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DEPARTMENT OF STATISTICS AND MATHEMATICS

AN ANALYSIS OF FACTORS INFLUENCING DEFUALT ON MUNICIPAL RATES; A CASE OF BINDURA MUNICIPALITY.

A PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR BSC DEGREE IN STATISTICS AND FINANCIAL MATHEMATICS IN THE FACULTY OF PHYSICS AND MATHEMATICS

BY

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APPROVAL FORM

The undersigned certify that they have read and recommend to the Bindura University of Science Education for acceptance of a dissertation entitled **"AN ANALYSIS ON FACTORS INFLUENCING DEFAULT ON MUNICIPAL RATES: A CASE OF BINDURA MUNICIPALITY".**

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DECLARATION OF AUTHORSHIP

I declare that this research project herein is my own original work and has not be copied or extracted from previous sources without due acknowledgement of the sources.

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DEDICATION

I dedicate this project to my beloved parents and the family at large.

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I would like to thank my parents MR. N. and MRS. G. Gwaronda and MS. P. Rusenza and also my husband MR. F. Rusenza not leaving out my aunt MRS. M. Chikanya for the unwavering support and unconditional love in my educational journey. Their unceasing encouragement, support and attention towards my studies have brought me this far. I would also want to acknowledge my supervisor Mr. Mukonoweshuro for always keeping on encouraging me not to give up. I would also want to thank my special teachers Ms. Hlupo and Mr. Kusotera for their invaluable assistance, suggestions and contributions throughout the research project. Above all l would like to thank the Lord God Almighty for keeping me through this whole journey and affording me this grace to complete my project.

ABSTRACT

The research is an analysis on factor influencing default on municipal rate in Bindura from a period of 1997 to 2022. The researcher used correlated quantitative research design that aims to detect whether there is a relationship between default payment and the recorded variables. The researcher focused on logistic regression to predict the probability of default on payment. A stratified random sample of 300 observations from each variable was used. Data was analysed using E-Views and SPSS version 16.0 software. The findings of the research indicated that income level, property ownership and payment history has an impact on default. Increase on income and density corresponds to the decrease of default, while increase on payment history, payment history, employment and property ownership corresponds to increase in default. . These findings suggest that municipal authorities should consider these factors when designing policies aimed at reducing default rates and improving revenue collection. The study provides valuable insights into the factors affecting default on municipal rates in Bindura Municipality and may serve as a useful reference for future research in this area.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The Municipal is an important aspect in Zimbabwe governance system with the mandate to deliver basic services to its residence; the services include refusal removal, sanitation and water supply. A financial resource (allocations from the province and revenue that is self -generated) allows the local municipal to achieve its constitutional duty. Nevertheless, the issue of municipal revenue collection and default has raised a lot of eyebrows in the resent years as many cities and towns are inconvenienced with poor service deliveries from the municipal, owing to the insufficient revenue to fund municipal budget. Default has directly influenced many municipal financial viability and its capacity to sustainable provide services. As a result, this research study intends to add to the discourse on municipal deficiency of resources by investigating factors influencing default on municipal rates.

The local authorities are failing to meet important financial obligations. The Bindura Municipality Town Clerk in his monthly report to full council says this has negatively impacted on the ability of the local authorities to provide quality deliveries to the residents and rate payers and risk the local authority to face more default litigation by its major creditors. According to Redmond et.al. (2007) significant financial failings entice massive attention and one significant failing can taint the whole sector.

This study constitutes five chapters, this being the introductory chapter, followed by a review of literature, after which comes the research methodology and chapter 4 which is about data analysis and presentation and lastly but not least chapter 5 which concludes the summarized findings and giving recommendations.

1.2 Background of the study

The Constitution of Zimbabwe Section 276(2) (b) authorizes municipalities to impose rates and taxes, and they are supposed to sufficiently generate revenue to achieve their mandate (Zimbabwe 2013:117). Basing on this legislature authorization, it may be indicated that Zimbabwean municipalities are obligated to be self-financed.

In the opinion of Tonhodzai et al. (2015:76) most Zimbabwe municipalities are incapacitated to deliver services to their local residents by relying on the assistance from the grants by the central governments. In as much as municipalities are reliant on the funds from the supreme authorities, the supreme authorities does not have the capacity to fund financial resources to municipalities, exacerbating the municipalities' predicaments.

Mudyanadzo and Nzwatu (2018:7) cited that Zimbabwean municipalities have a long way to go to be financially viable, and to be effective and efficient councils that achieve their responsibilities regarding the provision of affordable cost of quality services. The municipalities' state of finance has been aggregated by insufficient revenue since non-payment of municipal deliveries has become a common occurrence across Zimbabwe.

Local governments are currently unable to provide adequate services to their inhabitants due to their incapacity to properly gather funding. Water rationing has become the norm, with inhabitants only having access to the precious liquid for six hours every day.

The adoption of a system with multiple currencies in 2009 did not bring any relief to the bleeding institutions, as payment defaults persisted. Following a series of public outcries about poor service delivery in various municipal governments, the Minister of Local Government and Urban Development used powers granted to him by the Urban Councils Act (Chapter 29:15) to second resuscitation teams in Reddcliff, Chinhoyi, Bindura and of late Chitungwiza. Surprisingly, the debtor's ratio and liquidity scenario did not improve in these towns.

The following is a summary of the budgeted and actual revenue collected by Bindura Municipality from 2009 to 2013.

Table 1.0 Budget Collection ratio.

Bindura Municipality -Budgeted/ Collection analysis						
Year 2009-2013						
	2009	2010	2011	2012	2013	TOTALS
Budgeted	6,434,024.00	6,434,024.00	6,434,024.00	6,434,024.00	6,434,024.00	32,170,120.00
Collected	2,228,852.00	2,658,925.25	3,258,895.25	3,459,650.95	2,888,752.65	14,495,076.50
% collection	34.64	41.32	50.65	53.77	44.89	45.06

Data collected from Bindura municipality finance department.

Water, sidewalk execution, sewerage and drainage, parking, omnibuses and additional transport services, lighting for streets, fire departments, cemetery and burial sites, social facilities, valuation and evaluation of property for rating, housing, and roadways are all required by the Urban Councils Act.

However, in order to meet the aforementioned service delivery objectives, local governments must overcome revenue production challenges. It is necessary to investigate the success of income generation in relation to service delivery promises. Local governments used to receive government grants, but that system has since been phased out in favour of self-sufficient local governments.

1.3 Statement of the problem

The non-payment of municipal rates is a significant problem in many municipalities globally. This problem can result in a lack of service delivery and the subsequent decay of infrastructure and amenities. The aim of this study is to identify the factors that influence default on municipal rates in Bindura. Some of the factors that may be considered include the economic status of the homeowner, the level of service delivery provided by the municipality, and the efficiency of the billing system. The study will be conducted by analyzing secondary data from municipal financial records. The findings of this study will be useful to municipalities in developing strategies to reduce the number of defaults on municipal rates.

1.4 Research objectives.

- To identify main factors that cause default on rates payment;
- To establish the role of municipal revenue with regard to Bindura Municipal's sustainability;
- To come up with recommendations to boost revenue generation.

1.5 Research questions

The research questions are as follows:

- What are the main factors that causes default on rates payments?
- What is the role of municipal revenue with regard to the financial sustainability of Bindura Municipal?
- What recommendations can be established to boost revenue?

1.6 Significance of the study

The study conducts an assessment and attempts to answer concerns about revenue collection problems, local government resource availability, and the ability to improve services. The researcher will fund fundamental recommendation for future referencing regarding municipal services and to add on to the body of knowledge.

1.7 Assumptions of the research

This study expects that important stakeholders will work with the researcher during the research period. It is also assumed that the research will serve as a future reference for policymakers and

implementers in local governments. This study also considers that when municipal money is insufficient from internal as well as external sources, it has an influence on service delivery to the community. It also assumes that the Pearson quotient analysis can show a municipality's level of rurality and be linked to municipal revenue, service delivery, and financial viability.

1.8 Limitations of the study

The study's drawback is that it concentrates on a single, local municipality (Bindura Municipality). The availability and quality of the data collected limit the scope of this investigation. The data collected may be incomplete or wrong, affecting the accuracy of the analysis. Furthermore, the study does not capture all of the elements that contribute to municipal rate default, as economic situations and cultural customs may also play a role.

1.9 Delimitaions of the study

The research study is centred on factors influencing default on municipal rate and the data was collected from a period of five years from 2015 to 2019 and Bindura Municipality was used as the case study. The research came up with ways to boost the payment of municipal rates. The information was collected from Bindura Municipality financial records.

