

The Impact of Street Vending on the Urban Economy in Kaoma District, Zambia: Digital Formalisation, AI Market Systems and Pathways to Inclusive Economic Development

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Abstract —Street vending is a ubiquitous feature of urban economies across sub-Saharan Africa, simultaneously providing livelihoods for millions of informal workers and generating complex spatial, economic, and governance challenges for municipal authorities. In Kaoma District, Zambia, street vending constitutes a significant component of the urban informal economy, contributing to household income generation and local commodity distribution while creating tensions around urban space management, public health, and local authority revenue collection. This article examines the impact of street vending on the local economy in Kaoma District, contextualising findings within global scholarship on informal economy dynamics, digital formalisation strategies, AI-powered market systems, and inclusive urban economic development. Drawing on a descriptive survey of street vendors, local authority officials, and formal business operators, the study documents both positive economic contributions of street vending including employment generation, income distribution, and affordable goods access and negative impacts including urban space conflicts, public health risks, and taxation revenue losses. The article argues that digital vendor registration systems, AI-powered market management platforms, and mobile fintech solutions offer pathways for progressive street vendor formalisation that preserves livelihood benefits while addressing governance and health challenges. Policy recommendations are presented.

Keywords — *Street Vending; Informal Economy; Urban Economy; Kaoma District; Zambia, Digital Formalisation; AI Market Systems; Inclusive Development.*

1. Introduction

The informal economy encompassing unregistered, unregulated economic activities operating outside formal institutional frameworks constitutes a dominant feature of most sub-Saharan African urban economies, providing livelihoods for the majority of the urban workforce in the absence of sufficient formal employment (Vettriselvan, 2025; Kariveliparambil et al., 2026b). Street vending the retailing of goods and services from public spaces without formal premises is one of the most visible manifestations of the urban informal economy, generating complex economic, social, spatial, and governance dynamics that municipal authorities worldwide struggle to manage constructively (Vettriselvan et al., 2025c; Mohanbabu & Vettriselvan, 2025a). In Kaoma District, Zambia, street vending has expanded significantly in recent years as formal employment opportunities have remained scarce and rural-urban migration has increased competition for limited formal sector positions (Vettriselvan & Anto, 2018; Ashifa, 2021b).

The global digital transformation wave encompassing mobile money, digital market platforms, AI-powered vendor management systems, and blockchain-enabled supply chain tools offers transformative possibilities for addressing the governance challenges of street vending

while preserving and enhancing its livelihood benefits for participating vendors and their families (Venice et al., 2025a; Swadhi et al., 2025a). This article examines the economic impacts of street vending in Kaoma District and identifies evidence-based digital pathways for constructive vendor formalisation.

2. Literature Review

2.1 Street Vending and Urban Economic Contribution

Street vending makes substantial positive contributions to urban economies through multiple channels (Vettriselvan, 2025; Kariveliparambil et al., 2026a). As an employment generator, street vending absorbs workers who cannot access formal sector employment providing income and economic agency to women, youth, migrants, and persons with limited formal education who would otherwise face destitution or extreme poverty (Ashifa et al., 2019;

Vettriselvan & Anto, 2018; Meena et al., 2025). As a commodity distribution system, street vending makes essential goods food, clothing, household products, and personal services available at affordable prices and convenient locations for low-income urban consumers who cannot access formal retail outlets (Venice et al., 2025a; Vettriselvan et al., 2025c). The income multiplier effects of

street vending extend beyond vendors themselves to supply chain participants including producers, wholesalers, transporters, and service providers creating economic linkages that contribute to local economic circulation and resilience (Mohanbabu & Vettriselvan, 2025a; Swadhi et al., 2025b). Mobile money platforms are progressively enabling street vendors to participate in digital payment systems, reducing transaction risks from cash handling while creating digital financial footprints that facilitate access to credit and formal banking services (Venice et al., 2025b; Akila et al., 2025).

2.2 Negative Impacts and Governance Challenges

Street vending generates significant negative externalities including congestion of public spaces, competition with formal business taxpayers, public health risks from unregulated food preparation and waste disposal, and loss of local authority revenue through tax avoidance (Vettriselvan et al., 2025b; Shanthi et al., 2025). Urban space conflicts between street vendors, pedestrians, formal businesses, and municipal authorities are a chronic feature of vendor-intensive urban areas, frequently generating confrontation, harassment of vendors, and loss of vendor assets through enforcement actions (Kariveliparambil et al., 2026b; Vettriselvan & Rajan FSA, 2019).

Public health risks from informal food vending including inadequate hygiene practices, contaminated water sources, and absence of food safety inspection create potential health burden costs that may offset some economic benefits of vendor food distribution systems (Ashifa, 2020a; Ashifa, 2020b).

2.3 Digital Formalisation and AI Market Systems

Digital formalisation strategies using mobile technology, AI platforms, and blockchain systems to progressively integrate informal vendors into formal economic governance systems without eliminating their livelihood flexibility represent the most promising contemporary approach to constructively managing urban street vending (Venice et al., 2025c; Rajeswari et al., 2026). Digital vendor registration systems that enable simple, affordable, and mobile-accessible registration provide vendors with legal status and protection while generating municipal revenue and data for urban planning (Venice et al., 2025d; Vettriselvan et al., 2025d).

AI-powered vending zone management systems that optimise the spatial allocation of vendor pitches, manage congestion, and facilitate vendor-municipal communication reduce enforcement conflicts while improving urban spatial functionality (Venice et al., 2025a; Devi et al., 2025). Blockchain-enabled vendor identity and transaction systems create portable, tamper-proof records of vendor

market participation, tax compliance, and financial transactions building the formal economic track records that progressive formalisation requires (Rajeswari et al., 2026; Venice et al., 2025e). Mobile health and food safety training platforms that deliver accessible, engaging food safety education to informal food vendors reduce public health risks while building vendor professional capacity in ways that do not require costly, infrequent inspection-based approaches (Vasanthi et al., 2025; Shanthi et al., 2025).

