

Smuggling as Rational Adaptation: Rethinking Customs Enforcement and Informality in Zambia”: A Case Study for ZRA

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Abstract

Goods smuggling remains a major challenge in Zambia, reducing government revenue, distorting markets, and weakening regulatory systems. Despite efforts by the Zambia Revenue Authority (ZRA), smuggling persists due to policy gaps, socio-economic pressures, and weak enforcement. This study addresses limited integrated research by developing a conceptual model linking customs enforcement, socio-economic drivers, and tax policy structures to explain smuggling dynamics. A qualitative case study design was used, focusing on Chirundu border town. Data were collected through 20 in-depth interviews and four focus group discussions with customs officials, traders, and community members. Thematic analysis was applied to identify patterns in enforcement effectiveness, institutional weaknesses, and behavioural drivers. Findings show that smuggling is driven by interacting economic and institutional incentives rather than enforcement failure alone. High import duties, complex compliance procedures, and regulatory burdens encourage traders to bypass formal systems. These are reinforced by unemployment and reliance on informal trade. Weak enforcement capacity, resource constraints, and corruption further reduce the perceived risk of detection. The study contributes by proposing an integrated anti-smuggling model that views smuggling as a rational response to systemic conditions. It recommends policy reforms including risk-based monitoring, digital tracking systems, tax simplification, improved coordination, and support for formalizing informal trade.

Keywords: Goods Smuggling, Customs Enforcement, Tax policy, Informal trade, Zambia, Socio-Economic Drivers, Anti-smuggling Model

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1. Introduction

Smuggling remains a persistent challenge that undermines economic stability, public revenue, and regulatory effectiveness in Zambia. The illicit movement of goods across borders erodes the tax base, distorts fair competition, and weakens institutional capacity. According to the Zambia Revenue Authority, smuggling involves the illegal importation or exportation of goods to evade customs duties and regulatory controls (ZRA, 2020). Despite ongoing enforcement efforts, smugglers continue to exploit systemic weaknesses, including complex tax structures, porous borders, and limited enforcement capacity. Research shows that modern smuggling is increasingly sophisticated, involving practices such as under-declaration, falsification of documents, and bribery (Mwiinga, 2023; Getmanski et al., 2019). These dynamics highlight the need for a more integrated and strategic approach to mitigation. This study therefore seeks to examine existing frameworks and develop a comprehensive model that addresses the economic, institutional, and behavioral drivers of smuggling in Zambia (World Customs Organization, 2022).

1.2 Problem Statement

Goods smuggling in Zambia persists despite the existence of regulatory frameworks and continuous enforcement efforts by the Zambia Revenue Authority (ZRA), posing a significant threat to domestic revenue mobilization and economic development. Smuggling undermines the intended objectives of taxation by facilitating large-scale tax and duty evasion, thereby weakening the government's capacity to finance public services and infrastructure development.

As Figure 1 shows ZRA has implemented various enforcement strategies aimed at curbing smuggling, including mobile compliance enforcement activities based on risk-based random patrols and intelligence-led operations. In 2018, these operations resulted in 6,241 interceptions valued at K2,086.7 million, of which 1,928 interceptions valued at K197.1 million were recommended for further investigation (Zambia Revenue Authority, 2018). Following the establishment of the Inspectorate and Customs Enforcement Unit (ICE) in 2019, enforcement activities led to 4,008 interceptions valued at K1.4 billion, with 1,867 interceptions valued at K757.6 million recommended for investigation (Zambia Revenue Authority, 2019). In 2020, enforcement operations resulted in 3,398 interceptions valued at K1.6 billion, from which assessments worth K53.4 million were raised and K36.3 million collected, while 1,471 interceptions valued at K345.5 million were recommended for further investigation (Zambia Revenue Authority, 2020). Similarly, in 2021, enforcement activities resulted in 2,452 interceptions with corresponding assessments valued at K140.1 million (Zambia Revenue Authority, 2021).