1.10 Definition of terms

Basic Municipal Services

This is a municipal service that is essential to sustain an acceptable and realistic quality of living and would risk public health, safety, or the environment if not provided as stated by Law Insider dictionary.

Financial Sustainability

Govinaraju et al (2015) defines financial sustainability as the determination of whether or not a project will have enough finances to meet all of its resources and financial responsibilities.

Financial Viability

In the word of Grant (2022) financial viability is the ability to generate enough revenue to meet operational costs, debt commitments, and, if applicable, allow for growth while maintaining service levels.

Revenue

Based on Hayes (2023) revenue is the money earned through routine business operations.

1.11 Summary

A vibrant local authority is always a desirable state of affairs, as local authorities contribute immensely to the national economic growth. That was the emphasis of the chapter as it highlighted the common problem affecting local authorities revenue generation and how it affects service delivery provision. In the following chapter the literature of the study area is reviewed.

CHAPTER 2: REVIEW OF LITERATURE

2.1Theoretical literature review

Defaulting on municipal rates is a significant problem in many municipalities around the world. Several studies have attempted to identify the factors that influence default on municipal rates.

Many studies have been conducted to understand the various factors that influence default on municipal rates. One of the primary factors that have been pointed out by various researchers is the socio-economic status of the residents. According to these studies, people with lower socio-economic status tend to default more often on their municipal rates due to financial constraints. Studies have also shown that unemployment and poverty are strong predictors of default rates. According to a study conducted by Mondal and Mahese (2020) in South Africa, the most critical factors that influence default on municipal rates are poverty, unemployment, and the economic situation of households. The study found that households that struggle to make ends meet due to poverty and unemployment are more likely to default on their municipal rates. Similarly, Kaseke and Mvula (2019) found that residents living in informal settlements are more likely to default on their municipal rates due to poor living conditions and financial difficulties.

Furthermore, a study by Marume and Mudzonga (2019) in Zimbabwe found that inadequate service delivery, such as poor water quality, electricity, and sanitation services, is a significant factor that influences default on municipal rates. The researchers found that residents who feel that they are not getting value for their money are more likely to default on their municipal rates. When residents are satisfied with the services provided by the municipality such as reliable water and electricity supply, they are more likely to pay their rates timeously. On the other hand, poor service delivery can result in residents refusing to pay their rates or paying them late.

The efficiency of the billing and collection system of the municipality also plays a vital role in determining the default rates. Lack of automation, lengthy or complicated procedures and the absence of incentivized arrangements can all make the billing and collection process. A study by Aluko and Oyebisi (2016) in Nigeria found that poor management of municipal finances can also contribute to default on municipal rates. The researchers highlighted that municipalities that fail to manage their finances effectively are more likely to struggle to collect rates from their residents, thereby increasing the rate of default.

The size of the municipality is also a factor that has an impact on the default rates. Larger municipalities with a higher population tend to have higher default rates. This can be attributed to the fact that larger municipalities have a more complex system of billing and revenue collection, which can lead to errors and delays in the payment process.

Other theoretical frameworks focus on the social and psychological factors that influence default on municipal rates. Social norm theory suggests that residents may default on their rates if they perceive that their peers are also doing so and if there are no social or legal consequences for doing so. This theory is supported by research that has found that default rates tend to be higher in neighborhoods with high rates of poverty and unemployment.

Overall, these studies suggest that a combination of demographic factors, economic conditions, perceived quality of service delivery, trust in the municipality, perceived fairness of the rates system, and administrative efficiency all influence the likelihood of default on municipal rates. It is, therefore, important for municipalities to tailor their approaches to rate collection and engage with residents to address their concerns and design policies that prevent defaults. Factors influencing default on municipal rates can be viewed through different theoretical lenses. One such perspective is the economic theory of taxation, which posits that taxpayers will voluntarily comply with tax obligations to the extent that they perceive the benefits of government services as exceeding the costs of paying taxes. Thus, if taxpayers perceive that their municipal rates are too high or that the quality of municipal services is poor, they may be less willing to pay their rates, leading to higher rates of default. Conversely, if taxpayers perceive that their rates are fair and that services are of high quality, they may be more likely to comply with their obligations.

2.1.1 Sources of municipal revenue.

Sources of revenue collection for municipalities can vary depending on the services and infrastructure they provide. However, theoretical research suggests that there are several key factors that can influence default on municipal rates, regardless of the source of revenue. These factors can include:

- Economic conditions: Recessions, high unemployment rates, and other economic challenges can lead to financial strain for residents and increase the likelihood of defaults on municipal rates.
- Perceived quality of service delivery: When residents feel that they are not receiving high-quality services or that their concerns are not being addressed, they may be less likely to prioritize payment of municipal rates.
- Trust in the municipality: Residents who trust their municipality and its leaders are more likely to prioritize payment of their rates, while those who distrust the municipality may be more likely to default.
- Perceived fairness of the rates system: In order for residents to see the value of the rates they pay, they must perceive the rates system as fair and equitable. If some residents feel that the rates system is biased or unfair, they may be less likely to prioritize payment
- The reliability and consistency of revenue collection sources: municipalities that rely on uncertain or unreliable revenue sources, such as fluctuations in property values or tax revenues, may be more vulnerable to fluctuations in income and a higher rate of defaults. On the other hand, municipalities that rely on more stable revenue streams, such as user fees or provincial grants, may be less vulnerable to defaults.
- The level of control that municipalities have over revenue collection: Municipalities that have limited control over revenue collection sources, such as those that rely heavily on provincial funding or property taxes, may be more vulnerable to fluctuations and defaults. On the other hand, municipalities that have more control over revenue collection sources and can set policies and procedures that effectively collect the rates owed may be less vulnerable to defaults.

Overall, understanding the theoretical foundations that underpin default on municipal rates, specifically in reference to sources of revenue collection, can help municipalities predict and manage potential risks and develop effect

I. Locally generated revenue

Local governments generate revenue through various sources including taxes, fees and charges, grants and subsidies, and assets such as land and properties. Theoretical literature suggests that the sources of revenue for local governments can play a critical role in determining a municipality's financial sustainability and its ability to provide essential services to its residents.

In relation to default on municipal rates, the theoretical literature suggests that the ability of local governments to generate revenue through locally generated sources such as rates and taxes is critical to maintaining financial sustainability. According to Oates (1999), local governments are most efficient in collecting revenue from locally generated taxes, which includes property rates, sales taxes, and income taxes.

The theoretical literature also suggests that the ability of a municipality to generate revenue from locally generated sources is influenced by a range of factors. One important factor is the economic base of the municipality. Cities with diverse economic bases tend to be able to generate revenue from a wider range of sources, which may reduce their reliance on a single source of revenue such as property rates.

Another important factor is the level of decentralization in the revenue collection system. Municipalities with greater powers to collect their own revenues are generally better able to tailor their revenue collection policies to local needs, as opposed to being constrained by centralized policies.

Finally, it is important that municipalities develop effective revenue collection policies and procedures, which are transparent, fair, and easily understood by residents. Developing such policies and procedures can help to increase compliance with payment obligations, thereby reducing the risk of default on municipal rates.

II. Guiding principles for local government finances

Guiding principles for local government finances can provide a framework for municipalities to effectively manage their finances and minimize rates default. Theoretical research suggests that the following principles can be particularly helpful:

- Transparency: Municipalities should have transparent processes for collecting and reporting financial information, so that residents can understand how their rates are being collected and used.

- Accountability: Municipalities should be accountable for their financial decisions and outcomes, and should be transparent in their decision-making processes.
- Efficiency and Effectiveness: Municipalities should aim to provide services and infrastructure in a way that is efficient and effective, to maximize the benefits for residents while minimizing costs.
- Sustainability: Municipalities should prioritize sustainability in their financial decision-making, to ensure that their finances are stable and that they can meet their long-term obligations.
- Participation: Municipalities should engage residents in their financial decision-making processes, to ensure that their needs and preferences are considered.

- Adequate Revenue Generation: Municipalities must generate adequate revenue to fund the provision of services and infrastructure, without placing an undue burden on taxpayers.
- Fiscal Responsibility: Municipalities must adopt responsible fiscal management practices, including effective budgeting, financial planning, and debt management.
- Equity and Fairness: Municipalities should aim to create a fair and equitable system of rates collection, avoiding any undue or disproportionate burden being placed on certain groups of residents.
- Integrity and Ethics: Municipalities must ensure that their officials adhere to high ethical standards, and should be transparent and accountable in all their financial dealings.

