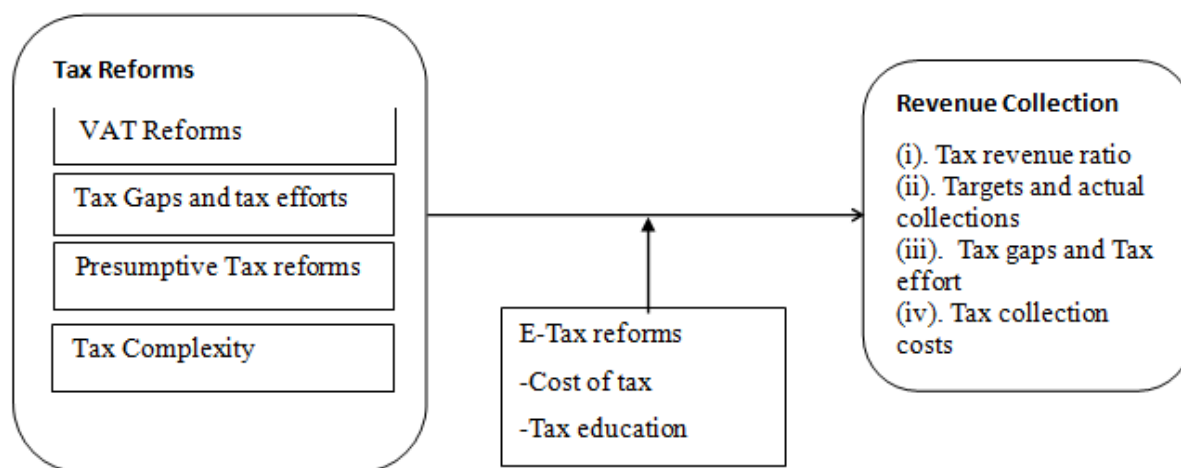


Figure3 .1. TR scree plot for the significant eigen values

Source: Adapted from OECD, 2021 and moderated by the Researcher, 2024

4. DATA ANALYSIS

This section presents results from the descriptive and inferential statistical analyses conducted on the survey data. It includes an examination of the impact of tax reforms on revenue collection performance, utilizing exploratory factor analysis (EFA) and structural equation modeling (SEM) to investigate the relationships between key variables and test the study's hypotheses.

4.1. Demographic Characteristics

Table1. Demographic characteristics of respondents

Variable	Category	n(%)
		(N=350)
Employment	Self employed	285(81)
	Employed	65(19)
Gender	Male	229(65)
	Female	121(35)
Legal status	Sole proprietor	220(63)
	Partnership	94(27)
	Private Limited Company	36(10)
Age of Business (Years)	1-15	15(4)
	6-10	109(31)
	11-15	96(28)
	>15	130(37)
Tax Heads	CIT	265(75.7)
	CIT and VAT	66(18.8)
	CIT, VAT and LED	19(5.5)
Type of Business	Wholesale Trade	273(78)
	Hotel and Hospitality	15(4)
	Rental and properties	26(7.4)
	Private educational inst.	10(2.9)
	Retail Trade	12(3.5)
	Local manufacturing	10(2.9)
	Fuel Stations	4(1.3)
Mode of registration	Voluntary registration	277(79)
	Forceful registration	73(20)
Turnover	10-100	50(14.2)
	100-200	49(14)
	200-300	114(32.6)
	300-400	23(6.6)
	>400	114(32.6)

From the table 4-1 above, the study sample (N=350) predominantly consisted of self-employed individuals (81%) and male respondents (65%). Sole proprietorships were the most common business structure (63%), with a significant portion of businesses (37%) operating for over 15 years. Corporate Income Tax (CIT) was the primary tax obligation for most respondents (75.7%), and wholesale trade dominated the business types (78%). Notably, the vast majority of businesses (79%) were voluntarily registered, indicating a potentially receptive environment for tax reforms.