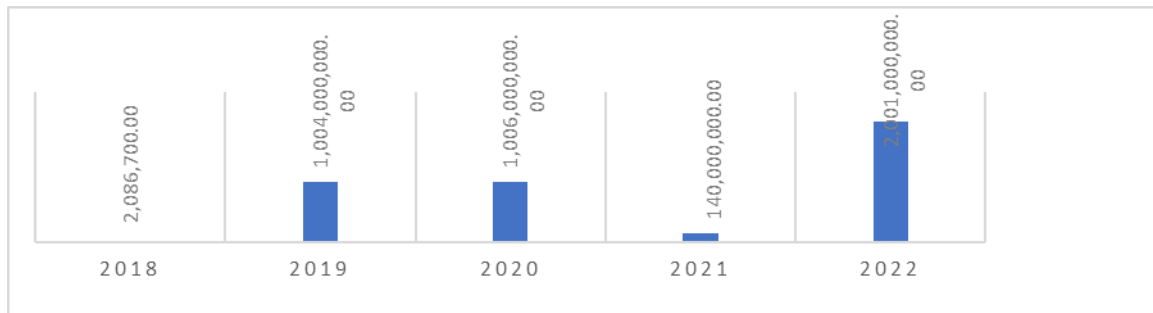


Figure 1: Smuggling Interceptions value

Although the statistics reflect continued enforcement efforts by the Zambia Revenue Authority (ZRA), they also highlight the persistent nature of goods smuggling in Zambia. The interception of high-value smuggled goods indicates that current measures are largely reactive and enforcement-focused, with insufficient attention to preventive and coordinated strategies. Existing approaches fail to fully address key underlying factors such as institutional weaknesses, poor information systems, limited inter-agency collaboration, and compliance behavior. Furthermore, there is a lack of empirical evidence on the effectiveness of integrated anti-smuggling models that combine prevention, detection, deterrence, and compliance measures within the Zambian context. This gap limits the development of sustainable solutions. Therefore, this study aims to adapt and contextualize an existing anti-smuggling model to enhance the effectiveness of customs and border management in Zambia.

1.3 Research Objectives

- To explore the strengths and weaknesses of existing customs strategies employed by the ZRA in combating goods smuggling.
- To examine the socio-economic factors that shape smuggling practices among individuals and businesses in Zambia, and to interpret these within broader theoretical and policy debates on illicit trade.
- To investigate how Zambia's tax policies shape smuggling behaviour, with particular attention to unintended incentives and deterrent effects.

2. Literature Review

This section focuses on the empirical research relevant to addressing the research objectives.

2.1 Overview of International Trends in Smuggling

Global Perspective

In the United States, smuggling has evolved into a sophisticated and highly organized activity, particularly in drug and migrant trafficking. Smuggling networks increasingly use advanced technologies such as drones, encrypted communication systems, and complex logistics to evade detection (U.S. Department of Homeland Security, 2023). In 2021 alone, approximately 1.7 million migrant encounters were recorded at the southern border, reflecting a surge in irregular migration facilitated by smugglers (U.S. Customs and Border Protection, 2022).

Socio-economic drivers such as poverty, violence, and political instability in origin countries make migrants vulnerable to exploitation. In response, U.S. policies have combined border security with developmental interventions, including humanitarian aid and regional cooperation. These trends demonstrate that effective anti-smuggling strategies must address both enforcement and root causes.

Europe faces significant smuggling challenges, particularly migrant smuggling across the Mediterranean. Europol estimates that migrant smuggling generates between €5 billion and €35 billion annually (Europol, 2021), highlighting its scale and

profitability. However, data limitations complicate accurate assessment and policymaking.

In 2022, over 1,500 migrants died crossing the Mediterranean (IOM, 2023), raising concerns about the effectiveness of enforcement-heavy strategies. While European countries have strengthened border controls, they also engage NGOs for humanitarian support and pursue external partnerships with origin countries. Critics argue that such strategies may shift risks to weaker states. Overall, the European experience reflects tensions between enforcement, human rights, and migration management, emphasizing the need for balanced approaches that address both security and socio-economic drivers.

In Asia, smuggling is closely linked to economic disparities and weak governance. Countries such as Thailand and Malaysia serve as transit hubs for migrants from poorer regions (UNODC, 2022). Smuggling often overlaps with trafficking, exposing migrants to exploitation, violence, and forced labor.

Regional cooperation frameworks, such as ASEAN initiatives, promote information sharing and joint enforcement. However, effectiveness is limited by capacity constraints and differing national priorities. The Asian context highlights that enforcement alone is insufficient without integrating socio-economic development and governance reforms.

