

Effect of property tax administration on local government revenue: A case of Rwanda revenue authority in Nyarugenge district, Kigali

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ABSTRACT

Property taxes are a common source of revenue for local governments around the world, playing a crucial role in funding essential services and infrastructure. However, the management and implementation of these taxes often face significant challenges, raising questions about their effectiveness. The general objective of this study was to examine the effect of property tax administration on local government revenue in the RRA. The specific objectives of the study were as follows: to examine the effect of the character of property tax on local government revenue at the RRA in Nyarugenge District; to examine the effect of property tax registration on local government revenue at the RRA in Nyarugenge District; to examine the effect of property tax payment on local government revenue at the RRA in Nyarugenge District; and to examine the effect of property tax enforcement on local government revenue at the RRA in Nyarugenge District. The study was guided by Property Theory and Tax Theory and employed a descriptive research design. The study population consisted of 103,985 households and plots of land, and the sample size was 398 individuals. Simple random sampling was used to select respondents. Data were collected through questionnaires and analyzed using descriptive and inferential statistics. Findings showed that the character of property tax ($M = 3.70$, $SD = 1.268$), property tax registration ($M = 3.49$, $SD = 1.338$), property tax payments ($M = 3.73$, $SD = 1.330$), and property tax enforcement ($M = 3.66$, $SD = 1.249$) each had an effect on local government revenue at the RRA. Moreover, the results indicated a positive relationship and significant effect of the character of property tax ($B = 0.145$, $p = 0.000 < 0.05$), property tax registration ($B = 0.166$, $p = 0.000 < 0.05$), property tax payments ($B = 0.410$, $p = 0.000 < 0.05$), and property tax enforcement ($B = 0.228$, $p = 0.000 < 0.05$) on local government revenue at the RRA. In summary, the study concludes that there is a strong and significant relationship between the character of property tax, property tax registration, property tax payments, and property tax enforcement and local government revenue at the RRA in Nyarugenge District. The study suggests that the RRA should optimize property tax registration, compliance, administration, collection processes, enforcement strategies, and fiscal capacity to boost revenue generation. This will lead to increased financial resources for local authorities, improved public services, and enhanced infrastructure development.

Keywords: Character Property Tax, Local Government Revenue, Property Tax Administration, Property Tax Registration, Property Tax Payment, Property Tax Enforcement

I. INTRODUCTION

The property tax has historically been a tool for government entities to generate revenue. This revenue is essential for funding a variety of projects and services that benefit the community. The effectiveness of tax as a revenue source underscores its importance in local governance and public service provision (Netzer, 2016). According to Deepak and Ali (2024) property tax administration is a critical function of local governments, highlighting the critical role of revenue generation in supporting essential public services.

According to Slack (2023) the taxes on property are a crucial source of locally raised revenue in numerous regions globally. They are regarded as a reliable financial resource for local governments, providing stability and consistency in funding. Yan and Reschovsky (2023) noted that, in the United States, local governments heavily rely for financing public services, significantly more than in most Organisation for Economic Co-operation and Development OECD countries. In 2020, property taxes constituted nearly half of local governments' own-source revenue and 34.4% of their total revenue. The reliance on property taxes varies widely across states. For instance, Alabama reported a property tax share of 19.7% of its own-source revenue, while Connecticut's share reached 88.4%. Additionally, the contribution of intergovernmental transfers to local governments' total revenue also differs significantly by state, with property tax contributions ranging from 11.8% in Arkansas to 61.5% in New Hampshire.

Feir et al. (2024) pointed out that recent legislative changes in Canada have empowered first nations to implement property taxation and other tax forms their services. This development allows First Nations to generate local tax revenues, thereby providing a means to finance their local governments directly.

This compilation highlights the evolution and impact of tax legislation within First Nations communities, reflecting a significant shift towards self-governance and financial autonomy. Further, Cheng et al. (2022) posited that Local governments in China primarily utilize two fiscal policy strategies: land finance and local government debt. Land finance is a crucial revenue-generating method, where local governments sell land-use rights to secure funding. This approach has become a significant income source, reflecting the reliance of local authorities on land transactions to support their budgets.

In Philippines, Samantela and Maquiling (2024) noted that leveraging the increase in property values presents a novel financing approach that allows property owners and developers have a significant responsibility to contribute to the community's overall welfare. The revenue generated from property taxes is essential, as it directly influences the quality and availability of local services. Further, Senawi and Osmadi (2024) stated that as per West Malaysia, the current update is worrying since among the 10 councils, only two showed last update assessment. Larger council perform better in this aspect industrially than their small counterparts. The study also notes the existence of some challenges that have made it difficult to implement effective property tax reassessment, and among them is the absence of availability of sufficient human resources that is a fundamental requirement to facilitate effective operations and decision-making.

In Africa, property taxes are an important source of locally generated income because in the fiscal context, the continent relies on the tax to make up part of its own revenue. Property taxes can be ultimately efficiently compiled and charged, which can result in better financial independence of the local government that is not dependent on outside sources of finances (Fjeldstad et al., 2017). Jibao (2022) indicates the landscape of property taxation in Anglophone West Africa is too complicated and depends on a combination of regional influences. In the overview, the description points out that there is a variance in the tax structure of countries due to differences in economic circumstances, governance and history.

In Ghana, analyzing the same, Adalety et al. (2022) established a positive relationship between tax laws awareness and property tax compliance behaviour with revenue mobilization, which means that improved levels of tax laws awareness and behaviour where people pay their property tax can lead to better effectiveness in revenue collection. This means that more research has to be conducted on the effectiveness of the use of digital tools in terms of property tax administration. In South Africa, Hlengwa (2020) revealed that variations in economic activities do not enhance the mobilization of property-tax revenue among local governments in South Africa. Additionally, it highlights that inflation negatively affects the property-tax revenues collected by municipalities.

In Eastern Africa, property taxes play the significant role of providing revenue to the local government. These levies are necessary to ensure local governance, and that the services like education, public safety and health are delivered by the governments. Property taxes facilitate the work of relevant services and the prosperity of communities, making the efficient collection and management of this type of taxes essential to gain improvements in the way of local governance (Mueni, 2020). In Kenya, Jokivuori (2023) has highlighted the importance of property tax as a vital source of revenue to local authorities to fund provision of services as well as infrastructure amenities. Further, the level of community participation and openness in the process of tax levying considerably affects the property tax systems in Tanzania, as Nyabakora and Ngomaitara (2020).

Nyabwengi (2020), on the other hand, observed that property valuation process involved in counting government property tax in the City of Nairobi explains some of the crucial aspects of the current system. It highlights the fact that proper evaluation of property is necessary in order that the taxation as well as bringing in of revenue to local government is done properly. Author discloses that the current system of valuations is mostly ill-fated and not transparent, which makes it unpopular among the population and shovels the possibilities of the county government to lose significant incomes. Also, in Tanzania, Nyabakora and Ngomaitara (2020) pointed out that the property tax system in Dodoma Municipal Council is experiencing critical challenges of implementation. This inefficiency implies there is no adequate application of the existing processes and regulations and this may cost the municipality revenue loss. Also, some of the other difficulties that affect the council include understaffing in valuation processes, lack of the E-Taxation technology and poor administration of property taxation. All these affect negatively the capacity of the council to handle property taxation effectively.

In Rwanda, property taxes are an important locally generated revenue. Local government involves the use of this type of taxation as a source of finance in locally initiated projects and services (Goodfellow, 2017). Ntayomba (2019) analyzed implementation and performance of tax policies that have improved revenue collection at local levels, and that is the example of property tax policy in the City of Kigali, Rwanda.

Moreover, property valuation by Koeva et al. (2021) appears to be of great importance to the land administration systems with a very significant contribution to the economic growth. It is influenced by various forces and factors which include the locational factors, physical, legal and economic factors. Besides, the study by Edison and Claude (2020) has found the impact of property tax on the public spending in Rwanda to be relevant since property tax is a pivotal way of funding local government expenditure in the country. The use of property tax is very critical meaning that property tax helps local governments to finance essential services like education, healthcare, and infrastructure development. It states

that property tax is one of the key revenue collection items highlighted in the sense that it greatly increases the capacity of the local authority to deliver some essential services. The research question is how the property taxes influences the revenue income level of the local governments in Nyarugenge district.