The demographic characteristics reveal a diverse business landscape in Uganda, with varying sizes and ages of enterprises. Annual turnover distribution was bimodal, with equal proportions (32.6%) in the 200-300 million and >400 million Uganda shillings categories. This diversity suggests that tax reforms may need to be tailored to address the varying needs and capacities of different business segments. The predominance of self-employed individuals, sole proprietorships, and wholesale traders, coupled with high voluntary registration rates, provides crucial context for understanding the potential impact and reception of tax reforms aimed at improving revenue collection performance in Uganda.

4.2. Descriptive Statistics on Tax Reforms

This section provides findings from study's descriptive analysis generated from the respondents' scores of their perceived impact of tax reforms on revenue collection performance among commercial enterprises in the districts of greater Mbararaas shown in table 4-2.

Table2. *Impact of Tax Reforms on revenue collection performance*

Variables	N(%)				
	Highly agree	Agree	Neutral	Disagree	Highly disagree
I regularly receive current information concerning tax reforms.	18(5.1)	20(5.7)	29(8.3)	250(71.4)	30(8.6)
Tax reforms facilitate better budget performance.	13(3.7)	44(12.6)	24(6.9)	235(67.1)	31(8.9)
Tax reforms result into enhanced revenue collection performance.	19(5.4)	50(14.3)	199(56.9)	37(10.6)	40(11.4)
Tax reforms improve efficiency of revenue collection performance.	19(5.4)	60(17.1)	15(4.3)	207(59.1)	47(13.4)
Tax reforms reduce tax gaps and increase tax effort.	74(21.1)	178(50.9)	25(7.1)	39(11.1)	32(9.1)
VAT reforms contribute significant revenue to the total taxes collected by URA.	33(9.4)	43(12.3)	206(58.9)	44(12.6)	20(5.7)
Corporation Tax reforms are well managed at URA.	120(34.3)	44(12.6)	45(12.9)	38(10.9)	100(28.9)
Presumptive tax reforms are effective in revenue collection from the informal sector.	11(3.1)	48(13.7)	43(12.3)	216(61.7)	26(7.4)

Source: *Field data, 2023*

The descriptive analysis of respondents' perceptions regarding tax reforms in the Greater Mbarara region reveals mixed opinions across various aspects of tax administration. Notably, a significant majority (71.4%) disagreed with regularly receiving current information about tax reforms, indicating potential communication gaps. Similarly, 67.1% disagreed that tax reforms facilitate better budget performance. However, respondents showed more positive perceptions regarding the impact of tax reforms on revenue collection, with 56.9% neutral and 19.7% in agreement that reforms enhance revenue collection performance. There was strong agreement (72%) that tax reforms reduce tax gaps and increase tax effort. Opinions were divided on the management of Corporation Tax reforms, with 46.9% agreeing and 39.8% disagreeing. Interestingly, a majority (61.7%) disagreed that presumptive tax reforms are effective in revenue collection from the informal sector. These findings suggest a complex landscape of perceptions towards tax reforms, highlighting areas of both success and potential improvement in Uganda's tax administration system.

4.3. Exploratory Factor Analysis (EFA) of the Tax Reforms (TR) in Tax Administration

Tax reforms (TR) was reflected by the three dimensions of ICT system (ICT), Tax gaps (TGP) and VAT reforms (VAT). A total of 13 items, or 4, 4, and 5 items for each of these three dimensions, were to be measured. EFA was used, drawing on theoretical literature, to examine TR's dimensionality. In a single EFA method, factor extraction was used on all 13 items to produce the grouped items that represented the contextualized TR factors.

Three components with an eigenvalue over 1 were found in Figure 4-1, which is related to the eigenvalues analysis findings displayed in Table 4.4. These findings indicated that it was necessary to remove the TR items and divide them into three components that explained 53.1% of the variation. In addition, a review of the Cartel's scree test showed a distinct discontinuity following the third component, as seen in Figure 4-1.