2.4 Gender, Vulnerability, and Inclusive Formalisation

Women constitute the majority of street vendors in most sub-Saharan African cities and face compounded vulnerability including harassment from authorities and male vendors, domestic burdens that constrain trading hours and mobility, and exclusion from vendor association leadership (Ashifa et al., 2019; Vettriselvan & Anto, 2018; Meena et al., 2025). Gender-responsive formalisation strategies that specifically address women vendors' safety, mobility, childcare, and financial inclusion needs are essential for ensuring that digital formalisation initiatives do not inadvertently reproduce or amplify existing gender inequalities in informal economy participation (Vijayalakshmi et al., 2025b; Kariveliparambil et al., 2026a).

3. Methodology

This study employed a descriptive survey design to examine the impact of street vending on the urban economy in Kaoma District, Zambia. A mixed-methods approach combined structured questionnaire surveys of 60 street vendors, 20 formal business operators, and 10 local authority officials, with semi-structured interviews with 8 vendor association leaders and municipal planning officers (Kombo & Tromp, 2014; Orodho & Kombo, 2012). Spatial mapping of vendor activity zones was conducted to document the geographic distribution and density of street vending in the study area. Quantitative data were analysed through descriptive statistics and comparative analysis across vendor categories; qualitative data through thematic analysis.

4. Findings and Analysis

4.1 Vendor Profile and Economic Contribution

The survey revealed that street vending provided primary income for 82% of respondent vendors, with 72% female participants. Mean vendor daily income was ZMW 85–120, representing a meaningful contribution to household economies characterised by limited formal income alternatives. Vendor economic linkages included regular purchases from local market wholesalers (78%), small-scale farmers (45%), and manufactured goods

distributors (35%), indicating significant supply chain integration with broader local economic systems (Vettriselvan, 2025; Kariveliparambil et al., 2026a).

4.2 Spatial and Governance Impacts

Local authority respondents reported that street vending occupied approximately 35% of designated pedestrian spaces in Kaoma town centre, creating significant pedestrian congestion and accessibility challenges for persons with disabilities and elderly community members. Formal business operators reported revenue impacts from vendor competition estimated at 15–25% of sales for comparable product categories, with pharmacy operators reporting the most significant vendor competition impact (Vettriselvan et al., 2025b; Shanthi et al., 2025). Municipal revenue from vendor licence fees was less than 20% of estimated potential, with the majority of vendors operating without valid licences.

4.3 Health and Environmental Impacts

Public health inspection data indicated that 65% of food vending operations observed failed basic food safety standards primarily regarding water source hygiene, food storage temperatures, and personal hygiene practices. Vendor waste disposal was unregulated, with 70% of surveyed vendors disposing of trading waste in public spaces or adjacent drainage systems (Ashifa, 2020a; Ashifa, 2020b). Mobile food safety training provision was identified as a higher-impact intervention than inspection-and-fine approaches by both health officials and vendor association leaders.

4.4 Vendor Perspectives on Formalisation

Vendor attitudes toward formalisation were cautiously positive, with 65% expressing willingness to register formally if the registration process were simple, affordable, and delivered tangible benefits including pitch security, access to credit, and protection from arbitrary enforcement (Venice et al., 2025c; Vettriselvan et al., 2025d). Women vendors expressed particular interest in vendor association membership as a source of collective protection and peer support demonstrating the social capital dimension of vendor organisation that digital platforms can amplify (Kariveliparambil et al., 2026a; Vijayalakshmi et al., 2025b).

5. Discussion

The findings from Kaoma District present street vending as a genuinely ambivalent economic phenomenon simultaneously an essential livelihood system for vulnerable urban residents and a governance, public health, and spatial management challenge for local authorities.

Effective policy responses must navigate this ambivalence constructively, preserving and enhancing vending livelihood benefits while progressively addressing the governance and health challenges through collaborative rather than punitive approaches (Vettriselvan, 2025; Kariveliparambil et al., 2026b).

Digital formalisation strategies that make registration simple, affordable, and beneficial for vendors represent the most promising pathway for expanding the formal economic participation of street vendors while generating the municipal revenue, spatial management data, and public health compliance needed for effective urban governance (Venice et al., 2025c; Rajeswari et al., 2026). AI-powered vending zone management systems, mobile food safety training, and blockchain vendor identity platforms can collectively transform the street vending governance landscape from adversarial enforcement to collaborative economic inclusion (Venice et al., 2025a; Akila et al., 2025).

6. Conclusion and Recommendations

This article has examined the impact of street vending on the urban economy in Kaoma District, connecting local evidence with global scholarship on digital formalisation and AI market systems. Findings confirm both significant economic contributions and governance challenges that require collaborative, technology-enabled policy responses. Recommendations: (1) establish simple, mobile-accessible digital vendor registration systems with genuine livelihood benefits (Venice et al., 2025c; Vettriselvan et al., 2025d); (2) deploy AI-powered vending zone management reducing spatial conflicts (Venice et al., 2025a; Devi et al., 2025); (3) implement mobile food safety training for all food vendors (Vasanthi et al., 2025; Shanthi et al., 2025); (4) develop gender-responsive vendor support programmes addressing women vendors' specific needs (Vijayalakshmi et al., 2025b; Meena et al., 2025); and (5) establish vendor microfinance access through mobile fintech linked to registration status (Venice et al., 2025b; Akila et al., 2025).

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