



Street Markets at the Crossroads of Consumption and Climate Change: A Comparative Study of Informal Urban Economies in Brazil and Africa

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Abstract

This study examines the intersection of street markets, consumption practices, and climate change within informal urban economies in Brazil and African cities. Street markets play a crucial role in food provisioning, income generation, and social interaction in urban contexts, particularly for low- and middle-income households. However, they are increasingly vulnerable to climate change impacts, such as rising temperatures, flooding, and extreme weather events, which disrupt market operations, food supply chains, and consumption patterns. This comparative qualitative study explores how climate stress reshapes informal market dynamics, focusing on vendor adaptation strategies, consumer behavior, and the role of informal governance in mitigating climate-related disruptions. By analyzing the lived experiences of street vendors and consumers across selected cities in Brazil and Africa, the study reveals shared vulnerabilities and context-specific adaptation strategies. The findings highlight that street markets are not passive victims of climate stress but active sites of resilience, where vendors and consumers employ everyday practices and social networks to adapt. This research contributes to the broader understanding of urban resilience and climate adaptation in informal economies, offering insights for policymakers to support climate-sensitive, inclusive interventions in informal urban spaces.

Keywords: Street Markets, Informal Economy, Climate Change Adaptation, Urban Vulnerability, Consumption Practices.

Introduction

Street markets are vital to urban life across the Global South, particularly in Brazil and Africa, where they play a key role in food provisioning, price formation, and access to goods for low- and middle-income households (Chen, 2012; Skinner, 2008). Despite their economic and social importance, these markets operate under precarious conditions marked by

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informality, limited infrastructure, and regulatory ambiguity (Blennerhassett et al., 2022; Mejía et al., 2023; Nogueira et al., 2018).

Urban areas in both regions are increasingly vulnerable to climate change, including rising temperatures, heatwaves, flooding, and extreme weather events (Lee et al., 2026; Miner, 2025). These stresses disrupt market operations by affecting supply chains, increasing food spoilage, restricting mobility, and altering consumer behavior. Vendors and consumers must adapt to these environmental pressures, which exacerbate existing vulnerabilities related to informality and urban inequality (Dodman et al., 2012).

The growth of informal street markets has been driven by rural–urban migration, inadequate formal retail infrastructure, and uneven economic development (Liu et al., 2024; Oliveira et al., 2021). Informality has become a response to exclusion from formal labor markets and regulations, with these markets evolving into stable systems governed by informal rules and social networks (Portes & Haller, 2005).

In recent decades, urban governance reforms, modernization efforts, and spatial changes have increased pressure on informal vendors through evictions, relocation, and selective regulation (Reyhani et al., 2024; Ye, 2022). Despite this, street markets remain crucial for livelihood generation and social interaction, particularly for low-income households (Bromley, 2000). However, these markets face challenges, including unreliable access to basic services like electricity, water, and storage (Brown, Lyons, & Dankoco, 2010).

Climate change further complicates this situation, with more frequent heatwaves, flooding, and extreme weather disproportionately affecting informal markets (Hannah et al., 2025; Yurchenko, 2020). Due to their reliance on perishable goods and open-air conditions, street markets are particularly vulnerable, amplifying risks such as income instability, food spoilage, and limited access to goods (Hardoy & Pandiella, 2009).

The effects of climate change on street markets vary across regions, influenced by differences in urban infrastructure, governance, and social organization (Brancoli et al., 2022; Vecchio et al., 2023). This study argues that street markets should be seen as dynamic economic systems where consumption practices and climate change intersect (Aleksandrova-Zlatanska & Kalcheva, 2019; McNelly & Franz, 2024). Climate vulnerability is not just exposure to environmental hazards but a process mediated by market organization, consumption routines, and informal governance. Street markets are sites of adaptation, where vendors employ strategies like adjusting product mixes, modifying working hours, or relying on social networks to cope with uncertainty (CANTÜRK, 2022; Horne, 2013).

Using a comparative qualitative approach, this study examines informal street markets in Brazil and Africa, exploring how climate stress interacts with consumption practices and informal economic structures. The study highlights shared vulnerabilities and region-specific adaptations, contributing to broader discussions on urban informality, climate adaptation, and sustainable consumption.

Literature Review

Scholarly engagement with street markets spans multiple areas, including informal economies, urban consumption, and climate change adaptation (Orozco-Messana et al., 2022; Stecula & Merkley, 2019). While these fields have developed largely in parallel, their intersection remains underexplored, particularly in comparative studies between regions in the Global South (Roy, 2005).

Research on informal economies emphasizes the role of street markets as vital sources of employment, income generation, and social organization in urban settings. Early studies framed informality as a temporary or marginal phenomenon linked to underdevelopment and regulatory failure (De Soto, 1989). More recent scholarship, however, views informal markets as stable, adaptive systems governed by social norms and informal institutions (Meagher, 2010). These markets are seen as embedded spaces where livelihoods, social ties, and urban survival strategies converge (Cross, 2000). However, much of the literature still focuses on labor conditions, regulation, and poverty alleviation, with environmental stressors often treated as external shocks rather than structural forces shaping everyday market operations (Andrae et al., 2010).

Studies on urban consumption highlight the role of informal markets in ensuring food access, affordability, and dietary diversity, particularly where formal retail options are limited (Battersby & Crush, 2014). Street markets allow for flexible pricing and small-quantity sales, making them especially important for low-income consumers (Skinner & Haysom, 2016). However, these studies tend to focus on economic access and cultural practices, while environmental factors such as heat, flooding, and climate variability on market operations and consumption behavior remain insufficiently explored (Clapp & Cohen, 2009).

The literature on climate change and urban resilience has expanded, documenting cities' growing exposure to extreme weather events and environmental stress (Mkhize & Cele, 2025; Thorn et al., 2025). Much of this research focuses on formal infrastructure, planned adaptation, and urban governance (Bulkeley et al., 2014). Informal sectors are often portrayed as vulnerable but marginal to the main discussions. When informal sectors are addressed, studies tend to emphasize exposure and sensitivity rather than agency, rarely exploring how adaptation occurs through everyday practices, social networks, and informal governance mechanisms, particularly in market settings (Adger et al., 2009).

Comparative Perspectives and Regional Focus

Comparative research on street markets and climate change across regions remains limited. Studies typically focus on single cities or national contexts, which restricts broader comparisons. While there is substantial research on street markets in Brazil and Africa, these studies are rarely placed in comparative frameworks. These limits understanding of how differences in infrastructure, governance, and socio-economic conditions influence market responses to climate stress in different regions of the Global South (Watson, 2009).

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Synthesis and Limitations

The existing literature offers valuable insights into informality, consumption, and urban climate vulnerability, but it remains fragmented. Informal economy studies often overlook climate change, consumption studies rarely integrate environmental risks, and climate adaptation research often marginalizes informal markets. This fragmentation highlights the need for a unified approach that treats street markets as crucial sites where consumption practices and climate change intersect.

Research Gap

Despite growing research in informal economies, urban consumption, and climate change, several gaps persist. First, while street markets are crucial for urban livelihoods and food systems, they are rarely examined as central sites where climate change reshapes economic and consumption practices. Most studies either address informality without considering environmental stress or climate impacts without focusing on the realities of informal market actors.

Second, climate change is often treated as an episodic shock rather than an ongoing structural condition. This overlooks the cumulative effects of heat, flooding, and uncertainty on market organization, vendor strategies, and consumer behavior, with little understanding of how informal markets adapt incrementally through routine practices.