The results revealed that 3 items were dropped due to low primary loadings and high cross-loadings (Brooks, et al., 2023).

Table3. Eigenvalues of Tax Reforms

Component	Eigenvaues	Proportion var	Cumulative
1	5.009	0.270	0.270
2	2.010	0.136	0.406
3	1.656	0.125	0.531

The extraction method was principal component

To investigate TR's factor structure and all 13 of its elements, PCA was used. Table 4.13 displays the Varimax rotation used for the TR elements, followed by PCA.

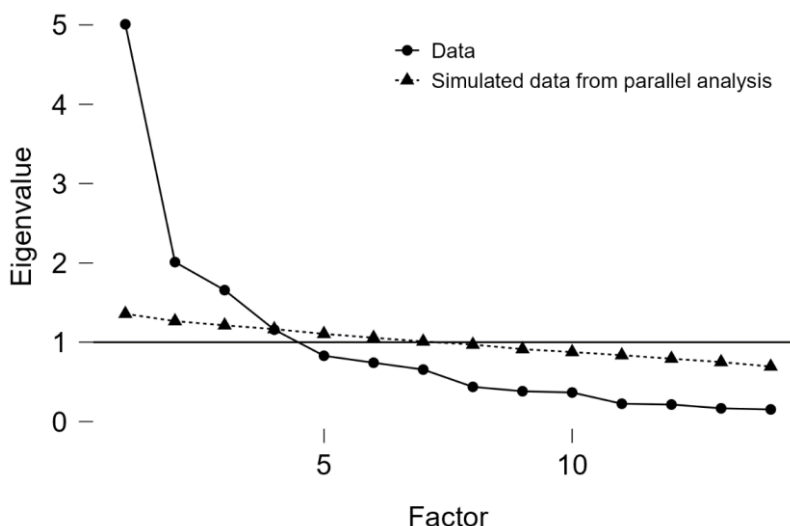


Figure1. TR scree plot for the significant eigenvalues.

Table4. TR Rotated Component Matrix

Item	Component		
	1	2	3
CINFO	0.701		
TRBBP	0.824		
TRRCP	0.702		
TRIRP	0.688		
TRTGE		0.777	
ETERC		0.769	
ETIRC		0.585	
ETRCP			0.603
TEDAP			0.875
ECOPT			0.506

Note: Applied rotation method is varimax

CINFO=Current information on tax reforms, TRBBP=Tax reforms improve budgeting, TRRCP=Tax reforms and revenue collection, TRIRP=Tax reforms improve performance, TRTGE=Tax reforms reduce tax gaps, ETERC=E-tax reforms enhance efficiency, ETIRC=E-tax reforms improve revenue collection, TEDAP=Tax education and awareness, ECOPT= Proper functioning E-tax system

According to Table 4.4 of the EFA results, TR was measured using parcelled factors 1 (CINFO, TRBBP, TRRCP, and TRIRP), factor 2 (TRTGE, ETERC, and ETIRC), and factor 3 (ETRCP, TEDAP, and ECOPT). Three parcelled variables were to be used to quantify TR based on the EFA results.

Table5. TR Results for EFA and Validity Analysis

Item Retained	Factor loading	Factor formed	KMO and Bartlett's test		Cronbach's alpha	Average Variance Extracted (AVE)
			KMO	Sig. Bartlett's		
CINFO	0.701	VAT	0.735	< 0.001	0.847	0.517
TRBBP	0.824					
TRRCP	0.702					
TRIRP	0.688					
TRTGE	0.777	ICT	0.578	< 0.001	0.630	0.506
ETERC	0.769					
ETIRC	0.585					
ETRCP	0.603	TGP	0.505	<0.001	0.723	0.530
TEDAP	0.875					
ECOPT	0.506					

