The Role of Artificial Intelligence in Revenue Management in Zimbabwe

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Abstract

The government of Zimbabwe has continued with the economic management of protectionism since independence in 1980, which was being used by the former colonial government. The new black government embarked on huge expenditure on capital (infrastructure) such as roads, schools and hospitals and this drove up government spending against government revenue. Despite efforts to optimise revenue, the nation's socio-economic conditions have worsened and are marked by a high inflationary environment, low utilisation of industrial capacity and decreases in Gross Domestic Product (GDP). The financial flexibility is limited due to weak tax revenue performance amidst increasing current spending and a shrinking tax foundation. Poor revenue collections from the formal economy have compelled the government to resort to the taxation of the informal economy, but the big challenge is that the government seems reluctant to embrace technology for the taxation in this sector, yet technology has already advanced such that developing countries are already embracing emerging technology like Artificial Intelligence (AI) and Machine Learning (ML) in revenue management. The research aims to evaluate the revenue structure in Zimbabwe, challenges affecting revenue generation in Zimbabwe and the role of AI in revenue optimisation. The research made use of extant qualitative research methods. Research findings indicate that revenue generation in Zimbabwe is mostly affected by complex tax system, capacity constraints, smuggling, corruption, low tax morale, inadequate information and inadequate checks and balance. The role of AI in revenue optimisation includes revenue forecasting, assessing economic conditions, real time policy adjustments, detecting fraud and corruption, identifying tax inefficiencies and optimising resource allocation. It can be concluded that, by employing AI-driven predictive models, the government can allocate tax revenue more precisely to fund infrastructure projects, such as healthcare facilities, schools and roads, ultimately improving living standards and economic outcomes in underdeveloped regions.

Keywords: Artificial Intelligence, Public Finance, Taxation, Revenue

Introduction

Tax revenue plays a crucial role in a nation's fiscal strategy, funding public services, infrastructure and social programs. Its effectiveness hinges on factors like tax policies, administrative systems, compliance and enforcement. The level of tax revenue collected is vital for government investment in sectors essential to economic growth (Vinnitskiy 2020). Meanwhile, institutional quality, encompassing rule of law, transparency, political stability and regulatory frameworks, is foundational for economic activity, investment, entrepreneurship and governance (Kashif, Shi, Naseem, Dou & Zahid, 2024). However, since independence in

1980, the government of Zimbabwe continued with the economic management of protectionism which was being used by the former colonial government. The new black government embarked on huge expenditure on capital (infrastructure) such as roads, schools and hospitals. The industrial sector and the agricultural sector were heavily subsidised and this drove up government spending against government revenue. As a result, the budget deficit has averaged 10% of GDP over the years (Nyabunze & Siavhundu, 2020:18).

The government has implemented various initiatives to improve tax revenue collection to support its developmental goals. These efforts encompassed launching programs like the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) in 2013, implementing the Transitional Stabilisation Programme (TSP) in 2019 and introducing National Development Strategy 1 (NDS1) in 2020. Additionally, reform measures involved instituting new taxes, including an Intermediated Money Transfer Tax, a Digital Services Tax, and a VAT on E-Commerce (Chamisa & Sunde, 2024:2). These measures were aimed at expanding the revenue base, enhancing tax enforcement and mobilising resources from various sectors of the economy. However, the nation's socio-economic conditions have worsened and are marked by a high inflationary environment, low utilisation of industrial capacity and decreases in GDP (Munjeyi & Fourie, 2024:2). The financial flexibility is limited due to weak tax revenue performance amidst increasing current spending and a shrinking tax foundation. Additionally, the country is burdened with significant debt due to its inability to secure international capital and investment inflows. The country faces relatively low tax-to-GDP ratios compared to most Sub-Saharan African countries (Chamisa & Sunde, 2024:2).