In summary, by following these guiding principles for local government finances, municipalities can create a financial framework that incentivizes compliance with rates payments, builds trust with residents, and ensures the long-term financial health of the municipality.

III. Monitoring revenue collection.

Monitoring of revenue collection is an essential aspect of ensuring timely payment of municipal rates. Effective monitoring means having an accurate database of ratepayers to identify defaulters, prompt allocation of payments, and follow-up actions. Research by Mulaudzi and De Jager (2017) emphasizes the importance of using technology to improve monitoring of revenue collection, such as through mobile applications and online payment systems.

The accuracy of a database of ratepayers to identify defaulters would depend on the quality of the data and the effectiveness of the database management system being used. In general, the more accurate and up-to-date the data is, and the better the database management system is at identifying and tracking defaulters, the more accurate the database will be at identifying defaulters. It's important to note, however, that identifying defaulters should be done in accordance with applicable laws and regulations, and should always be carried out with the purpose of encouraging compliance rather than punishing individuals or businesses.

Prompt allocation of payment involves processing and allocating payments received from ratepayers to the appropriate accounts. This can be done by using an electronic payment processing system that automatically updates the accounts in real time, or by using a manual process that involves entering the payment data into a database or spreadsheet and manually allocating the payments to the appropriate accounts. To ensure prompt allocation of payment, it is important to have clear and consistent procedures and to address any issues or errors in a timely manner. Additionally, using a payment tracking system can help to keep track of payments and ensure that they are properly allocated.

The follow-up actions that a municipal government may implement to address ratepayer defaults could include:

- Sending reminders to defaulters requesting payment of arrears
- Imposing penalties and late fees for overdue payments
- Initiating legal action against persistent defaulters
- Suspending services like water or electricity supply until payment is made
- Offering payment plan options for ratepayers with financial difficulties
- Implementing stronger debt collection measures such as asset seizure or court orders.

It's important for municipalities to carefully consider the actions they take to collect outstanding payments, as overly aggressive tactics may damage relationships with ratepayers and affect their willingness to pay in the future.

Another approach is to implement incentives to encourage timely payment. This could include offering early payment discounts or using positive reinforcement strategies to encourage residents to pay their rates on time. Additionally, municipalities can use technology to facilitate payment and monitoring processes. This could involve implementing mobile applications and online payment systems, which can streamline payment processes and provide real-time data on revenue collection.

In conclusion, defaulting on municipal rates affects the revenue collection process. The identified factors influencing such defaulting are socio-economic status, the relationship between the municipality and its residents, financial literacy, and monitoring of revenue collection. These findings highlight the importance of municipal councils to recognize that different ratepayers have varying levels of income and knowledge and have a personalized approach to improve the revenue collection process.

IV. Factors affecting revenue generation

Factors affecting revenue collection for municipalities include the financial abilities and willingness of residents to pay rates, the effectiveness of collection policies and procedures, and external economic and political factors that may affect municipal finances.

Theoretical research suggests that individual factors such as income and education level can impact a resident's ability to pay rates. For instance, municipalities may consider designing progressive payment schemes to help low-income residents cope with the burden of rates payments. Similarly, research suggests that residents may be more likely to pay rates if they perceive the system as fair and transparent. Municipalities can increase trust in their collection systems by developing policies that are clear, transparent, and consistently applied.

In addition, external economic factors such as inflation, unemployment, and changes in interest rates can impact a municipality's revenue collection abilities. Municipalities may need to be mindful of these factors and adjust their collection policies and procedures to accommodate economic fluctuations. Finally, political factors such as changes in federal or state funding may also affect municipal revenue collection. Municipalities may need to develop contingency plans to address these uncertainties and ensure the financial stability of the municipality.

The effectiveness of collection policies and procedures is crucial in ensuring revenue collection and minimizing rates default. Theoretical research suggests that implementing transparent and easy-to-understand policies and procedures can increase compliance, while punitive measures such as penalties and legal action may deter residents from defaulting on payments.

In general, theoretical research suggests that a combination of factors such as effective policies and procedures, strong communication and engagement with residents, and positive economic conditions can help to minimize rates default and ensure the financial health of municipalities.

2.1.2 CHALLENGES FACED BY LOCAL AUTHORITIES IN COLLECTING REVENUE

Local authorities face several challenges when it comes to collecting revenue, including:

- Limited resources: Local authorities often have limited resources, both in terms of staff and funding, which can make it difficult to pursue all revenue collection efforts.

- Unpaid bills: Many local authorities struggle with unpaid bills, particularly when it comes to taxes and fines. This can result in lost revenue and increased costs to pursue collection.

- Non-compliance: Some individuals and businesses may intentionally avoid paying taxes or fees, putting a strain on the local authority's revenue collection efforts.

- Changing regulations: Tax laws and other regulations are subject to change, and local authorities must keep up with these changes to ensure they are collecting revenue appropriately.

- Resistance to collection efforts: Some individuals or businesses may resist collection efforts, either through legal challenges or other means, which can further delay revenue collection.

Overall, effective revenue collection requires a combination of resources, communication, and the ability to adapt to changing circumstances.

2.2 Empirical review

2.2.1 Sources of revenue

Municipalities generate revenue from various sources to fund the provision of public services and meet their financial obligations. Below are some of the key sources of revenue for municipalities:

- Property Tax: Property tax is a significant source of revenue for municipalities. The amount of property tax levied on an individual property is based on the value of the property and is used to fund local services such as police and fire departments, road maintenance, and waste disposal.
- Sales Tax: Municipalities often collect a portion of the sales tax generated within their borders. Sales tax revenue is used to fund a range of public services, such as education, healthcare, and public works projects.
- Business Licenses and Permits: Municipalities generate revenue through the issuance of business licenses and permits. The revenue generated is used to fund a range of local services, such as fire protection, police, and code enforcement.
- Fees and Fines: Municipalities generate revenue through the collection of various fees and fines, such as parking fines, building permit fees, and other charges.
- Grants: Local governments can also apply and receive governmental or private grants to provide specific services in their areas.
- Investment income – Municipalities can earn revenue from investments, such as interest on bank accounts and bonds.

- Licenses and permits – charges levied on business licenses and permits for construction or development purposes.

In conclusion, municipalities rely on a variety of revenue sources to provide public services and maintain

2.2.2 Revenue collection constraints.

Revenue collection is a key challenge faced by many municipalities. There are several constraints that can impact the ability of municipalities to collect revenues effectively. Some of the common ones include:

- Limited Capacity: Many municipalities lack the resources and capacity to implement effective revenue collection systems. They do not have the staff, technology, or expertise needed to ensure that taxes and fees are accurately assessed and collected.
- Lack of Technology: Many municipalities still rely on manual processes for revenue collection, which can be time-consuming and error-prone. They may also lack the necessary technology infrastructure to support more advanced revenue collection systems.
- Non-compliance: Some taxpayers may not comply with municipal tax laws, either because they do not understand their obligations or because they choose to evade them. This can make it difficult for municipalities to collect the revenue they are owed.
- Political Pressure: Municipalities may face political pressure to keep taxes low or to provide services without charging fees. This can make it challenging to generate the revenues needed to support municipal operations.
- Inadequate Data: Some municipalities may lack the data they need to effectively assess and collect taxes and fees. Without accurate and complete data, they may be unable to identify taxpayers who are not complying with their obligations.

- Lack of effective tax policies: Municipalities may not have well-defined and comprehensive tax policies that address all potential sources of revenue. This can result in lost revenue if certain activities or sectors are not appropriately taxed.

To address these constraints, municipalities can take a number of steps, such as investing in technology, improving data collection and analysis, increasing public education and awareness, and incentivizing compliance through penalties and rewards.

2.2.3 Factors affecting revenue collection in local authorities

Effective revenue collection is crucial for the sustainability and provision of essential public services in local authorities. Several factors can affect revenue collection in local authorities, including:

- Economic Conditions: Changes in economic conditions such as a recession or inflation can affect the ability of citizens to pay their taxes, leading to a decline in revenue collection.
- Population Growth: As the population increases in a locality, the demand for services increases, raising the need for additional revenue sources to meet the growing demand.
- Poor Planning and Budgeting: Poor planning, budgeting, and forecasting can lead to underestimation of revenue collection, resulting in budget deficits.
- Corruption: Corruption among local authority officials, such as bribery, embezzlement, and fraud, can significantly lower revenue collection.
- Limited Technology: Outdated revenue collection systems can lead to inefficiency and low revenue collection.

