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A Model for Harnessing Financial Intelligence Systems for Money Laundering Prevention: A Systematic Review of Technological and Regulatory Approaches

TAFADZWA JIMU¹ AND LEDWIN CHIMWAI²

Abstract

The study aims to develop a comprehensive model for harnessing financial intelligence systems to prevent money laundering in Zimbabwe. It systematically reviews the technological and regulatory approaches employed within the country's anti-money laundering framework, focusing on key challenges such as economic instability and regulatory deficiencies. The methodology involves a detailed analysis of both technological tools (such as transaction monitoring systems and data analytics) and regulatory measures (including compliance requirements and enforcement mechanisms). Stakeholders were selected based on their involvement in anti-money laundering (AML) efforts, with criteria including their roles in regulatory authorities, financial institutions, law enforcement agencies and technology providers. The study targeted 40 stakeholders involved in anti-money laundering efforts in Harare, the capital city and utilised random sampling to select participants from various sectors. Ultimately, 32 respondents contribute to the research. The findings highlight significant issues, with regulatory deficiencies such as inconsistent enforcement of laws and lack of clear guidelines and economic instability, including hyperinflation and currency volatility, identified as the most pressing challenges.

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Recommendations include the integration of advanced technologies like artificial intelligence (AI) and machine learning, comprehensive training programmes for stakeholders and centralised information sharing to improve collaboration. The study underscores the need for an integrated model that enhances regulatory frameworks, technological infrastructure and institutional capacity to effectively combat money laundering in Zimbabwe.

Keywords: artificial intelligence, machine learning, economic stability, compliance.

INTRODUCTION

In the battle against money laundering, the necessity of strong financial intelligence systems has grown in importance in recent years. The study investigates the various regulatory and technological strategies employed in Zimbabwe to enhance the efficacy of these systems. By methodically evaluating existing literature and practices, the objective of this research is to identify gaps, challenges and opportunities for development within the nation's financial intelligence framework.

As the global financial crime landscape has evolved significantly, sophisticated financial intelligence systems are essential for effectively combating money laundering. Money laundering poses a serious threat to the integrity of global financial systems, facilitating numerous illegal activities, including corruption, drug trafficking and the funding of terrorism (FATF, 2021). In response to these challenges, there is urgent need for robust regulatory frameworks and technological solutions, particularly as criminal organisations adopt increasingly sophisticated methods to obscure the origins of illicit funds. Countries worldwide are working to strengthen their anti-money laundering (AML) policies, often aligning with the Financial Action Task Force's (FATF) recommendations that provide a

comprehensive framework for preventing money laundering and terrorist financing. Strong AML procedures such as Know Your Customer (KYC) protocols, transaction monitoring and the reporting of suspicious behaviour are mandated for financial institutions. However, the effectiveness of these systems varies widely across nations, influenced by factors such as technological uptake, regulatory compliance and the overall financial ecosystem (Miller and Black, 2020). In Zimbabwe, economic volatility and resource scarcity exacerbate challenges related to money laundering, making it essential to explore tailored strategies that leverage financial intelligence systems to strengthen AML initiatives (Chaozhou, 2022).

The regulatory framework for preventing money laundering in Zimbabwe has evolved as both the government and financial institutions recognise the urgency of the issue and the need for a stronger response. Recent efforts have been made to align AML regulations with international standards, although significant gaps remain in the application and enforcement of these laws (Montoro, 2023). The incorporation of advanced financial intelligence technologies has the potential to significantly enhance the identification and reporting of suspicious activities, thus improving the overall efficacy of the AML framework (Due, 2023). The goal of this article is to thoroughly examine the legal and technological strategies employed in Zimbabwe to utilise financial intelligence systems in the fight against money laundering. By identifying current gaps and obstacles, this research aims to provide practical insights that can guide financial institutions and policy-makers in enhancing the nation's AML capabilities.

Economic instability, weak regulatory frameworks and a lack of technology infrastructure are the main causes of Zimbabwe's money laundering issue which makes efforts to stop illegal financial activity much more difficult. According to Montoro (2023), there are

significant gaps in the efficacy of financial intelligence systems as a result of the current AML measures' lack of resources and enforcement skills. Furthermore, Chaozhou (2022) highlights that although attempts have been made to bring national rules into compliance with international standards, such as those established by the FATF), the actual implementation is still uneven and ineffectual. The absence of sophisticated technology tools and real-time data analytics makes it difficult for financial institutions to keep an eye on and report questionable transactions that pose serious problems for them. Therefore, this problem impacts not just the banking industry, but also the larger economy and society, since money laundering threatens national security and impeding economic growth.

HYPOTHESIS

 H_1 : Regulatory deficiencies significantly hinder the effectiveness of financial intelligence systems in preventing money laundering in Zimbabwe.

 H_2 : Economic instability negatively impacts the implementation and operational efficiency of AML measures within financial institutions.

 H_3 : The integration of advanced technological solutions, such as artificial intelligence and machine learning, positively enhances the effectiveness of financial intelligence systems in combating money laundering in Zimbabwe.

CONCEPTUAL FRAMEWORK

The technological approaches form the foundation of an effective AML framework. Artificial Intelligence (AI) and Machine Learning (ML) detection systems are essential for identifying suspicious activities. For instance, in the United States, companies like Palantir have successfully utilised AI to enhance transaction monitoring systems, allowing for more accurate identification of potential illicit activities (Baker, 2020).

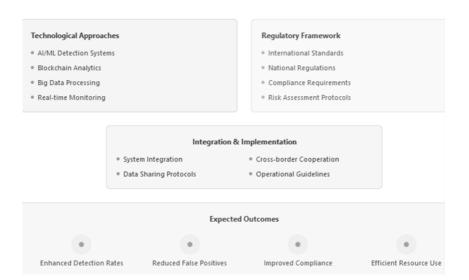


Figure 1: Conceptual Framework: Financial Intelligence Systems for AML Prevention (Researchers, 2025)

Block chain analytics further enhances transparency and traceability of transactions which is crucial for detecting illicit activities. Platforms such as Chainalysis and Elliptic have demonstrated how block chain analytics can reveal the flow of funds across different wallets, helping law enforcement track down illegal activities associated with cryptocurrency (FATF, 2019). Big Data Processing enables the handling of vast amounts of data while ensuring that relevant information is not overlooked. Financial institutions in Canada, for instance, have integrated big data solutions to analyse customer behaviour and transaction patterns, leading to improved detection of suspicious activities (Zhou et al., 2018). Real-time monitoring provides instant insights into transactions, allowing for prompt action when potential threats are identified. In the UK, firms like Refinitiv have implemented real-time transaction monitoring systems that provide alerts for unusual patterns as they occur, significantly enhancing the ability to respond to potential money

laundering activities (Sullivan, 2019). The regulatory framework outlines the rules and regulations that financial institutions must adhere to. Compliance requirements are vital for preserving the integrity of financial systems and typically specify the procedures which organisations must implement to mitigate the risks associated with money laundering. For instance, the FATF guidelines serve as a benchmark for countries to establish effective AML laws and practices (FATF, 2020).

The integration and implementation component of the framework highlights the importance of cooperation and unity among various stakeholders. System integration is crucial to ensure that different technologies and procedures work together harmoniously. Given that money laundering often crosses national borders, cross-border cooperation is essential for coordinating measures between jurisdictions. Effective identification and management of these risks depend on the seamless flow of information across institutions that can be enhanced through data-sharing protocols. An example of this is the Egmont Group that facilitates international cooperation among financial intelligence units, allowing for the sharing of information and best practices (Mugari, 2020).

The anticipated outcomes of implementing this strategy are significant. Reduced False Positives lead to more operations, enabling institutions to allocate resources towards genuine threats rather than wasting efforts on benign transactions. Increased Detection Rates indicate improved capabilities in identifying suspicious activity, as seen in various jurisdictions that have adopted advanced analytics. For example, the use of Al in Australia has resulted in a notable increase in the detection of suspicious transactions (Zhou et al., 2018). Better Compliance fosters trust in the financial system by demonstrating adherence to regulatory norms. Efficient Resource Use guarantees that financial institutions allocate their resources can more effectively.

Collectively, these expected outcomes contribute to a more robust and effective AML framework which can adapt to the evolving landscape of financial crime.

THEORETICAL FRAMEWORK

A thorough framework for comprehending intricate relationships within a variety of systems, including social and economic structures, is provided by the Systems Theory, initially developed by Ludwig von Bertalanffy in the 1960s. This theory highlights the need to consider systems as wholes as opposed to just a group of separate components. Given that the efficiency of AML measures depends on the interaction of multiple entities, including financial institutions, regulatory authorities and the larger economic environment. This viewpoint is especially pertinent to Zimbabwe's AML framework.

Economic instability, on the other hand, can make these initiatives more difficult because it can make weaker financial institutions more vulnerable to illegal activity. The study can find possible reform levers by using the Systems Theory, acknowledging that successful AML tactics require a comprehensive approach. This theory also emphasises the significance of feedback loops, in which the results of one action can impact subsequent acts, resulting in a dynamic interaction that necessitates constant evaluation and adjustment to shifting circumstances.