1.1 Statement of the Problem

Property taxes are a common source of revenue for local governments around the world, playing a crucial role in funding essential services and infrastructure. However, the management and implementation of these taxes often face significant challenges, raising questions about their effectiveness. For example, in Canada, the challenges faced by the first nations were navigating legal frameworks and ensuring compliance with regulations (Feir et al., 2024). In addition, when land revenue decreases, local governments tend to increase their debt levels to compensate for the loss. This reduction in land revenue not only impacts the overall debt but also alters the maturity structure of local government debt (Cheng et al., 2022).

Moreover, lack of sufficient human resources, inadequate property assessment systems and software, and limited financial capacity were challenges in the implementation of property tax in West Malaysia (Senawi and Osmadi, 2024). In Kenya, lack transparency, resulting in public distrust and potential revenue losses were challenged of property valuation process for county government property taxation (Nyabwengi, 2020). Additionally, in Tanzania, the insufficient staffing for valuation tasks, the absence of E-Taxation technology, and weak property tax administration were challenges face council.

In Rwanda, the property tax system faces significant challenges that hinder its effectiveness. The functionality of the LGT system is significantly impacted when stakeholders' systems experience downtime, as these systems provide essential data for property taxation (Goodfellow, 2017). This disruption prevents taxpayers from accessing the necessary platforms for tax-related activities. Additionally, if a large number of taxpayers attempt to log in on the final day of tax submissions, the system can become overloaded, further complicating the process. Late payment notifications from banks, often due to their own system issues, can also hinder timely property tax payments, resulting in delays in reconciliation (Koeva et al., 2021).

Moreover, the current method of property market value estimation relies on self-assessment by property owners, which may lead to undervaluation as taxpayers may have an incentive to report lower property values. Furthermore, the low level of computer literacy among some taxpayers adversely affects their compliance with tax regulations, highlighting a need for improved education and support in navigating the tax system. Goodfellow (2017) highlighted the challenges posed by conflicting priorities in land and tax reform. In addition, Ntayomba (2019) noted that City of Kigali is experiencing rapid growth in both population and urban development. This expansion is occurring alongside significant fiscal and property taxes challenges that the city faces.

Additionally, Koeva et al. (2021) posited that property valuation plays a crucial role in land administration systems, significantly impacting economic development. It is shaped by various factors, including locational, physical, legal, and economic elements. However, in developing contexts like Rwanda, there is often a lack of standardized rules and strict data requirements for property valuation, particularly for taxation purposes. Hence, existing data from prior studies on property taxation in Rwanda is insufficient to explain the performance of the Nyarugenge district in generating property tax revenue. This indicates a gap in the research that needs to be addressed to better understand the effect of property tax revenue generation in this specific area. Further investigation and data collection are necessary to provide a clearer picture of the dynamics at play in Nyarugenge's property tax system. Therefore, this study seeks to determine the effect of property tax administration on local government revenue in Nyarugenge district.

1.2 Research Objectives

- i. To assess the effect of character of property tax on local government revenue at RRA in Nyarugenge district.
- ii. To assess effect of property registration on local government revenue at RRA in Nyarugenge district;
- iii. To assess effect of property tax payment on local government revenue at RRA in Nyarugenge district.
- iv. To assess effect of property tax enforcement on local government reveue at RRA in Nyarugenge district

1.3 Research Hypotheses

The study tested the following specific hypotheses:

- H_{01} : Character of property has no significant effect on local government revenue at RRA in NYARUGENGE District.
 H_{02} : Property tax registration has no significant effect on local government revenue at RRA in NYARUGENGE District.
 H_{03} : Property tax payment has no significant effect on local government revenue at RRA in NYARUGENGE District.
 H_{04} : Property tax enforcement has no significant effect on local government revenue at RRA in NYARUGENGE District.

II. LITERATURE REVIEW

2.1 Theoretical Review

This section presents the theoretical review such as property theory and tax theory.

2.1.1 Property Theory

Property Theory (TP) by John Locke, written in *The Second Treatise of Government*, published in 1690 is a classic literature work of political philosophy, which underscores the aspects of natural law. He states that these natural laws entitle people to claim and exercise rights to resources including land and other material belongings.

According to Locke, personal ownership is vital and property can be claimed in a moral context, which Locke regards as necessary to personal freedom and advancement of the society (Krier, 2009). The theory focuses on the significance of people and groups who exercise their rights to resources and spaces meaning the presence of complexities to such practices. The author says that the classical property theory tends to ignore the process of access that may create mal-distribution of the resources. This implies that theory of property is core in knowledge that converts the legal and philosophic foundations of possession and rights which are related to property.

Moreover, Zhang (2021) stated that Demsetz Evolutionary Theory of Property Rights provides extensive framework that can be utilized to examine property rights development especially in China with regard to rural land. According to the theory, property rights evolve in regard to changing economic states and social requirements with a special emphasis on the incentives of individuals in the development of property rights. The theory transforms in economic circumstances and social requirements, resulting to more effective distribution of resources. The move to change individual and collective land use in rural China has been based on the factor of economic reforms as well as the need to have a higher productivity of the agricultural sector. This means that the theory gives a platform to study the process of acquisition, utilization, and transfer of property which impacts on the economic systems and social structures.

In addition, Sherry (2022) proclaimed that the article entitled *A Liberal Theory of Property* written by Hanoch Dagan includes thorough investigation of rights under the essays through the prism of liberalism that stresses the significance of personal independence and social equality. Dagan suggests that property can also be considered as a bundle of relationships and not just a bundle of rights and accordingly, one needs to consider the property as social institution that can help in reflected and creation of relationships in the society. Sherry (2022) exposes the traditional theories of property that emphasize on the need of absolute property and proposes a model that incorporates the rights of individuals and communal duties. This refers to the fact that the theory of property covers the different issues such as the validity of property rights, the trade-off between property rights and the needs of the community and the consequences of property law on the fairness of the society (Zhang, 2021).

This theory of property is fundamental in this work because it gives a platform that can be used in studying how the administration of the property tax affects the revenue of the local government. Applicability of it is especially applicable in Nyarugenge district. The theory gives a concept to examine the impact of property rights and property ownership as determinants of tax collection efficiency and compliance. To optimize the tax revenue in local governments, efficient practice of property taxes is a necessity because it has a direct impact on the amount of money available to meet local government expenditures in terms of both public services and development of its infrastructure. Secondly, this theory assists the researcher to justify the effect of administration of the property tax on the local government revenue in the district of Nyarugenge.

2.1.2 Tax Theory

The author states that the difference between tax theory and practice is mainly explained by the more theoretical focus on the optimal manner in which the tax is charged which presupposes consistent and measurable tax base (Pedone, 2009). This point of view does not consider the challenges and pluralities of tax design, law, effect, incidence and social attitude. Author had a thorough Tax Theory practice as she discovered what kind of people are inclined to give tax services and the divided market they should work on.

According to Frecknall-Hughes and Kirchler (2015) the Tax Theory analyses significance of taxes on bringing efficiency and equity in the society. Its main mission is to come up with tax systems which have minimal market distortions and at the same time ensures effectiveness in revenue collection and distribution objectives. This is related to the issue of balancing between the necessity of government funding and the intention of preserving the fair economic environment so that no taxes should unreasonably slow the economic activity and impose excessive pressure on some groups.

In an article by Nechaev and Rasputina (2020) it was indicated that it was possible regarding an economic entity to calculate the best period of time during which the residual value of the fixed production assets occurred by applying the special formulae that considers the tax rates. This indicates the connection existing between the rates of the income

tax and property tax in terms of fixed assets. It can be observed that residual value of fixed assets and the income that is earned through these assets determines the level of income tax.

This implies that the tax theory assists the businesses to form and allocate their depreciation funds in a reasonable manner according to the prevailing market circumstances (Pedone, 2009).