Recently, poor revenue collections from the formal economy have compelled the government to resort to the taxation of the informal economy as many companies in Zimbabwe have closed or are at the brink of collapse, but the big challenge is that the government seems reluctant to embrace technology for the taxation in this sector. (Munjeyi & Fourie, 2024:2). Currently, there is no tax framework to fit into the digitalised economy in Zimbabwe, which can extract secreted knowledge from the informal economy and measure actual income generated. The informal economy employs the bulk of the workforce, yet there is currently no tax framework to collect income tax from the informal economy in a digitalised Zimbabwe. The absence of such a framework result in constant budget deficits and tax revenue losses yet technology has already advanced such that developing countries are already embracing emerging technology like AI and ML in revenue management (ZimStat, 2024).

McCarthy, a renowned American computer scientist coined the term AI in 1956 and described it as the science and engineering of making intelligent machines like the intelligent computer programs (Amaresh, 2020). AI, according to Dinesh, Kashmira and Vaishnavi (2019), is any task completed by a computer or machine that would normally require a human to use intelligence to complete. It is the science of creating robots that can display intelligence in the form of humans, such as speech recognition, decision-making, visual perception and language translation. AI is a method of making computers intelligent by using automation to mimic human intellect to increase machine analysis and decision-making capabilities. Frankenfield (2022) also describes AI as the simulation of human intelligence in machines that are designed to think or act like humans and imitate their actions. AI is also used in relation to machines programmed to demonstrate qualities associated with a human mind such as learning, problem-solving, perception, reasoning, planning, control and prediction.

The relevance of AI in taxation policy has gained significant traction in recent years, with these technologies reshaping public finance strategies and enabling more effective taxation

frameworks that support rural development. AI facilitate efficient data processing and decision-making, crucial in optimising tax policies for targeting socioeconomically marginalised regions (Agba, Agba, & Obeten, 2023:2). AI's predictive capabilities help policymakers forecast revenue, assess economic conditions and adjust policies dynamically, making taxation both adaptive and strategic (Shao, Zhang & Wang, 2022). By employing AI-driven predictive models, governments can allocate tax revenue more precisely to fund infrastructure projects, such as healthcare facilities, schools and roads, ultimately improving living standards and economic outcomes in underdeveloped regions (Singh & Singh, 2021).

It is against this bedrock that the paper assesses the role of AI in revenue optimisation in Zimbabwe. The objectives of this study are to examine the revenue structure in Zimbabwe, challenges affecting revenue management in Zimbabwe and the role of AI in revenue optimisation. The study made use of extant qualitative research methods. The study is structured into five sections. These include research methodology, revenue structure in Zimbabwe, challenges affecting revenue generation in Zimbabwe, the role of AI in revenue optimisation and conclusion.

Research Methodology

Extant secondary qualitative literature is the research method used to gather information. This approach aims to establish the potential contribution of AI in revenue optimisation in Zimbabwe. As a means of gathering specific and needed information, the analysis relied on secondary data from government publications to generate accurate data. More so, findings, conclusions and recommendations were also drawn from documentary search of books, journal articles, working papers and theses.

Results and Discussion

Revenue Structure in Zimbabwe

Value Added Tax

Value Added Tax (VAT) was adopted in 2004 in Zimbabwe following a shift from the then Sales Tax. The tax is levied on the supply of goods which are taxable and is charged every time a transaction, supply or import occurs (Nyabunze & Siavhundu, 2020:19). According to the Ministry of Finance (2020), current VAT rates are between 0 and 14.5% and other products are zero rated. Manufacturers remit to the central government the difference between the VAT they receive from sales and the VAT they've paid on inputs. Experiences with VAT models suggest that countries with VAT systems generally raise more revenue than those without and that they account for around a quarter of all tax revenue (Zhou & Madhikeni, 2013:56). However, VAT systems is mostly affected by several fraud and evasion opportunities that can arise, such as, under-reporting sales or faking input invoices, false claims that outputs are zero-rated (fake export invoices), falsely using differential rates/exemptions, carousel fraud and using transfer pricing to transfer value addition of a link in the supply chain to a country with a low VAT rate (Fjeldstad & Therkildsen, 2020:28).