Third, comparative research between regions of the Global South is underdeveloped. While there is substantial empirical work on street markets in Brazil and Africa, these studies often lack a shared analytical framework, limiting insights into common patterns of vulnerability and region-specific adaptations.

Lastly, climate adaptation research typically prioritizes formal policy responses, marginalizing bottom-up forms of adaptation. As a result, the adaptive capacity of informal market practices, such as flexible sourcing and social networks, is often overlooked.

These gaps point to the need for a comparative study that conceptualizes street markets as dynamic interfaces between consumption and climate change, offering insights into how everyday practices contribute to resilience in Brazil and Africa.

Problem Statement

Street markets in urban areas of Brazil and Africa exist at the intersection of informality, consumption, and environmental exposure. They are vital for food access and livelihoods but operate in environments marked by infrastructure deficits, regulatory ambiguity, and socioeconomic inequality. As climate change increases urban heat, flooding, and weather variability, these markets face growing disruptions that affect vendors' incomes, consumers' access to goods, and the stability of local food systems.

Despite their importance, street markets are underrepresented in climate change and urban adaptation research. Existing studies often overlook how climate stress reshapes both consumption practices and informal market operations. When addressed, informal markets are

often seen as vulnerable spaces lacking capacity, rather than as dynamic systems in which adaptation is negotiated through daily practices, social relationships, and informal governance.

This gap results in an incomplete understanding of how climate change impacts informal urban economies. Current research fails to integrate consumption dynamics, market organization, and environmental stress into a unified framework, leading to policy interventions that may overlook the realities of informal markets and unintentionally reinforce existing inequalities.

The central problem of this study is the lack of a comparative, qualitative understanding of how street markets in Brazil and Africa function as key sites where consumption and climate change intersect, and how informal urban economies adapt to environmental stress under different urban and institutional conditions.

Research Questions

This study seeks to examine the interaction between street markets, consumption practices, and climate change within informal urban economies in Brazil and Africa. To address the research problem outlined above, the article is guided by the following research questions:

1. How do climate-related stresses such as heat, flooding, and weather variability affect the daily operation of street markets in urban contexts in Brazil and Africa?
2. In what ways do climate impacts reshape consumption practices within street markets, particularly in terms of product availability, pricing, and consumer purchasing behavior?
3. How do vendors operating in informal street markets adapt to climate-related disruptions through everyday practices, social networks, and informal governance arrangements?
4. What similarities and differences can be observed in the experiences of climate stress and adaptation strategies between street markets in Brazil and those in African cities?
5. How do urban infrastructure and local governance contexts mediate the relationship between climate change and informal market resilience?

Research Objectives

The primary objective of this study is to develop a qualitative, comparative understanding of how street markets in Brazil and Africa operate at the intersection of consumption and climate change within informal urban economies. To achieve this overarching aim, the study pursues the following specific objectives:

1. To examine how climate-related stresses, including heat and flooding, affect the functioning and stability of informal street markets in selected urban contexts.
2. To analyze the ways in which climate change influences consumption practices within street markets, with particular attention to access, affordability, and patterns of consumer choice.
3. To identify and interpret the everyday adaptation strategies employed by street vendors in response to environmental stress and market disruption.

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4. To compare experiences of vulnerability and adaptation across street markets in Brazil and African cities, highlighting both shared dynamics and context-specific variations.
5. To contribute to theoretical and policy debates on urban informality and climate adaptation by foregrounding street markets as critical sites of resilience and transformation.

Significance of the Study

This study is significant for several interrelated reasons, contributing to theoretical, empirical, and policy debates on urban informality, consumption, and climate change.

Theoretically, it integrates insights from informal economy studies, urban consumption research, and climate adaptation scholarship into a unified analytical framework. By viewing street markets as key sites where consumption and climate stress intersect, the study moves beyond fragmented approaches, deepening understanding of how climate change affects every day economic practices rather than being confined to formal policy or infrastructure solutions.

Empirically, the study provides qualitative evidence on informal street markets in Brazil and Africa, contexts often studied separately but rarely compared systematically. This comparative approach uncovers shared patterns of vulnerability and adaptation, as well as region-specific dynamics shaped by urban infrastructures, governance, and social organization, addressing a gap in South-South comparative scholarship on climate change and informality.

Methodologically, the study demonstrates the value of qualitative research for capturing processes such as informal governance, adaptive practices, and changes in consumption under climate stress. By focusing on lived experiences and social relationships, the study highlights dimensions of climate adaptation often overlooked in policy-driven research.

From a policy perspective, the findings are valuable for urban planners, local governments, and development practitioners aiming to design climate-sensitive, inclusive interventions. By recognizing informal markets as active sites of resilience and adaptation, the research provides insights for developing policies that support livelihoods, food access, and urban sustainability in the face of climate change.

Scope and Delimitations

This study focuses on informal street markets as key components of urban economies in selected cities in Brazil and Africa. It examines street-based, open-air markets in informal or semi-formal settings, where vendors sell food and basic goods directly to consumers. The study explores these markets as sites of consumption and livelihood generation under environmental stress.

Geographically, the study adopts a comparative approach between Brazil and Africa, emphasizing analytical depth rather than representativeness. It investigates broader patterns of vulnerability and adaptation in informal urban economies without aiming to cover all cities or countries in these regions.

Thematically, the study focuses on the intersection of climate change and consumption practices, particularly the impacts of heat stress, flooding, and weather variability on market

operations, vendor strategies, and consumer behavior. It does not address long-term climate modeling, quantitative impact assessments, or macroeconomic evaluations of climate change.

The study is delimited in several ways: it does not examine formal retail sectors or fully regulated markets, focusing instead on informal economic spaces. While governance and policy contexts are discussed, it does not provide a detailed evaluation of national climate policies but focuses on local conditions and informal governance arrangements. Additionally, the study uses qualitative methods and does not aim for statistically generalizable findings.

These delimitations ensure a focused and coherent examination of street markets as critical sites where consumption and climate change intersect.

Key Definitions and Core Concepts

To ensure conceptual clarity and analytical consistency, this study employs the following key definitions and core concepts. These concepts are used throughout the article in a qualitative and interpretive sense, reflecting the study's focus on lived practices and relational dynamics rather than formal measurement.

Street markets refer to open-air or semi-open spaces where vendors sell food and basic consumer goods directly to the public, typically operating outside fully formalized regulatory frameworks. In this study, street markets are understood as socially embedded economic spaces governed by informal rules, negotiated authority, and everyday practices rather than standardized legal arrangements (Bromley, 2000).

The informal urban economy encompasses income-generating activities that are not fully regulated, taxed, or protected by the state but are nonetheless integral to urban livelihoods and consumption. Informality in this context is treated not as a temporary or residual condition, but as a stable and adaptive mode of economic organization shaped by structural constraints and local social relations (Chen, 2012).

Consumption practices refer to the routine ways in which urban residents access, purchase, and use goods within street markets. This includes patterns of purchasing frequency, product choice, price sensitivity, and vendor–consumer interactions. Consumption is conceptualized as a socially and environmentally situated process rather than a purely economic transaction (Warde, 2005).

Climate change is understood as the long-term alteration of temperature patterns, precipitation, and extreme weather events affecting urban environments. Climate stress refers specifically to the everyday pressures exerted by climate-related conditions, such as heatwaves, flooding, and weather variability, on market operations, livelihoods, and consumption routines.