Theory of Tax is the key in understanding the impact of property tax management in terms of government revenue particularly in the Nyarugenge District. The theory also gives us the clues about the processes involved in the collection and administration of property tax and emphasizes its importance in financing the local services and infrastructure. Theory gives guidelines in analyzing the manner in which effective tax policies and the way they are executed affect finances available to the local governments. This theory also assists the researcher to justify the impact of property tax collection by local government in the district of Nyarugenge.

2.2 Empirical Review

As empirical study on the administration of property tax is important to understand the influence of property taxes on the revenue of local governments. Proper property taxes will result in a good revenue base that will be utilized in offering services and infrastructure of the local society.

2.2.1 Character of Property Tax and Local Government Revenue

Moreover, Netzer and Berne (1995) studied on the analysis of New York's property tax system highlights notable discrepancies between its ideal characteristics and the current practices implemented. An effective property tax system is expected to be equitable, transparent, and efficient, ensuring that all property owners are treated fairly and that tax revenues are utilized effectively. An effective property tax system should be equitable, transparent, and efficient, ensuring that all property owners contribute fairly based on their property values.

Netzer (2016) examined the property tax, discussing the evolution of government finance, focusing on its historical context, current practices, and future trends. Author found that past was characterized by traditional funding methods and limited fiscal policies, while the present reflects a more complex financial landscape with diverse revenue sources and increased scrutiny over public spending, dropping from approximately two-thirds of local revenue before the Great before and after these episodes.

Ali et al. (2021) studied on importance of sustaining land registration benefits in Rwanda by addressing the challenges associated with reverting to outdated information. It highlights that existing empirical literature predominantly focuses on the initial registration of land, neglecting the critical aspect of recording subsequent transactions. These transactions are essential for maintaining the accuracy of land registries and ensuring that they remain relevant over time. In Rwanda, even though, an active land market is significant due to the effective response to inequality and a reduction in urban informality. Netzer (2016) although there are possible advantages of land registration, its results indicate that even after the implementation of the first-time registration, there are still a significant proportion of first-time land transactions in rural land transactions that are still being carried out but in an informal manner, at least, five years after the commencement of first-time registration process.

Secondly, Maličká et al. (2022) examined the relationship between population characteristics and the amount of tax base in real estate tax in the Slovak Republic. The findings show the relevance of demographic forces, such as population density, age composition and level of income on tax revenue performance. The difference in demographic make-ups can alter the economic operation and, thus, tax base of an area. Another important factor is the level of income whereby the areas with high sources of income have a higher prospect of contributing to the property tax earnings.

Yan and Reschovsky (2023) also examined how structure of property tax systems tends to be disproportionate towards low-income and minority populations and has the result of creating a cycle of disadvantage. Moreover, the local funding which is based on the property tax may lead to the inequality in the public services including education and infrastructure perpetuating any unfairness. Poor-income areas are usually characterized by underfunded services, whereas better-off neighborhoods are supported by more sufficient financing of services, which result in the quality of life of people and their possibilities to move forward. The reasons why the housing is inequitable in the United States are numerous, especially the inequality of homeownership among the racial groups or ethnicities. According to US Census Bureau as of the third quarter in 2022; homeownership rate among White households was 74.6 percent; respectively, it was low among blacks households (46.3 percent) and Hispanic households (48.7 percent).

2.2.2 Property Tax Registration and Local Government Revenue

Chang et al. (2011) analyzed that there is a complex relationship between household registration system and property tax reform in Mainland China but the effect of this relationship is significant. Household registration system where social services and benefits are allocated harbors sufficient obstacles to the fairness of implementation of reforms in property taxes. Moreover, the study is quite distinct as it provides a unique discussion of the means of formulating a fair property tax regime unlike the earlier studies on this topic. The results justify the relevance of household registration problems to have a more equal property tax regime.

The article by Barvika et al. (2013) has argued how the Latvian Property Tax Administration System can be improved by dwelling on the improvement opportunities in the Property Registration System and the aspects of meeting the needs of the European Union regarding the geospatial information. It emphasizes the significance of a healthy property registration system where tax administration rules are built. The role of integrating geospatial data is also emphasized as a way of enhancing precision in property valuations, in addition to improving tax collection procedures.

The registration of land transfer rights to nominees under tax amnesty program is another legal process that is very essential because it helps in transfer of property ownership with an ease of the tax relief benefit (Wardhana et al., 2018). In this effort, people will be enabled to reckon over their structure of land or rights to a nominee excluding the ordinary effective tax charges which would otherwise be used. Besides, author presented the effect that the delay causes ownership to remain registered in the name of the former seller.

A study by Nurleni and Salomo (2023) show that digital transformation of the fee of acquiring land and collection of buildings is one of the most important initiatives developed to enhance property registration services in the Jakarta Province. The goal of this initiative is to ease the way things go on streamline the processes and maximize efficiency and make the process easier to handle by stakeholders participating in the transfer of property. The results also showed that successful integration of digital tools also increase the level of trust by the populace.

2.2.3 Property Tax Payment and Local Government Revenue

A review by Waldhart and Reschovsky (2012) reveals that Property tax delinquency in the United States presents a big negative challenge to the local communities and the local government.

The research is dedicated to the question of how payment installation structure can affect the delinquencies. The study also exposes an interesting piece of knowledge, since by treating a random effects regression model to the five-year data set of Wisconsin cities and towns, it becomes clear that the delinquency rate can be quite diverse across states and cities, varying in relation to economic backgrounds, property value, and fiscal taxation.

Moreover, Langley (2022) research on property tax systems belonging to the same country dwells upon an expansion of the possibilities of monthly payment to increase the affordability and accessibility of property ownership. The research was underpinned by studying the need to widen the possibility of paying the property on monthly basis as a way of increasing affordability and access to money. The author observed that, by enabling property taxes to be paid progressively in smaller amounts on a monthly basis instead of in one large payment, the program aims to ease tax payments and ensure their timeliness. This strategy will potentially increase rates of compliance by minimizing chances of delinquency and subsequent punishment involved.

In a study titled, "the determinants of the non-payment of property taxes in the District of San Miguel, Province of San Roman, Peru," Mamani et al. (2021) distinguished a number of influencing factors that can predetermine the behaviour of taxpayers. These are the determinants that cannot be handled in simple terms, and 2020 singles out some of the main factors that determine the behaviour of taxpayers, which include increasing levels of awareness among the people, building trust between the government and the taxpayers, and simplifying the process of collection of taxes. Economic situation greatly influences the capacity of individuals to pay tax, i.e. the level of income, employment.

In the framework of remote sensing application in the sphere of property valuation and payment procedures, Koeva et al. (2021) examined the ways of remote sensing technology use that can help to ensure fair land taxation in Rwanda. The research matter examined how to apply the remote sensing technology in land valuation of property to enable fair taxation of lands in Rwanda. It contrasts different data bases, with the opportunity of satellite images and air surveys seen in conducting appropriate and recent data on land use and property traits. The results show that remote sensing played a considerable role in enhancing property assessment and payment transparency and efficiency in attempts to facilitate fair taxation regime practices.

2.2.4 Property Tax Enforcement and Local Government Revenue

A study conducted by Slack (2023) claimed that the interaction of the three factors of tax enforcement, public expenditure and tax rates is very nuanced in Italy. Increased tax enforcement can lead to substantial growth of tax receipts, an improvement in delivery of public goods as well as to declines in the efficiency cost of collecting taxes. This paper is based on the application of Ghost Buildings program in Italy, the program is meant to help fight tax evasion

by locating unaccounted buildings. It is in the analysis that it is uncovered that about 75 percent of the projected revenues boost are attributable to enhanced tax revenues due to the benefits of this enforcement approach.

The research topic of Adnan et al. (2021) concerns the collection of tax on arrears in land tax in Malaysia and creating an entire circle of work in light of the National Land Code of 1965. The suggested enforcement framework is confirmed with the help of semi-structured interviews of land matter experts on the federal and state levels. The studies lay stress on the importance of a well-defined system of enforcement that includes the negative incentives, e.g. sanction, penalty, and property seizure.