How Africa Grapples with Smuggling

South Africa is both a destination and transit hub for smuggling, particularly human trafficking and drug trade. Victims are often lured by false employment promises and exploited (SAPS, 2023). Additionally, the country plays a key role in global drug trafficking networks, collaborating with international syndicates (UNODC, 2022).

Challenges such as porous borders and limited enforcement capacity enable smugglers to operate with relative ease, creating public health and security risks.

Nigeria is a major hub for drug and human smuggling. It serves as a transit point for cocaine trafficking from South America to Europe (NDLEA, 2023). Corruption within enforcement agencies undermines efforts to combat these networks.

Human smuggling is also widespread, driven by poverty and unemployment. Despite government interventions, socio-economic conditions continue to fuel smuggling activities (IOM, 2022), highlighting the need for structural reforms.

Kenya acts as a transit point for human trafficking and mineral smuggling. Smugglers exploit weak enforcement systems and collaborate with corrupt officials (ENACT, 2024). The illicit trade in minerals undermines legitimate businesses and reduces government revenue.

Addressing smuggling in Kenya requires strengthening governance, enhancing border security, and promoting legal trade systems.

ZRA's Perspective on Smuggling

In Zambia, smuggling includes illicit trade in goods, fuel, minerals, and human trafficking. These activities reduce government revenue and distort markets. The Zambia Revenue Authority (ZRA) estimates significant tax losses annually (ZRA, 2020), though actual figures may be higher due to underreporting (Mundia, 2022).

Unlike developed countries, smuggling in Zambia is often viewed as a livelihood strategy driven by poverty and unemployment, complicating enforcement efforts.

Customs Strategies and Enforcement Measures

ZRA employs enforcement strategies such as seizures, penalties, and license revocations (ZRA, 2020). However, these measures often target low-level actors rather than major networks (Hamachila & Nsama, 2024).

Key border posts like Kasumbalesa and Chirundu receive attention, while porous borders remain weakly monitored (Sichone, 2022). Corruption and limited capacity further reduce enforcement effectiveness (Transparency International Zambia, 2023).

Comparatively, countries like South Africa and Tanzania use advanced technologies such as electronic cargo tracking and joint patrols (SARS, 2022; WCO, 2022). Zambia's reliance on manual systems limits efficiency.

Human Smuggling and Trafficking

Zambia is both a transit and destination country for human smuggling. Legislative reforms such as the Anti-Human Trafficking Act (2022) have strengthened legal frameworks, but implementation remains weak (U.S. Department of State, 2023).

Challenges include limited victim protection, weak regional coordination, and inconsistent data systems (IOM, 2023). Smuggling networks often overlap with goods trafficking, highlighting systemic weaknesses.

Illegal Mining Activities

Illegal mining is widespread in Zambia, driven by poverty and weak regulation (Phiri & Mushingi, 2023). Minerals are smuggled across borders, resulting in revenue losses (Sakala, 2022).

While some participants are subsistence miners, others are part of organized criminal networks with political connections (Transparency International Zambia, 2023). Regional examples show that formalization strategies can improve compliance (Hilson & Maconachie, 2020).

Fuel and Consumer Goods Smuggling

Fuel and consumer goods smuggling is driven by price differences between countries. Smuggled goods undermine local industries and reduce tax revenue (Chanda & Mwansa, 2023).

Socio-economic factors such as unemployment push communities into smuggling as a survival strategy (Kalaba, 2022). Gender dynamics also play a role, with women traders facing exploitation (Chileshe, 2023).

Customs Strategies Employed by the ZRA

ZRA has adopted modernization strategies such as risk management systems and One Stop Border Posts (OSBPs). While these improve efficiency, corruption and weak implementation limit their impact (Cuvelier & Mumbunda, 2023).

Digital systems like ASYCUDA World have been introduced, but lack of integration and training reduces effectiveness (WCO, 2023). Compared to countries like Kenya and South

2.2 Socio-Economic and Institutional Drivers of Smuggling

Smuggling in Zambia is strongly influenced by socio-economic and institutional factors that create incentives for individuals to engage in illicit trade. High unemployment levels and low wages push many individuals toward smuggling as an alternative source of income (World Bank, 2023). At the same time, the expansion of the informal sector provides livelihoods for a large portion of the population but also facilitates smuggling activities due to its limited regulation (Mususa, 2020). Corruption and weak governance further exacerbate the problem by reducing enforcement effectiveness and normalizing illegal practices within border management systems (Shamanskiy, 2022). These challenges are reinforced by broader socio-economic conditions, where informality and lack of economic opportunities create an enabling environment for smuggling networks to thrive (ActionAid Zambia, 2020).