Vulnerability denotes the degree to which street markets, vendors, and consumers are exposed and sensitive to climate stress, as well as their capacity to cope and adapt. In this study, vulnerability is treated as a relational condition shaped by infrastructure, informality, social networks, and governance contexts, rather than as a fixed attribute (Adger, 2006).

Adaptation refers to the everyday strategies and practices through which vendors and consumers adjust to climate-related disruptions. These strategies may include changes in

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product mix, working hours, sourcing practices, spatial mobility, and reliance on social or informal support networks. Adaptation is approached as an incremental and practice-based process rather than a planned policy intervention (Smit & Wandel, 2006).

Informal governance describes the set of unwritten rules, norms, and negotiated arrangements that structure how street markets operate. This includes relationships among vendors, interactions with local authorities, market associations, and informal enforcement mechanisms that influence access, order, and conflict resolution within market spaces.

Research Method

This study adopts a qualitative research methodology designed to capture the lived experiences, practices, and adaptive strategies of actors operating within informal street markets under conditions of climate stress. A qualitative approach is particularly suited to this research as it allows for an in-depth examination of processes, such as informal governance, consumption routines, and everyday adaptation, that are difficult to quantify and often overlooked in macro-level analyses.

The research is based on a comparative case study design, focusing on selected urban street markets in Brazil and Africa. Comparison is employed as an analytical strategy to identify shared patterns and context-specific differences in how climate change intersects with consumption and informality. Rather than seeking representativeness, the study prioritizes analytical depth and contextual understanding.

Data collection relies on multiple qualitative sources, including:

- a. semi-structured interviews with street vendors, consumers, and local market actors,
- b. observational fieldwork within market spaces to document daily practices and responses to environmental conditions,
- c. analysis of policy documents, municipal regulations, and secondary literature relevant to urban informality and climate adaptation.

The study follows a thematic and interpretive analytical approach, whereby data are coded and analyzed to identify recurring themes related to climate stress, consumption behavior, vulnerability, and adaptation. Attention is given to causal processes and relational dynamics rather than outcome measurement. This allows the research to trace how climate impacts are mediated through social relations, infrastructure constraints, and informal institutional arrangements.

By emphasizing triangulation across data sources and cases, the methodology enhances analytical credibility while remaining sensitive to the complexity and contextual specificity of informal urban economies.

Structure of the Study

This article is organized into three main sections;

Section One establishes the conceptual and analytical foundations of the study. It situates street markets within the literature on informal urban economies and urban consumption, while introducing climate change as a structural condition shaping everyday market practices. This section clarifies key concepts and outlines the theoretical lenses that guide the analysis.

Section Two develops the analytical framework and research design of the study. It specifies the comparative qualitative approach adopted for examining street markets in Brazil and Africa, defines the scope of the analysis, and explains how climate stress, consumption practices, and informal market organization are examined in relation to one another.

Section Three outlines the methodological approach and sources of qualitative evidence. It describes the data collection strategies, analytical procedures, and interpretive logic used to examine vulnerability and adaptation within informal street markets under climate stress.

Results and Discussion

1. Street Markets and Informal Urban Economies

Street markets are a central feature of informal urban economies in the Global South, playing a key role in livelihood generation, consumption, and social interaction. In urban contexts marked by socioeconomic inequality, limited formal employment, and uneven infrastructure, they provide access to food, basic goods, and income for millions, contributing to poverty reduction and the Sustainable Development Goals (SDGs) (Farag, 2025). These markets are dynamic spaces where formal and informal practices intersect, and transactions are shaped by social relations, cultural norms, and local governance.

Street markets must be understood within the broader context of urban transformations, including migration, labor market changes, and shifts in regulatory frameworks. In both Brazil and Africa, their growth is linked to structural adjustment policies, demographic growth, and the failure of formal retail systems to meet the needs of low- and middle-income populations. Rather than temporary solutions to economic crises, street markets have evolved into stable systems governed by informal rules, social networks, and adaptive practices that help vendors navigate uncertainty.

These markets are shaped by distinct historical and structural factors. In Brazil, urban informality has been influenced by industrialization, spatial segregation, and changing municipal governance, while in African cities, colonial legacies and post-independence economic restructuring have played significant roles. Despite regional differences, both share dynamics of exclusion from formal systems and reliance on self-organized market structures (Farag, 2025).

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Governance in street markets is marked by ambiguity, with selective enforcement, evictions, and negotiated tolerance by local authorities. Informal governance mechanisms, like vendor associations and market committees, fill gaps, structuring access, resolving conflicts, and maintaining order. These practices illustrate that informality is an alternative mode of governance rather than a lack of regulation.

This section conceptualizes street markets as embedded economic systems and explores the dynamics of informal economies, historical and structural drivers, and governance. By placing these markets within broader contexts and linking them to sustainable development, it provides a framework for understanding their role at the intersection of consumption and climate-related pressures, addressed in later sections of the article (Farag, 2025).

1.1. Conceptualizing Street Markets in the Global South

Street markets are central to urban economies in the Global South, acting as crucial spaces for livelihood generation, consumption, and social interaction. In rapidly urbanizing contexts with limited formal employment and unequal access to retail infrastructure, these markets offer accessible means of income generation and affordable goods for low- and middle-income populations. Rather than being temporary or marginal, street markets are durable institutions that are part of urban residents' daily survival strategies (Bromley, 2000).

Conceptually, street markets are best understood as socially embedded spaces governed by flexible organizational structures and informal regulations. Transactions in these markets often rely on trust-based relationships, informal credit, and negotiated access to public space, distinguishing them from formal retail systems. Informality in this context reflects an alternative mode of economic organization, rather than a lack of order, with vendors adopting collective practices to manage competition, allocate space, and maintain stability (Chen, 2012).

Street markets are vital to urban food systems and consumption patterns. By linking rural producers, wholesalers, and urban consumers, these markets ensure the circulation of affordable food and basic goods, particularly in areas underserved by formal retail outlets. Their flexibility in pricing, product quantities, and operating hours makes them especially important for households with unstable incomes, reinforcing their role as key intermediaries between production and everyday consumption (Skinner, 2008).

Spatially, street markets transform public urban spaces into multifunctional economic zones, occupying sidewalks, transportation hubs, and vacant areas. This adaptability allows vendors to respond quickly to shifts in demand and mobility, but also exposes them to regulatory uncertainty, eviction risks, and competition for urban land use. As a result, street markets operate in contested spaces where legality, informality, and governance intersect in complex ways.

To fully understand street markets in the Global South, it is essential to move beyond viewing them as symptoms of underdevelopment. Instead, they should be seen as resilient and adaptive economic systems shaped by structural constraints, social networks, and negotiated governance. This perspective provides the foundation for analyzing how informal urban

economies function and respond to broader pressures, including those related to climate change and urban transformation.

1.2. Informal Urban Economies: Characteristics and Dynamics

Informal urban economies form a key part of livelihood systems across cities in the Global South, absorbing large segments of the labor force excluded from formal employment. These economies consist of various income-generating activities that operate outside full state regulation, yet are deeply integrated into urban production, distribution, and consumption processes. Informal economies are not residual or marginal; rather, they are adaptive responses to structural constraints like unemployment, poverty, and uneven economic development (Portes & Haller, 2005).

A defining feature of informal urban economies is their organizational flexibility and low barriers to entry. Informal activities often rely on small-scale operations, family labor, and limited capital investment, which allows them to adapt quickly to changing market conditions and consumer demand. Social networks play an essential role in facilitating access to credit, information, and supply chains, compensating for the absence of formal institutional support. These relational dynamics enable informal actors to sustain economic activities amid uncertainty and regulatory ambiguity (Meagher, 2010).