- Weak Legal Systems: Weak legal systems, including delayed legal processes, can make it difficult for local authorities to collect revenue from defaulters.
- Demographics: The demographics of an area can also affect revenue collection. For example, areas with a high number of low-income earners may have higher levels of default on payments, resulting in lower revenue collections.
- Tax policies: Tax policies have a direct impact on local authority revenue collection. For example, changes in tax policies, such as lowering tax rates, can result in lower revenue collections for local authorities.

In conclusion, various factors can affect revenue collection in local authorities. Addressing these factors through effective planning, use of technology, and strong legal frameworks can help enhance revenue collection.

2.2.4 REVENUE COLLECTION ENHANCEMENT IN LOCAL AUTHORITIES

The enhancement of local authority revenue is critical to ensure that municipalities can fund public services and maintain financial stability. There are several ways that local authorities can enhance their revenue:

- Improve revenue collection processes: Local authorities should focus on implementing effective revenue collection processes to ensure that all outstanding payments are recovered. This could include improved billing systems, mobile and online payment systems, and effective debt collection processes.
- Expand the tax base: Local authorities could explore expanding the tax base by identifying new sources of revenue generation. This might include introducing new taxes or levies like tourism taxes or environmental levies, licensing and permit fees, or implementing property rates on currently untaxed properties.
- Public and private sector partnerships: Local authorities can partner with the private sector to generate revenue through public-private partnerships (PPPs) or joint ventures. This might include leasing land to private developers or partnering with private companies to provide public services.

- Efficient resource allocation: Local authorities should allocate resources effectively to get the most value out of the limited resources they have. This might include investing in cost-saving measures such as energy-efficient lighting or reducing staff costs through automation.
- User fees – Local authorities can introduce user fees for services such as garbage disposal, sewer, and water treatment. This is a more equitable approach to revenue generation as the people who use these services pay for them.
- Economic development – Economic development initiatives can attract new businesses to the area, creating employment opportunities and increasing revenue through business and property taxes.
- Grants and subsidies – Local authorities can seek grants and subsidies from the government or private organizations to fund specific projects.
- Parking fees – Local authorities can introduce parking fees in areas where parking space is limited. This can generate significant revenue.

In conclusion, enhancing local authority revenue requires a multifaceted approach that considers the needs of citizens while generating revenue needed for the provision of essential public services.

2.3 Discussions on literature review and research gap

When it comes to the factors influencing default on municipal rates, there are several studies that explore this topic. However, there is still a gap in the literature regarding the various factors that lead to default on municipal rates.

One of the reasons for this gap could be that the factors influencing default on municipal rates can vary widely depending on the region and context. Some studies have found that economic factors, such as unemployment and poverty, play a significant role in defaulting on municipal rates, while others have found that social factors, such as community cohesion, have a considerable impact.

Moreover, the literature on this topic has primarily focused on the individual level, while the issue of defaulting on municipal rates is also influenced by broader contextual factors, such as political and institutional factors, as well as the overall economic condition of the region or country.

Furthermore, more research is needed to assess the effectiveness of different interventions aimed at preventing default on municipal rates. While certain interventions, such as debt counselling and payment holidays, have been suggested, their impact on reducing default rates needs to be further evaluated.

In conclusion, while there have been several studies conducted on the factors influencing default on municipal rates, there still remains a gap in knowledge. More research is required to fully understand the factors that predict default on municipal rates, as well as the implications for policy and intervention.

2.4 Conceptual framework

Conceptual framework for factors influencing default on municipal rates includes several variables that may lead to non-payment or delinquency on municipal bills. Some of the key factors identified in the literature include:

- Socio-Economic Factors: These factors include income, employment status, and level of education among others. Low-income individuals who are unemployed or have low education levels may face challenges in paying their municipal bills which may lead to delinquency.

- Demographic factors: This includes factors such as age, gender, and marital status. Studies have shown that older individuals and females are less likely to default on municipal bills.
- Perception of Service Delivery: Perception of service delivery by the municipal government has been identified as a key variable in default tax payment. Dissatisfaction with the quality of service provided by the municipality may lead to a lack of willingness to pay bills.
- Enforcement Mechanisms: A lack of effective enforcement mechanisms may lead to non-payment of municipal bills as individuals may not feel the consequences of non-payment.
- Consequences for Non-payment: The lack of consequences for non-payment of municipal bills such as disconnection of utilities may also contribute to non-payment.
- Interest Rates and Payment Plans: The interest rates for late payment and availability of payment plans may also contribute to default.

These variables provide a framework for studying factors influencing default on municipal rates. In order to reduce non-payment and delinquency, municipalities need to consider addressing the underlying socio-economic and demographic factors, improving service delivery, implementing effective enforcement mechanism and creating incentive for timely payment.

2.5 Summary

This chapter reviewed literature with respect to the treatment of revenue, sources of revenue, guiding principles for local government finance, factors affecting revenue collection, revenue collection constrains faced by local authorities and revenue enhancement in local authorities. The researcher found some gaps in the current knowledge as previous authors did not debilitate on how Zimbabwean local authorities can overcome revenue collection constrains and hence the justification for this assessment. The next chapter focuses on research methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the format in which this research was carried out. The purpose of the technique in this research is to portray the researcher's research methodologies used to analyze the elements causing municipal rate default in Bindura Municipality. The study assumptions on the research approach and methodologies are reviewed and justified using relevant literature. The methodology of research includes research design, data gathering instruments, sampling design, and analytic procedures.

3.1 Research design

A correlational quantitative research design was selected, i.e. that aims to detect whether there is a relationship between the probability of default and the recorded variables within the dataset. And if such a relationship exists, it will be used to discern whether or not a potential client will default rate payment. The results from a correlational study are easy to classify. Correlational research uses a correlation coefficient to measure the strength of the relationship between the probability of default and the recorded variables within the dataset. Also the results from a correlational study are more applicable in real life because the study occurs in real life situations. However, correlational research only uncovers relationships; it does not give reasons why that relationship exist

3.2 Data collection methods

The data for this study was be collected through a review of Bindura Municipality records and other relevant sources. Data collected include density, income levels, employment status, property ownership, credit score, payment history, and default status. The table below shows the description of variables;

Table 2: Variable Description

Variable Label	Variable Description
Default	Indicates residents default status 1=did not default 0=default
Density	The density of residents 1=low density; 2= medium density ;3=high density
INC	Monthly income of residents
PO	Property owners
PMT	Payments of residents
CS	Credit core

3.3 Population and sample

According to Saunders et al. (2009), a population is the entire set of cases from which a sample is drawn. It is possible to obtain data from the complete population if the sample size is large enough. The authors also stated that sampling is a viable alternative to census when:

It will be impractical to survey the entire population.

- If the budget constrains prevent the researcher from surveying the entire population.
- If the researcher has collected all the data but needs the results quickly.
- If time constraints prevent the researcher from surveying the entire population.

A sample, according to Terre Blanche (2006), is a little portion of something that is intended to demonstrate the style, quality, and nature of the whole. The citizens of Bindura Municipality who are liable for paying municipal rates are the study's target population. Property owners, tenants, and businesses operating inside the municipality make up the population.

To choose a representative sample of the target population, a stratified random sampling technique will be used in this study. The population in Bindura Municipality will be stratified depending on the different density areas, namely Low, Middle, and High density zones. A random sample of 100 residents will be chosen from each density area, for a total sample size of 300 residents.

3.4 Ethic consideration

This study will follow ethical norms such as informed consent, confidentiality, and participant anonymity. The proper authorities will be contacted to obtain permission to view Bindura Municipality's documents. The information gathered will be used strictly for the purposes of this study and will not be shared with any third parties.