CINFO=Current information on tax reforms, TRBBP=Tax reforms improve budgeting, TRRCP=Tax reforms and revenue collection, TRIRP=Tax reforms improve performance, TRTGE=Tax reforms reduce tax gaps, ETERC=E-tax reforms enhance efficiency, ETIRC=E-tax reforms improve revenue collection, TEDAP=Tax education and awareness, ECOPT= Proper functioning E-tax system

The study employed Exploratory Factor Analysis (EFA) whose results are presented in Table 4-5 to examine the dimensionality of Tax Reforms (TR), which was reflected by three dimensions: ICT system (ICT), Tax gaps (TGP), and VAT reforms (VAT). The EFA results revealed three components with eigenvalues over 1, explaining 53.1% of the variation. The scree plot confirmed a distinct discontinuity after the third component. Following the EFA, three items were dropped due to low primary loadings and high cross-loadings. The retained items were grouped into three factors: Factor 1 (CINFO, TRBBP, TRRCP, and TRIRP), Factor 2 (TRTGE, ETERC, and ETIRC), and Factor 3 (ETRCP, TEDAP, and ECOPT). The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity indicated sampling adequacy and the appropriateness of factor analysis. Cronbach's alpha values for the factors ranged from 0.630 to 0.847, suggesting good internal consistency. The Average Variance Extracted (AVE) values were above the recommended threshold of 0.5, indicating convergent validity. Structural Equation Modeling (SEM) was then applied to examine the relationships between variables. The results showed a positive and statistically significant path from tax reforms (TR) to revenue collection performance (RCP) ($\beta = 0.303$, Z-value = 4.801, $p < 0.001$), leading to the rejection of the null hypothesis. The analysis also revealed both direct and indirect effects of tax reforms on revenue collection performance, with economic factors (ECOF) partially mediating this relationship.

4.4. Structural Equation Modeling

Part two of the study of the research's quantitative components is covered in this section. Multiple variables were shown to have structural correlations through the application of SEM. The SEM implementation procedure is discussed in detail. The study followed Sharif et al.'s (2024) advice and conducted SEM analysis using a two-step technique.

Table6. Regression coefficients for the estimated model

Outcome	Predictor	Estimate	Std. Error	z-value	p	95% Confidence Interval		Standardized	
						Lower	Upper	All	LV
ECOF	TR	0.413	0.014	30.234	< .001	0.386	0.439	0.961	0.961
RCP	TR	0.303	0.063	4.801	< .001	0.179	0.426	0.486	0.486

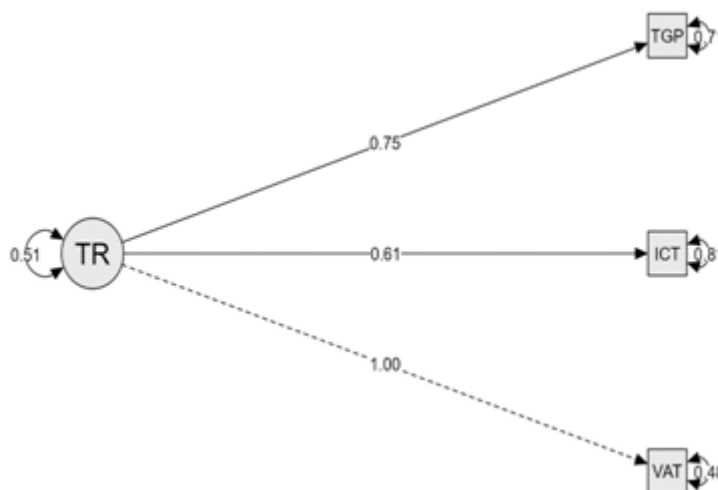


Figure2. Estimated Congeneric Measurement Model for TR

The latent component was measured in a properly fitted model (Figure 4-2) by all three of the created observable items (TP, ICT, and VAT reforms) in the goodness of fit (GOF) statistics one-factor congeneric measurement model for tax reforms (TR). The model represented by the χ^2/df value of 0.010, which is below the reasonable <3.0 or the recommended value range of (<2.0). As seen in Table 4-7 below, the punishment value was well over the Bollen-Stine P value of 1.00. Stated differently, a non-significant result for the Chi-Square test suggests a well-fitting model (Zheng and Bentler, 2024). Furthermore, the RMSEA value of 0.000 was below the acceptable <0.08 Appendix III or the suggested threshold value of 0.05.