2.3 Policy, Taxation, and Enforcement Dynamics in Smuggling

Policy and institutional frameworks, particularly taxation and enforcement mechanisms, also play a critical role in shaping smuggling behavior. High tax rates and complex compliance systems discourage formal participation and encourage traders to evade regulations through smuggling (Resnick, 2021; Zhang, 2022). As a result, smuggling undermines legitimate businesses and significantly reduces government revenue (Jeffison & Mwale, 2020). Weak tax systems further fail to integrate informal economic activities into the formal sector, limiting the effectiveness of revenue collection (Dube & Casale, 2016). Additionally, gaps in customs enforcement allow smuggling activities to persist despite existing control measures (Zambia Statistics Agency, 2021). The interaction between economic pressures, ineffective tax policies, and weak enforcement creates a self-reinforcing cycle that sustains smuggling networks in Zambia.

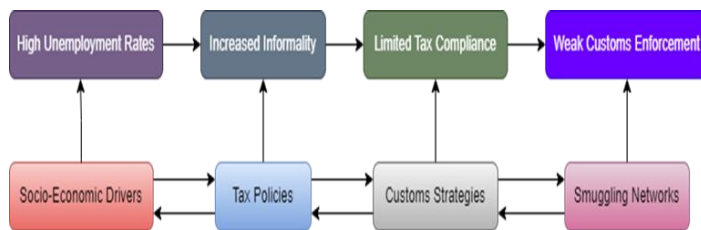


Figure 2: Interrelations Sustaining Smuggling Networks

2.4 Theoretical Framework

The theoretical framework of this study is grounded in the economics of crime model developed by Gary Becker, which explains smuggling as a rational decision where individuals weigh potential gains against the risk of detection and punishment. This perspective is reinforced by Michael Allingham and Agnar Sandmo (1972), who argue that compliance depends on the probability of audits and severity of penalties, while Nehemiah emphasizes the “tax evasion gamble.” Additionally, the crime-theoretic approach by Martin and Arvind Panagariya explains how smuggling can occur through both legal and illegal channels, influenced by price disparities and enforcement intensity. Their model shows that stronger enforcement raises smuggling costs and reduces illegal trade but may increase domestic prices, creating mixed welfare effects, thus highlighting the complex interaction between enforcement, market forces, and smuggling behavior.