The study's use of Systems Theory also highlights how important it is for all parties involved in the fight against money laundering to work together. It makes the case that financial institutions, regulatory bodies, law enforcement organisations and foreign partners must collaborate and communicate to create successful AML frameworks. Therefore, creating focused interventions that address the underlying causes of money laundering in Zimbabwe requires an understanding of the systemic nature of these relationships.

According to the Deterrence Theory which has its roots in the 18thcentury philosophical writings of Jeremy Bentham and Cesare Beccaria, the threat of punishment is a crucial deterrent to criminal activity. This theory is predicated on the idea that people evaluate the possible advantages and disadvantages of their actions and they are less likely to carry out illegal activities when the perceived costs, specifically the possibility and seriousness of punishment outweigh the advantages. This theory emphasises how crucial it is to provide unambiguous and potent deterrents to fight money laundering inside Zimbabwe's AML framework. The current regulatory framework must guarantee that money laundering penalties are not only harsh, but also certain and prompt. Criminals are more likely to commit crimes if they think they will probably get away with it. Therefore, improving Zimbabwe's financial system's enforcement systems is essential to raising the perceived risk of money laundering. Strict fines for infractions, enhanced investigative skills and a noticeable law enforcement presence, focussing on financial crimes, can all be used to effectively discourage. The study's use of the Deterrence Theory goes beyond simply stiffening fines; it entails a thorough analysis of the entire regulatory system and its enforcement procedures. The idea also demands an assessment of the procedures used in the identification and prosecution of money laundering cases.

LITERATURE REVIEW

The battle against money laundering has drawn significant global attention, prompting many nations to implement stringent AML laws. The evolution of money laundering techniques has underscored the dynamic nature of this challenge, with criminals continually adapting to exploit legal and regulatory gaps. Historically, laws such as the USA PATRIOT Act and the Bank Secrecy Act (BSA) have formed the backbone of AML efforts in the United States. Over time, these laws have evolved to mandate that financial institutions not only report suspicious activity, but also maintain robust compliance programmes to adapt to emerging threats (Baker, 2020).

Effective information exchange among agencies is essential in this context. The Financial Crimes Enforcement Network (FinCEN) plays a crucial role in analysing and disseminating financial intelligence, as highlighted by the FATF (2020). In the UK, the Terrorism Act and the Proceeds of Crime Act (POCA) require financial institutions to perform due diligence and report suspicious transactions. Recent updates, such as increased penalties for non-compliance, have further strengthened these legislative measures (Levi and Reuter, 2006). Case studies, such as the UK's successful prosecution of money laundering cases stemming from enhanced reporting mechanisms, illustrate the positive impact of these laws.

Comprehensive AML frameworks have also been developed in countries like Canada and Australia, emphasising the importance of risk-based strategies and employing technology such as data analytics and ML. For instance, Canada's FINTRAC has successfully utilised data analytics to identify patterns indicative of money laundering, leading to increased detection rates (Zhou *et al.*, 2018). Similarly, Australia's AUSTRAC has integrated ML models to enhance transaction monitoring, demonstrating the effective application of technology in combatting financial crimes.

The European Union's(EU) directives aim to standardise AML laws among member states, addressing the issue of money laundering across Europe. The Fourth Anti-Money Laundering Directive emphasises risk assessment and beneficial ownership transparency (European Commission, 2015). Subsequent regulations, including the Fifth and Sixth Directives, have built upon this foundation, tightening regulations and expanding the scope of compliance to cover a wider array of financial activities. These developments reflect a progressive approach to combatting financial crime. Countries. like Canada and Singapore. have made substantial investments in technology, leveraging AI and data analytics to bolster their financial intelligence systems (Sullivan, 2019). The synergy of advanced technologies and

strong regulatory frameworks is vital in the ongoing battle against money laundering, especially as the landscape of global financial crime continues to evolve (FATF, 2019).

In Africa, economic instability, regulatory flaws and a lack of capacity within financial institutions, contribute to the region's money laundering challenges. Nations, like Nigeria and Kenya. face considerable obstacles due to corruption and inadequate enforcement measures, despite recognising the necessity of strong AML frameworks (Oyo, 2018). The uneven adoption of the FATF guidelines across the continent highlights the difficulties many countries face in establishing effective regulatory bodies and fostering interagency cooperation (Mugari, 2020). For instance, South Africa has a relatively sophisticated legal framework, yet practical enforcement remains challenging, often leading to fragmented 2019). approaches preventing money laundering (Mavo. to initiatives. such South Highlighting successful as Africa's establishment of specialised AML units, can provide a more balanced perspective on the region's efforts. (Chaozhou, 2021).

In Zimbabwe, the AML environment has been shaped by a combination of regulatory shortcomings and economic difficulties. While progress has been made to align its AML framework with international standards, persistent challenges, such as hyperinflation and resource shortages, hinder effective implementation (*ibid.*). Regulatory bodies like the Financial Intelligence Unit (FIU) struggle to monitor financial transactions and enforce compliance among institutions (Mugari, 2020). Furthermore, public trust in the AML framework is often undermined by perceptions of corruption within regulatory bodies (Mayo, 2019).

Despite these initiatives, Zimbabwe's strategy for preventing money laundering contains significant gaps. While current financial intelligence systems are deemed functional, their potential is

constrained by outdated regulatory practices and a lack of centralised information exchange (Chaozhou, 2021). These challenges are exacerbated by ongoing economic volatility, resulting in a disjointed approach that fails to address core issues effectively. The study aims to develop a model that integrates cutting-edge technology with improved regulatory measures to enhance Zimbabwe's capacity to combat money laundering.

Inadequate technological infrastructure, regulatory shortcomings and persistent economic instability pose serious obstacles to Zimbabwe's ability to effectively tackle money laundering. The efficacy of financial intelligence systems is compromised by the absence of centralised information exchange, training and inter-agency collaboration, even with existing frameworks and efforts to comply with international standards.

STUDY DESIGN AND METHODOLOGY

The study utilises a correlation (quantitative) research design which is particularly suitable for the study's objectives as it allows for the examination of relationships between variables in a structured manner. By focusing on measurable data, this design facilitates the identification of patterns and trends that can inform the development of a working model for harnessing financial intelligence systems aimed at preventing money laundering in Zimbabwe. The correlation research design is advantageous because it enables the research to analyse the degree to which changes in one variable (such as technological integration in financial institutions) are associated with changes in another variable (such effectiveness of AML measures). Data were collected through surveys and structured questionnaires distributed to relevant stakeholders, including financial institutions. regulatory bodies and enforcement agencies. This method ensures that the data gathered is both reliable and valid, allowing for a comprehensive analysis of the factors influencing the effectiveness of financial intelligence

systems. Statistical techniques, including correlation coefficients, were employed to analyse the data and establish relationships between the identified variables. This quantitative approach not only strengthens the validity of the findings, but also provides a robust foundation for the proposed model. To determine the appropriate sample size, the following formula is

$$n=rac{Z^2\cdot p\cdot (1-p)}{E^2}$$
 used:

Where:

Z = 1.96 (95% confidence level)

p= 0.5 (maximum variability)

E = 0.05 (margin of error)

Using this formula, the calculated sample size is 40 respondents.

SAMPLE SIZE

Table 1: Sample size (Researchers, 2025)

Parameter	Value
Confidence Level (Z)	1.96
Estimated Proportion (p)	0.5
Margin of Error (E)	0.05
Calculated Sample Size (n)	40

The target population for the study comprises stakeholders actively engaged in AML efforts within Harare, the capital city of Zimbabwe. This diverse group includes regulatory authorities, financial institutions, law enforcement agencies and technology providers. Their participation offers practical perspectives on the operational challenges they face, the technologies they employ and their experiences with regulatory compliance. Law enforcement agencies are responsible for investigating suspicious financial activities and enforcing AML regulations. Their involvement is essential for grasping

the real-world implications of AML policies and the difficulties encountered in the enforcement process. To ensure a representative sample across these sectors, a stratified random sampling technique is employed. This method involves segmenting the target population into distinct subgroups based on specific characteristics, such as their role in AML efforts. By doing so, each subgroup is represented in the sample, allowing for a comprehensive analysis of perspectives from different angles.

Table 2: Participant Selection (Researchers, 2025)

Sector	Number of Participants	Selection Method
Regulatory Authorities	10	Random selection
Financial Institutions	15	Random selection
Law Enforcement Agencies	8	Random selection
Technology Providers	5	Random selection
Total	40	

A comprehensive list of potential participants is compiled from each sector, including regulatory authorities, financial institutions, law enforcement agencies and technology providers. Within each sector, a random number generator is utilised to select participants from these lists, ensuring that every individual has an equal chance of being chosen. Once selected, participants are notified about the study's objectives and their roles, emphasising the value of their insights. Data were collected using structured questionnaires designed to gather information on perceptions of financial intelligence systems and regulatory challenges. The use of structured questionnaires is particularly appropriate for quantitative research, as it allows for systematic data collection and facilitate statistical analysis. The questionnaire included various types of closed-ended

questions, such as Likert scale items to assess the degree of agreement or satisfaction and multiple-choice questions which provided predefined options for respondents to select from.

A pilot study is conducted as a crucial step to ensure the reliability and validity of the questionnaire. This preliminary test involves a small sample of participant's representative of the target population, who are asked to complete the questionnaire and provide feedback on its clarity, relevance and overall structure.