Moreover, research by Bogacki and Martyniuk (2022) concerns the problems of tax administration enforcement in Poland and Ukraine, with emphasis on the division of local tax authorities. The head of the local authority is the main tax authority, which may include the mayor, the head of the district authority, and the head of the Voivodship. These are officials who make the initial decisions which are related to tax. Moreover, the local government has board of appeals which is the one to be appealed to in case of their thinking that the decisions of the heads of local authorities are not appropriate.

A research endeavour by Ntahondereye and Ntakirutimana (2023) set to assess the tax enforcement by Rwanda Revenue Authority (RRA) in the contexts of small and medium-sized enterprises (SMEs) on the Kigali city gave some significant pointers. The total appreciation of the tax regime was recorded to be moderate averagely at 2.67 signifying the mixed perception of some SMEs on the effective nature of the tax system. The training level of RRA was very low at a mere 2.31 and therefore an additional education program is required to qualify SMEs on issues regarding taxes.

Jiang and Jiang (2025) studied the effect of tax enforcement on the digitization of enterprise in China. Digitization of companies is being seen as crucial to the high-standard economic growth in China and tax policy is an effective means of government intervention. The article uses micro-data of the listed companies of the Chinese A-share in the period between 2007 and 2021 to study the correlation between regional enforcement of taxes and enterprise digitization. The results show that an improvement in tax enforcement bears a positive impact upon digitization of enterprises.

III. METHODOLOGY

3.1 Research Design

The study uses the descriptive and correlational research designs. The descriptive and correlational research designs are very instrumental in research field as they provide background information about different phenomena. Descriptive research design helps researchers formulate hypotheses and define trends without controlling variables. Conversely, the correlational research design is used to investigate the relationships between property tax administration and the local government revenue in the Nyarugenge district.

3.2 Population

In this study, the study population was 103985 households and plot of land subjected to property tax practice in the area of the local government revenue power in Nyarugenge district.

3.3. Sample size and sampling technique

The determination of the sample size is statistical where Yamane formula is used to come up with the size of a sample to be used in a research. It is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n: The sample size

N: The population of the study

e: The margin error in the calculation

In the current study:

N equal 103985 people

e equal 0.05

$$n = \frac{103985}{1 + (103985 * 0.05 * 0.05)} = 398.467$$

n=398 respondents

This study employed simple random sampling to select participants from a target population of 103985 individuals involved in electronic billing machines and economy growth in Rwanda. This method ensures that every individual has an equal and likely chance of being included in the sample. The research aims to gather data from a sample size of 398 respondents, which was drawn from the larger population using random selection techniques based on specific categories. The approach is designed to enhance the representativeness of the sample and the reliability of the findings.

3.3 Research Instruments

The research utilised the questionnaire. One of the research tools was a questionnaire that had two parts, part A with regards to demographical profile of the respondents and part B regarding the impact of property tax administration on the local government revenue in Nyarugenge district. The Likert scales actually been range starting with strongly disagree and culminate with strongly agree with 1=Strongly Disagree (2= Disagree, 3=Neutral, 4= Agree and 5=Strongly Agree). The distributed questionnaire was in parts according to the study sub-variables as they were indicated under the conceptual framework. Respondents were asked to give quantitative data using a questionnaire.

3.4 Data Analysis Methods

This study employed data editing, data coding, data tabulation for data processing and descriptive statistics and inferential statistics for data analysis. Data editing ensured the integrity of data analysis, which in turn supports effective decision-making processes. The study focused on data editing to enhance the accuracy of the collected data. In addition, data coding improved the accuracy of data interpretation and facilitates the identification of patterns and trends. Collected data were systematically analyzed through code categories that are input into a computer program. Additionally, collected data tabulation were organized into a table format, which aids in analysis and interpretation. This helps to change complex information to more understandable formats thus improving interpretation and comprehension. The researcher created tables using the SPSS version 25.0.

Besides, during the analysis of descriptive data, attention was given to two major statistical properties, such as mean and standard deviation. The mean was used as a measure of statistical significance that researcher will apply to determine the highest point of agreement by respondents. The method offered a measure to understand the degree of consensus in the information obtained. The standard deviation on the other hand is the measure of dispersion or variability in the data i.e. how much individual data. Researcher used standard deviation as a statistic measure in determining how consistent opinions given by respondents are. This approach helped identify whether the responses are homogeneous, indicating agreement among participants, or heterogeneous, suggesting a diversity of views.

Moreover, study explores the relationship between property tax administration and local government revenue using inferential statistics. The primary method utilized for this examination is multiple linear regression analysis and correlation matrix, which allows for an understanding of how different variables interact and affect local government income

IV. FINDINGS & DISCUSSION

This research involves description, discussion and explanation of research findings. The analysis will centre on the following specific objectives to establish the effect of Character of property tax on local government revenue at RRA in Nyarugenge District, to establish the property tax registration effect on local government revenue at RRA in Nyarugenge District, to establish the effect of Property tax payment on local government revenue at RRA in Nyarugenge District and to establish the property tax enforcement effect on local government revenue at RRA in Nyarugenge District.

Table 1

Questionnaire and Response Rate

Questionnaire	Frequency	Percent
Returned and complete	363	91.2
Incomplete	20	5.0
Unreturned	15	3.8
Total	398	100.0

Table above presents the response rate of respondents. The respondents received 398 questionnaires, 363 questionnaires were returned and complete, resulting in a response rate of 91.2%, which is considered adequate for data analysis. This rate allowed for a comprehensive and in-depth analysis of the research objectives. However, 15 questionnaire was no-returned, accounting for 3.8% of the total distributed and 20 questionnaires were returned and incomplete.

Table 2*Profile of Respondents*

Demographics	Options	Frequency	Percentage (%)
Age	18-30 years	45	12.4
	31-40 years	79	21.8
	41-50 years	108	29.7
	51-60 years	119	32.8
	61 years and above	12	3.3
	Total		363
Gender	Male	189	52.1
	Female	174	47.9
	Total	363	100.0
Education	Primary	35	9.6
	Secondary	176	48.5
	Bachelor	118	32.5
	Master	26	7.2
	PhD	8	2.2
	Total	363	100.0
Years of property possession	Below 2 years	104	28.7
	3-5 years	84	23.1
	6-10 years	116	32.0
	11 years and above	59	16.3
	Total	363	100.0

Table 2 indicates findings profile of respondents. The researcher focused on gathering information regarding the profiles of respondents. This inquiry focused on exploring the demographics and characteristics of the study participants. The insights gained from this profiling enhanced the understanding of the collected data and its implications for the research objectives.

From the age components of the respondents, it is seen that the highest in population is the age between 51-60 years, which makes 32.8 percent of the total participants. Also, 29.7 percent of the respondents were in the category of 41-50 years, 21.8 percent were aged 31-40 years old, and 3.3 percent aged 61 years old and above. This important representation demonstrates the importance of this age group in the realization of effects of the administration of property tax on the government revenue more so in the light of the Rwanda Revenue Authority (RRA). On the same note, Table 3 indicates the gender of respondents. The research examined the gender of the 363 respondents by indicating that 51.2 percent were male, and 48.8 percent were female.

The analysis shows that 48.5 percent of them had passed secondary school and 32.5 percent had a bachelor degree. Also 7.2 percent of the respondents had gained a master of degree and 2.2 percent had a degree of PhD. The results infer that property ownership mostly pertains to those at least with secondary education. To determine the existence of any gap in the areas of the administration of property tax and local government revenue, it is important to have knowledge of the educational perspective of participants, especially in the framework of the RRA.

Finally, with regards to the years of property ownership. The respondents who participated in the survey which constituted of 363 involved are very telling in terms of property ownership years. The highest percentage, 32.0 was composed of the respondents who had been owning their property between 6 to 10 years. This closely goes with 28.7 per cent of respondents who reported to have owned their properties within less than 2 years. Moreover, the 3 to 5 years influenced 23.1 percent of the respondents, and the 11 years and more influenced 16.3 percent of the respondents. These results indicate a wide variation in years of ownership of property by the respondents with an evident peak on the middle range years of ownership.