Table7. Model fit for TR construct

	AIC	BIC	n	Baseline test		
				χ^2	df	p
Model 1	2831.458	2854.571	348	0.010	3	1,000

5. TESTING OF HYPOTHESES

5.1. Tax Reforms and Revenue Collection Performance

Determining the impact of tax compliance as a measure of tax administration on Uganda's revenue collection performance was the study's second goal. "There exists no statistically significant effect of tax reforms on revenue collection performance," according to the null hypothesis H02. A favorable and statistically significant route from tax reforms (TR) to revenue collection performance (RCP) was shown by the data in Table 4-8 ($\beta = 0.303$, Z-value =4.801, $p < 0.001$).

As a result, the research chose to reject the null hypothesis and accept the alternative.

Table8. Direct Structural Model Hypotheses Test Results

Null Hypothesis	Hypothesis relationship	Estimate	Standard Error	Critical Ratio/t-value	P-value
H ₀₁	TR → RCP	0.303	0.063	4.801	<0.001

The results presented in Tables 4-8a, 4-8b, and 4-9 provide compelling evidence for both direct and indirect effects of tax reforms (TR) on revenue collection performance (RCP) in Uganda. The direct effect of TR on RCP is statistically significant ($\beta = 0.266$, $p < .001$, 95% CI [0.184, 0.347]), indicating

that tax reforms have a positive impact on revenue collection performance. Additionally, the analysis reveals a significant indirect effect of TR on RCP through the economic factor (ECOF) as a mediator ($\beta = 0.125$, $p < .001$, 95% CI [0.078, 0.172]). The presence of both significant direct and indirect effects suggests that ECOF partially mediates the relationship between tax reforms and revenue collection performance. This partial mediation implies that while tax reforms directly influence revenue collection, they also exert an indirect influence through their impact on economic factors. These findings underscore the complex interplay between tax reforms, economic conditions, and revenue collection performance in Uganda's tax system

Table8a. Direct effects of the manifest variables on the latent construct

										95% Confidence Interval	
										Lower	Upper
			Estimate	Std. Error	z-value	P					
TR	→	RCP	0.266	0.042	6.364	< .001		0.184		0.347	

Note: Delta method standard errors, normal theory confidence intervals, ML estimator

Table8b. Indirect effects of the manifest variable on the latent through the mediator variable

										95% Confidence Interval	
										Lower	Upper
					Estimate	Std. Error	z-value	p			
T R	→	ECOF	→	RC P	0.125	0.024	5.232	< .001	0.078	0.172	

Note: Delta method standard errors, normal theory confidence intervals, ML estimator

Table9. Summary of the mediating effects (indirect effect of the mediator) of Economic factor

Indirect effect	Estimate	p-value	Mediating Effect
TR → ECOF → RCP	0.125	<0.001	Partial

6. DISCUSSION

The findings of this study provide valuable insights into the impact of tax reforms on revenue collection performance in Uganda, highlighting the complex interplay between various factors in the tax system. The positive and statistically significant relationship between tax reforms and revenue collection performance ($\beta = 0.303$, $p < 0.001$) aligns with previous research demonstrating the effectiveness of comprehensive reforms in enhancing revenue generation (Akitoby et al., 2019).