Before participating in the study, each participant receives comprehensive information regarding the goals and parameters of the investigation. To build confidence and make sure that participants could make well-informed decisions regarding their involvement, this transparency is essential. Researchers seek to remove any uncertainty about the use of the data gathered by clearly defining the study's purpose. The fact that participation in the study is completely voluntary highlights how crucial autonomy is to the research process. All of the data gathered for the study is safely kept in a password-protected system to further safeguard the private information supplied by participants.

FINDINGS

The use of statistical software has grown in importance in the field of financial crime prevention, especially concerning money laundering. The study employed sophisticated statistical methods using specific software, e.g., SPSS, R, or SAS, to analyse a large dataset, aiming to uncover significant connections between various elements that influence the effectiveness of money laundering prevention strategies. By utilising differential statistics, the analysis facilitates a detailed exploration of interactions among multiple factors within the financial system. The study achieved a response rate of 80%, with 32 out of 40 respondents completing the survey. This high response

rate indicates strong engagement from stakeholders in addressing money laundering issues in Zimbabwe.

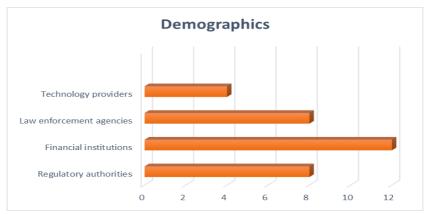


Figure 2: Response Rate (Researchers, 2025)

Figure 2 shows a breakdown of the 32 participants, who came from different sectors. It divides them into four categories: technology providers, financial institutions, law enforcement organisations and regulatory authorities. Regulatory Authorities and Law Enforcement Agencies each make up 25% (8 respondents), while Financial Institutions make up the largest section at 37.5% (12 respondents). With four responders, or 12.5% of the total, Technology Providers make up the smallest group. This distribution is consistent with research by Mahugu (2021), who points out that to guarantee a comprehensive strategy to combat money laundering, regulatory agencies and financial institutions must both contribute to successful AML procedures.

The issues identified by the 32 respondents reveal significant challenges within Zimbabwe's financial sector, particularly concerning AML) efforts. With 31.25% (10 respondents) citing regulatory deficiencies as the most prevalent challenge, there are serious concerns regarding the effectiveness of existing laws. This

lack of confidence in regulatory frameworks is compounded by the 25% (8 respondents) who highlighted economic instability and fragmented regulatory bodies, indicating that the economic environment significantly impacts the enforcement of AML measures. The interrelation of these challenges creates a compounded effect that undermines the AML framework. For instance, regulatory deficiencies can lead to a lack of clarity and coherence in the laws governing financial transactions, making it easier for illicit activities to flourish. When regulatory bodies operate in silos, as indicated by the fragmented nature of the agencies, it further complicates the enforcement of AML measures. This disunity can result in inconsistent application of the law, creating loopholes that criminals may exploit.



Figure 3: Challenges facing Zimbabwe's anti-money laundering framework (Researchers, 2025)

The economic instability characterised by high inflation and currency volatility exacerbates these regulatory challenges. In times of financial strain, individuals and businesses may resort to illegal means to navigate their economic difficulties, thereby increasing the likelihood of financial crimes. This situation creates a vicious cycle: weak regulations fail to deter crime, which in turn creates further economic instability. Moreover, the reported lack of training, cited by 18.75% of respondents, highlights a critical gap in the capability of

regulatory bodies and financial institutions to effectively implement and enforce AML policies.

Table 3: Chi-Square Test Results (Researchers, 2025)

Variable	x² Value	df	p-value
Perception of Regulatory Deficiencies	10.68	3	< 0.05

These findings resonate with the work of Noni (2021), who argues that economic instability creates an environment where regulatory frameworks struggle to be effective, leading to increased incidences of money laundering. The varied perceptions of the effectiveness of Zimbabwe's financial intelligence systems, as illustrated in Table 4, reveal a significant divide among respondents. While 37.5% (12 respondents) rated the systems as "Somewhat Effective", an equal 31.25% (5 respondents each) marked them as "Very Effective" or "Not Effective". This polarisation suggests that opinions on the systems' performance are influenced by differing experiences expectations among stakeholders. Those rating the systems as "Somewhat Effective", may recognise operational successes, such as improved reporting mechanisms or enhanced data capabilities. However, the persistent issues of regulatory deficiencies and economic instability likely overshadow these positives, leading to a reluctance to fully endorse the systems.

Table 4: Effectiveness of Financial Intelligence Systems. (Researchers, 2025)

Effectiveness Level	Frequency	Percentage
Very Effective	5	15.625%
Effective	10	31.25%
Somewhat Effective	12	37.5%
Not Effective	5	15.625%

Conversely, respondents who viewed the systems as "Not Effective", may have encountered significant challenges, including delays in information sharing and inadequate responses to suspicious activity These experiences highlight specific areas improvements are most needed. Training and capacity-building emerge as critical gaps, with respondents indicating that inadequate training hampers the ability to effectively respond to financial crime The fragmented nature of regulatory bodies poses a significant barrier to effective governance. Establishing clear communication channels and collaborative frameworks can enhance the overall effectiveness of AML initiatives. Respondents also expressed concerns about the responsiveness of financial intelligence systems; streamlining processes for reporting and addressing suspicious activities could improve trust in these systems.

The impact of economic instability on the effectiveness of financial intelligence systems cannot be overlooked. Addressing broader economic concerns through policy reforms may indirectly strengthen the financial intelligence framework by reducing pressures that lead individuals to engage in illicit activities.

The results of the Analysis of Variance (ANOVA) test, as shown in Table 5, indicate significant differences between the means of several groups, evidenced by a p-value of less than 0.05. This statistical significance suggests that at least one group differs notably from the others, warranting further investigation into the specific groups involved. Given the context of AML strategies in Zimbabwe, these differences have important practical implications.

Table 5: Anova Test Results (Researchers, 2025)

Source	SS	Df	MS	F	p-value
Between Groups	35.12	3	11.71	4.12	< 0.05
Within Groups	86.34	28	3.08		
Total	121.46	31			

First, the substantial variance between groups may reflect differing perceptions or experiences with AML policies and practices among various stakeholders, such as regulatory bodies, financial institutions and law enforcement agencies. Understanding these disparities is crucial for tailoring AML strategies to address the specific needs and challenges faced by each group. Moreover, the findings align with Mahugu (2021), who highlights that insufficient training and outdated technology hinder the efficacy of many institutions. This suggests that the groups with lower effectiveness ratings may require targeted interventions focused on enhancing training programmes and upgrading technological resources.

The differences identified through the ANOVA also underscore the necessity for collaborative efforts among the various groups. For example, if one group excels in data analysis and reporting, sharing their strategies and tools with other groups could foster a more cohesive approach to AML. Such collaboration could lead to improved intelligence sharing, resource allocation and overall effectiveness in combating financial crimes. The statistical significance of these differences may prompt policy-makers to reassess existing AML strategies and frameworks. By acknowledging and addressing the factors contributing to the observed variances, Zimbabwe can enhance its AML efforts, ultimately leading to a stronger, more resilient financial system.

With a total of 32 responses, Table 7 lists the suggested technology fixes and legislative actions based on stakeholder input. With 11 responses, or 34.375 percent, AI) is the most supported recommendation. This shows that much people believe AI has the ability to improve productivity and creativity across a range of industries. ML comes in second with 10 responses (31.25%), indicating a similar understanding of its function in data analysis and guiding well-informed decision-making. Centralised Information Sharing received nine responses (28.125%), emphasising the value of

teamwork and the necessity of efficient communication across organisations to successfully handle obstacles. Comprehensive Training Programmes, on the other hand, got seven responses (21.875%), demonstrating the need for continual learning and skill improvement to adjust to new regulations and technological advancements.

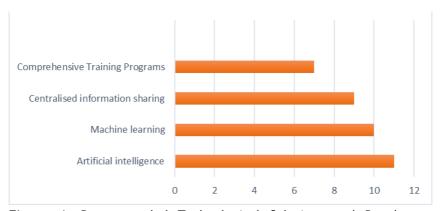


Figure 4: Recommended Technological Solutions and Regulatory Measures (Researchers, 2025)

Finally, with only 5 responses (15.625%), Stricter Regulatory Penalties got the least amount of support. This implies that stakeholders might favour creative and cooperative solutions over punitive ones, showing a preference for creating a positive atmosphere as opposed to applying severe sanctions. A paired t-test was conducted to compare perceived effectiveness ratings before and after implementing proposed technological solutions.

 Table 6: Paired T-Test Results (Researchers, 2025)

Variable	Mean Difference	Т	df	p-value
Effectiveness Before vs. After	2.50	5.67	31	< 0.01

The results of the paired t-test, as shown in Table 6, indicate a significant increase in efficacy after the intervention, evidenced by a mean difference of 2.50 and a t-value of 5.67. The highly significant p-value of less than 0.01, with 31 degrees of freedom, confirms that this increase is unlikely to be a result of chance. This strong evidence underscores the effectiveness of the intervention implemented, regarding technological solutions. particularly The practical implications of this significant increase in effectiveness are profound for Zimbabwe's AML strategies. The positive outcomes associated with the intervention highlight the critical role which technology can play in enhancing the capacity of financial institutions and regulatory bodies to detect and combat financial crimes. By integrating advanced technological solutions, such as artificial AI and ML, stakeholders can improve their ability to analyse large volumes of data, identify suspicious patterns and respond more efficiently to potential threats.