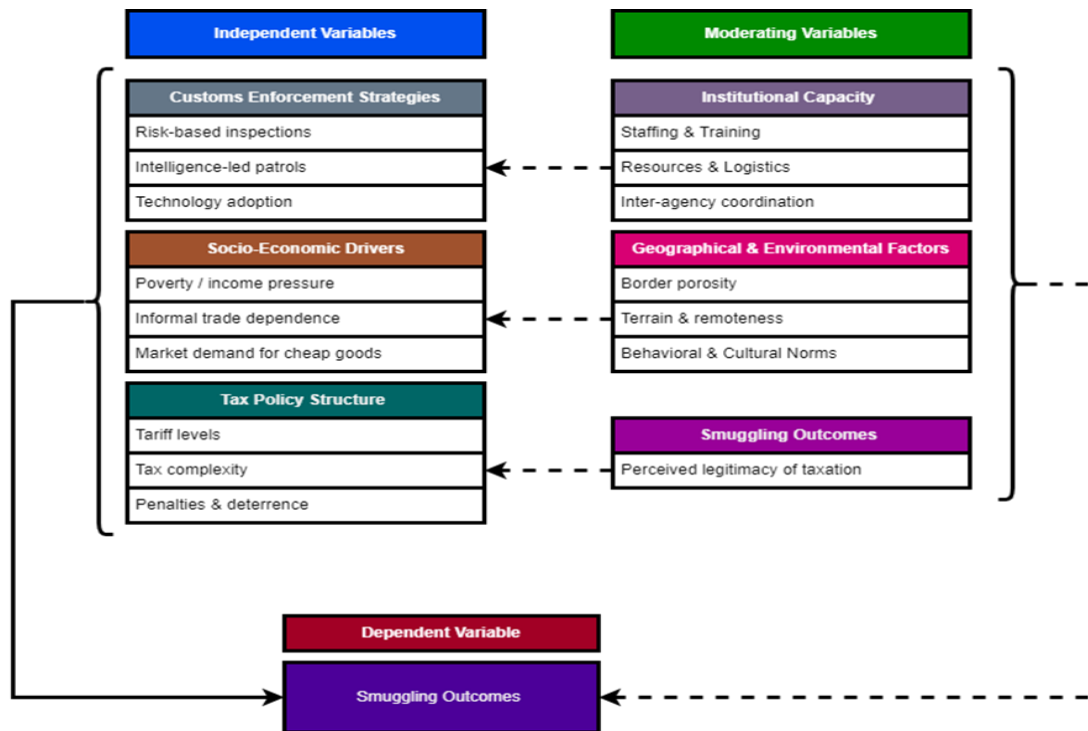


Figure 3: Conceptual Framework

3 Research Methodology

3.1 Research Design

This study employed a qualitative case study research methodology to examine the strengths and weaknesses of customs strategies used by the Zambia Revenue Authority (ZRA) in combating goods smuggling, as well as the socio-economic and policy factors influencing smuggling behaviour. Focusing on Chirundu border town, the study adopted an exploratory and interpretive research design to gain an in-depth, context-sensitive understanding of how smuggling is experienced, rationalized, and addressed in real-world settings. Qualitative methods were considered appropriate as they allow for the capture of participants' perceptions, experiences, and interpretations of complex issues such as enforcement practices, economic pressures, and tax policy impacts. Data was primarily collected through in-depth interviews and focus group discussions with a sample of size of 20 was sufficient involving key stakeholders, including customs officials, policy actors, local business owners, and informal traders. The data was analysed using thematic analysis to identify recurring patterns and relationships, enabling the development of a conceptual model for mitigating smuggling. This approach is supported by existing literature, which emphasizes that complex social phenomena like illicit trade are best understood through methods that capture context, subjectivity, and lived experiences.

3.2 Validity and Reliability Test

In qualitative research, concepts such as normality, reliability, and validity are assessed through strategies that ensure the trustworthiness and credibility of findings. Normality is evaluated by thematic consistency, member checking, peer debriefing, richness, saturation, and triangulation, ensuring coherence and depth in the data. Reliability in this study is enhanced through consistency across coders, audit trails, prolonged engagement, member checking, and triangulation, which ensure dependable and transparent findings. Validity on the other hand, is bolstered by credibility, triangulation, member checking, and expert reviews, which ensure the accuracy and depth of interpretations, while also aligning findings with participants' perspectives and theoretical frameworks.

4 Results and Discussion

This chapter presents the findings of the study on smuggling in Zambia, focusing on the effectiveness of customs strategies employed by the Zambia Revenue Authority (ZRA), socio-economic factors driving smuggling activities, and how tax policies influence smuggling behavior. The data collected through interviews, and focus group discussions provide a comprehensive insight into these critical aspects. By analyzing qualitative data, this study aims to shed light on the complexities surrounding smuggling in Zambia and offer actionable recommendations for policymakers seeking to enhance customs operations while promoting economic stability.

As indicated in the methodology chapter, the study employs a case study qualitative research design on Chirundu address the following research questions:

- What strengths and weaknesses are evident in the customs strategies currently employed by the Zambia Revenue Authority (ZRA) to combat goods smuggling?
- What socio-economic factors shape smuggling practices among individuals and businesses in Zambia?
- How do Zambia's tax policies influence smuggling behaviour, including the creation of unintended incentives and deterrent effects?