The study's results emphasize the importance of e-tax innovation as a mediating factor in the relationship between tax reforms and revenue collection performance. This finding is consistent with recent literature highlighting the positive impact of digital innovations on tax compliance and revenue collection in developing countries. For instance, (Night & Bananuka, 2020) found that electronic tax systems improved tax compliance among small businesses in Uganda, while Bellon et al., (2022) reported increased reported sales and VAT liabilities due to e-invoicing in Peru, particularly for small firms.

The demographic characteristics of the sample, dominated by self-employed individuals (81%) and sole proprietorships (63%), underscore the significance of tailoring tax reforms to address the needs of small and medium enterprises (SMEs). This aligns with research by Kiconco et al., (2019), who examined psychological factors influencing tax compliance behavior among small businesses in Uganda. The high rate of voluntary registration (79%) among respondents suggests a potentially receptive environment for tax reforms, which could be leveraged to enhance compliance and revenue collection.

However, the study also reveals challenges in the implementation of tax reforms. The majority of respondents (71.4%) disagreed with regularly receiving current information about tax reforms, indicating potential communication gaps. This finding echoes concerns raised by Bachmann et al., (2022) regarding system inefficiencies and corruption in Uganda's tax administration. Addressing these issues through improved communication strategies and transparency measures could enhance the effectiveness of tax reforms.

The mixed perceptions regarding the impact of specific tax reforms, such as VAT and presumptive tax, highlight the need for targeted interventions. While there was strong agreement (72%) that tax reforms reduce tax gaps and increase tax effort, a majority (61.7%) disagreed that presumptive tax reforms are effective in revenue collection from the informal sector. This discrepancy suggests that while overall tax reforms are perceived positively, certain aspects may require refinement. These findings align with research by Jouste et al., (2021) who identified challenges in Uganda's presumptive tax system, including complexity and ineffective enforcement.

The partial mediation of economic factors in the relationship between tax reforms and revenue collection performance underscores the importance of considering broader economic conditions when implementing tax reforms. This finding is consistent with research by Mawejje & Munyambonera, (2016), who found that factors such as industrial sector growth and development expenditures positively influence tax revenue performance in Uganda.

In conclusion, this study contributes to the growing body of literature on tax reforms in developing countries by providing empirical evidence of their impact on revenue collection performance in Uganda. The findings suggest that a comprehensive approach integrating e-tax innovation, targeted communication strategies, and consideration of economic factors is crucial for enhancing the effectiveness of tax reforms. Future research could explore the long-term effects of these interventions and examine the role of digitalization and socio-cultural factors in shaping tax compliance behavior, as suggested by recent studies for example (Sendawula et al., 2023).

7. IMPLICATION

The findings of this study have significant implications for tax policy and administration in Uganda and potentially other developing countries. Firstly, the positive relationship between tax reforms and revenue collection performance underscores the importance of continued efforts to modernize and improve tax systems, aligning with previous research on the effectiveness of comprehensive reforms (Akitoby et al., 2019). The effectiveness of e-tax innovations as a mediating factor suggests that policymakers should prioritize technological advancements in tax administration, supporting findings by Night & Bananuka, (2020) on the positive impact of electronic tax systems. This implies a need for increased investment in digital infrastructure and training programs to enhance the adoption and utilization of e-tax systems among taxpayers, particularly small and medium enterprises which form a significant portion of the tax base (Kiconco et al., 2019). Additionally, the mixed perceptions regarding specific tax reforms, such as VAT and presumptive tax, indicate a need for more targeted and tailored approaches to reform implementation, considering the diverse needs of different business segments, as suggested by (Jouste et al., 2021).