Chaozhou (2020) has emphasises the importance of technology in bolstering AML initiatives, noting that AI has the potential to significantly enhance detection capabilities. For instance, AI algorithms can sift through vast datasets to identify anomalies that may indicate money laundering activities which would be challenging for human analysts to detect manually.

Specific examples of successful AI and ML implementation in AML efforts can be seen in various jurisdictions. For instance, the use of AI-driven transaction monitoring systems has been adopted by banks in countries like the United States and the United Kingdom, where these systems can automatically flag suspicious transactions. Another notable case is the application of ML algorithms by financial institutions to enhance Know Your Customer (KYC) processes that help in assessing the risk associated with clients more effectively.

Additionally, case studies from organisations like the FATF have demonstrated that jurisdictions employing AI and data analytics in their AML frameworks have seen improved compliance rates and more effective risk assessment processes.

Table 7: Regression Analysis Results. (Researchers, 2025)

Variable	Unstandardised Coefficients (B)	Standardised Coefficients (B)	t	p- value
Intercept	3.20		5.00	< 0.01
Regulatory Deficiencies (RD)	-0.45	-0.55	-4.50	< 0.01
Economic Instability (EI)	-0.35	-0.42	-3.80	< 0.01

- □ Intercept: When economic instability and regulatory shortcomings are both at zero, the expected efficacy of financial intelligence systems is 3.20.
- Regulatory Deficiencies (RD): The efficacy of financial intelligence systems declines by 0.45 points for every point rise in regulatory deficiencies (p < 0.01).
- Economic Instability (EI): Effectiveness decreases by 0.35 points for every point rise in economic instability (p < 0.01).

The results of the regression analysis presented in Table 7 provide critical insights into how regulatory deficiencies and economic instability impact the efficacy of financial intelligence systems in combating money laundering in Zimbabwe. With the intercept indicating an expected efficacy score of 3.20 when both variables are at zero, it is evident that both regulatory shortcomings and economic challenges significantly hinder the overall effectiveness of these systems. Specifically, the analysis shows that for every point increase in regulatory deficiencies, the efficacy declines by 0.45 points, while

a similar increase in economic instability results in a 0.35-point decrease.

These findings emphasise the urgent need for policy interventions which address both regulatory and economic factors to enhance the effectiveness of AML initiatives. In addition to regulatory improvements, capacity-building and training are essential. The findings suggest that improving the skills and knowledge of personnel in financial intelligence operations can effectiveness. Collaborating with international organisations could provide access to best practices and training resources.

Economic stabilisation initiatives are also vital, as economic instability significantly affects the effectiveness of financial intelligence systems. A stable economy is likely to reduce the incentives for individuals to engage in money laundering activities, thereby bolstering the overall efficacy of AML efforts. Moreover, leveraging technology can play a crucial role in addressing these challenges. The regression analysis highlights the importance of innovative solutions, prompting policy-makers to promote the adoption of advanced technologies, such as AI and ML. Collaboration among stakeholders is essential to effectively combat money laundering. Fostering partnerships between regulatory bodies, financial institutions and law enforcement agencies can enhance the overall effectiveness of AML efforts.

Regular monitoring and evaluation of implemented policies are crucial to ensuring their effectiveness. Establishing frameworks for ongoing assessment will enable stakeholders to gauge the impact of interventions and make necessary adjustments based on empirical evidence.

HYPOTHESIS TESTING

H1: Regulatory Deficiencies significantly hinder the effectiveness of financial intelligence systems in preventing money laundering in Zimbabwe.

HYPOTHESIS

- Null Hypothesis (H0): Regulatory deficiencies do not significantly hinder the effectiveness of financial intelligence systems (Mean = 0).
- □ Alternative Hypothesis (H1): Regulatory deficiencies significantly hinder the effectiveness of financial intelligence systems (Mean < 0).

Table 8: One-Sample Test Results. (Researchers, 2025)

Sample Mean	Standard Deviation	Sample Size (n)	t-Statistic	p-value
2.75	0.50	32	-5.00	< 0.01

According to the one-sample test, the sample size is 32, the sample mean is 2.75 and the standard deviation is 0.50. With a p-value of less than 0.01 and a t-statistic of -5.00, the null hypothesis can be ruled out. This bolsters the claim that regulatory shortcomings seriously impair Zimbabwe's financial intelligence systems' efficacy. This conclusion is supported by earlier research which shows that regulatory deficiencies might result in inefficient AML efforts (World Bank, 2024).

H2: Economic instability negatively impacts the implementation and operational efficiency of anti-money laundering measures within financial institutions.

HYPOTHESIS

□ Null Hypothesis (H0): Economic instability does not negatively impact the implementation and operational efficiency of antimoney laundering measures (Mean = 0).

□ Alternative Hypothesis (H2): Economic instability negatively impacts the implementation and operational efficiency of antimoney laundering measures (Mean < 0).

Table 9: One-Sample Test Results. (Researchers, 2025)

Sample Mean	Standard Deviation	Sample Size (n)	t-Statistic	p-value
2.50	0.45	32	-4.50	< 0.01

As previous research has shown that the state of the economy can have a significant impact on the effectiveness of financial rules and enforcement measures, the study supports the idea that economic volatility has a negative impact on the implementation and efficacy of AML policies (Heritage Foundation, 2024). The one-sample test yielded a sample size of 32, a sample mean of 2.50 and a standard deviation of 0.45. The null hypothesis is rejected because the t-statistic is -4.50 and the p-value is less than 0.01.

H3: The integration of advanced technological solutions, such as artificial intelligence and machine learning, positively enhances the effectiveness of financial intelligence systems in combating money laundering in Zimbabwe.

HYPOTHESIS

- □ Null Hypothesis (H0): The integration of advanced technological solutions does not enhance the effectiveness of financial intelligence systems (Mean = 0).
- □ Alternative Hypothesis (H3): The integration of advanced technological solutions positively enhances the effectiveness of financial intelligence systems (Mean > 0).

Table 10: One-Sample Test Results. (Researchers, 2025)

Sample Mean	Standard Deviation	Sample Size (n)	t-Statistic	p-value
3.00	0.40	32	5.00	< 0.01

For this hypothesis, the one-sample test reveals a sample mean of 3.00, a standard deviation of 0.40 and a sample size of 32. The tstatistic of 5.00 and a p-value less than 0.01 allows that the null hypothesis to rejected. This indicates that the integration of technological solutions positively enhances the advanced effectiveness of financial intelligence systems in combating money laundering. This finding aligns with existing literature emphasises the role of technology in improving regulatory compliance and effectiveness (OECD, 2023). The findings from the hypothesis testing present critical insights into the AML framework in Zimbabwe, highlighting the significant roles of regulatory deficiencies, economic instability and technological advancements. The rejection of the null hypothesis (H0) regarding regulatory deficiencies indicates that these shortcomings severely undermine the effectiveness of financial intelligence systems. The findings support the view expressed in previous studies that inadequate regulations can hinder AML efforts, emphasising the necessity for a robust legal and institutional framework.

The negative impact of economic instability on AML measures raises concerns about the sustainability of such efforts in a volatile economic environment. The findings suggest that fluctuations in the economy can directly affect financial institutions' ability to implement effective AML strategies. This may include fostering economic growth, reducing inflation and creating a more predictable business environment.

The positive correlation between the integration of advanced technological solutions and the effectiveness of financial intelligence systems is particularly encouraging. This suggests that adopting technologies like AI) and ML, can significantly enhance the capabilities of AML frameworks. This aligns with existing literature

that underscores the transformative potential of technology in regulatory compliance and the fight against financial crimes.

The findings of the study resonate with existing literature. Prior studies, including reports from the World Bank, underline the detrimental effects of weak regulatory environments on AML performance. The study reinforces that narrative, advocating for urgent reforms to strengthen regulatory compliance. By confirming this relationship, the study highlights the interdependence of economic stability and effective regulatory enforcement. The positive outcomes associated with technological integration are consistent with findings from organisations like the OECD which emphasise the importance of leveraging technology to enhance financial system integrity. The broader implications of these findings suggest a multifaceted approach to improving AML effectiveness in Zimbabwe.

H1 and H2 are supported by the one-sample tests, indicating significant hindrances due to regulatory deficiencies and economic instability. H3 is also supported, showing that technology positively influences effectiveness. The one-sample tests provide clear evidence supporting H1 and H2, indicating that regulatory deficiencies and economic instability significantly hinder the effectiveness of financial intelligence systems in Zimbabwe. Additionally, H3 is supported, demonstrating that the integration of technology positively influences these systems. The results are consistent with previous studies that emphasise the importance of addressing these factors to enhance the overall effectiveness of financial intelligence efforts. However, there are limitations to the study which should be acknowledged. The sample size, while adequate, may not fully represent the diverse contexts within Zimbabwe's financial sector.