Informal economies also exhibit hybrid relationships with the state, blending elements of tolerance, negotiation, and selective enforcement. Urban authorities may regulate, ignore, or intervene in informal activities depending on political priorities and public order concerns. This fluid regulatory environment creates a "managed informality" in which actors operate within negotiated boundaries rather than formal legal frameworks (Roy, 2005).

Despite their resilience, informal urban economies face vulnerabilities related to insecure working conditions, lack of social protection, and exposure to economic and environmental shocks. Limited access to infrastructure and services constrains productivity and heightens risks. These vulnerabilities are especially evident in street-based occupations, which rely on public space and are sensitive to disruptions in mobility, supply chains, and consumer demand.

Understanding the dynamics of informal urban economies is crucial for analyzing street markets as integrated economic systems, rather than isolated trading spaces. Informality shapes market organization, governance, and sustainability, influencing opportunities for vendors and the constraints they face. This perspective highlights the importance of examining informal economies as complex, evolving structures that mediate urban inequality, governance, and adaptation.

1.3. Historical and Structural Drivers of Street Markets in Brazil

Street markets in Brazil are deeply influenced by the country's history of urbanization, socioeconomic inequality, and labor market changes. Rapid rural–urban migration throughout the twentieth century, combined with uneven industrial development, led to large urban populations unable to secure formal employment. Informal commerce, particularly through

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street markets, became a critical survival strategy, providing accessible income generation and affordable goods for expanding low-income communities (Portes & Haller, 2005).

Structural economic changes, such as fiscal crises and neoliberal reforms in the late twentieth century, further accelerated the growth of informal trade. Reductions in public sector employment, privatization, and labor market flexibility pushed many workers into informal activities like street vending. At the same time, formal retail systems expanded unevenly across cities, leaving peripheral neighborhoods reliant on informal markets for food and basic necessities (Bromley, 2000).

Urban spatial inequality also shaped the development of street markets in Brazil. Segregated development patterns, with affluent central areas and underserved peripheries, created environments where informal markets became essential components of local economies. Vendors often position themselves near transportation corridors, public squares, and high-density areas, capitalizing on daily consumer flows and compensating for the absence of formal commercial infrastructure.

Governance dynamics have influenced the evolution of street markets in Brazil. Municipal authorities have alternated between regulating, tolerating, and evicting street vendors, reflecting tensions between modernization agendas and the socio-economic importance of informal trade. Vendor associations and informal networks have emerged to negotiate space access, manage conflicts, and coordinate responses to regulatory pressures, illustrating how informality is shaped by urban governance systems (Chen, 2012).

These historical and structural factors show that street markets in Brazil are not transient phenomena but institutionalized responses to structural exclusion and uneven development. Their persistence highlights the adaptability of informal economic actors and the limitations of formal systems in providing inclusive opportunities. Understanding these drivers is essential for analyzing the role of street markets in Brazilian urban economies and how they respond to emerging challenges, including environmental and climate-related pressures.

1.4. Historical and Structural Drivers of Street Markets in African Cities

Street markets in African cities have evolved through complex historical, colonial, and post-colonial processes. During the colonial period, economic policies and urban planning restricted African populations to segregated zones with limited access to formal employment, pushing many into informal trade. Post-independence urbanization and economic liberalization in the 1980s and 1990s further expanded informal markets as a survival mechanism, meeting the demand for affordable goods in areas underserved by formal retail (Meagher, 2010).

Infrastructure and spatial organization also influence market development. Vendors cluster near transport hubs and residential neighborhoods, allowing flexibility but also exposing them to regulatory pressures and urban redevelopment. Social networks and informal governance, like vendor associations and committees, provide stability, helping vendors navigate the regulatory ambiguity and coordinate market operations (Roy, 2005).

In both Brazil and Africa, structural inequalities and adaptive strategies have institutionalized street markets as vital parts of urban economies. These markets are not only economic hubs but also resilient systems that adapt to socio-economic and environmental pressures. Street markets in Brazil and African cities exhibit both common features and region-specific characteristics shaped by historical trajectories, urban infrastructure, and governance mechanisms. To provide a clear comparative overview, Table 1 summarizes key attributes of street markets across these regions, highlighting differences in scale, goods sold, operating practices, governance structures, spatial organization, and access to infrastructure.

Table 1- Comparative Characteristics of Street Markets in Brazil and African Cities

Feature	Brazil	African Cities	Notes / Observations
Market Size	Large, well-established markets in major cities (e.g., São Paulo, Rio)	Varies from small informal clusters to large city markets (e.g., Lagos, Nairobi)	Reflects urban density and historical urban planning
Types of Goods Sold	Fresh produce, packaged food, clothing, crafts	Fresh produce, local staples, clothing, household items	Local culture influences product mix
Operating Hours	Daytime and evening shifts; often regulated by associations	Mainly daytime; flexible depending on traffic & climate	Vendors adjust hours for weather and consumer flow
Governance Structures	Market associations, municipal permits, informal committees	Community-based committees, peer-to-peer rules, informal vendor groups	Brazil shows partial formal support; Africa relies more on informal networks
Spatial Organization	Centralized markets and street corridors	Peripheral and central locations; often near transport hubs	Strategic location ensures accessibility
Access to Infrastructure	Shelters, sanitation, basic electricity	Limited shelters, sporadic sanitation, limited electricity	Infrastructure gaps increase vulnerability to climate events
Interaction with Formal Economy	Partial integration with supermarkets and formal supply chains	Limited integration; often disconnected from formal retail	Reflects socio-economic inclusion/exclusion

As shown, Brazilian markets benefit from formal support and infrastructure, while African markets rely on informal arrangements and face greater variability. This comparative perspective informs the analysis of consumption practices and vulnerabilities.

1.5. Governance, Regulation, and Informality in Urban Market Spaces

Governance and regulation are key to the operation and resilience of street markets. These markets often function outside full legal recognition but are governed by informal, negotiated systems. Regulatory approaches range from tolerance to suppression, with urban authorities occasionally implementing evictions or relocation programs, which vendors adapt to by rotating locations or forming associations (Bromley, 2000). Informal governance mechanisms, such as self-organized committees and peer-to-peer networks, help vendors manage risks and maintain order, illustrating how informality acts as an alternative governance system (Meagher, 2010).

Street market governance includes spatial negotiations with authorities, businesses, and property owners, transforming public spaces into economic zones through temporary

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infrastructure and social norms. This hybrid system of governance, blending formal and informal regulations, shapes market organization and resilience. Recognizing this dynamic is essential for understanding how markets respond to environmental and socio-economic challenges.

2. Consumption Practices and Climate Stress

Street markets in the Global South are not only sites of livelihood generation but also critical nodes of urban consumption. They mediate the everyday interaction between vendors and consumers, shaping patterns of food access, affordability, and consumption behavior, particularly for low- and middle-income households. Understanding consumption practices in these markets is essential to capturing how urban residents meet their daily needs amid economic precarity and spatial inequality (Battersby & Crush, 2014).

At the same time, urban areas are increasingly exposed to climate-related pressures, including heatwaves, flooding, and weather variability. These environmental stressors intersect with consumption practices, affecting product availability, pricing, and consumer decision-making. Vendors and consumers continually adapt to climate disruptions, often through incremental, practice-based strategies, highlighting the dynamic interplay between environmental stress and everyday economic routines (Adger et al., 2009).