4.3 Descriptive Statistics

The analysis of respondents' Likert scale ratings provided significant statistical insights, particularly through the calculation of the mean and standard deviation. The mean serves as an average rating for each proposition, reflecting the general tendency of respondents' opinions. This average is crucial for understanding the overall sentiment towards the propositions being evaluated. On the other hand, the standard deviation is instrumental in assessing the variability of the ratings. It indicates the extent to which individual responses diverge from the mean, thereby highlighting the degree of consensus or disagreement among respondents.

The study utilized a 5-point Likert scale to gauge respondents' levels of agreement, ranging from 1 (Strongly disagree) to 5 (Strongly agree). Mean values derived from the responses were categorized into specific ranges: a mean of 0.01-1.00 indicated a very low mean, 1.01-2.00 a low mean, 2.01-3.00 a medium mean, 3.01-4.00 a high mean, and 4.01-5.00 a very high mean. To assess the consistency of the data, standard deviation was employed as a measure of

variability. A standard deviation of less than or equal to 0.5 signified homogeneity within the data, while a standard deviation exceeding 0.5 indicated heterogeneity. This approach allowed for a nuanced understanding of the respondents' agreement levels and the overall data distribution.

Table 3

Effect of Property Tax Characteristics on Local Government Revenue in the Nyarugenge District

	Mean	Std. Dev.
Value of residential buildings contribute to local government revenue	3.63	1.371
Source of funding for local governments are commercial buildings	3.66	1.309
Presence of industrial buildings contributes to the overall property tax base, providing a substantial source of revenue for local government	3.65	1.164
Land is direct source of revenue for local government through land sale, land rentals, land use	3.87	1.229
Overall	3.70	1.268

Table above shows descriptive findings on the effect of character of property tax on local government revenue at RRA in Nyarugenge District. Respondents demonstrated a strong positive agreement regarding the contribution of residential buildings to local government revenue, reflected by a high mean score of 3.63. The standard deviation of 1.371 indicates a diversity of opinions among the participants.

Additionally, there was a similar consensus on the role of commercial buildings as a funding source for local governments, with a mean score of 3.66, also indicating strong positive agreement. The standard deviation of 1.309 further suggests variability in the respondents' views on this matter. Further, respondents expressed a strong positive agreement regarding the impact of industrial buildings on the overall property tax base, reflected in a high mean score of 3.65.

This indicates that participants recognize the significant contribution of industrial properties as a substantial source of revenue for local governments. However, the standard deviation of 1.165 suggests that there is some variability in the opinions among respondents, highlighting differing perspectives on the issue. Moreover, respondents agreed the statement that land is direct source of revenue for local government through land sale, land rentals, land use with high mean score of 3.85 signifying a strong positive agreement and standard deviation of 1.229 indicating heterogeneity in opinions among respondents.

Overall, the analysis reveals a strong positive agreement regarding the impact of property tax character on local government revenue in the RRA of Nyarugenge District, with a high mean score of 3.70. However, the standard deviation of 1.268 indicates a diversity of opinions among respondents. The findings are supported by Ali et al. (2021) focuses on sustaining the benefits of land registration in Rwanda by addressing challenges related to reverting information. It highlights a gap in the empirical literature, which tends to focus on initial registration while neglecting the importance of recording subsequent transactions to maintain registry accuracy and facilitate interoperability through digital technology. The second study by Maličká et al. (2022) examines how population characteristics influence real property tax revenue in the Slovak Republic. It emphasizes the importance of demographic factors, including population density, age distribution, and income levels, in determining tax revenue outcomes. The higher population density tend to generate more revenue, as they often have a greater number of taxable properties. Additionally, age distribution plays a crucial role, as regions with a larger working-age population may experience higher income levels, leading to increased tax contributions.

Table 4

Effect of Property Tax Registration on Local Government Revenue at RRA in Nyarugenge District.

	Mean	Std. Dev.
Property documentation facilitates property taxes and enabling more efficient land management and increased tax collection	3.52	1.339
Good property records allow for accurate valuation of properties, which is the foundation for calculating property taxes	3.48	1.328
Property location determines high property value	3.61	1.337
Property use affect local government revenue	3.36	1.350
Overall	3.49	1.338

Table above shows descriptive findings on the effect of property ta registration on local government revenue at RRA in Nyarugenge District. Respondents expressed a strong positive agreement regarding the role of property documentation in facilitating property taxes, enhancing land management, and improving tax collection. This is evidenced by a high mean score of 3.52, indicating a consensus on the benefits of proper documentation. However, the standard deviation of 1.339 suggests a diversity of opinions among the respondents, highlighting that while many agree

on the advantages, there are varying perspectives on the effectiveness and implementation of property documentation practices. Similarly, the respondents reached a consensus on the importance of good property records for accurate property valuation, which is essential for calculating property taxes. This agreement is reflected in a high mean score of 3.48, indicating a strong positive sentiment towards the statement. However, the standard deviation of 1.328 suggests that there is a notable diversity of opinions among the participants, highlighting varying perspectives on the issue.

Moreover, the study results indicate a strong consensus among respondents regarding the influence of property location on property value, reflected in a high mean score of 3.61. This score suggests a significant positive agreement with the statement. However, the standard deviation of 1.337 points to a degree of variability in the respondents' opinions, indicating that while many agree on the importance of location, there are differing perspectives among individuals. Lastly, further, respondents agreed the statement that property use affect local government revenue with high mean score of 3.36 signifying a strong positive agreement and standard deviation of 1.350 indicating heterogeneity in opinions among respondents.

Overall, the high mean score of 3.49 for the combined statements indicate a strong positive agreement that there is an effect of property tax registration on local government revenue at RRA in Nyarugenge District, with the standard deviation of 1.338 designating heterogeneity in opinions among participants. These facts are confirmed by Barvika et al. (2013), who presented possibilities of the Latvian Property Tax Administration System perfection by paying attention to the Property Registration System bettering. It also highlights the compatibility of this improvement with the European Union geospatial information standards in a bid to establish a more operative and compliant system. It reveals the significance of an effective system of property registration as a basis of efficient tax management. Use of geospatial data through integration is highlighted as one way of enhancing accuracy in assessment of properties and taxes. Further, the study by Wardhana et al. (2018) researched on the registration of transfer of rights of nominee about the post of tax amnesty. Tax amnesty program involves an important legal procedure in registering rights of transfer of land to nominees.

Table 5

Effect of Paying Property Tax on the Local Government Revenue under RRA in Nyarugenge District

Statement	Mean	Std. Dev.
Taxpayer pay property tax using mobile money platforms	3.71	1.291
Taxpayer pay property tax using e-banking money platforms	3.76	1.334
Taxpayer pay property tax using bank transfers platforms	3.64	1.342
Taxpayer pay property tax using mobile banking platforms	3.83	1.356
Overall	3.73	1.330

Table above indicates the descriptive statistics on the impact of paying property tax on the local government revenue under RRA in Nyarugenge District. In the analysis, it was found out that about the respondents perceive positively the use of mobile money and e-banking platforms in payment of property taxes. Mobile money platforms scored an average of 3.71 which is a strong agreement whereas e-banking platforms scored on an average of 3.76. There was both low and high variation of opinions in the two platforms, as reflected on the standard deviation. Both mobile money and e-banking platforms are perceived positively for property tax payments, although opinions vary among individuals.

Moreover, this analysis presents findings from respondents regarding their opinions on using bank transfer and mobile banking platforms for paying property tax. Respondents exhibited a strong positive consensus for bank transfer platforms, reflected by a mean score of 3.64. However, the standard deviation of 1.342 indicates variability in these opinions. The effectiveness of mobile banking platforms was also evaluated, yielding a higher mean score of 3.83, signalling general acceptance, while the standard deviation of 1.356 shows that opinions varied among participants.

On the whole, the analysis shows high mean of 3.73 when considering the influence of property tax payment to the local government revenue in the RRA of Nyarugenge District which shows a significant positive agreement among respondents. This implies that most appreciate the importance of payment of property taxes to the local government. But the standard deviation is 1.330 which indicates a significant difference in opinions of the respondents and therefore, whereas the respondents can be said to have voted in agreement, they might have some personal views on the same issue strongly differing among themselves.