3.4 Data and data source

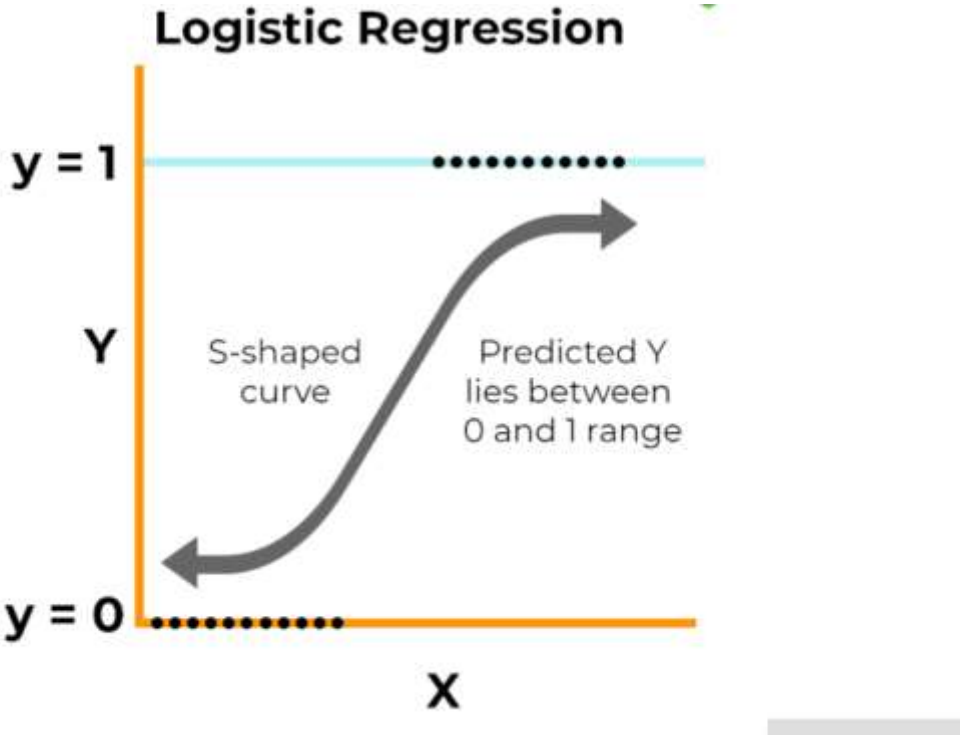
The researcher employed secondary data to assess the factors causing default on Bindura Municipality because they had a direct bearing on the line of research and also to overcome numerous constraints associated with primary data sources and the sensitive nature of the research. The town planning agency provided information about Bindura's residential size. Financial reports were used to get revenue collection data. The researcher drew the conclusion from this investigation, and in order to reach a valuable conclusion, the researcher relied heavily on secondary data.

3.4.2 Model specification.

Using secondary data, analysis of the data set identified the fiscal variable that have both the empirical and theoretical support. The data collected in this study will be analysed using logistic regression analysis to determine the factors that contribute to default on municipal rates in Bindura

Municipality. The logistic regression model will be used to estimate the probability of default based on the independent variables, including income level, employment status, property ownership, credit score, payment history, and density area. The analysis will be conducted using statistical software such as R or SPSS. The logarithm of the chance given by:

$$Log(\frac{\pi}{1-\pi})=\beta_0+\beta_1X_1+\ldots\ldots\ldots+\beta_mX_m$$



The logistic regression analysis is expected to provide insights into the factors that influence default on municipal rates in Bindura Municipality. Specifically, the analysis is expected to:

1. Identify the significant predictors of default on municipal rates: The analysis will identify the independent variables that are significantly associated with default on municipal rates. These variables could include income level, employment status, property ownership, credit score, payment history, and density area.

2. Determine the strength and direction of the relationship between the independent variables and default on municipal rates: The analysis will estimate the coefficients of the independent variables

to determine the strength and direction of their relationship with default on municipal rates. For example, the analysis may reveal that residents with higher income levels are less likely to default on municipal rates than those with lower income levels.

3. Provide a prediction model for default on municipal rates: The logistic regression analysis will provide a prediction model that can be used to predict the probability of default on municipal rates for a given set of independent variables. This model can be used to identify residents who are at high risk of defaulting and to develop targeted interventions to reduce default rates.

4. Identify the differences in the factors that contribute to default across the different density areas: The analysis will assess whether the factors that contribute to default on municipal rates differ across the different density areas in Bindura Municipality. This information can be used to develop targeted interventions that are specific to each density area.

Overall, the logistic regression analysis is expected to provide valuable insights into the factors that contribute to default on municipal rates in Bindura Municipality. These insights can be used to develop targeted interventions to reduce default rates and improve the financial health of the municipality. By identifying the factors that are driving default rates and developing policies and programs to address those factors, it may be possible to reduce the financial burden on residents and improve the overall economic well-being of the municipality.

3.5 Summary

This chapter has outlined the methodology used in this study to analyse the factors influencing default on municipal rates in Bindura Municipality. The study will use a quantitative research design, stratified random sampling technique, and logistic regression analysis to analyse the data. The study will collect data from Bindura Municipality's records and other relevant sources, and will adhere to ethical principles. The limitations of the study have also been discussed. The next chapter will present the results of the analysis and their implications for reducing default on municipal rates in Bindura Municipality.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the logistic regression analysis conducted to determine the factors that influence default on municipal rates in Bindura Municipality. This analysis utilized R programming with different R packages employed. The chapter will provide a summary of the characteristics of the sample, followed by the results of the logistic regression analysis.

4.2 Sample characteristics

The sample consisted of 300 residents from Bindura Municipality with 141 residents selected from the high-density suburbs, 100 from low density and 41 from medium density. The dataset contains 7 variables with default as the target variable. The independent variables are employment status, density suburb, income, payment owed to the Municipality and ownership of the property. Tables and graphs below present the demographic characteristics of the sample.

4.2.1 Visualization of demographic characteristics of the sample

Employment Status

It is important to note that about 42% of the sample data constitutes of resident who are employed. Interestingly, only a small percentage of resident who are employed defaulted on their municipality bills. It can be observed from Figure 1 that a significant proportion of resident who default they come from the unemployed group. Looking at Figure 3, the chances of defaulting for someone who is unemployed are higher compared to someone who is self-employed or employed.

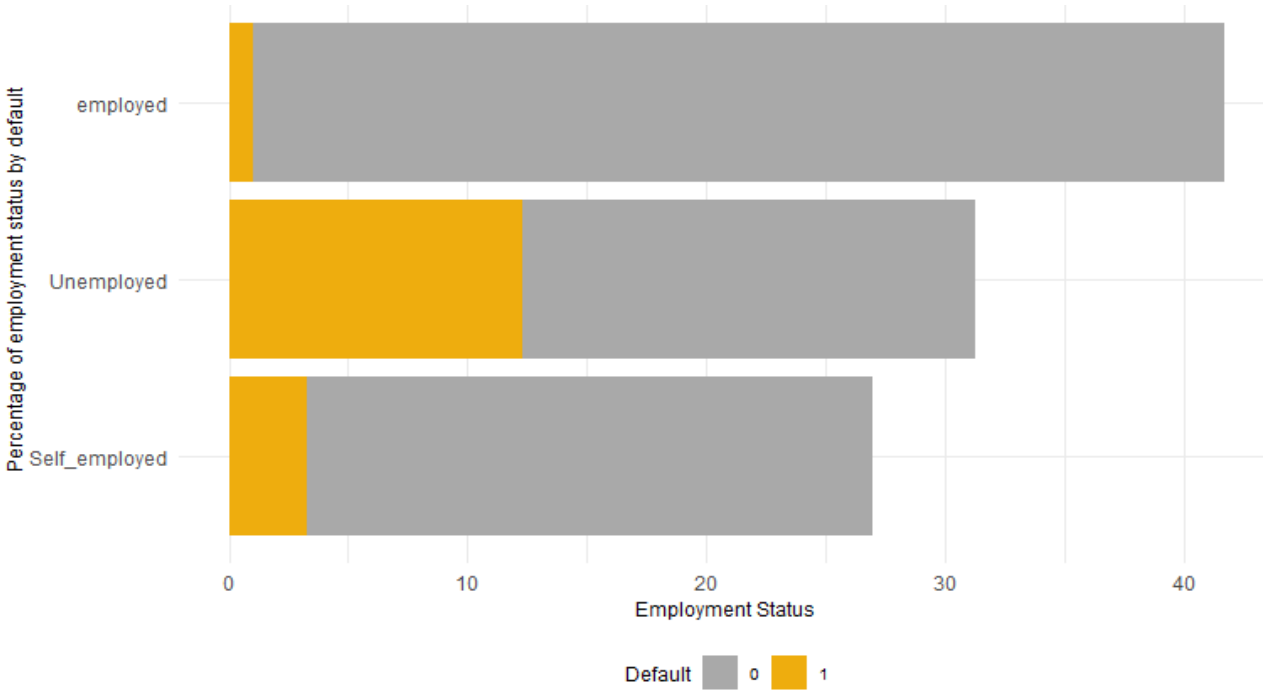


Figure 1: Employment Status by Default

Property Ownership

Slightly more than half (52%) of the residents in the datasets rent the properties they are living on. It is evident from Figure 2 that the odds of default are higher for someone who is renting than someone who owns the property.