This section situates street markets at the crossroads of consumption and climate stress, emphasizing the relational and contextual nature of vulnerability. By examining how climate change reshapes market operations and consumption behaviors, the study highlights the adaptive strategies embedded within informal economic systems. It also considers the mediating role of infrastructure, spatial organization, and informal governance in shaping market resilience.

A comparative lens, spanning urban contexts in Brazil and Africa, allows for the identification of both shared and region-specific patterns in consumption practices under climate stress. This perspective underscores the importance of treating street markets as active sites where environmental pressures are negotiated through everyday routines, rather than passive spaces simply exposed to risk.

The subsequent subsections explore these dynamics in detail, beginning with urban consumption patterns in informal markets and moving through food provisioning, climate impacts on operations, consumption routines under stress, and the vulnerabilities faced by both vendors and consumers. Together, these analyses provide a comprehensive understanding of how climate change intersects with consumption practices within informal urban economies.

2.1. Urban Consumption Patterns in Informal Markets

Urban consumption in informal markets is shaped by a combination of economic necessity, social practices, and spatial accessibility. Street markets provide affordable and flexible options for daily purchases, particularly for low-income households who may lack consistent access to supermarkets or formal retail outlets. Consumers frequently purchase in small quantities, prioritize price sensitivity, and engage in repeated, routine transactions,

highlighting the practical and adaptive nature of consumption within these spaces (Skinner & Haysom, 2016).

These markets also function as hubs for diverse goods beyond basic food items, including household necessities, clothing, and artisanal products. The proximity of street markets to residential neighborhoods, transport nodes, and high-density areas increases convenience and reduces transaction costs, effectively integrating informal markets into the daily rhythms of urban life. Spatial and temporal flexibility, such as evening operations or rotating stalls, further enhances accessibility for different consumer groups (Battersby & Crush, 2014).

Consumption practices are socially mediated and embedded within community networks. Long-standing vendor–consumer relationships, trust-based credit arrangements, and informal information sharing shape purchasing patterns and influence decision-making. Consumers often rely on familiar vendors for quality assurance and advice, reinforcing the relational dimension of market interactions (Warde, 2005).

Economic fluctuations, seasonal availability, and external shocks such as price volatility in supply chains directly influence urban consumption patterns. Street markets respond to these changes through dynamic pricing, product substitution, and flexible inventory management, demonstrating how informal markets function as adaptive systems that balance consumer demand with resource constraints (Skinner & Haysom, 2016).

Overall, urban consumption in informal markets is characterized by adaptability, relational networks, and practical negotiation of economic constraints. Understanding these patterns provides a foundation for analyzing how climate-related disruptions intersect with everyday consumption, as explored in the subsequent subsections.

2.2. Food Provisioning, Affordability, and Everyday Consumption

Street markets play a central role in urban food provisioning, particularly for low- and middle-income households in Brazil and African cities. These markets offer affordable, fresh, and culturally appropriate food items that are often inaccessible through formal retail channels. Their ability to sell small quantities, adjust pricing dynamically, and provide locally sourced produce makes them essential for daily consumption and household food security (Battersby & Crush, 2014; Farag, 2025).

Affordability in informal markets is closely tied to flexible payment arrangements, social networks, and negotiation practices. Consumers often purchase food in quantities that match immediate needs and available cash, relying on trusted vendors to manage quality and reliability. This adaptive consumption enables households to cope with fluctuating incomes and seasonal price changes while maintaining access to nutritious foods, aligning with broader development objectives such as poverty reduction and food security outlined in the SDGs (Clapp & Cohen, 2009; Farag, 2025).

Street markets also facilitate dietary diversity and food access across spatially segregated urban areas. Peripheral neighborhoods, which are often underserved by formal supermarkets, depend heavily on informal markets for essential goods. Vendors strategically

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locate their stalls near residential clusters, transport corridors, or busy intersections to maximize reach, illustrating the spatial embeddedness of consumption and provisioning. These practices reflect how informal market operations contribute to sustainable consumption patterns and local economic resilience (Skinner & Haysom, 2016; Farag, 2025).

The role of informal markets extends beyond food access to include social and cultural dimensions. Market spaces function as sites of knowledge exchange, recipe sharing, and cultural continuity, reinforcing community cohesion while shaping consumption practices. This dual economic and social function highlights how provisioning is mediated not only by supply and price but also by trust, relational networks, and adaptive strategies that support sustainable urban livelihoods (Warde, 2005; Farag, 2025).

Understanding these dynamics provides a critical foundation for analyzing how climate-related disruptions, such as heat stress, flooding, or supply chain shocks, affect both the availability and affordability of food, and how consumers adjust their everyday consumption practices in response, linking everyday market adaptation to sustainable development outcomes (Farag, 2025).

Street markets play a crucial role in shaping urban consumption practices, particularly in low- and middle-income areas. They provide flexible access to fresh, affordable, and culturally appropriate foods. Table 2 summarizes key aspects of food provisioning, consumer behavior, and vendor strategies in informal markets across Brazil and African cities, highlighting their adaptive significance in everyday consumption and affordability.

Table 2- Comparative Overview of Food Provisioning and Consumption Practices in Informal Markets (Brazil vs. African Cities)

Dimension	Brazil	African Cities	Key Observations
Food Availability	High in urban centers; seasonal variation affects some produce	Variable; more reliant on local sourcing; seasonal scarcity common	Informal markets provide essential access where formal retail is limited
Pricing Flexibility	Dynamic pricing; small-quantity sales	Negotiable prices; small-quantity sales; barter practices	Flexible pricing allows households to cope with income variability
Consumer Purchasing Practices	Daily/weekly purchases; preference for fresh goods	Daily purchases common; reliance on trusted vendors	Consumers adapt purchase frequency to income and availability
Spatial Accessibility	Markets near residential areas, transport hubs	Markets dispersed; proximity critical for peripheral neighborhoods	Strategic location enhances food access and market reach
Social and Cultural Functions	Recipe sharing, community engagement	Market as social hub; knowledge exchange; cultural continuity	Consumption is embedded in relational networks and social norms

The table illustrates that informal markets are not merely sites of commodity exchange but are central to urban food security and social cohesion. Vendors’ ability to adapt product supply and pricing, coupled with consumers’ flexible purchasing routines, creates a dynamic system capable of mitigating economic and climate-related shocks.

2.3. Climate Change Impacts on Urban Market Operations

Urban street markets are increasingly vulnerable to the direct and indirect effects of climate change. Rising temperatures, prolonged heatwaves, and erratic rainfall disrupt market operations by affecting perishable goods, reducing vendor productivity, and creating unsafe working conditions. Vendors often experience increased spoilage of fruits, vegetables, and other fresh products, which directly impacts income stability and food availability for consumers (Hardoy & Pandiella, 2009).

Flooding and extreme weather events pose additional challenges. Temporary or semi-permanent market structures, frequently located in low-lying areas, are prone to inundation, resulting in physical damage to stalls, loss of stock, and trade disruptions. These events can also restrict mobility for both vendors and consumers, leading to reduced sales and altered patterns of market participation (Dodman et al., 2012).

Climate change also interacts with supply chain vulnerabilities. Informal vendors often rely on small-scale producers or decentralized supply networks, which are themselves sensitive to climatic fluctuations. Disruptions at the source, such as crop failures or transport delays, reverberate through the market, influencing prices and product diversity. As a result, climate stress transforms not only market operations but also the broader urban food ecosystem (Battersby & Crush, 2014).