Table 1: Thematic Analysis

Theme	Code 1	Code 2	Code 3
Effectiveness of Customs Enforcement Practices	Border surveillance capacity	Cargo inspection procedures	Interception success rates
Institutional Constraints within ZRA	Inadequate staffing	Resource limitations	Operational bottlenecks
Corruption and Ethical Challenges	Bribery and collusion	Abuse of authority	Weak internal accountability
Economic Pressures and Livelihood Needs	Unemployment	Poverty-driven trading	Income diversification
Business Cost Structures and Profit Motives	High operating costs	Profit maximization	Market competition
Social Norms and Informal Trade Culture	Normalisation of smuggling	Community acceptance	Peer influence
Tax Policy Burden and Compliance Costs	High import duties	Complex tax procedures	Compliance expenses
Policy-Induced Incentives and Deterrents	Tax loopholes	Weak penalty enforcement	Perceived risk of punishment

This chapter interprets the study's findings by linking them to the research objectives, theoretical frameworks, and existing literature. It critically examines how the results align with or differ from prior studies, particularly drawing on the Economics of Crime model and the Crime-Theoretic approach. The discussion highlights key insights into customs enforcement, socio-economic drivers, and policy influences on smuggling in Zambia, while identifying practical implications for improving anti-smuggling strategies.

4.1 The Link between Enforcement Practices and Smuggling Dynamics

The findings reveal that smuggling persists largely due to uneven enforcement across Zambia's borders. Weak surveillance in less monitored areas creates opportunities for smugglers to bypass controls, supporting the Economics of Crime model, which suggests that low detection probability encourages illegal activity (Becker, 1968). Inconsistent cargo inspections further weaken enforcement effectiveness, as irregular checks reduce both the real and perceived risks of smuggling (Allingham & Sandmo, 1972). Participants emphasized that predictable enforcement gaps are actively exploited by smuggling networks. Additionally, interception rates influence behaviour: frequent seizures deter smuggling, while low enforcement visibility encourages it. These findings confirm that coordinated improvements in border surveillance, inspection systems, and enforcement consistency are critical to enhancing deterrence.

4.2 Institutional Limitations and Enforcement Effectiveness

Institutional weaknesses significantly undermine anti-smuggling efforts. Limited staffing, inadequate resources, and poor infrastructure reduce enforcement capacity, particularly along Zambia's extensive borders (Munyenyembe, 2021). Shortages of equipment such as scanners and vehicles limit effective monitoring, while reliance on manual inspections creates loopholes. From a theoretical perspective, these constraints reduce the cost of engaging in smuggling by lowering detection risks. Operational inefficiencies, including bureaucratic delays and weak inter-agency coordination, further weaken enforcement outcomes (ENACT, 2023). These findings highlight that strengthening institutional capacity, improving resource allocation, and enhancing coordination are essential for effective smuggling control.

4.3 Livelihood Pressures and the Economic Logic of Smuggling

The study shows that smuggling is often driven by socio-economic necessity rather than purely criminal intent. High unemployment, low incomes, and limited economic opportunities push individuals into smuggling as a survival strategy. This aligns with the Economics of Crime model, where individuals make rational decisions based on costs and benefits (Becker, 1968). Many participants reported engaging in both legal and illegal trade as a means of income diversification, reflecting the integration of smuggling into everyday livelihood strategies. High costs of formal trade, including taxes and compliance requirements, further encourage this behaviour. These findings suggest that enforcement alone is insufficient without addressing underlying economic vulnerabilities.

4.4 Commercial Incentives and the Economics of Smuggling

Smuggling is also driven by business-related incentives, particularly profit maximization and cost reduction. High operational costs, including taxes and compliance fees, encourage businesses to bypass formal systems to remain competitive (ENACT, 2023). The coexistence of legal and illegal trade reflects strategic decision-making aimed at maximizing returns. Market competition further reinforces this behaviour, as compliant businesses struggle to compete with those selling cheaper smuggled goods. These findings support the Crime-Theoretic approach, which highlights how price disparities and enforcement gaps sustain illegal trade. Smuggling, therefore, is not only a survival mechanism but

also a calculated business strategy influenced by market conditions.

4.5 Social Influences and the Normalisation of Smuggling

Social factors play a critical role in sustaining smuggling activities. In many communities, smuggling is normalized and socially accepted, reducing moral stigma and weakening informal controls. Community members often benefit from cheaper goods, creating local support systems that protect smugglers (ENACT, 2023). Peer influence and social networks further encourage participation, as individuals learn and adopt smuggling practices from others. These findings indicate that smuggling is both an economic and social phenomenon, where behaviour is shaped not only by rational calculations but also by social acceptance and cultural norms.