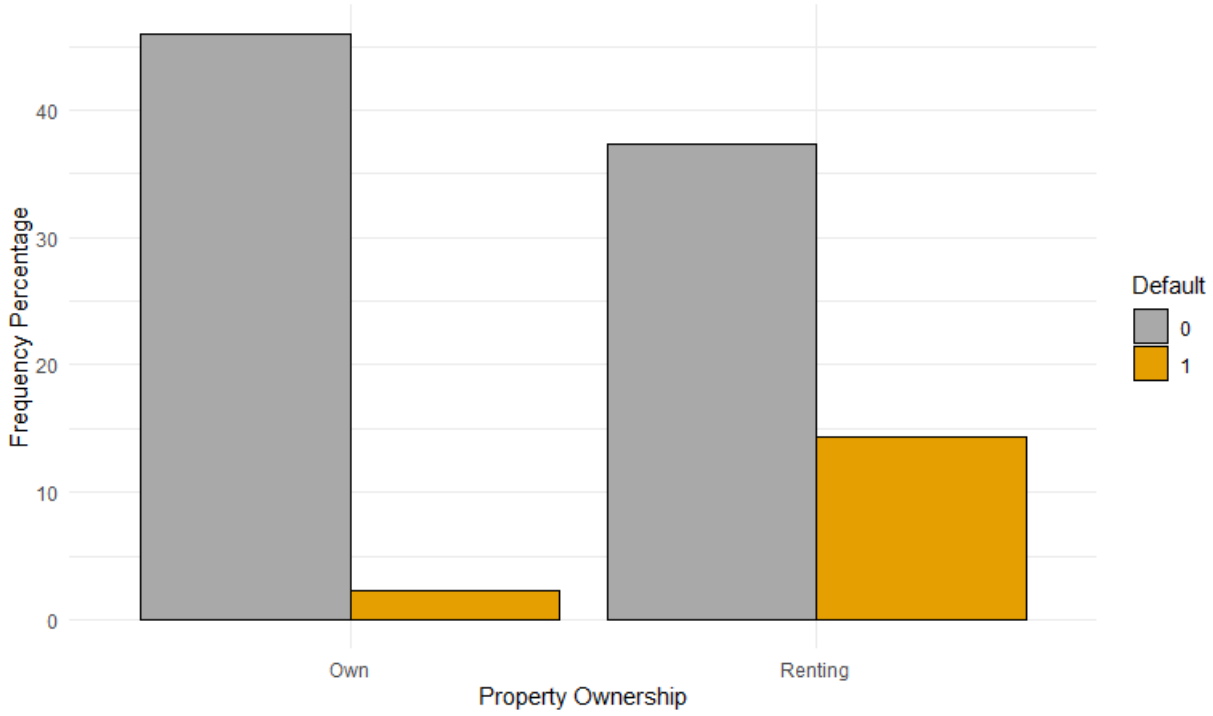


Figure 2: Property Ownership

Income Level

Figure 3 shows that as we move from high density to medium and then low density, the income increases. Residents from the low density area have on average the most income followed by those from the medium density. While residents from low density are unlikely to default compared to those from high density, it is important to note that resident from the medium density are the most likely group to default compared to other groups.

On the other hand, it is surprising to note that resident with good credit record earn more than those with excellent record. While no one with an excellent credit score defaulted, the majority of defaulters are those with poor credit record.

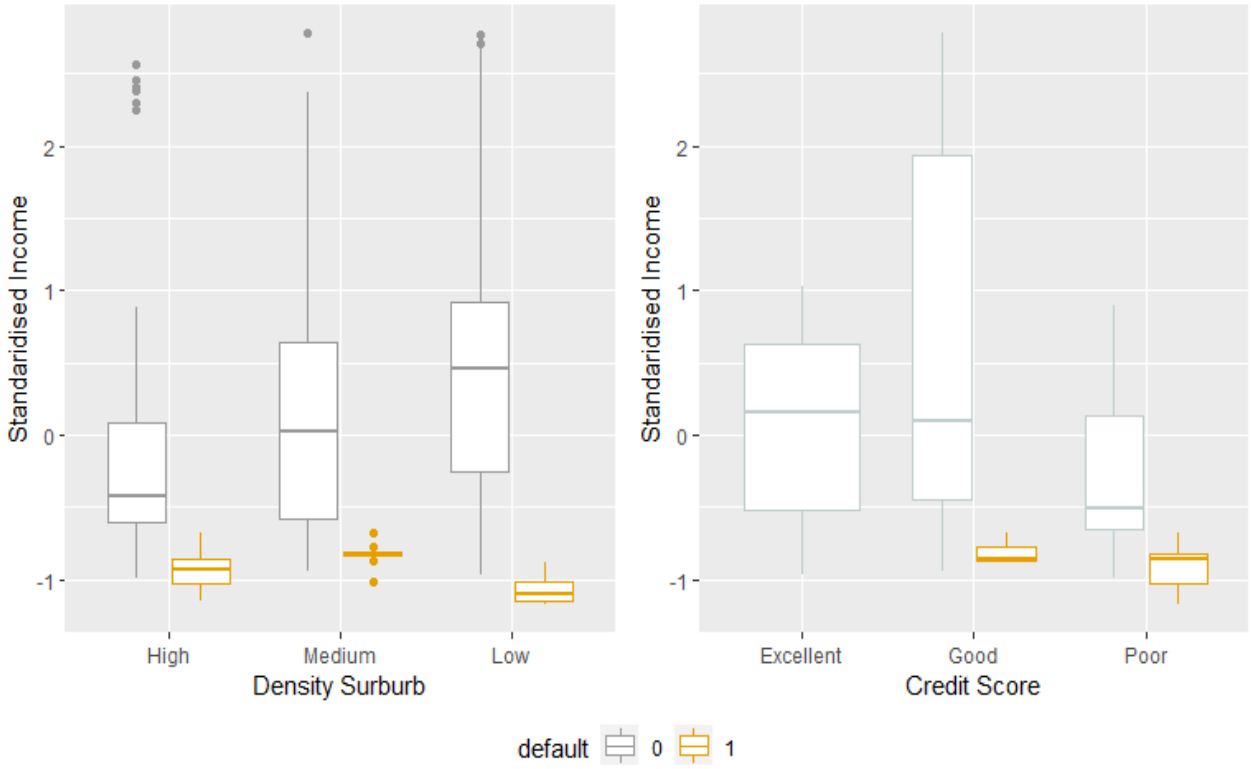


Figure 3: Income Level

4.3 Descriptive statistics

The descriptive statistics briefly the general behavior of all the variables using mean, median, minimum and maximum values. The table below show an outline of the summary. It can be observed the average income for the residents in the dataset for this study is $647. While the minimum income was as low as $6, the highest was about $2200. On the other hand, it is important to note that the average payment owed by resident to the Municipality was on the high side ($1900) with the maximum being about $31300.

Table 6: Descriptive Statistics

Table 1: Summary Statistics

Summary Statistics

Variables	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
density*	300	1.727	0.771	2.000	1.658	1.483	1.000	3.000	2.00	0.508	-1.158	0.044
default*	300	1.167	0.373	1.000	1.083	0.000	1.000	2.000	1.00	1.780	1.172	0.022
payment	300	1,903.455	4,421.055	256.874	743.695	365.413	0.002	31,322.583	31,322.58	3.765	15.761	255.250
income	300	647.249	546.552	429.690	547.213	362.469	6.471	2,165.331	2,158.86	1.363	1.102	31.555
CS*	300	2.250	0.732	2.000	2.312	1.483	1.000	3.000	2.00	-0.424	-1.055	0.042
Ownership*	300	1.517	0.501	2.000	1.521	0.000	1.000	2.000	1.00	-0.066	-2.002	0.029
Employment*	300	1.897	0.850	2.000	1.871	1.483	1.000	3.000	2.00	0.197	-1.591	0.049

The model has six independent variables and one dependent which was the Default History classification. The SPSS software package was used to analyse these variables in terms of their correlation values as well as their usefulness in terms of predicting the default classification. Variable correlation analysis revealed the following information:

Correlation

Table 2: Correlation Matrix

	DEFAULT	DENSITY	EPM	INC	PMT	PO	CS
DEFAULT	1.000000	-0.224592	0.038496	-0.344883	0.032691	-0.005859	-0.202857
DENSITY	-0.224592	1.000000	-0.023560	0.215510	0.086999	0.049448	0.164469
EPM	0.038496	-0.023560	1.000000	0.074228	0.093537	0.034390	0.075785
INC	-0.344883	0.215510	0.074228	1.000000	0.682776	0.788389	0.948765
PMT	0.032691	0.086999	0.093537	0.682776	1.000000	0.848867	0.859491
PO	-0.005859	0.049448	0.034390	0.788389	0.848867	1.000000	0.906154
CS	-0.202857	0.164469	0.075785	0.948765	0.859491	0.906154	1.000000

We suspect multi-collinearity when we have correlations above 0.8. The table above shows that there is a weak relationship among these variables except of credit score which has multi

collinearity. Therefore, the Credit Score variable will be left out when create the model as it will distort the results.