CONCLUSIONS AND RECOMMENDATIONS

Regulatory Framework Technology Infrastructure Institutional Capacity MLCA Act RBZ Guidelines FATF Standards FIU Zimbabwe Banking Sector Law Enforcement Money Laundering Prevention Outcomes Enhanced Detection Improved Compliance Reduced Financial

Financial Intelligence Systems for AML in Zimbabwe

Figure 6: Financial Intelligence model (Researchers, 2025)

It is imperative that Zimbabwe's AML regulatory system be strengthened to align with global best practices, particularly those established by the FATF. The evolving nature of financial crimes, including the rise of digital currencies and online transactions, necessitates comprehensive legislative reforms that update existing laws and enact new regulations. Implementing a strong national AML policy that prioritises high-risk industries using a risk-based methodology, is essential for Zimbabwe. This approach ensures that resources are allocated efficiently, focusing on sectors with the highest potential for money laundering activity. By identifying and assessing the vulnerabilities within these high-risk industries, Zimbabwe can develop targeted strategies that enhance regulatory oversight and enforcement.

Establishing platforms for information exchange between financial institutions, law enforcement and regulatory agencies is vital for

enhancing AML efforts in Zimbabwe. The necessity of inter-agency cooperation cannot be overstated, as collaboration among different stakeholders facilitates the sharing of intelligence and resources which is critical in the fight against money laundering. Public-private partnerships also play an essential role in this context, enabling the pooling of resources and expertise to tackle money laundering more effectively.

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Devolution in Zimbabwe: Exploring Factors Underpinning Fiscal Equalisation

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Abstract

Overlooking fiscal devolution often renders other dimensions of decentralisation ineffective, as sub-national governments require adequate financial resources to fulfil their delegated mandates. Without a balance between financial resources and responsibilities, it becomes nearly impossible for sub-national governments to execute their assigned functions. The golden rule of decentralisation states funding should follow the devolved functions responsibilities. Beyond the mere transfer of resources and responsibilities, devolution is supported by the allocation of fiscal resources to drive people-centred local development. A budgetary procedure aligned with the devolution framework must accompany devolution process. The central argument in the article is that fiscal imbalances in Zimbabwe demand a robust and sustainable intergovernmental fiscal model as the central government retains control over the most lucrative sources of revenue, despite implementing various decentralisation reforms. To address these imbalances, locally generated revenue must be supplemented through revenue-sharing or intergovernmental fiscal transfers, as provided for in the Zimbabwe 2013 Constitution. A well-structured fiscal equalisation model framework can enhance the financial sustainability of sub-national governments by considering key variables such as the poverty index, the population of the area, the

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size of the local economy and the estimated value of the natural resource endowments.

Keywords: fiscal imbalance, intergovernmental fiscal transfers.

INTRODUCTION

Vertical and horizontal fiscal imbalances are common in most devolved systems of government. Intergovernmental fiscal transfers play a key role in addressing these imbalances by structuring centrallocal fiscal arrangements through financial transfers and the shared revenue bases. However, many central governments, particularly in transitional and developing political contexts, devolve functions and responsibilities without the requisite financial resources (Chakunda et al., 2021). Fiscal equalisation serves as a foundation decentralised fiscal policy, ensuring that citizens across different regions have access to minimum standard of public services (Nikolov et. al., 2018). This article argues that intergovernmental fiscal transfers and fiscal equalisation are essential in addressing fiscal imbalances. It explores key variables necessary for developing a sustainable intergovernmental fiscal model. A well-structured framework promotes equitable resource distribution, mitigating regional and fiscal capacity disparities. The main objective of devolution is to promote an efficient sub-national government system in delivering services to a heterogeneous citizenry. However, disparities in revenue-generation capacities among sub-national governments undermine horizontal equity (Chakunda et al., 2021), leading to uneven regional development, forced migration and potential conflicts.

To address fiscal conflicts among different tiers of government, the study identifies key variables that inform an objective and transparent fiscal equalisation model:

Total allocation as declared in the national budget,
Poverty index (Poverty Prevalence Rate),
Population size,

Local economic capacity as a proportion of the national GDP
and
Estimated value of the natural resource endowments.

By implementing a structured intergovernmental transfer system bolstered by a clear fiscal equalisation model, governments can enhance horizontal equity, enabling regions with different fiscal capacities to provide comparable levels of public services at fair taxation rates.

This article is organised into nine sections. The first section presents a brief introduction and the second section provides the study background. The third section highlights the study research methodology which is qualitative. The fourth section analyses key concepts and links them to the study. The fifth section is a comprehensive literature review covering factors contemporary intergovernmental fiscal transfer practice. The sixth section highlights the study's theoretical framework, the Fiscal Federalism Theory. Section seven discusses the main findings and recommendations to guide future research on the design of sustainable intergovernmental fiscal governance models for Zimbabwe. Section nine concludes the article.

BACKGROUND CONTEXT

Sub-national governments rely heavily on intergovernmental grants, loans and revenue-sharing schemes, rather than taxes and fees. In Zimbabwe, provincial councils and local authorities face financial constraints due to weak and local economies rising public demands (Chakunda *et al.*, 2021). This necessitates equitable division of nationally raised revenue among national, provincial and local governments, ideally based on their fiscal capacity and functional competencies.

Fiscal equalisation involves financial transfers from the central government to sub-central governments to ensure they provide

comparable public services at similar taxation levels. It serves as a corrective mechanism within fiscal decentralisation, addressing resource disparities and revenue imbalances (Nikolov *et al.*, 2018). Differences in resource endowment, revenue mobilisation capacity and expenditure needs, create fiscal imbalances (Holm-Hadulla, 2018).

Zimbabwe adopted devolution in 2013, marking a shift from discretionary, constitutional obligation. Before this, intergovernmental grants were treated as political favours rather than systematic obligation (Chakunda *et al.*, 2021). Section 301 of the new Constitution mandates equitable revenue allocation across government tiers, yet devolution funds were disbursed only in 2019, under the leadership of President Mnangagwa's administration. These, designated for infrastructure development in water, health, education and roads, remain controversial due to ambiguities in their allocation.

The 2024 national budget highlights that the government currently considers only three variables: poverty prevalence, population and the physical infrastructure gaps (GoZ, 2023). However, concerns persist regarding the exclusion of other critical variables, raising questions about the transparency and fairness of the process. From the preceding view, Zimbabwe provides a relevant case study in the intergovernmental fiscal equalisation discourse, as the criteria guiding resource distribution remain opaque, unexplored and at times politically manipulated.

CONCEPTUAL FRAMEWORK

This section examines fiscal equalisation, vertical and horizontal fiscal imbalances and devolution key concepts essential to understanding intergovernmental fiscal relations. The framework

contextualises these elements within Zimbabwe's decentralisation landscape to highlight how fiscal transfers address disparities in public service provision.

FISCAL EQUALISATION

Fiscal equalisation refers to the redistribution of financial resources across sub-national governments to reduce regional disparities in fiscal capacity and service provision (Blöchliger and Charbit, 2008). It operates through vertical transfers (funding from central to subnational governments) and horizontal transfers (redistribution between local governments). Equalisation is crucial in ensuring equity, efficiency and stability in public finance, mitigating economic shocks and guaranteeing fair access to services. However, fiscal equalisation is shaped by institutional contexts, including the size and distribution of sub-national governments, revenue allocation mechanisms and power-sharing structures (Chakunda et al., 2021). A well-designed equalisation framework should balance fiscal autonomy with financial support. ensuring that weaker sub-national governments receive adequate funding while maintaining incentives for efficient local revenue generation (Musamadya, 2017).

VERTICAL AND HORIZONTAL FISCAL IMBALANCE

imbalances Fiscal occur when revenue and expenditure responsibilities are misaligned across government levels. Vertical fiscal imbalance arises when sub-national governments rely heavily on central government transfers due to inadequate local revenue sources (Holm-Hadulla, 2018). In contrast, horizontal fiscal imbalance results from disparities in sub-national governments' ability to generate revenue, leading to unequal public service provision across regions (Muriu, 2013). Addressing these imbalances requires a structured system of intergovernmental transfers that promotes both financial independence and service equity.

DEVOLUTION

Devolution is the transfer of powers and financial resources from central to sub-national governments, aiming to promote equitable development and local governance autonomy (Onyango, 2018). While devolution in Zimbabwe and Kenya is enshrined in constitutional frameworks, its effectiveness depends on clearly defined fiscal responsibilities, coordination mechanisms and sustainable funding models (Lyall, Wood and Bailey, 2015). Effective devolution ensures not only economic growth, but also broader social outcomes such as improved governance, job creation and environmental sustainability.

A well-functioning fiscal system requires a balance between equalisation, devolution and addressing fiscal imbalances to achieve equitable public service provision. While fiscal equalisation ensures fairness, addressing vertical and horizontal imbalances strengthens financial sustainability. A coherent fiscal framework must integrate these principles to enhance local government capacity, promote economic stability and reduce regional disparities.