Personal Income Tax

Personal income tax commonly known as Pay as You Earn (PAYE) is a form of tax on individual income. The PAYE tax is charged directly on one's income earnings from employment and the rates are progressive. These include income taxes and social security

contributions which may comprise an employer and employee contribution (Nyabunze & Siavhundu, 2020:19). PAYE is largely a function of tax structure which is composed of tax rate, tax band and tax-free threshold. Tax rates allocate the tax burden within each tax band, a tax band is the tax range or margin sharing the same tax burden and a tax-free threshold is the amount below those who are taxed (Zhou & Madhikeni, 2013:51). PAYE, however, accounts for less than 10% of all tax revenue in most low-income countries, compared with an average of more than 25% in Organisation for Economic Cooperation and Development (OECD) countries. The reasons for the failure of personal income tax reflect both the relatively low incomes of the few people who work in the formal sector, a poor capacity to expand the tax base to the self-employed, administrative and political weaknesses and resistance from the elite and wealthy individuals with plentiful opportunities to conceal their incomes (Fjeldstad & Therkildsen, 2020:34).

Corporate Income Tax

Corporate tax is a tax on net income or profits of some types of corporations, that is, total income minus some allowable deductions, such as depreciation and expenses (Zhou & Madhikeni, 2013:53). It is an important source of revenue for Zimbabwe and Multi-National Companies (MNC) and big locally owned companies contribute a significant percentage of revenue under corporate income tax. The major challenge is that most of the revenue in Zimbabwe is collected from a narrow tax base, sometimes due to limited range of taxable economic activities (Nyabunze & Siavhundu, 2020:19). There is, therefore, dependence on few taxpayers, often large local owned companies and multinationals, that can exacerbate the revenue challenge by pursuing aggressive tax planning to minimise their tax liability and in some cases, large companies can abuse a lack of capacity in revenue authorities through transfer pricing abuse (Fjeldstad & Therkildsen, 2020:15).

Custom Duty

Customs duty is tax levied on imported goods, calculated based on goods weight, production year, capacity of engine and whether the good is a basic or luxury good (Nyabunze & Siavhundu, 2020:19). It is an important source of revenue for Zimbabwe and in Southern Africa, informal cross-border trade alone (a significant feature of regional trade and international mobility in that region) accounts for an estimated US$18 billion worth of trade per annum (United Nations, 2020). In fragile states, customs typically account for an even higher share of total tax revenues (Fjeldstad & Therkildsen, 2020:27). However, cross-border trade in Zimbabwe is mostly affected by smuggling of goods through illicit entry points and corruption at border posts. This is evidenced by the constant operations by ZIMRA on buses and trucks smuggling goods in the country. Customs duty is also affected by delays caused at border posts on almost all points of entry in Zimbabwe such that, alternatively goods are smuggled at illicit points of entry to avoid delays (Tanda & Genc, 2024:2).

Presumptive Tax

In 2005 the government of Zimbabwe introduced a presumptive tax which is administered according to the provisions of the Income Tax Act. The promulgation of the presumptive tax was an attempt to increase the tax base for it to be aligned with the growth of business in the

informal sector (Dlamini & Dube, 2020:3). Presumptive tax is a levy on the earnings of small traders who may not be required to register for income tax. This levy is based on presumed earnings and if one returns a presumptive tax, they are no longer supposed to retime income tax returns. The submission dates for presumptive tax are the 10th day of the month of January, April, July and October (ZIMRA, 2014). The Finance Act (Chapter 23:04) stipulated specific amounts to be collected from various selected section of the informal sector like the transport sector, saloons and free markets. These sectors were targeted as a drive to enhance the contribution of the sector in government revenue base (Dlamini & Dube, 2020:3). However, the greatest challenge for taxing the informal sector is that this division is predominated by huge cash dealings, poor book-keeping, high illiteracy rates and obliviousness of the tax rules.