This heterogeneity in responses could be indicative of differing experiences or understandings of the property tax system and its implications for local governance. The findings are supported by Langley (2022) examines the potential benefits of expanding monthly payment options to improve property tax payments. It suggests that allowing smaller, manageable instalment payments can help ease financial burdens and encourage timely tax payments. The second study, conducted by Mamani et al. (2021), investigates the factors influencing non-compliance with property tax

payments in the District of San Miguel, San Roman-Peru. This study identifies various determinants that affect taxpayer behaviour regarding tax compliance.

Table 6

Effect of Property Tax Enforcement on Local Government Revenue specifically in the RRA of the Nyarugenge District.

Statement	Mean	Std. Dev.
Property taxes are declared to the tax administration within corresponded time	3.65	1.333
Property taxes are paid to the tax administration within corresponded time	3.71	1.306
Property taxes are paid annually to the tax administration for five consecutive tax periods	3.63	1.371
Property taxes are calculated on tax rate	3.68	1.249
Overall	3.66	1.249

Table above shows descriptive findings on effect of property tax enforcement on local government revenue at RRA in Nyarugenge District. The respondents demonstrated a strong positive agreement regarding the timely declaration of property taxes to the tax administration, as evidenced by a high mean score of 3.65.

This score indicates a general consensus among participants on the importance of adhering to deadlines for tax declarations. However, the standard deviation of 1.333 suggests that there is a notable diversity of opinions among the respondents, highlighting varying perspectives on the issue. Similarly, the data indicates a strong positive agreement among respondents regarding the timely payment of property taxes to the tax administration, with a mean score of 3.71. However, a standard deviation of 1.306 suggests that there is a diversity of opinions on this matter.

The analysis reveals a strong consensus among participants about the annual payment of property taxes to the tax administration over five consecutive tax periods, indicated by a mean score of 3.63. While this demonstrates a general agreement, the standard deviation of 1.371 points to some variability in opinions, suggesting differing perspectives among respondents regarding this topic.

Moreover, respondents' opinions on property tax calculations highlights a strong positive agreement regarding the tax rate, evidenced by a mean score of 3.68. The score will indicate a consensus on the part of the respondents in general. Nevertheless, the standard deviation of 1.249 shows that the opinions are not very united, implying that, although most of the participants agree on the same approach, there are differences in perceptions about the specifics of calculating a property tax.

In general, the analysis shows a high mean score of 3.66 in relation to the property tax enforcement on the local government revenue of RRA of the Nyarugenge District and this reveals that there is a significant positive consent of the participants. This is an indication that most people feel that enforcement of property tax is an important factor in boosting revenue of the local governments. Nonetheless, its standard deviation of 1.249 suggests there is a significant difference in opinions of the respondents which is indicative there exist diverse opinions with regard to the magnitude of such an effect. A study by Slack (2023) supports these funds with the fact that increased tax enforcement levels significantly affected tax revenues, state expenditure, and tax levels collected in Italy. The study highlights the success of the Ghost Buildings program that focuses on eliminating tax evasion through search of unregistered premises. The results show that the expected growth in revenue could be attributed to more collections on taxes by as much as 75 per cent due to the enforcement approach further indicating that increased compliance may increase the provision of goods to the population with a lower efficiency cost in tax collection. In a related study, Adnan et al. (2021) focus on land tax arrears enforcement in Malaysia, proposing a comprehensive workflow based on the National Land Code of 1965. The authors validated their framework through semi-structured interviews with land experts at both federal and state levels. The study underscores the necessity of a well-defined enforcement framework that incorporates negative incentives, such as sanctions, penalties, and property forfeiture, to effectively deter non-compliance with property tax obligations.

Table 7

Effect of Property Tax on Local Government Revenue at RRA in Nyarugenge District.

	Mean	Std. Dev.
Property taxes are calculated on the market value of both the building and the related plot of land if the two are subject to tax	3.80	1.152
Property taxes are calculated on the surface of land designated for construction but without any construction	3.62	1.219
Property taxes are calculated on the surface of land not designated for residential use	3.53	1.222
Property taxes are established using tax on sale of property levied in accordance with rates and modalities	3.56	1.209
Overall	3.62	1.200



In the table above, the analysis talks about the impact of property tax on the local government revenue in the RRA of Nyarugenge District. The amount of consensus on the way property taxes are computed was relatively high with the mean score being 3.80. But the standard deviation of 1.152 indicates that although views do agree that determination of property taxes should be made on basis of market value, different views on the details prevail. On the same note, there was a high positive response to the statement that property taxes are charged according to the surface area of ground where a construction would be made even when no construction has come up. This is registered by a positive score of 3.62 on the mean. Nevertheless, the standard deviation of 1.219 allows assuming that the opinions of the participants are quite various, and though the majority of people agree with the statement, there are also different points of view concerning the question.

Moreover, the survey findings show that participants have a high positive answer when asked about the calculation of the property taxes especially on the land that is not to be used in residential purposes with an average score of 3.53. This score indicates a common agreement, but the standard deviation of 1.222 reveals an opinion variation among the respondents, which indicates different views that should be supplemented with analysis.

Finally, the property sales formed the property taxes measure where the subjects participated in the most positive significant levels of agreement, with a mean score of 3.56. Such a score shows that there was a common understanding between the respondents about the tenets of assessing property tax. Nevertheless, its standard deviation is 1.209, and it means that the opinions of the respondents are significantly different, partaking of different views on the rates and modalities of property taxation. This diversity in reactions boasts of how intricate the issue of property tax is to the masses.

On the whole, it has revealed a mean rating of 3.62 (SD=1.200) on whether the property tax has an influence on the revenue of the local governments in particular Rwanda Revenue Authority (RRA) within Nyarugenge District. This has shown a high positive agreement among the respondents concerning the use of property tax to boost local government finances. Nevertheless, the values of standard deviation indicate that there is a substantial number of opinions that diverse out among the respondents concerning the overall picture. The findings are in line with a research conducted by Hlengwa (2020) that the difference in economic activities does not contribute to the increased mobilization rate of property-tax revenue amongst local governments in South Africa. It further points that inflation has been adverse on property-tax revenues accumulated by municipalities. In Africa property taxes play a critical role in supplying revenues which local governments use in financing development of infrastructure and in supporting provision of public services. The collection and management of these taxes can bring tremendous values to the local government structures and consequently better welfare of the population as Mueni noted in 2020. Importance Jokivuori (2023) also added how property taxes in Kenya have the potential to be a significant source of revenue generated by local governments, a subject that should not be overlooked because it helps create economy stability and economic growth within the local area.

4.4 Inferential Statistics

Inferential statistics with model summary, ANOVA, and coefficients were used to analyse the data in this study. The study has used inferential statistics to analyze the findings in an appropriate way. One of the statistical processes that allowed testing assumptions about the data and correlation matrix was hypothesis testing and provided the conception about the relationship between variables. In addition, ANOVA was employed to calculate the group mean difference, and the model summary gave the short review of this statistical model. Coefficients derived at the end of the analysis were also used to identify the strength and direction of relationships in the data.

Through these methods, the study gave a clear insight into the relationship and correlation that existed among the variables being examined. This method not only helped to deepen the analysis but also helped to interpret the information in a more subtle way. Such statistics were useful in the investigation of the relationships of the different variables of the study. The study employed four research hypotheses namely the Character of property tax does not significantly impact on local government revenue at RRA in Nyarugenge District; a) The Property tax registration does not significantly impact on local government revenue at RRA in Nyarugenge District; c) The Property tax payment does not significantly impact on local government revenue at RRA in Nyarugenge District and d) The Property tax enforcement does not significantly impact on local government revenue at RRA in Nyarugenge District..

Table 8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945 ^a	.893	.892	.35390

a. Predictors: (Constant), Property tax enforcement, Property tax registration, Character of property tax, Property tax payment



This model presents the results of a regressive analysis that explores the correlation among different predictors namely property tax character, property tax registration, property tax payment as well as property tax enforcement and the effects they have on the local government revenue at the RRA in the Nyarugenge District. It shows a very high degree of positive correlation because the value of R is 0.945.