4.6 Fiscal and Administrative Barriers to Legal Trade

Tax policies and regulatory systems significantly influence smuggling behaviour. High import duties and complex procedures increase the cost of legal trade, making smuggling a more attractive option (World Bank, 2022). Compliance costs, including fees and delays, further discourage formal participation. From a theoretical perspective, these factors increase the “cost of legality,” shifting the cost-benefit balance toward illegal trade. Participants noted that formal systems are often perceived as inefficient and burdensome, reinforcing reliance on informal channels. These findings suggest that simplifying tax systems and reducing compliance costs are essential for improving legal trade participation.

4.7 Policy Structure and Deterrence Dynamics in Smuggling Control

Weak policy design and inconsistent enforcement reduce the effectiveness of deterrence strategies. Regulatory loopholes and unclear policies allow smugglers to exploit gaps in the system (ENACT, 2023). Although penalties exist, their inconsistent application reduces their deterrent effect, as predicted by the Economics of Crime model. Perceptions of low enforcement further encourage smuggling, particularly when prosecutions and seizures are infrequent or poorly communicated. These findings emphasize that effective smuggling control requires not only stronger enforcement but also clearer policies, consistent application of sanctions, and improved communication of enforcement outcomes.

The discussion highlights that smuggling in Zambia is driven by a complex interaction of enforcement weaknesses, institutional constraints, socio-economic pressures, business incentives, and policy gaps. Weak enforcement reduces detection risks, while economic hardships and livelihood need push individuals toward smuggling. High operational costs and market competition make smuggling a rational business strategy, while social acceptance normalizes the practice. Additionally, complex tax systems and weak policy structures further incentivize illegal trade. Overall, the findings demonstrate that addressing smuggling requires a comprehensive approach that integrates enforcement, economic reforms, institutional strengthening, and social interventions.

5 Conclusions and Recommendations

5.1 Conclusion

This study set out to investigate the dynamics of goods smuggling in Zambia through three interrelated objectives, all of which were successfully addressed. The first objective, examining the strengths and weaknesses of existing customs strategies employed by the Zambia Revenue Authority (ZRA), revealed that while the Authority has implemented mechanisms such as risk-based enforcement, cargo inspections, and penalties for offenders, their effectiveness is constrained by uneven border surveillance, limited resources, operational bottlenecks, and ethical challenges such as bribery and collusion. These findings demonstrate that technical and procedural measures alone are insufficient without addressing deeper institutional and governance weaknesses.

The second objective, exploring the socio-economic factors that shape smuggling practices, highlighted how economic pressures, including high unemployment, poverty-driven trading, and the need for income diversification, drive individuals and small businesses toward illicit trade. Business cost structures, profit motives, social norms, and informal trade culture further reinforce smuggling as both a survival strategy and a rational economic choice. These insights situate smuggling within broader theoretical frameworks, such as the economics of crime model and the crime-theoretic approach, showing that behaviour is shaped not only by enforcement risks but also by social and economic realities.

The third objective, investigating how Zambia’s tax policies influence smuggling behaviour, demonstrated that high import duties, complex compliance procedures, and weak enforcement mechanisms unintentionally incentivize evasion. Tax loopholes, inconsistent penalties, and perceptions of low risk reduce the deterrent effect of the regulatory framework, illustrating how policy design and implementation can directly affect smuggling patterns. These findings underscore the critical need for policy reforms that balance revenue generation with fairness, clarity, and enforceability to strengthen voluntary compliance.

5.2 Recommendations

- Enhance the capacity of the Zambia Revenue Authority (ZRA) by providing adequate resources, training, and personnel to improve customs enforcement.
- Strengthen anti-corruption measures within customs operations by improving both working and remuneration

conditions, and stiff laws for would-be perpetrators to eliminate bribery and ensure transparent enforcement of trade regulations.

- Launch nationwide education campaigns to inform businesses and the general public about customs regulations and the negative consequences of smuggling.
- Establish support centers in all border towns for small businesses and informal traders, offering training on legal trade practices and financial management.
- Introduce a tiered tax system, where essential goods have lower tariffs while luxury items carry higher tax burdens.
- Based on the findings, we therefore recommend adapting the Border robot to mitigate smuggling and ensure that a non-partial system governs the operations unlike having an individual in full control of the vice.

Declaration of Competing Interests

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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