Toll Gate Fees

Toll gate fees are a form of non-tax revenue collected at toll gates on major highways. The fee depends on the vehicle type with light vehicles being charged less fees as compared to heavy vehicles (Zhou & Madhikeni, 2013:56). Most of the revenue collected at tollgates is used to construct new roads and rehabilitate existing roads. However, this form of revenue is mostly affected during times of political turmoil and duress and health crises which may cause travel restriction. Lockdowns, intercity travel restrictions and closure of borders experienced during COVID-19 reduced the movement of commercial, public and private vehicles, thus, affecting revenues from tollgates meant to fund road constructions (United Nations, 2020). Revenue from toll gate fees is also affected by shun-picking by vehicles avoiding paying the fees. There is also a general disgruntlement among motorist regarding the toll fees which increased by 100 percent beginning of 2023, yet the state of the roads in Zimbabwe are in dire need for rehabilitation.

Challenges affecting Revenue Generation in Zimbabwe

Complex Tax Systems

The tax system being used by ZIMRA is complex and this has negatively affected revenue generation for the government of Zimbabwe. Most business operators do not understand why they pay taxes, the benefits of paying tax, how they should pay the tax, the tax legislation and framework, and procedures. For example, they do not know e-filing and how much they should pay (Mpofu, 2018:121). These are the reasons why most business operators are not registered for tax, and they do not comply with tax legislation, leading to low revenue generation by the government. To add on, various legislative and administrative procedures and poor coordination between different agencies associated with the registration process also affects revenue generation (Nyabunze & Siavhundu, 2020:19). There appears to be remarkably little coordination between local authorities and the national tax revenue authority. The barriers to entry into the formal sector such as registration fees, high taxes, social security payments and legal fees discourage business operators from registering for tax and complying with tax laws (Mpofu, 2023:106).

Capacity Constraints

Capacity constraints on the part of ZIMRA has negatively affected revenue generation for the government of Zimbabwe. Capacity in the context of tax administration relates to experience, financial resources and adequate human capital as well as technological resources (Mpofu,

2023:106). ZIMRA dedicates its resources to concentrate on bigger formal taxpayers rather than small informal ones due to the probable higher tax revenues associated with the formal sector and ease of tax administration in comparison to the informal sector which require adequate human, financial and technological resources to tax (Nyabunze & Siavhundu, 2020:19). The diverse, nebulous, widespread, heterogeneous and dispersed nature of the informal sector create logistical problems for tax administrators as they grapple with collecting taxes from this sector (Mpofu, 2023:106). For instance, a revenue performance report by ZIMRA for the first quarter ended March 2021 indicated that major contributors of revenue to net revenue collections for the quarter were companies (19.98%), individuals (17.89%), VAT on local sales (13.48%), excise duty (12.51%) and VAT on imports (9.76%), (ZIMRA 2021). Presumptive tax under other taxes has performed very unsatisfactory considering the size of the informal sector which means inadequate resources are being channelled towards the administration of presumptive tax to ensure compliance by the informal sector (Manhimanzi, Chagwedera, Fundira, Karuru & Hlatywayo, 2022:16).

Smuggling

Smuggling has negatively affected revenue generation for the government of Zimbabwe. The smuggling of minerals from Zimbabwe is extensive and is often downplayed for political and several corrupt motives. Two types of smuggling include smuggling goods into the country to evade import duty and smuggling minerals out of the country. However, smuggling of minerals hit particularly hard on the failure to realise revenue optimisation. For instance, Ministry of Finance and Economic Development (2020) asserts that, Zimbabwe has been deprived of revenue due to the smuggling of gold to South Africa. Over 1-billion USD of revenue was not realised from the mining industry due to mineral smuggling, a large portion of the gold sector. The country's inflows from mineral sales are often accounted for in the official channels as the government has sub-standard control systems for revenue. Another example is Aljazeera English (2023) which alleged that, there was rampant corruption in Zimbabwe's gold sector leading to unprecedented smuggling and this was backed by influential figures and politicians (Tanda & Genc, 2024:3).