4.3 Assumptions of logistic regression

Logistic regression is a statistical technique for investigating the connection between a categorical dependent variable and one or more independent variables. Logistic regression, like any statistical procedure, has certain assumptions that must be followed in order for the results to be reliable:

1. **Binary dependent variable**: Logistic regression is intended for binary or dichotomous dependent variables with just two possible outcomes. Other methods, such as multinomial logistic regression or ordinal logistic regression, should be used if the dependent variable includes more than two categories.

2. **Observation independence:** The observations in a logistic regression should be independent of one another, which means that the value of the dependent variable for one observation should not be influenced by the value of the dependent variable for another. Linearity of independent variables and log odds:

3. The relationship between the independent variables and the dependent variable's log chances should be linear. This means that the effect of the independent factors on the dependent variable should be constant over the independent variables' range of values.

4. **No multicollinearity**: The independent variables should not be significantly correlated with one another, as this might pose issues with coefficient estimation.

5. **Adequate sample size**: Logistic regression requires a large enough number of observations to effectively estimate the coefficients. As a general rule, each independent variable in the model should have at least 10 events (cases where the dependent variable takes on the value of 1).

6. **No outliers:** Outliers in the data can have a significant impact on coefficient estimation and the dependability of the results.

7. **There are no influential observations:** Influential observations have a considerable impact on the computed coefficients. These observations should be identified and eliminated from the analysis if necessary.

Before evaluating the findings of a logistic regression study, it is critical to double-check these assumptions. If these assumptions are not met, the outcomes may be skewed or untrustworthy.

4.3.1 Logistic Regression Analysis

The logistic regression analysis was conducted to identify the factors that influence default on municipal rates in Bindura Municipality. The dependent variable was default status (default or not default), and the independent variables were income level, employment status, property ownership, credit score, payment history, and density area. It important to note that the credit score variable was left out in model constructing as it indicated multicollinearity in the correlation analysis.

R programming was used for the analysis and the caret package was employed in building the logistic regression model. To avoid overfitting and better understand the characteristics of the model, the dataset was split into train and test sets in the ratio of 80:20 respectively. The model was built using the training set and predictions were made against the test set.

4.3.2 Model Results

Table 3 shows the coefficients in the output indicating the average change in log odds of defaulting. The p-values in the output also give us an idea of how effective each predictor variable is at predicting the probability of default. It can be observed from the regression summary results that income, densityMedium, EmploymentSelf and EmploymentUnemployed seem to be important predictors since they have low p-values while payment, OwnershipRenting and densityLow are not nearly as important.

As for the statistically significant variables, income has the lowest p-value suggesting a strong association with the probability of defaulting. The negative coefficient for this predictor suggests that all other variables being equal, a unit increase in income is less likely to result in default.

The difference in the log-odds of default between those who own property and those renting is 1.256 i.e., the chance of default is higher for those renting than for those owning the property.

For each of the other employment groups, the coefficient tells us that the log-odds of default for a given group is higher than that of the reference group which is being employed. This implies that an individual who is either self-employed or unemployed is more likely to default than an individual who is employed.

It is interesting to note that while low density coefficient is not statistically significant the nedium density is statistically significant. A resident in the medium density is more likely to default than a resident in the high density (the reference group). This is consistent with the results we found earlier on using the boxplots.

Table 3: Regression Model Results

Regression Model Results

term	estimate	std.error	statistic	p.value
(Intercept)	-37.824	11.480	-3.295	0.0010
payment	1.186	0.771	1.539	0.1239
income	-33.913	10.243	-3.311	0.0009
OwnershipRenting	1.256	1.761	0.714	0.4755
densityLow	2.729	1.764	1.547	0.1219
densityMedium	6.400	2.275	2.812	0.0049
EmploymentSelf_employed	5.706	2.186	2.610	0.0091
EmploymentUnemployed	7.829	2.705	2.894	0.0038

Assessing Model Fit

In typical linear regression we use R^2 as a way to assess how well a model fits the data. However, there is no such R^2 value for logistic regression. Instead, we have computed a metric known as McFadden's R^2, which ranges from 0 to just under 1. Values close to 0 indicate that the model has no predictive power. In practice, values over 0.40 indicate that a model fits the data very well. The results of computing McFadden's R^2 for our model using the **pR2** function from the pscl package

shows a value of **0.86.** This is quite high for McFadden's R^2, which indicates that our model fits the data very well and has high predictive power.

Table 4: Variable Importance

Variable Importance

The importance of each predictor variable was also computed from the model by using the **varImp** function from the caret package. Higher values indicate more importance. These results in Table 4 match up nicely with the p-values from the model. Income is by far the most important predictor variable, followed byEmploymentUnemployed, densityMedium and then EmploymentSef_employed.

Important Model Predictors

Variables	Overall
income	3.311
EmploymentUnemployed	2.894
densityMedium	2.812
EmploymentSelf_employed	2.610
densityLow	1.547
payment	1.539
OwnershipRenting	0.714

Assessing the predictive ability of the model

The next step after fitting the logistic regression model is to make predictions about whether or not an individual will default based on their income, ownership of their property, the payment they owe the municipality, the density area they live and their employment status. The dataset was split into train and test sets. The train set was used as highlighted in the above steps to evaluate the fitting of the model, now we are interested to see how the model is doing when predicting *y* on a new set of data. The logistic model created above was predicted using the test set.

Model Diagnostics

Lastly, an analysis was performed on how well the model performs on the test dataset. Different metrics were calculated to assess the accuracy of the model. Table 4 shows the results of these metrics which is on the high side for all the metrics indicating a good model.

Looking at the AUC which is a score between 0 and 1 that measures how well a model rank-orders predictions. We can see that the AUC is 0.95, which is quite high. This indicates that our model does a good job of predicting whether or not an individual will default. Furthermore, the Accuracy metric is also high (0.92), this metric measures the proportion of observations that have been correctly classified. In addition to AUC and Accuracy, Sensitivity is 0.90 which is the ability of a test to correctly classify an individual as "defaulted". Specificity is 0.86which is the ability of test to correctly classify an individual as "did not default". Model is doing the mistake of 46% when predicting the people who really do not have the disease. Finally, the F1-score is also high, which computes how many times a model made a correct prediction across the entire dataset.

Table 5: Model Metrics

Assessing model accuracy

Metrics	Values
AUC	0.9500000
F1_Score	0.9494949
Sensitivity	0.9400000
Accuracy	0.9166667
Specificity	0.8000000

4.4 Discussion

Khandari A.E et al (2010) recommend a combination of characteristics starting from the income ratio and the more detailed characteristics such as previous transaction can be used to greatly increase the logit model predictive power. Therefore the results of the logistic regression analysis indicate that income level, employment status and density area are significant predictors of default on municipal rates in Bindura Municipality. These findings suggest that policies aimed at improving income levels and employability may be effective in reducing default rates. For example, the municipality could consider providing financial education and counselling to residents to help them manage their finances and make timely payments. Additionally, the municipality could offer incentives to residents who make timely payments, such as discounts on future rates or reduced penalties for late payments.

The finding that density area was a significant predictor of default only in the mdeium-density area suggests that policies aimed at reducing default rates may need to be tailored to the specific density area. For example, the municipality could consider offering targeted financial assistance or payment plans to residents in the mdeium-density area who are at high risk of defaulting.

It is also noteworthy that payment and property ownership were not significant predictors of default on municipal rates. This suggests that policies aimed at improving employment or encouraging property ownership may not be effective in reducing default rates.

4.5 Conclusion

Overall, the results of the logistic regression analysis provide valuable insights into the factors that contribute to default on municipal rates in Bindura Municipality. By using these findings to develop targeted interventions, the municipality can reduce default rates and improve the financial health of the municipality.

CHAPTER 5: DISCUSSIONS, LIMITATIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussions, limitations, and recommendations of the study on factors influencing default on municipal rates in Bindura Municipality. The chapter will provide a summary of the key findings, followed by a discussion of the implications of these findings. The chapter will then identify the limitations of the study and provide recommendations for future research and policy interventions.

5.2 Key findings

The study found that income level, employment and density were significant predictors of default on municipal rates in Bindura Municipality. Specifically, residents with higher income levels were less likely to default, while those with poor payment histories were more likely to default. The study also found that density area was a significant predictor of default, but only in the Medium-density area.