The content talks of the R Square value of 0.893 implying that the variability in the local government revenue at RRA in Nyarugenge district is explained by the independent variables in the model to an approximate proportion of 89.3 percent. The present discovery can be compared with the research by Cheng et al. (2022), who point out that fiscal policy in Chinese local governments is based on two key approaches to it: land finance and local government debt. The local government income comes largely into the form of revenue received on the sale of land-use rights. Further, Adalety et al. (2022) found that awareness of tax laws and property tax compliance behaviours positively correlate with revenue mobilization, indicating that increased understanding and adherence to tax regulations can enhance revenue collection. This indicates a need for further investigation into the efficacy of digital tools in the context of property tax administration.

Table 9
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	375.217	4	93.804	748.968	.000 ^b
	Residual	44.838	359	.125		
	Total	420.054	363			

a. Dependent Variable: Local government revenue

b. Predictors: (Constant), Property tax enforcement, Property tax registration, Character of property tax, Property tax payment

Table above shows the analysis of variance (ANOVA). The ANOVA indicates a significant F-statistic of 748.968 ($p=0.000 < 0.05$). The F-statistic evaluates the overall significance of the regression model. In this study, there is a significant relationship between the model with predictors (character of property tax, property tax registration, property tax payment, and property tax enforcement) and local government revenue at RRA in Nyarugenge District as the dependent variable. The findings imply that all the independent variables are statistically significant in explaining changes in local government revenue at RRA in Nyarugenge District as dependent variable, this is demonstrated by a p-value of 0.000 which is less than the acceptance value of 0.05.

Table 10
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.162	.069		2.356	.019
	Character of property tax	.145	.039	.150	3.718	.000
	Property tax registration	.166	.034	.166	4.951	.000
	Property tax payment	.410	.042	.446	9.818	.000
	Property tax enforcement	.228	.042	.233	5.452	.000

a. Dependent Variable: Local government revenue

Table above shows the coefficients for the regression model predicting the local government revenue at RRA in Nyarugenge District based on the predictors of character of property tax, property tax registration, property tax payment, property tax enforcement. The constant term has an unstandardized coefficient (B) of 0.162 with a standard error of 0.069.

The study reveals a significant positive relationship between the character of property tax and local government revenue in the RRA of Nyarugenge District, with a coefficient of $B=0.145$ and a p-value of less than 0.05. This indicates that a one-unit increase in the character of property tax results in a 0.145 unit increase in local government revenue. These findings underscore the importance of property tax characteristics in enhancing local revenue streams. Additionally, research by Malická et al. (2022) highlights the impact of demographic factors on real property tax revenue in the Slovak Republic. Key demographic elements such as population density, age distribution, and income levels are shown to significantly influence tax revenue outcomes. Specifically, areas with higher population density are associated with increased revenue generation, likely due to elevated property values and a broader tax base. This suggests that understanding demographic characteristics is crucial for optimizing tax revenue strategies.

Moreover, study that demonstrates a positive correlation between property tax registration and local government revenue in the Nyarugenge District. Specifically, an increase of one unit in property tax registration leads to a 0.166 unit increase in local government revenue. The findings are further supported by research from Chang et al. (2011), which examines the relationship between household registration systems and property tax reforms in Mainland China. The study underscores issues of property tax equity and highlights the challenges encountered in implementing effective reforms due to the household registration framework.

Further, the results show that property tax payment has positive relationship and significant contribution with the local government revenue at RRA in Nyarugenge District ($B=0.410$, $p\text{-value}=0.000<0.05$). The study shows the relationship between property tax payments and local government revenue in the Nyaruenge District, noting that a one-unit increase in property tax payments leads to an increase of 0.410 in revenue. It references a study by Waldhart and Reschovsky (2012) that investigates property tax delinquency in the United States. The study uses 5 years of data from municipalities, demonstrating that increasing the number of annual payment installments from two to three can reduce property tax delinquency rates by about one-third.

Lastly, the study shows impact of property tax enforcement on local government revenue in the Nyarugenge district, revealing a positive relationship between the two. The study indicates that a unit increase in property tax enforcement results in an increase in local government revenue by 0.228. The findings align with Slack's (2023) research, which suggests that stricter tax enforcement can significantly enhance tax collections, improve public goods provision, and lower tax collection inefficiencies. The focus is on Italy's Ghost Buildings program aimed at reducing tax evasion through the identification of unregistered buildings, showing that about 75% of revenue increases can be linked to enhanced tax collection strategies.

Table 11

Summary of hypotheses results

Hypotheses	Results	Comments
H_{01} The Character of property tax has no significant effect on local government revenue at RRA in NYARUGENGE District.	$p\text{-value}=0.000<0.05$.	is rejected
H_{02} The Property tax registration has no significant effect on local government revenue at RRA in NYARUGENGE District.	$p\text{-value}=0.000<0.05$.	is rejected
H_{03} The Property tax payment has no significant effect on local government revenue at RRA in NYARUGENGE District.	$p\text{-value}=0.000<0.05$.	is rejected
H_{04} The Property tax enforcement has no significant effect on local government revenue at RRA in NYARUGENGE District.	$p\text{-value}=0.000<0.05$.	is rejected

Table above shows the findings from hypotheses testing. The findings indicate positive correlation contribution of effect of property tax administration on local government revenue in RRA. The findings show also statistically significant for all hypotheses.

Regarding to H_{01} The character of property tax has no significant effect on local government revenue at RRA in Nyarugenge District, this null hypothesis is rejected because the p-value of 0.000 is less than acceptance value of 0.05. Similarly, hypothesis that there is no significant effect of property tax registration on local government revenue in the Nyarugenge District. It concludes that the null hypothesis, which states that property tax registration does not significantly affect local revenue, is rejected. This decision is based on a p-value of 0.000, indicating a statistically significant effect since it is below the acceptance threshold of 0.05.

Moreover, analysis conducted on property tax payments in the Nyarugenge District shows that these payments have no significant effect on local government revenue. The null hypothesis stating that property tax payments do not significantly effect on local government revenue is rejected due to a p-value of 0.000, which is lower than the acceptance threshold of 0.05. Lastly, statement evaluates the effect of property tax enforcement on local government revenue in the RRA of the Nyarugenge District. It concludes that there is a significant effect, noting that the null hypothesis is rejected due to a p-value of 0.000, which is lower than the 0.05 acceptance threshold.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study aims to investigate the impact of property tax administration on local government revenue within the Rwanda Revenue Authority (RRA). Moving to the objective one about examining the effect of character of property tax on local government revenue at RRA in Nyarugenge District. Based on the findings, this study concludes that there is the effect of character of property tax on local government revenue at RRA. Moreover, concerning to objective two about examining the effect of property tax registration on local government revenue at RRA in Nyarugenge District. Based on the findings, this study concludes that there is the effect of property tax registration on local government

revenue at RRA. Further, regarding to the objective three about examining the effect of property tax payment on local government revenue at RRA in Nyarugenge District. Based on the findings, this study concludes that there is the effect of property tax payments on local government revenue at RRA. Lastly, moving to the objective four about examining the effect of property tax enforcement on local government revenue at RRA in Nyarugenge District. Based on the findings, this study concludes that there is the effect of property tax enforcement on local government revenue at RRA. Briefly, the study concludes that there is a strong relationship and significant effect character of property tax, property tax registration, property tax payments and property tax enforcement on local government revenue at RRA in Nyarugenge District.

5.2 Recommendations

The paper gives considerable emphasis on the importance of property tax attributes in the local government in the RRA. It highlights how the RRA should put into consideration such features in the process of developing property tax policies as a way of increasing the revenue collection. It is important to enhance registration systems because better registration systems can result in more financial resources available to local authorities, which will later benefit the community in terms of better public services and infrastructural developments.

Moreover, the research promotes optimization of property tax registration to maximise revenue potential which can be realised by creating awareness within the community. It also proposes adopting effective and fair property tax collection policies such as making payment services more available to residents. Finally, the paper highlights the need to strengthen property tax enforcement in order to increase fiscal capacity and facilitate community development programs.