Corruption

Corruption has negatively affected revenue generation for the government of Zimbabwe. Making use of the Transparent International's Corruption Perception Index (CPI), Zimbabwe had a record low level of corruption of 43 in the year 1998 and its level of corruption has been on the rise in subsequent years. In 2008, corruption levels in Zimbabwe reached an all-time high level of 166 out of 180 countries. Corruption levels in Zimbabwe remained high such that in 2012, the country was ranked number 163. During the years 2016, 2017 and 2018, the country's rankings stood at 154, 157 and 160 in that order (Nyabunze & Siavhundu, 2020:19). In the context of tax administration, corruption occurs in three major forms which are evasion by taxpayers, consent between the tax official and the taxpayer and lastly, corruption by tax officers themselves. In Zimbabwe, the common forms of corruption occur when the taxpayers voluntarily evade taxes and when the taxpayers give bribes to the tax officials (Tanda & Genc, 2024:2). The political economy in Zimbabwe together with rampant corruption results in diminished tax morale among citizens fuelling tax evasion and precipitate bribes among tax officials (Mpofu, 2023:106).

Low Tax Morale

Low tax morale has also negatively affected revenue generation for the government of Zimbabwe. The lack of visible benefits from the tax investment reduces tax morale. Business operators are not convinced of the rewards of paying taxes in Zimbabwe (Dlamini & Dube, 2020:3). Business operators generally encourage each other if they see tangible benefits from tax contributions or discourage each other if no benefits are perceived. Research conducted by Mpofu (2023:118) indicated that, business operators expressed that, the absence of government performance as well as the chronic economic problems and poor economic growth have reduced tax morale. For instance, the excessive devaluation of the Zimbabwean dollar, high nominal exchange rates and stern foreign exchange shortages between 2004 and 2008 and post 2018 are among the factors which contributed to Zimbabwe's economic turmoil (Saungweme & Odhiambo, 2018:28). The informal sector is also affected by poor service delivery by the government regarding infrastructure such as market spaces, toilets, vending stalls and the general exclusion from policy issues as evidenced during lockdowns (Manhimanzi, et al. 2022:16). Taxes imposed without adequately representing the interests of the people being taxed are unlikely to be collected easily. This lowers peer reciprocity tax morale and voluntary tax compliance.

Inadequate checks and balances

Inadequate checks and balances have negatively affected revenue generation for the government of Zimbabwe. There is often very little transparency, as well as accountability, when it comes to revenue disclosures and reporting (Nyabunze & Siavhundu, 2020:19). Lack of public revenue information is also because of the government's secrecy. The validated loans contracted may never be in the public domain because they were secretly contracted for private individuals under the banner of various ministries (Mbawu & Nkala, 2018:21). Moreover, information about the revenue generated in the mining industry is typically considered to be classified. The fate of paid mining royalties, notably to rural district councils is not transparent and the whole process along the reporting chain is shrouded in mystery which leaves significant loopholes for revenue to be lost, diverted or underreported (Tanda & Genc, 2024:3). For instance, it was found that the Minerals Marketing Cooperation of Zimbabwe (MMCZ) and the Zimbabwe Mining Development Corporation (ZMDC) occasionally report disparate figures. The ZMDC once indicated that the treasury acquired 62-million USD in revenue from diamond sales while the MMCZ reported 174-million USD (Tanda & Genc, 2024:4).