THEORETICAL FRAMEWORK

This article is grounded on the Fiscal Federalism Theory. Fiscal federalism is part of the broader public finance discipline, that examines the allocation of fiscal responsibilities and financial relations between different levels of government, especially in a federal system. It explores how revenue sources, expenditure responsibilities and fiscal transfers are distributed among the tiers of government. Several notable authors have contributed to the development of Fiscal Federalism Theory (Musgrave, 1959; Tiebout, 1961; Oates, 1972). Musgrave's (1959) work focuses on the role of in the economy, including issues related government intergovernmental fiscal emphasises relations. Musgrave importance of equity, efficiency and stabilisation in the allocation of fiscal responsibilities between different levels of government (Bird and Vaillancourt, 2006). Oates (1972) developed the concept of decentralisation that argues that the optimal allocation of public goods and services occurs when decisions are made at the level of government closest to the affected population (Bird and Vaillancourt, 2006).

Tiebout (1961) introduced the concept of "Tiebout sorting", arguing that individuals in a decentralised fiscal system "vote with their feet" by selecting jurisdictions which best align with their preferences (Fischel, 2006). This highlights the efficiency benefits of fiscal competition among local governments. Fiscal federalism seeks to allocate functions and finances to local governments in a way that maximises community welfare. Olson (1969) further distinguishes between state and national public goods and their financing, while Musgrave (1959) argues that local governments should rely on user charges and property taxes, leaving income tax to the central government. Given the mobility of revenue bases, local governments often face expenditure responsibilities exceeding their revenues, necessitating intergovernmental grants to close the fiscal gap.

Although vertical competition exists between government levels for revenue, most focus has been on horizontal tax competition, as local governments typically rely on revenue sources which higher-level governments do not prioritise. Consequently, local governments often depend on intergovernmental transfers to finance their responsibilities, making the level and design of such transfers a key concern in fiscal federalism. Some scholars advocate for unconditional fiscal equalisation grants as essential for an efficient fiscal system (Boadway and Flatters, 1982), while others argue that sub-national governments should receive funds only from central government spillovers or surpluses (Oakland, 1994). Alternatively, conditional grants align with the principal-agent framework, ensuring

local fiscal effort, political accountability and compliance with national objectives (Ferris and Winkler, 1991).

Literature Review

This section examines the criteria for designing intergovernmental fiscal arrangements in Zimbabwe, highlighting the absence of a clear framework to guide fiscal equalisation. It explores key principles such as autonomy, revenue adequacy, equity, predictability, efficiency, simplicity, incentives and safeguarding the grantor's objectives. Additionally, it discusses the critical variables that should inform the equalisation model, including total allocation, poverty index, population size, local economic capacity and natural resource endowments.

Criteria for Design of Intergovernmental Fiscal Arrangements

This article is particular about the absence of criteria for designing intergovernmental fiscal arrangements in Zimbabwe. The central government seems to have disregarded and ignored the need to base its equalisation modelling framework on a distinctive criterion. The criterion is critical as it reduces central government bullying as subnational tiers have the independence to chart the development trajectory of their jurisdiction. According to Blöchliger and Charbit (2008), an equalisation criterion should include autonomy, revenue adequacy, equity, predictability, efficiency, simplicity, incentive and safeguarding of the grantor's objectives shown in Table 1.

Table 1: Key Criteria for designing intergovernmental fiscal arrangements (Author's Compilations)

Criteria/Variable	Definition	Zimbabwe's Context	Recommendations
Autonomy	Sub-national governments' independence and flexibility in decision-making	Local authorities lack budgetary approval powers and remain subordinate to central government	Grant more fiscal autonomy to provincial and local governments

Revenue Adequacy	Sufficient financial resources to fulfil responsibilities	Zimbabwe allocates only 5% of national revenue to subnational governments (GoZ, 2013), lower than international benchmarks	Increase allocation to 10-15% as in other countries like iKenya with at least15% (Onyango, 2018).
Equity	Fair distribution of resources based on fiscal capacity and needs	Disparities between regions in terms of wealth and poverty rates (e.g. Harare vs. Matabeleland)	Integrate poverty index and regional economic disparities into the fiscal formula
Predictability	The certainty of fiscal transfers for planning purposes	Frequent delays in fiscal transfers, affecting project implementation	Develop multi-year financial projections and increase transparency
Efficiency	The neutral impact of transfers on local resource allocation decisions	Funds primarily directed towards wages rather than developmental projects	Restructure transfer systems to allow greater flexibility in fund usage
Simplicity	Clarity and transparency in the allocation of funds	Complex allocation processes and lack of public transparency	Simplify the equalisation formula and enhance transparency
Incentives for Sound Fiscal Management	Encouraging responsible management of fiscal resources	Central government's allocations often fill budget deficits, discouraging fiscal discipline	Provide performance-based incentives for efficient financial management at local levels
Safeguarding Grantor's Objectives	Alignment of fiscal transfers with central government's developmental goals	Lack of monitoring mechanisms to ensure funds are used according to central government objectives	Implement stronger monitoring and accountability systems

FISCAL EQUALISATION VARIABLES

The calculation and disbursement of the conditional grants have remained a mirage to stakeholders, so it is the thrust of this article to articulate the importance of the variables that should underpin the equalisation model in Zimbabwe. This section will expound on the variables that underpin the equalisation framework, namely the total amount to be allocated as declared in the national budget, the poverty index, the population of the area, the size of the local economy and the estimated value of the natural resource endowments of the area.

Zimbabwe's government is now in the fourth year of allocating at least 5% of revenue collections as intergovernmental fiscal transfers to lower tiers of government as enshrined in the constitution. In 2022, intergovernmental fiscal transfers amounting to ZWL\$16.7 billion were disbursed as conditional grants towards acquiring road construction and firefighting equipment, refuse collection equipment and completion of ongoing infrastructure projects in sectors such as health, education, water and sanitation and roads (GoZ, 2023). In 2023, Zimbabwe presented a ZWL\$4,5 trillion budget and reserved ZWL\$195.5 billion for intergovernmental fiscal transfer, being 5% of the anticipated revenue resources towards lower tiers of government (*ibid.*).

The major cause of concern is the lack of commitment to the disbursement of these transfers and most of the time, government either delays or sometimes does not disburse the full amount, leading to other tiers of the government suffering from unfunded mandates. Central government should take hid of the objectives of vertical equalisation so that the 5% for every fiscal year is disbursed equally to lower levels of government to promote equitable development. Therefore, the total allocated as intergovernmental fiscal transfers should be known by all stakeholders, including residents, disaggregated per provincial or local authorities, so that they can know the amount to anticipate and hold provincial and local authorities accountable.

Sustainable Development Goal (SDG) 1 aims to end poverty in all its forms gobally. Zimbabwe has a population of 15.1 million inhabitants with a growth rate of 1.5%. More than half (52%) of the population is female and 61.4% live in rural areas (ZIMSTAT, 2022). The poverty datum lines vary by province as prices vary from place to place. Evidence has shown that poverty is now widespread in both rural and urban districts. Levels of inequality in the country varied across districts and wards. Poverty is found to be most prevalent in Matabeleland North (85,7%), while least prevalent in Harare (36,4%) and Bulawayo (37,2%), (*ibid.*).

Marondera District depicted one of the least poverty prevalence (43.4%), followed by Gweru with 45.5%. (*ibid.*). However, the districts with the highest poverty prevalence rates are Nkayi (95,6%), Gokwe South (90,9%) and Mudzi (90%). The number of extremely poor people hovers around 7.9 million, constituting about 72% of the total population (*ibid.*). Evidence depicts an increase in urban poverty where a household is unable to spend at least USD\$2.50 per day. In Zimbabwe, urban poverty is relatively high (although significantly lower than rural poverty), with 62.6% of the urban households classified as poor and 8.5% as very poor (*ibid.*). For Manjengwa *et. al.* (2016), poverty is widespread in both Zimbabwe's urban and rural areas, with urban areas fast becoming increasingly worse off.

Urban life is quite different from life in rural areas and the urban poor are faced with more challenges of survival than the rural poor. The central government needs to consider the occurrence, depth and nature of both urban and rural poverty when disbursing transfers. Poverty index, therefore, is a major variable that should inform the calculation of equalisation transfers in Zimbabwe. According to the 2022 Population and Housing Census, the population of Zimbabwe as of 20 April 2022 was 15 178 979, of which 7 289 558 (48%) were male and 7 889 421 (52%) were female, giving a sex ratio of 92 males for every 100 females (*ibid*.). Given the 2012 population size of 13 061

329, this gives an annual population growth rate of 1.5%. The population constituted 3 818 992 households, giving an average of four (4) persons per household. Given a land area of 390 757 square kilometres, the resultant population density stood at 39 persons per square kilometre. The population by province is clearly shown in Figure 1-

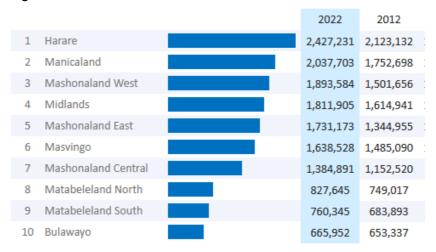


Figure 1: Population distribution by province (Census Report Zimbabwe, 2022)

An important parameter in the cost of services is a jurisdiction's size and density of population. Densely populated jurisdictions tend to benefit from economies of scale and agglomeration. Certain services (hospitals, motorways, specialised healthcare, etc.) can be supplied efficiently only above a minimum scale, while their provision in sparsely populated or remote areas tends to be relatively more expensive or insufficient. Geographical patterns in the population affect service costs (OECD, 2011). As for Zimbabwe, Harare remains the most populous province with 16% of the total population residing in the province, followed by Manicaland (13%) and Mashonaland West (12.5%), while the least populous provinces are Bulawayo (4.4 %),

Matabeleland South (5 %) and Matabeleland North (5.5%), (ZIMSTAT, 2022). Figure 2 shows the number of households and average size by province.