Adaptation to these impacts is often incremental and embedded in everyday practices. Vendors may alter operating hours to avoid midday heat, shift product assortments toward less perishable items, or temporarily relocate stalls during floods. These responses illustrate that street markets are not passive recipients of climate shocks but active sites of resilience and adjustment, shaped by local knowledge and social networks (Satterthwaite et al., 2020).

Understanding how climate change affects urban market operations is essential for examining the subsequent effects on consumption routines and the vulnerability of vendors and consumers. It highlights the intersection of environmental stress with informal economic systems, providing a foundation for analyzing adaptive strategies in Section 2.4 and 2.5.

2.4. Climate Stress and Consumption Routines

Climate-related stressors, such as heatwaves, flooding, and erratic rainfall, significantly influence everyday consumption routines in informal urban markets. These environmental pressures alter when, what, and how consumers purchase goods, often requiring households to adjust their shopping frequency, product choices, and expenditure patterns. For example, perishable items like fruits, vegetables, and dairy may become less available or more expensive during extreme weather events, prompting consumers to substitute with less perishable or locally sourced alternatives (Clapp & Cohen, 2009).

Time and mobility constraints induced by climate stress also shape consumption behavior. Flooded streets, damaged transport infrastructure, or intense heat can limit access to market spaces, particularly for vulnerable populations such as the elderly or low-income households. Consequently, consumers may rely on nearby vendors, accept higher prices, or

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reduce overall purchases, demonstrating how environmental pressures are directly mediated through consumption practices (Battersby & Crush, 2014).

In addition to economic adjustments, climate stress reshapes social interactions within market spaces. Consumers increasingly depend on established vendor relationships and informal networks to secure food during periods of scarcity or disruption. Credit arrangements, bulk buying, and sharing among households are strategies that mitigate the impact of environmental shocks on everyday consumption (Warde, 2005).

These adaptive routines are incremental, embedded in daily practices, and closely linked to the flexibility and responsiveness of vendors. By modifying product availability, adjusting stall operations, or providing flexible payment options, vendors enable households to maintain consumption despite climatic uncertainty. This interplay highlights the co-dependence of vendors and consumers in negotiating the effects of environmental stress within informal urban economies (Satterthwaite et al., 2020).

Understanding the influence of climate stress on consumption routines provides a foundation for examining vulnerabilities in the market system and identifying strategies that enhance resilience. It underscores the importance of integrating environmental, economic, and social dimensions when analyzing informal market dynamics under climate change.

2.5. Vulnerability of Vendors and Consumers in Informal Markets

Vendors and consumers in informal urban markets are highly exposed to the compounded effects of climate change, infrastructural deficiencies, and economic precarity. Vendors face direct risks from extreme weather events, including heat stress, flooding, and damage to stalls or perishable stock, which threaten both income stability and livelihood sustainability. Consumers, particularly low-income households, are vulnerable to disruptions in food availability, price volatility, and reduced access to market spaces (Hardoy & Pandiella, 2009; Farag, 2025). These dynamics are also closely linked to broader sustainability objectives, including securing equitable access to food and livelihoods under conditions of environmental stress.

Vulnerability is shaped not only by environmental exposure but also by the structural characteristics of informal markets. Limited storage facilities, lack of formal insurance, and reliance on decentralized supply chains amplify sensitivity to climatic shocks. At the same time, socioeconomic factors such as irregular income, household size, and dependence on daily market purchases determine the capacity to absorb and adapt to these disruptions (Dodman et al., 2012; Farag, 2025). These challenges connect directly with the critical success factors needed to achieve Sustainable Development Goals, particularly those related to poverty reduction, food security, and urban resilience (Farag, 2025).

Social networks and informal support mechanisms play a critical role in mediating vulnerability. Vendor associations, neighborhood groups, and inter-household cooperation enable access to credit, shared labor, and early warning of environmental hazards. These relational dynamics enhance adaptive capacity and reduce the immediate impact of climate stress, illustrating the importance of informal governance in shaping resilience (Chen, 2012;

Farag, 2026). In this sense, informal networks function as localized mechanisms for sustainability, complementing broader environmental, social, and governance (ESG) strategies in urban contexts.

However, adaptive capacity is unevenly distributed. Vendors operating on the margins or in poorly connected areas, and consumers without reliable social networks, experience heightened vulnerability. These disparities highlight the intersection of environmental, economic, and social dimensions in shaping exposure and resilience within informal urban markets (Satterthwaite et al., 2020; Farag, 2025). The unequal distribution of adaptive capacity also underscores the need for inclusive interventions that bridge structural inequalities while supporting everyday resilience strategies.

In conclusion, understanding vulnerability in street markets requires an integrated perspective that considers environmental stress, infrastructural constraints, socioeconomic conditions, and social networks. Linking these micro-level vulnerabilities to sustainability and resilience strategies provides a foundation for Section Three, where everyday adaptation practices, informal governance, and comparative insights across Brazil and Africa are explored (Farag, 2025; Farag, 2026).

Vulnerability in street markets arises from the combined effects of environmental exposure, infrastructural limitations, and socioeconomic constraints. Table 3 provides a comparative overview of the key vulnerability factors affecting vendors and consumers in informal markets across Brazil and African cities, highlighting how structural and social dimensions interact to shape adaptive capacity.

Table 3- Key Vulnerability Factors for Vendors and Consumers in Informal Urban Markets

Vulnerability Dimension	Brazil	African Cities	Implications for Adaptive Capacity
Environmental Exposure	Flooding in low-lying areas; heatwaves; occasional storms	Seasonal floods; extreme heat; drought conditions	Directly affects vendor operations and stock preservation
Infrastructure Limitations	Limited storage and cold chain; informal stalls	Poor market facilities; limited storage; weak supply chains	Reduces ability to buffer against shocks and maintain food quality
Socioeconomic Factors	Irregular income; dependence on daily sales; household size	High poverty rates; low-income security; reliance on informal labor	Increases sensitivity to income and price fluctuations
Social Networks	Vendor associations; neighborhood support; peer-to-peer collaboration	Community-based networks; ad hoc labor sharing; informal credit	Enhances resilience through mutual support and shared resources
Market Access	Established markets with some municipal oversight	Less formalized markets; sometimes insecure tenure	Affects stability of trade and predictability of livelihoods

This table demonstrates that vulnerability is multidimensional, encompassing environmental, infrastructural, economic, and social factors. While informal governance and social networks partially mitigate these risks, disparities remain between regions and among vendors.

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3. Adaptation, Informal Governance, and Comparative Insights

Street markets in the Global South operate within highly dynamic and often precarious environments, where climate stress, economic uncertainty, and infrastructural limitations intersect. In response, both vendors and consumers develop everyday adaptation strategies that allow them to maintain livelihoods, access essential goods, and sustain consumption routines despite environmental disruptions. These adaptive practices are often incremental, relational, and embedded in local knowledge and social networks, reflecting the resilience inherent within informal urban economies (Satterthwaite et al., 2020).

Informal governance plays a critical role in shaping these adaptations. Unwritten rules, social norms, and negotiated arrangements among vendors, consumers, and local authorities regulate access, dispute resolution, and market organization. Such governance mechanisms provide flexibility, coordination, and support in contexts where formal regulatory structures are limited or inconsistently enforced, enabling markets to function under climate and socioeconomic stress (Chen, 2012).