Unavailability of Information

An unavailability of information has negatively affected revenue generation for the government of Zimbabwe. Without information, the process of identifying taxpayers and ascertaining tax liabilities becomes very difficult (Manhimanzi, et al. 2022:16). Tax administration functions, such as, identification of taxpayers, assessment of taxpayers' liabilities and tax collection, are dependent on the availability of information. Without reliable and complete information, estimating or computing, tax liability is challenging (Mpofu, 2023:106). The lack of essential data, such as records of unregistered businesses and their bank accounts (if any) affects taxation (Jones & Jones, 2022). For instance, informal traders are not mandated to keep proper financial records and it makes ZIMRA have challenges to systematically collect revenue from them (Manhimanzi, et al. 2022:16). The informal sector operators fail to keep records, have poor internal controls and heavily depend on cash transactions that leave very little audit. The use

of cash and lack of financial records enables the informal sector operators to hide their taxable profits or manipulate their sales figures (Mpofu, 2023:106).

The Role of AI in Revenue Optimisation

Revenue Forecasting

AI models utilise various algorithms, including machine learning techniques, to analyse historical tax data and identify patterns that predict future tax revenues. For example, supervised learning algorithms can be trained on datasets that include economic indicators, demographic changes and historical tax collections to forecast future revenues (Omolere & Onyemechi, 2024:4402). Revenue forecasting making use of AI models is important for the government of Zimbabwe which has over the years suffered from budget deficits and an economy which constantly suffers from turmoil and duress. Since 1980 at independence, the government embarked on huge expenditure on capital (infrastructure) such as roads, schools and hospitals. The industrial sector and the agricultural sector were heavily subsidised and this drove up government spending against government revenue. As a result, budget deficit has over the years averaged 10% of the GDP (Nyabunze & Siavhundu, 2020:18). In this regard, the government of Zimbabwe can make use of AI models which are able to incorporate real-time data feeds, such as economic indicators and social media trends, to refine predictions continuously. This means that if an economic downturn is detected through rising unemployment rates or declining consumer spending, policymakers can respond more quickly by adjusting tax policies or reallocating resources to support critical sectors (Bala, Adekunle & Olarewaju, 2023:6).

Assessing Economic Conditions

AI-driven predictive models also provide insights into broader economic conditions. Techniques like regression analysis and neural networks can analyse the relationship between taxation and various economic indicators such as GDP, employment statistics and inflation rates. For instance, neural networks can detect complex, non-linear relationships between tax rates and economic growth that traditional econometric models might overlook (Buzyali & Sanbigs, 2023:2). These models are of great importance to a country like Zimbabwe which is characterised by high unemployment rates and a ballooning informal sector. The country's tax system is characterised by high tax rates that make tax compliance difficult, as they take a large portion of the already low incomes. Incomes in the informal sector are very low, in some cases unstable and this affects presumptive tax. Therefore, weighing the cost of survival against the benefits of tax compliance and often, operators decide to protect their low incomes to ensure business continuity, resulting in low levels of tax compliance (Mpofu, 2023:108). However, the impact of unpredictable tax in this sector can be averted by AI models by using tools like Monte Carlo simulations or scenario analysis, in which, policymakers can visualise the impacts of varying tax rates or changes in income from this sector. This predictive capability allows for better-informed decision-making, as simulations can reveal potential outcomes under different circumstances (Rahayu, 2024:46).

Real-Time Policy Adjustments

One of the most significant advantages of AI in taxation is the ability to facilitate real-time policy adjustments. By leveraging AI algorithms that continuously analyse incoming data, tax authorities can quickly identify when existing policies are underperforming or need modification. For instance, if a particular tax incentive is not yielding the expected economic benefits, AI models can provide evidence to support changes in the incentive structure (Omolere & Onyemechi, 2024: 4402). This dynamic approach is particularly beneficial for Zimbabwe where economic conditions can fluctuate due to seasonal variations, agricultural cycles or sudden economic shifts (Bala, Adekunle & Olarewaju, 2023:6). In such scenarios, the government tend to deliver poor services and where governance quality is poor, taxpayers are not persuaded to comply with taxes. Taxpayers use the quantity and quality of public goods and services delivered by the government, as well as how it addresses quality, as measures of governance quality for them to be compelled to continue paying taxes (Mpofu, 2023:108). With AI's predictive capabilities, ZIMRA can implement proactive measures to optimise tax collection and allocate resources where they are needed most. This ensures that taxation policies not only generate revenue but also promote sustainable development and infrastructural upgrades (Rahayu, 2024:46).