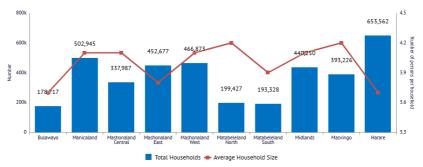


Figure 2: Household size by province (Census Report, 2022)

Evidence has shown that this important variable has not been taken into consideration in Zimbabwe in the calculation of devolution and equalisation transfers as less populous provinces have been credited with huge sums of equalisation transfer despite having low population densities. By contrast, in the developing world such as Zimbabwe, at least 60% of the population lives in predominately rural and dispersed regions, leading to marked cost differences between concentrated and dispersed areas and this has a bearing on the cost of public services.

According to the Constitution of Zimbabwe, provincial and metropolitan governments are responsible for economic development and the coordination and implementation of government programmes (GoZ, 2013). Economic disparities and variations in sub-national gross domestic product (GDP) per capita or household income, constitute the single biggest factor behind unequal access to public services across a country. While the GDP figures provide a rough impression of how economic activity is distributed and has evolved per province, the use of GDP to measure state, regional or local government

disparities can be misleading. For instance, GDP per capita values may be distorted when people live and work in different jurisdictions. The geography and size of the sub-national jurisdictions complicate the picture too, as countries with more and smaller subnational governments generally show wider disparities. Table 2 shows the per capita ratio per province in Zimbabwe. -

Table 2: Provincial GDP in Zimbabwe (Cabinet Briefing, 2020)

Province	GDP Ratio (USD\$/	Per Capita Nominal (US\$)
	Billions)	
Harare	2,26	3614
Bulawayo	1,96	3034
Masvingo	1.41	820
Midlands	1,94	1026
Manicaland	1,46	743
Mashonaland East	2,22	1408
Mashonaland West	2,14	1206
Mashonaland Central	1,08	784
Matabeleland South	940 million	1333
Matabeleland North	1,16	1186

The data shows that, predominantly, rural provinces have low percentage contributions to the national GDP. Provinces with more urban areas, namely Bulawayo, Mashonaland East, Mashonaland West, Midlands and Harare, have higher per capita GDP. Interestingly, Matabeleland South, which has a low GDP has a higher per capita GDP, suggesting there is higher factor productivity in the province. Equalisation grants should, therefore, factor in the GDPs of provinces in the calculation of the fiscal transfers.

Zimbabwe is divided into 10 provinces and two have a metropolitan status. These provinces are endowed differently with natural resources. The difference in the level of endowments is a major variable which the central government needs to consider when sharing national resources to avoid glaring disparities that bring conflict and contestation between and among regions. Zimbabwe

holds substantial endowments of close to 40 different minerals. The predominant minerals include platinum group metals (PGM), chrome, gold, coal and diamonds. The country boasts the second-largest platinum deposit and high-grade chromium ores in the world. Table 3 shows natural resources endowments per province in Zimbabwe -

Table 3: Zimbabwe provincial natural endowments (Primary data)

Province	Uniqueness
Bulawayo	Timber.
	Wildlife.
	Flat plains that support beef production.
Harare	Tourist destinations- Balancing Rocks in Epworth, Chaminuka
	Curves in Chitungwiza.
	Good climate and special minerals such as tantalum, kaolin,
	feldspar and citrine.
Manicaland	The only province with all five agroecological zones, supporting
	both intensive and extensive agricultural production.
	Minerals include diamonds and gold.
Mashonaland	Rich and diverse mineral resources (gold).
Central	Diverse wildlife.
Mashonaland	Favourable climate and rich soils, support intensive farming.
East	The largest lithium deposits in Africa and 6th in the world.
	Huge potential to trade in granite products.
Mashonaland	Natural tourist destinations- Chirorodziva Caves (Chinhoyi) and
West	the Mana pools.
	Cultural heritage sites - Rock paintings in Zvimba.
	Minerals- platinum, gold, copper, chrome, slates, zinc,
	dolomite, graphite, limestone and tourmaline.
	Diverse wildlife.
	Good climate and soils that are conducive for growing various
	types of crops.
Masvingo	Wildlife endowments.
	Mineral Exploration: Masvingo is host to the country's largest
	known kimberlite pipes (diamonds), world-class pegmatite
Matabeleland	(lithium) in Bikita and tantalite requiring exploration.
North	Endowed with vast coal, gold, tin, tungsten methane gas, timber and wildlife (Hwange National Park).
NOILII	Home to Victoria Falls - a prime natural tourist attraction.
Matabeleland	Precious minerals such as gold, diamonds and platinum.
South	Tourism- Matopos Hills.
Jouli	Livestock- vast open grazing land.
	Livestock- vast open grazing tand.

Each province seems to have quite a sizeable number of mineral endowments. Disparities are on the level of exploration of the mineral resources. Under-explored minerals have affected the revenue streams of several districts. Zimbabwe's equalisation framework leaves out substantial revenue sources. This non-inclusion of natural resource income is likely to have undesired equity effects.

FISCAL EQUALISATION TRANSFER OPTIONS

It is often argued that the role of redistributing incomes within a multilevel state should reside primarily with the central government, as is the case for Zimbabwe with a unitary system set-up. Zimbabwe should try horizontal equalisation transfer options that have been employed by countries such as South Africa, Uganda and Canada, to ease the central government's financial burden. In most countries, a combination of grant mechanisms is used, depending on the objectives of the central government. The main transfer mechanisms used to tackle the various goals of government, are grouped into conditional and unconditional transfers discussed below.

Conditional transfers consist of grants for specific purposes. In many countries, the central government imposes conditions on some transfers on the use of the funds, as a means of increasing central government influence over spending. At the extreme, the subnational government may simply be reduced to acting as an agent of the central government, due to the imposed conditions. The main justification for conditional grants over unconditional grants, therefore, must be that local decision-making fails to produce the socially optimal outcome, as in the case of inter-jurisdictional pullovers. The central government may wish to leave the primary administrative responsibility for certain functions at the regional or local level but seek to attain national minimum standards in these functions. From the above perspective, the extent of conditions imposed is likely to vary. Some conditions may be limited to such

matters as information supply, leaving the sub-national government with ample scope for innovation and experimentation.

FINDINGS

Fiscal federalism principles can be applied to the design and implementation of fiscal transfers to sub-national governments in Zimbabwe. The general principles of fiscal federalism can be utilised, namely the assignment of expenditure responsibilities, revenue sharing and intergovernmental fiscal transfers. Formulas can be designed based on factors such as population, poverty levels, natural resource endowments and the fiscal effort of sub-national governments. Zimbabwe needs to consider its unique context, challenges and institutional capacity when implementing fiscal federalism principles in its fiscal transfer system. This section will analyse the major findings through thematic and content analysis techniques.

REVENUE EQUALISATION

Zimbabwe faces significant fiscal challenges, including revenue disparities among its regions. Revenue equalisation aims to address these disparities by redistributing fiscal resources to sub-national governments to promote more equitable development across the country. Zimbabwe has implemented intergovernmental fiscal transfers to address revenue disparities and promote equalisation. The article appreciates that Zimbabwe's government, especially the Second Republic, has made efforts to enhance funding for provincial and local governments to support their service delivery responsibilities. These allocations of funds take into account factors like population size, poverty rates and the infrastructural gap. This formula disregards factors like natural resources endowments and the total budget allocation in a fiscal year, as outlined in the constitution.

Zimbabwe remains saddled with limited fiscal resources and budgetary constraints that have affected the government's ability to effectively implement revenue equalisation policies. As a solution, Zimbabwe's central government needs to consider infusing measurements of real or potential per capita revenues to determine equalising grants to subnational jurisdictions, for instance, a representative tax system (RTS) based on cross-jurisdictional average tax rates to determine its fiscal capacity as done in Canada, Australia and Germany (OECD, 2022). The purported tax will act as a system of vertical fiscal equalisation from the central government to provinces whose fiscal capacity falls below the average fiscal capacity of all provinces (Coppel, 2020). The Government of Zimbabwe should also consider entrenching a horizontal element of equalisation like Germany's system, that is, the transfer of revenues from wealthier to poorer jurisdictions within the same level of government (*ibid.*).

COST EQUALISATION

The article articulates the need for comprehensive cost equalisation systems. Zimbabwe needs to integrate both cost- and revenue-equalising components in its equalisation system. The system should consider factors covering all aspects of state expenditure and the underlying drivers of cost disparity in the equalisation formula. This allows the equalisation system to capture much of the variation in per capita funding requirements. In addition, it helps to enhance the policy neutrality of the equalisation system by employing cost variables that generally cannot be directly affected by policy choices.