5.3 Implications of the findings

The findings of the study have several important implications for policy interventions aimed at reducing default on municipal rates in Bindura Municipality. First, the findings suggest that policies aimed at improving residents' income levels, property ownership and payment histories may be effective in reducing default rates. For example, the municipality could consider providing financial education and counselling to residents to help them manage their finances and make timely payments. Additionally, the municipality could offer incentives to residents who make timely payments, such as discounts on future rates or reduced penalties for late payments.

Second, the finding that density area was a significant predictor of default only in the Medium-density area suggests that policies aimed at reducing default rates may need to be tailored to the specific density area. For example, the municipality could consider offering targeted financial

assistance or payment plans to residents in the Low-density area who are at high risk of defaulting on their municipal rates.

Third, the finding that property ownership and payments were not significant predictors of default on municipal rates suggests that policies aimed at improving residents' income levels and employment may be more effective than policies aimed at increasing ownership.

5.4 Limitations of the study

There are various limitations to this study that should be noted when interpreting the findings. First, the sample size was small, which may restrict the findings' generalizability to a larger population. Second, the study only looked at a small number of independent variables, and other factors that influence default rates may have been overlooked. Third, the study relied on self-reported data, which could be biased or inaccurate.

5.5 Recommendations for future research

Given the limitations of this study, there is a need for further research to better understand the factors influencing default on municipal rates in Bindura Municipality. Future research could consider using a larger sample size and including additional independent variables, such as debt-to-income ratio, to better understand the factors that influence default rates. Additionally, future research could consider using objective measures of credit scores and payment histories, rather than relying on self-reported data.

5.6 Recommendations for policy interventions

Based on the findings of this study, there are several recommendations for policy interventions aimed at reducing default on municipal rates in Bindura Municipality. First, the municipality could consider implementing payment plans that are tailored to the income level of each resident. These

payment plans could offer reduced rates for low-income residents and longer payment periods for residents who are struggling to make their payments.

There are various payment plans that have been implemented in other municipalities to reduce default rates which can be adopted by Bindura municipality. Some of the effective payment plans include:

1. **Monthly Instalment Plans:** Many municipalities offer monthly instalment plans that allow residents to pay their municipal rates in smaller, more manageable instalments. This can help residents avoid default by making it easier to keep up with their payments.
2. **Deferred Payment Plans:** Deferred payment plans allow residents to defer their municipal rate payments for a certain period of time, typically six months to a year. This can be helpful for residents who are experiencing financial difficulties and need some time to get back on their feet.
3. **Waiving Late Fees:** Some municipalities waive late fees for residents who make their payments on time for a certain period, such as six months or a year. This can incentivize residents to make timely payments and avoid default.
4. **Income-Based Payment Plans:** Some municipalities offer income-based payment plans that are tailored to the resident's income level. These payment plans can be helpful for residents with low income who may struggle to keep up with their payments.
5. Payment Assistance Programs: Payment assistance programs provide financial assistance to residents who are struggling to make their payments. These programs can take various forms, such as subsidies, grants, or loans.
6. **Automatic Payment Plans:** Some municipalities offer automatic payment plans that allow residents to have their municipal rates automatically deducted from their bank accounts each month. This can help residents avoid late payments and default.
7. **Tiered Payment Plans:** Tiered payment plans are designed to help residents who may be struggling to keep up with their payments. Under this plan, the municipality sets different payment amounts based on the resident's income level, with lower-income residents paying less than higher-income residents. This can help ensure that payments are more affordable for lower-income residents.

8. **Short-Term Payment Plans:** Short-term payment plans are designed to help residents who may be experiencing a temporary financial hardship. Under this plan, residents are allowed to pay a reduced amount for a short period, such as three months, to give them time to get back on their feet.

Overall, there are various payment plans that have been implemented in other municipalities to reduce default rates. The effectiveness of these plans will depend on the specific circumstances of each municipality and its residents. It may be helpful for Bindura Municipality to review successful payment plans implemented in other municipalities and adapt them to meet the unique needs and characteristics of its population.

Secondly, the municipality could consider offering financial education and counselling to residents to help them manage their finances and make timely payments. This could include workshops on budgeting, debt management, and credit scores.

Thirdly, the municipality could consider offering incentives to residents who make timely payments, such as discounts on future rates or reduced penalties for late payments. This could help encourage residents to prioritize their municipal rates and avoid default.

5.7 Conclusion

This study has provided insights into the factors that influence default on municipal rates in Bindura Municipality. The findings suggest that income level, employment status and density area are important predictors of default rates. The study has also identified several limitations and recommendations for future research and policy interventions. By implementing policies that are tailored to the specific needs of residents in Bindura Municipality, the municipality can reduce default rates and ensure that residents are able to meet their financial obligations.

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APPENDIX A

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	300	100.0
	Missing Cases	0	.0
	Total	300	100.0
Unselected Cases		0	.0
Total		300	100.0

a. If weight is in effect, see classification table for the total number of cases.

APPENDIX B

Dependent Variable Encoding

Original Value	Internal Value
0	0
1	1

APPENDIX C

Iteration History[a,b,c]

Iteration		-2 Log likelihood	Coefficients Constant
Step 0	1	273.711	1.333
	2	270.357	1.587
	3	270.337	1.609
	4	270.337	1.609

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 270.337

c. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

APPENDIX D

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	1.609	.155	107.929	1	.000	5.000

APPENDIX E

Iteration History[a,b,c,d]

Iteration		-2 Log likelihood	Coefficients					
			Constant	INC	PMT	EPM	PO	DENSITY
Step 1	1	207.186	1.630	.000	.000	.129	.001	-.141
	2	177.415	2.192	.000	.000	.218	.003	-.259
	3	157.967	2.655	-.001	.000	.193	.005	-.371
	4	139.716	2.930	-.002	.001	.124	.006	-.454
	5	127.961	2.845	-.002	.002	.116	.010	-.433
	6	120.189	2.612	-.003	.003	.091	.017	-.344
	7	114.858	2.727	-.005	.004	.061	.030	-.372
	8	109.980	2.863	-.008	.007	.045	.052	-.410
	9	106.421	2.882	-.013	.013	.078	.085	-.404
	10	105.315	2.928	-.016	.017	.099	.111	-.400
	11	105.236	2.965	-.018	.018	.103	.118	-.405
	12	105.236	2.969	-.018	.018	.103	.119	-.406
	13	105.236	2.969	-.018	.018	.103	.119	-.406

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 270.337

d. Estimation terminated at iteration number 13 because parameter estimates changed by less than .001.

APPENDIX F

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	165.101	5	.000
	Block	165.101	5	.000
	Model	165.101	5	.000

APPENDIX G

Contingency Table for Hosmer and Lemeshow Test

		DEFAULT = .00		DEFAULT = 1.00		
		Observed	Expected	Observed	Expected	Total
Step 1	1	30	29.975	0	.025	30
	2	16	9.558	14	20.442	30
	3	0	4.087	30	25.913	30
	4	0	3.009	30	26.991	30
	5	1	2.035	29	27.965	30
	6	1	1.218	29	28.782	30
	7	2	.117	28	29.883	30
	8	0	.000	30	30.000	30
	9	0	.000	18	18.000	18
	10	0	.000	42	42.000	42

APPENDIX H

Correlation Matrix

		Constant	INC	PMT	EPM	PO	DENSITY
Step 1	Constant	1.000	-.152	.107	-.500	.174	-.821
	INC	-.152	1.000	-.990	-.062	-.986	.055
	PMT	.107	-.990	1.000	.046	.960	-.008
	EPM	-.500	-.062	.046	1.000	.073	.047
	PO	.174	-.986	.960	.073	1.000	-.084
	DENSITY	-.821	.055	-.008	.047	-.084	1.000

APPENDIX I

```
          Step number: 1

          Observed Groups and Predicted Probabilities

     160 +
                        +
         |
                        |
         |
                        |
F        |
                        |
R    120 +
                        +
E        |
                       1|
Q        |
                       1|
U        |
                       1|
E     80 +
                       1+
N        |
                       1|
C        |
                       1|
Y        |
                       1|
      40 +
                       1+
         |0
                       1|
         |0
                  1    1|
         |0
          11111111111 111|
Predicted ---------+---------+---------+---------+---------+---------+---------+-------
---+---------+---------
  Prob:   0       .1        .2        .3        .4        .5        .6        .7
   .8        .9         1
  Group:  000000000000000000000000000000000000000000000000011111111111111111111111111
111111111111111111111111

          Predicted Probability is of Membership for 1.00
          The Cut Value is .50
          Symbols: 0 - .00
```

1 - 1.00

Each Symbol Represents 10 Cases.