Identifying Tax Collection Inefficiencies

AI offers valuable tools to identify inefficiencies in tax collection systems, optimise revenue generation by highlighting areas where improvements are necessary. AI can identify patterns that reveal discrepancies in tax collection by examining large datasets from tax authorities, thus enabling targeted interventions (Buzyali & Sanbigs, 2023:2). The AI models will be beneficial for Zimbabwe which has tax structures and collection procedures that are cumbersome and time-consuming. Furthermore, the complicatedness of tax systems and policies affecting business operators are neither well-coordinated nor effectively disseminated across various connected related ministries such as finance, local government, labour and of Small and Medium Enterprises (SMEs). This has left too much room for the discretionary application of tax legislation and open corruption (Mpofu, 2023:108). Common inefficiencies include fraud, underreporting and collection gaps, which arises from both structural and individual compliance issues. The automation and precision of AI models make them ideal for addressing these issues (Bala, Adekunle & Olarewaju, 2023:6).

Detecting Fraud and Non-Compliance

AI algorithms are particularly effective in detecting tax fraud and non-compliance. Anomaly detection models can analyse taxpayer records to identify unusual patterns that might suggest fraudulent activity or underreporting. For instance, supervised learning models can be trained on historical data of known tax evasion cases to detect similar patterns in current data (Omolere & Onyemechi, 2024:4403). These models are of great importance for the tax system in Zimbabwe which is mostly affected by several fraud and evasion opportunities such as, under-reporting sales or faking input invoices, false claims that outputs are zero-rated (fake export invoices), falsely using differential rates/exemptions and carousel fraud (Fjeldstad & Therkildsen, 2020:28). Techniques, such as clustering algorithms and decision trees, have also shown success in identifying outliers, indicating areas where tax compliance is low. By identifying these anomalies, tax authorities can focus their resources on audits or investigations in areas where non-compliance is most likely (Rahayu, 2024:43).

Optimising Resource Allocation

AI models can analyse the efficiency of resource allocation in tax collection processes. This involves using data to understand where collection efforts yield the highest returns and identifying low-efficiency areas where resources may be wasted. For instance, regression analysis can highlight patterns between collection methods and success rates, allowing authorities to refine their strategies (Buzyali & Sanbigs, 2023:2). These models are of great importance for Zimbabwe to analyse sectors which tax collection are underperforming. For instance, the costs of tax collection are high for the informal sector due to its heterogeneity, the ease at which players can evade tax by moving from one location to the other and the magnitude of the sector. The mobility of the sector, the failure to maintain proper record and the fact that the sector is wide and this poses challenges for tax administrators. Moreover, incomes in the sector are low and unstable leading to potentially low tax revenues. Tax officers therefore often ignore this sector in favour of large taxpayers based on the value for money argument (Mpofu, 2023:118). Studies show that AI-driven systems can increase collection efficiency by as much as 20% by reallocating resources more effectively to sectors that perform well (Omolere & Onyemechi, 2024:4403).

Conclusion and recommendations

The paper analysed the role of artificial intelligence in revenue management in Zimbabwe. It discussed the revenue structure in Zimbabwe which is composed of income and corporate tax, VAT, tollgate fees, customs duty and presumptive tax. Several challenges have been identified which affect revenue generation and these include complex tax system, capacity constraints, smuggling, corruption, low tax morale, inadequate information and inadequate checks and balance. The role of AI in revenue optimisation includes revenue forecasting, assessing economic conditions, real time policy adjustments, detecting fraud and corruption, identifying tax inefficiencies and optimising resource allocation. It can be concluded that, by employing AI-driven predictive models, the government can allocate tax revenue more precisely to fund infrastructure projects, such as healthcare facilities, schools and roads, ultimately improving living standards and economic outcomes in underdeveloped regions.

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