The central government also needs to inculcate gap-filling strategies, but these require a thorough assessment of costs and revenues in public service delivery. These approaches assess each local authority's financial needs to gauge their sub-national government's fiscal capacity. This is very difficult in Zimbabwe, where statistics on economic performance are yet to be disaggregated into districts and

wards. For example, Korea's general grant to municipalities aims to fill the gap between standardised financial needs and standardised revenues (Hyun-A, 2009). Importantly, the system relies on standardised rather than actual values of revenue and cost to avoid perverse incentives.

TRANSPARENCY AND ACCOUNTABILITY IN THE ALLOCATION OF EQUALISATION TRANSFERS

Additionally, administrative capacity constraints and issues related to transparency and accountability have been identified as challenges in the equalisation process in Zimbabwe. The post-independence government has been saddled with perpetual disregard of good corporate governance and ethics in the administration and management of public affairs. The disregard of transparency and accountability ethos has, also not spared government agencies and parastatals. Reports by the Auditor General from 2013-2022 have recurrently unearthed both governance irregularities that derail government units from effectively and efficiently providing public service to citizens.

Consistency with objectives of transparency, predictability and local autonomy is very important in fiscal matters. Transparency and accountability in the allocation of equalisation transfers are crucial for ensuring fairness, equity and effective governance in Zimbabwe. Equalisation transfers are typically aimed at reducing regional disparities by providing additional financial resources to less economically developed regions or marginalised communities. Thus, considerations for promoting transparency and accountability in the allocation of equalisation transfers in Zimbabwe are of paramount importance to enhance national cohesion.

The Zimbabwean equalisation framework lacks established, clear and objective criteria and a transparent formula. Making the criteria and formula publicly available ensures transparency and allows

stakeholders to understand how allocations are determined. It is, therefore, imperative to institute an independent oversight and monitoring framework. Establishing an independent body or mechanism to oversee the allocation process can enhance transparency and accountability. An independent body, devoted to monitoring fiscal equalisation is an important institution (OECD, 2022). An independent fiscal institution (IFI) can review the allocation decisions, monitor the implementation and assess the impact of equalisation transfers. It can also provide a platform for complaints, appeals and the resolution of disputes.

PUBLIC PARTICIPATION AND CONSULTATION

A sustainable equalisation model should not be devoid of intensive public consultation and participation. According to Chambers (1994), community participation and involvement are the mainstay for the success of any government project. Policy-makers should understand that development is not what is done to the people but by the people themselves. Engaging the public and relevant stakeholders in the is important for transparency decision-making process accountability. Holding consultations, seeking input and involving local governments, community organisations and civil society in the allocation discussions, can help ensure that the needs and priorities of marginalised regions are taken into account. According to Chambers (ibid.), one of the "glasses is half full", suggesting that problems can be solved and everyone has the power to take action and to develop solutions. Thus, all communities regardless of their poverty levels, vulnerabilities and powerlessness, must be involved in all fiscal matters.

DISCUSSION

Revenue equalisation in Zimbabwe faces significant hurdles due to the central government's control over lucrative revenue sources, hindering the financial autonomy of sub-national governments. The study highlights that while the Constitution mandates equitable

allocation, the actual practice remains opaque, with the central government often delaying or disbursing only partial amounts of the allocated 5% of revenue collections. This aligns with Chakunda et al. (2021)'s observation that central governments in developing political transition, often devolve functions without the necessary financial resources. Disparities in natural resource endowments further exacerbate revenue imbalances, as some provinces possess greater potential for revenue generation than others. Neglecting to natural resource income into the incorporate equalisation framework, as noted in the study, creates undesired equity effects, potentially leading to conflict and contestation among regions. The existing system does not fully account for the varying economic activities across provinces, with predominantly rural provinces contributing less to the national GDP compared to urbanised ones. Equalisation grants, therefore, need to consider these GDP variations to address fiscal disparities effectively.

Cost equalisation in Zimbabwe is hampered by the failure to adequately consider population distribution and density when allocating resources. Densely populated provinces, such as Harare and Manicaland, may benefit from economies of scale, while sparsely populated provinces, like Matabeleland North and South, face higher costs in providing essential public services. The study indicates that the current equalisation transfers do not sufficiently account for these cost differences, potentially disadvantaging provinces with dispersed populations. This resonates with OECD (2011)'s point that geographical patterns in population affect service costs, with sparsely populated areas incurring higher expenses. Furthermore, the study stresses that poverty prevalence rates vary significantly across provinces, with Matabeleland North exhibiting the highest rate and Harare and Bulawayo the lowest. These variations in poverty levels necessitate a targeted approach to cost equalisation, ensuring that provinces with higher poverty rates receive adequate resources to address the specific needs of their populations.

Transparency and accountability in the allocation of equalisation transfers are crucial for fostering trust and ensuring the effective use of public funds in Zimbabwe. The study reveals that the calculation and disbursement of conditional grants have remained obscure to stakeholders, hindering the ability of citizens to hold provincial and local authorities accountable. This lack of transparency contradicts Blöchliger and Charbit (2008)'s assertion that an equalisation criterion should include predictability and simplicity. To address this challenge, the study recommends that the total amount allocated as intergovernmental fiscal transfers should be made disaggregated per provincial or local authority, enabling residents to monitor and evaluate the use of these funds. Furthermore, clear and objective criteria for allocating equalisation transfers are essential to prevent central government bullying and empower sub-national tiers to chart their development trajectory. This entails establishing a transparent framework that incorporates key variables such as the poverty index, population, local economy size and natural resource endowments.

Public participation and consultation are essential for ensuring that intergovernmental fiscal arrangements in Zimbabwe are responsive to the needs and priorities of local communities. The study implicitly points out a gap in public involvement, as the current system appears to be driven primarily by the central government, with limited input from sub-national tiers and citizens. A more inclusive approach would involve actively engaging local communities in the design and implementation of fiscal policies, ensuring that their voices are heard and their needs are addressed. This aligns with the broader principles of devolution that emphasises people-centred local development. By promoting public participation and consultation, the government can foster a sense of ownership and accountability, leading to more effective and sustainable development outcomes. This could involve establishing participatory budgeting processes at the local level, conducting public hearings on fiscal policies and creating platforms

for dialogue between government officials and community representatives.

CONCLUSION AND RECOMMENDATIONS

Fiscal equalisation in Zimbabwe has the potential to address the country's regional disparities and enhance economic development. Devolution, as enshrined in the Zimbabwean Constitution, aims to decentralise power and resources to local levels, allowing for greater autonomy and decision-making authority in the regions (GoZ, 2013). Fiscal equalisation, on the other hand, seeks to ensure a fair distribution of financial resources among the regions, mitigating disparities and promoting equitable development. Implementing devolution and fiscal equalisation effectively requires political will, institutional capacity-building and robust mechanisms for resource allocation and revenue sharing. It is essential to establish transparent and accountable systems that ensure funds are allocated based on the needs and priorities of each region, considering factors such as population size, poverty prevalence, natural resource base, economic potential, tax effort and development indicators.

Devolution can foster local ownership and participation, enabling communities to address their specific challenges and leverage their unique strengths. It can enhance service delivery, infrastructure development and job creation at the local level. This ultimately contributes towards inclusive and sustainable economic growth. Fiscal equalisation mechanisms play a crucial role in reducing regional disparities by redistributing resources from wealthier regions to poorer regions. This can help bridge the gap in access to quality education, healthcare services, road infrastructure and other essential services, thereby promoting social cohesion.

Policy reforms. The Zimbabwean government needs policy reforms to enhance revenue equalisation by improving the efficiency and effectiveness of fiscal transfers, streamline revenue-sharing formulas

and strengthen the institutional framework for equitable intergovernmental fiscal relations.

Public reporting and disclosure. Regularly publishing detailed information about the allocation process, criteria used and the amount allocated to each region or community, to promote transparency is highly recommended in Zimbabwe. This includes making financial reports, audit reports and evaluation reports publicly available and even online. Timely and accessible reporting helps ensure that the public and relevant stakeholders scrutinise the decision-making process and hold authorities accountable.

Anti-corruption measures. Implementing robust anti-corruption measures is essential for maintaining accountability in the allocation of equalisation transfers. This includes mechanisms for detecting and addressing corruption risks, such as strong financial controls, regular independent audits and promoting whistle-blowing. Zimbabwe's intergovernmental fiscal framework needs to be bolstered by investigating and addressing any allegations of corruption, promptly and transparently.

Evaluation and review. Regular evaluation and review of the allocation system can help identify strengths, weaknesses and areas for improvement. Conducting impact assessments, soliciting feedback from beneficiaries and incorporating lessons learned into future allocation processes contribute to sustainability, transparency, accountability and effective decision-making and implementation. Australia's equalisation framework is updated annually and reviewed every five years to ensure policy neutrality, practicality and contemporaneity (OECD, 2022).

Party politics and local development. Conditional grants, for instance, the devolution transfers in Zimbabwe, invite rent-seeking behaviour. There is evidence that in Zimbabwe, political pressure has

a strong influence on the equalisation formula. Simple and transparent formulas may minimise party politics on intergovernmental fiscal transfers. Simplification of formulas reduces manipulation (*ibid*.).

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