Comparative insights from Brazil and African cities reveal both shared strategies and region-specific pathways of adaptation. Differences in infrastructure, urban planning, social organization, and policy engagement influence how vendors and consumers respond to environmental pressures. Examining these variations highlights the interplay between structural conditions and local agency in shaping resilience (Dodman et al., 2012).

This section explores the everyday practices that sustain informal market systems under climate stress, including vendor-led adaptation, consumer coping mechanisms, and the role of informal governance. By integrating these perspectives, it provides a nuanced understanding of how informal urban economies negotiate vulnerability and build resilience in diverse urban contexts.

The subsequent subsections examine, in turn, the adaptive strategies of vendors, consumer responses, informal governance mechanisms, and comparative patterns between Brazil and Africa, concluding with an analysis of shared and context-specific adaptation pathways.

3.1. Everyday Adaptation Strategies of Street Vendors

Vendors operating in informal urban markets employ a range of everyday adaptation strategies to cope with the disruptions caused by climate stress. These strategies are often incremental, practical, and embedded in local knowledge, allowing vendors to sustain livelihoods and maintain market operations despite environmental uncertainty (Satterthwaite et al., 2020). Common practices include adjusting working hours to avoid peak heat periods, relocating stalls temporarily during floods, and diversifying product offerings toward less perishable goods to reduce financial losses.

Supply chain flexibility is another key adaptive mechanism. Vendors often maintain multiple sources for perishable items, including local farmers, wholesalers, and informal networks, to mitigate the risk of climate-related supply disruptions. Such diversification

ensures continuity of product availability and minimizes income volatility during extreme weather events (Battersby & Crush, 2014).

Social networks also play a critical role in vendor adaptation. Vendor associations, cooperative arrangements, and reciprocal relationships with peers facilitate resource sharing, early warning of hazards, and collective problem-solving. Informal credit arrangements and labor-sharing practices enable vendors to respond rapidly to shocks without relying on formal institutional support (Chen, 2012).

Spatial strategies are commonly employed as well. Vendors may reposition stalls closer to main thoroughfares, shaded areas, or more accessible neighborhoods to maintain customer flow during adverse conditions. Mobility and flexibility in location not only support business continuity but also reflect the agency of vendors in negotiating urban space and environmental constraints.

Overall, these adaptation strategies demonstrate the resilience embedded in informal urban economies. Vendors actively shape the capacity of street markets to withstand climate stress, balancing risk, resource availability, and consumer demand. This foundation sets the stage for understanding how consumers respond to disruptions, as explored in the following subsection.

3.2. Consumer Responses to Climate-Related Disruptions

Consumers in informal urban markets adopt various strategies to cope with the impacts of climate stress on product availability, pricing, and market accessibility. These responses are often adaptive, flexible, and embedded in social and economic networks that allow households to maintain consumption under challenging conditions (Warde, 2005). For instance, during heatwaves or flooding, consumers may shift their shopping times to cooler parts of the day, visit alternative vendors, or purchase smaller quantities more frequently to minimize spoilage.

Price fluctuations caused by climate-related supply disruptions also influence consumption patterns. Consumers adjust their product choices toward less expensive or less perishable items, substitute local goods for imported or sensitive commodities, and may defer non-essential purchases. Such behavioral adjustments illustrate the direct link between environmental stress and urban consumption practices (Battersby & Crush, 2014).

Social networks and community support mechanisms further mediate consumer vulnerability. Households often rely on family, neighbors, and informal credit arrangements to access food during shortages or price spikes. Shared knowledge about reliable vendors and alternative market locations enhances household resilience and facilitates more effective coping strategies during periods of environmental uncertainty (Chen, 2012).

Consumers' adaptive behaviors are not purely reactive but also shape market dynamics. Demand shifts can prompt vendors to adjust product assortments, pricing, and operating practices, demonstrating the reciprocal relationship between consumer responses and vendor strategies. This interaction reinforces the notion that street markets are active socio-economic systems negotiating climate stress collectively.

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Understanding consumer responses provides critical insight into the micro-level mechanisms through which informal urban markets sustain functionality under climate pressure. These behaviors, alongside vendor adaptation strategies, contribute to the broader resilience of informal urban economies, forming the foundation for examining the role of informal governance in the next subsection.

3.3. Informal Governance and Market-Based Regulation

Informal governance constitutes a central mechanism through which street markets maintain order, mediate conflicts, and coordinate responses to climate and economic stress. Unlike formal regulatory systems, which may be inconsistent or absent, informal governance relies on unwritten rules, social norms, and negotiated arrangements among vendors, consumers, and local authorities to structure market operations (Chen, 2012). These mechanisms ensure continuity of trade, facilitate cooperation, and support adaptive responses during periods of environmental disruption, reflecting embedded sustainability-oriented management practices (Farag, 2025).

Vendor associations and market committees play a pivotal role in organizing access to space, resolving disputes, and coordinating collective actions in response to floods, heatwaves, or other climatic hazards. By establishing codes of conduct, allocating stall locations, and monitoring adherence to agreed norms, informal governance structures provide predictability and reduce operational risk within otherwise volatile environments (Satterthwaite et al., 2020).

Informal credit, labor-sharing, and collective purchasing are additional regulatory practices embedded within these governance frameworks. They allow vendors to pool resources, share risks, and maintain supply chains when climate events threaten individual livelihoods. Such market-based arrangements exemplify how informality fosters resilience, compensating for gaps in formal infrastructure or policy support (Dodman et al., 2012; Farag, 2025).

Consumers are also integrated into these governance arrangements. Social norms dictate fair pricing, priority access during scarcity, and reciprocal support within networks of regular customers. This co-governance between vendors and consumers enhances overall market stability and ensures that adaptive strategies are socially reinforced rather than imposed externally.

In sum, informal governance acts as both a regulatory and adaptive mechanism that enables street markets to function effectively under climate stress. Understanding these structures is essential for analyzing how informal urban economies negotiate vulnerability, coordinate adaptation, and sustain consumption despite environmental uncertainty.

3.4. Comparative Analysis: Brazil and Africa

Comparing informal street markets in Brazil and African cities reveals both shared patterns of vulnerability and context-specific adaptations shaped by infrastructure, governance, and social organization. In both regions, markets are highly sensitive to climate stress, with vendors and consumers facing risks from flooding, heatwaves, and perishable goods spoilage.

Adaptive strategies, such as flexible working hours, product diversification, and reliance on social networks, emerge as common responses to environmental uncertainty (Satterthwaite et al., 2020).

However, regional differences influence the nature and effectiveness of these adaptations. In Brazil, urban planning and municipal engagement often provide partial infrastructural support, including temporary shelters, regulated stall locations, and market committees that facilitate organized adaptation. Vendors may therefore have greater access to coordinated risk-sharing mechanisms, allowing for more structured responses to extreme weather events (Hardoy & Pandiella, 2009).

In African cities, street markets frequently operate within denser, less formalized urban environments with limited municipal oversight. Vendors rely more heavily on peer networks, local associations, and informal credit arrangements to cope with climate disruptions. Consumer adaptation is similarly mediated by tightly knit community ties, which enable rapid information sharing and collective coping strategies despite infrastructural constraints (Battersby & Crush, 2014).

These regional contrasts highlight how structural conditions, governance capacity, and social organization shape the adaptive capacity of informal markets. While the underlying vulnerability to climate stress is similar across regions, the pathways to resilience are context-dependent, reflecting differences in policy engagement, urban infrastructure, and community cohesion.