REFERENCES

- Adalety, J. E., Alkadash, T. M., Achiyaale, R. A., & Oware, K. M. (2022). Property Tax and Tax System for Revenue Mobilization. *Special Education*, 1(43), 4-29.
- Adnan, M. Z., Suratman, R., & Samsudin, S. (2021). Enforcement on land tax arrears in Malaysia: A framework based on national land code 1965. *Studies of Applied Economics*, 39(10), 1-15.
- Ali, D. A., Deininger, K., Mahofa, G., & Nyakulama, R. (2021). Sustaining land registration benefits by addressing the challenges of reversion to informality in Rwanda. *Land Use Policy*, 110(1), 1-17.
- Barvika, S., Rausis, A., & Berzina, I. (2013, May). Opportunities for the development of the Latvian property tax administration system through improvements in the property registration system and the implementation of European Union requirements for geospatial information. In *Proceedings of 18th international conference on urban planning, regional development and information society* 1(1), 671-682.
- Bogacki, S., & Martyniuk, V. (2022). Selected tax problems of administrative enforcement of taxes and local fees. *Teka Komisji Prawniczej*, 15(1), 15-27.
- Chang, C. J., Silu, Z., & Mo, W. S. (2011, August). On household register problems in property tax reform. In *2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC)* 1(1), 447-450.
- Cheng, Y., Jia, S., & Meng, H. (2022). Fiscal policy choices of local governments in China: Land finance or local government debt? *International Review of Economics & Finance*, 80(1), 294-308.
- Deepak, B. D., & Ali, A. M. (2024). Tax as a Primary Source of Revenue for Local Bodies: A Critical Analysis. *Int'l JL Mgmt. & Human*, 7(5), 791-802.
- Edison, A. E., & Claude, R. (2020). The Effect of Property Tax to Public Expenditures in Rwanda. *International Journal of Advanced Scientific Research and Management*, 5(9), 52-57.
- Feir, D. L., Jones, M. E., & Scoones, D. (2024). When do nations tax? The adoption of property tax codes by First Nations in Canada. *Public Choice*, 199(3), 285-318.
- Fjeldstad, O. H., Ali, M., & Goodfellow, T. (2017). Taxing the urban boom: Property taxation in Africa. *CMI Insight*, 1(1), 1-8
- Frecknall-Hughes, J., & Kirchler, E. (2015). Towards a general theory of tax practice. *Social & Legal Studies*, 24(2), 289-312.
- Goodfellow, T. (2017). Taxing property in a neo-developmental state: The politics of urban land value capture in Rwanda and Ethiopia. *African Affairs*, 116(465), 549-572.
- Hlengwa, S. (2020). *Macro-economic determinants of property-tax revenue in South Africa* (Master's dissertation, University of Cape Town).
- Jiang, Y., & Jiang, X. (2025). The Impacts of Tax Enforcement on Enterprises' Digitization. *Emerging Markets Finance and Trade*, 61(11), 4049-4070.

- Jibao, S. S. (2022). *Property taxation in Anglophone West Africa: regional overview*. Lincoln Institute of Land Policy, 1(1), 1-87.
- Jokivuori, J. (2023). *Assessing the Potential Revenue and Distributional Effects of Property Taxation in Kenya: An Analysis of Property and Income Distribution among Kenyan Households* (Master dissertation, University of Helsinki).
- Koeva, M., Humayun, M. I., Timm, C., Stöcker, C., Crommelinck, S., Chipofya, M., ... & Zevenbergen, J. (2021). Geospatial tool and geocloud platform innovations: A fit-for-purpose land administration assessment. *Land*, 10(6), 557-580.
- Krier, J. E. (2009). Evolutionary theory and the origin of property rights. *Cornell L. Rev.*, 95, 139.
- Langley, A. H. (2022). *Improving the Property Tax by Expanding Options for Monthly Payments*. Lincoln Institute of Land Policy, 1(1)1-41
- Maličká, L., Lukáčová, J., & Hadačová, D. (2022). Demographic and Economic Characteristics of Population as Determinants of the Revenue from the Real property tax in the Slovak Republic. *Financial Law Review*, 28(4), 1-13.
- Mamani, J. C. Q., Giersch, L. V., Guizada, C. E. R., Quispe, D. E. B., Flores, A. M., Quispe, T. L. B., & Vargas, E. C. (2021). Determinants of non-compliance with property tax payment in the district of San Miguel, province of San Román – Peru, 2020. *Journal of Legal, Ethical and Regulatory Issues*, 24(S1), 1–13.
- Mueni, M. R. (2020). *Analysis Of Tax Revenue Productivity for Selected Countries in the East African Community* (Doctoral dissertation, Kenyatta University).
- Nechaev, A., & Rasputina, A. (2020). Theory of tax variation calculation. In *IOP Conference Series: Earth and Environmental Science* (Vol. 421, No. 3, p. 032010). IOP Publishing.
- Netzer, D. (2016). Property taxes: their past, present, and future place in government finance. In *Urban Finance Under Siege* 1(1), 51-78.
- Netzer, D., & Berne, R. (1995). Discrepancies between ideal characteristics of a property tax system and current practice in New York. *Journal of Education Finance*, 21(1), 38-56.
- Ntahondereye, A., & Ntakirutimana, E. (2023). Assessment of Tax Enforcement in Selected Small and Medium Enterprises (SMEs) in Kigali City, Rwanda. *East African Journal of Science and Technology*, 13(1), 15-29.
- Ntayomba, J. M. V. (2019). *Property tax policy in the City of Kigali (Rwanda): A Case study of policy implementation* (Doctoral dissertation, California Baptist University).
- Nurleni, A. F., & Salomo, R. V. (2023). Digital Transformation of Acquisition Fee Of Right On Land and Building Collection in Accelerating Property Registration Services at Jakarta Province. *Jurnal Teknologi Informasi dan Pendidikan*, 16(1), 218-233.
- Nyabakora, W. I., & Ngomaitara, D. O. H. (2020). Assessment on Effective Implementation of Property Tax Systems in Tanzania (The Case of Dodoma Municipal Council). *Assessment*, 61(1), 1-8.
- Nyabwengi, L. (2020). An evaluation of the property valuation process for County Government Property Taxation, Nairobi City. *Africa Habitat Review*, 14(1), 1731-1743.
- Pedone, A. (2009). Tax theory and tax practice: the problems of defining, measuring and assessing tax bases. *Longobardi E. e Petretto A.(a cura di), Saggi di Economia della Tassazione. Milano: Franco Angeli*, 1(1), 17-38.
- Samantela, S. S., & Maquiling, K. S. M. (2024). Examining institutional challenges of land value capture: The case of implementing land-based taxes in the Philippines. *Journal of Human Ecology and Sustainability*, 2(1), 7-21.
- Senawi, A., & Osmadi, A. (2024). Property tax reassessment among local authorities: the implementation and its key challenges. *Journal of Financial Management of Property and Construction*, 29(1), 152-167.
- Sherry, C. (2022). Review of Hanoch Dagan, A Liberal Theory of Property. *International Journal of Law in Context*, 18(2), 241-244.
- Slack, E. (2023). Property Taxes in the Real World. *Canadian Tax Journal/Revue fiscale canadienne*, 70(1), 133-58.
- Waldhart, P., & Reschovsky, A. (2012). Property tax delinquency and the number of payment installments. *Public Finance and Management*, 12(4), 316-330.
- Wardhana, M., Susilowati, I. F., & Perwitasari, D. (2018, October). Registration of transfers of land of rights for nominee in the post of tax amnesty. In *1st International Conference on Social Sciences* 226(10), 67-72.
- Yan, Y., & Reschovsky, A. (2023). Fiscal disparities among local governments in Zhejiang Province, China. *Journal of Urban Affairs*, 45(2), 236-257.
- Zhang, Y. (2021). The Demsetz's Evolutionary Theory of Property Rights as Applied to Rural Land of China: A Supplement. *Land*, 10(9), 888-903.