Secondly, the research highlights the critical role of communication and transparency in the success of tax reforms. The finding that a majority of respondents did not regularly receive information about tax reforms implies a need for improved communication strategies from tax authorities, addressing concerns raised by Bachmann et al., (2022) regarding system inefficiencies. This suggests that tax administrators should develop more effective outreach programs and leverage various communication channels to ensure taxpayers are well-informed about reforms and their implications. Furthermore, the partial mediation of economic factors in the relationship between tax reforms and revenue collection performance implies that policymakers should consider broader economic conditions when designing and implementing tax reforms, supporting findings by Mawejje & Munyambonera, (2016) on the influence of economic factors on tax revenue performance. This suggests a need for a more holistic approach to tax policy that aligns with overall economic development strategies. Lastly, the research underscores the importance of continuous monitoring and evaluation of tax reforms to identify areas of success and those requiring refinement, ensuring that the tax system remains efficient, equitable, and conducive to economic growth, as emphasized in recent literature on sustainable improvements in tax revenue mobilization (Akitoby et al., 2020).

8. CONCLUSIONS

This study provides empirical evidence on the impact of tax reforms on revenue collection performance in Uganda, highlighting the complex interplay between various factors in the tax system. The findings demonstrate a positive and statistically significant relationship between tax reforms and revenue collection performance, mediated by e-tax innovations, aligning with research on the

effectiveness of digital tax systems (Night & Bananuka, 2020). The research underscores the importance of a comprehensive approach to tax reform, integrating technological advancements, targeted communication strategies, and consideration of broader economic factors. The study reveals both successes and challenges in Uganda's tax reform efforts, particularly in areas such as VAT and presumptive tax regimes, echoing concerns raised by (Jouste et al., 2021). These findings contribute to the growing body of literature on tax administration in developing countries and offer valuable insights for policymakers and tax administrators. To enhance the effectiveness of tax reforms and improve revenue collection performance, it is recommended that authorities focus on improving e-tax systems, tailoring reforms to address the diverse needs of different business segments, enhancing communication and transparency, and aligning tax policies with overall economic development strategies, as suggested by (Akitoby et al., 2020). Future research should explore the long-term effects of these interventions and examine the role of digitalization and socio-cultural factors in shaping tax compliance behavior in Uganda and similar developing economies.

9. LIMITATIONS

This study, while providing valuable insights into tax reforms and revenue collection performance in Uganda, has several limitations that should be considered. Firstly, the cross-sectional nature of the data collection limits the ability to draw causal inferences and observe long-term effects of tax reforms. Secondly, the focus on the Greater Mbarara region may limit the generalizability of findings to other parts of Uganda or different developing countries. The reliance on self-reported data from taxpayers may introduce potential biases, particularly regarding sensitive topics like tax compliance. Additionally, while the study considers e-tax innovations, it may not fully capture the rapidly evolving landscape of digital tax technologies. The research also primarily focuses on formal businesses, potentially overlooking the significant informal sector in Uganda's economy. Lastly, the study's quantitative approach, while providing statistical rigor, may not capture the significant contextual factors and individual experiences that qualitative methods could reveal. Future research could address these limitations by employing longitudinal designs, expanding geographical scope, incorporating mixed methods, and exploring the perspectives of both taxpayers and tax administrators.

9.1. Further Research Areas / Gaps

Future research in the area of tax reforms and revenue collection performance in Uganda could explore several important directions. Longitudinal studies could be conducted to examine the long-term effects of tax reforms and e-tax innovations on compliance behavior and revenue collection, addressing the limitation of the current cross-sectional design. Researchers could investigate the impact of tax reforms on the informal sector, which constitutes a significant portion of Uganda's economy but was not fully captured in this study. The role of socio-cultural factors and public trust in shaping tax compliance behavior, particularly in the context of digital tax systems, warrants further exploration. Additionally, comparative studies across different regions of Uganda or between Uganda and other developing countries could provide insights into the generalizability and contextual factors influencing tax reform effectiveness. The rapidly evolving landscape of digital tax technologies, including block chain and artificial intelligence applications in tax administration, presents another promising area for research. Finally, mixed-methods approaches combining quantitative data with qualitative insights could offer a more significant understanding of taxpayers' perceptions and experiences with tax reforms, potentially uncovering new strategies for improving compliance and revenue collection in developing economies.

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