Overall, the comparative perspective underscores the importance of integrating local context into analyses of informal market resilience. It demonstrates that while shared patterns of vulnerability exist, effective adaptation is mediated by region-specific factors that influence how markets, vendors, and consumers negotiate climate stress.

3.5. Shared Patterns and Context-Specific Adaptation Pathways

Analysis across Brazil and African cities reveals shared patterns in how street markets respond to climate stress, alongside adaptation pathways shaped by local contexts. Common strategies include temporal adjustments to working hours to avoid extreme heat, diversification of product assortments toward less perishable goods, mobility of stalls to mitigate flood risks, and reliance on social networks for resources, information, and labor support. These practices demonstrate the embedded resilience within informal market systems and reflect the agency of vendors and consumers in negotiating environmental uncertainty (Satterthwaite et al., 2020; Farag, 2026).

Despite these commonalities, adaptation pathways exhibit region-specific characteristics. In Brazil, vendors benefit from partial institutional support, including structured market associations, municipal shelters, and organized supply chains, which enhance coordinated responses to climate events. Conversely, African markets often rely on informal collective mechanisms, such as community-based associations, peer-to-peer lending, and ad hoc labor sharing, reflecting adaptive strategies that emerge organically from socio-economic constraints (Battersby & Crush, 2014; Farag, 2026).

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The interaction between consumers and vendors further reinforces adaptive capacity. Consumer responses, such as adjusting purchasing frequency, substituting goods, or leveraging community networks, influence vendor strategies and market dynamics. This reciprocal adaptation highlights that resilience in informal markets is co-produced rather than solely vendor-driven, emphasizing the relational nature of adaptation in urban economic systems (Chen, 2012; Farag, 2026).

These findings suggest that while informal street markets share fundamental vulnerabilities and adaptive strategies across regions, the effectiveness of adaptation is mediated by local infrastructure, governance arrangements, and social organization. Context-specific factors shape both the scope and sustainability of adaptive practices, indicating the importance of integrating local knowledge and socio-institutional dynamics into policy and planning interventions (Farag, 2026).

In conclusion, understanding shared and context-specific adaptation pathways provides a comprehensive perspective on resilience in informal urban markets. It underscores the necessity of recognizing street markets as active sites of negotiation between consumption, vulnerability, and climate stress, thereby informing more inclusive and context-sensitive approaches to urban sustainability.

Street markets across Brazil and African cities exhibit both shared adaptive strategies and context-specific responses to climate stress. Table 4 summarizes these patterns, illustrating how vendors and consumers co-produce resilience through temporal, spatial, and relational adaptations, while highlighting regional differences that influence the effectiveness of these strategies.

Table 4- Shared and Context-Specific Adaptation Strategies in Informal Urban Markets

Adaptation Dimension	Common Strategies Across Regions	Brazil-Specific Adaptations	Africa-Specific Adaptations	Implications for Resilience
Temporal Adjustments	Adjusting operating hours to avoid extreme heat or flooding	Structured shifts coordinated via market associations	Flexible, ad hoc adjustments depending on weather and demand	Reduces exposure to climate extremes and preserves income
Product Diversification	Shifting to less perishable or high-demand items	Access to organized supply chains allows broader diversification	Reliance on locally sourced or seasonally available goods	Maintains market viability during environmental shocks
Spatial Mobility	Relocating stalls to mitigate flood or congestion risks	Some municipal support for temporary relocation	Informal relocation using community guidance	Enhances continuity of trade and access for consumers
Social Networks	Peer-to-peer support, informal credit, labor sharing	Formalized vendor associations support collective responses	Community-based networks and ad hoc cooperation	Strengthens adaptive capacity and risk-sharing
Consumer-Vendor Interaction	Flexible purchasing, substitution of	Regular customers integrated into formalized market norms	Consumers rely on social connections for access and credit	Co-produced resilience enhances stability and sustains consumption

	goods, reciprocal support			
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This table highlights that, despite shared vulnerabilities, informal markets develop adaptive strategies that are both universal and context-specific. In Brazil, partial institutional support complements informal governance, while African markets rely more on community-based, organic mechanisms. Recognizing these patterns is essential for designing policies that strengthen resilience without undermining the self-organized adaptive capacities inherent in informal urban markets.

Discussion

The comparative analysis of street markets in Brazil and African cities reveals that these informal urban economies are both highly vulnerable to climate stress and remarkably adaptive. Markets play a central role in urban livelihoods and consumption, with vendors and consumers deploying everyday strategies to cope with heatwaves, flooding, and extreme weather events (Satterthwaite et al., 2020; Battersby & Crush, 2014). These practices demonstrate that street markets are active socio-economic systems that mediate the effects of climate change rather than passively experiencing them.

1. Vulnerability and Market Stress

Street markets in both regions face significant disruptions due to extreme temperatures, flooding, and other climate-related events. Perishable goods are particularly sensitive to environmental conditions, resulting in economic losses for vendors. The limited infrastructure in many markets, including inadequate shelter, storage, and drainage systems, further increases vulnerability. Weak coordination with local authorities and inconsistent enforcement of regulations exacerbate the fragility of market operations, leaving vendors and consumers exposed to recurring environmental risks.

2. Vendor Adaptation Strategies

Vendors employ a variety of practical strategies to maintain market operations under climate stress. Many adjust their working hours to avoid peak heat periods or adverse weather, while others diversify their product offerings to include less perishable or more resilient goods. Spatial mobility, such as relocating stalls to avoid flood-prone areas, is commonly practiced. Additionally, informal cooperation among vendors allows the sharing of labor, storage, and resources, creating a network of collective support that helps mitigate climate-related losses.

3. Consumer Adaptation

Consumers also play an active role in sustaining informal market systems under climate stress. They adjust their purchasing frequency and timing based on both the availability of goods and prevailing weather conditions. When preferred items are unavailable or prices fluctuate, consumers often substitute products. Social networks and informal credit arrangements are utilized to ensure continued access to essential goods. Consumer choices feed back into vendor strategies, creating dynamic interactions that shape overall market resilience.

4. Informal Governance and Market Coordination

Informal governance mechanisms, including unwritten norms, market associations, and peer-to-peer cooperation, are crucial in maintaining market order and coordination. These structures regulate access to market spaces, allocate stalls, and resolve conflicts among vendors. By providing locally adapted rules and coordination strategies, informal governance enhances markets' capacity to function effectively during climate disruptions (Chen, 2012). Such mechanisms are particularly important in contexts where formal institutional support is limited or inconsistent.

5. Comparative Insights: Brazil vs Africa

Brazilian markets often benefit from partial institutional support, structured vendor associations, and organized supply chains, which provide additional stability during periods of environmental stress. In contrast, African markets rely more heavily on community-based networks and collective informal mechanisms, demonstrating a locally embedded approach to adaptation. Despite these differences, both regions exhibit co-produced resilience, where the behaviors of vendors and consumers mutually reinforce one another, sustaining market operations under challenging conditions.

6. Synthesis of Findings

The study confirms that informal street markets are active sites of adaptation where livelihoods, consumption, and climate resilience intersect. Markets are not merely passive victims of climate change but are socio-economic systems that respond to environmental stress through daily practices, social networks, and informal governance. Resilience is highly context-specific, shaped by infrastructure, social capital, and local coordination mechanisms. Integrating informal markets into climate-sensitive urban planning, improving infrastructure, and recognizing informal governance can strengthen both social and economic resilience in the Global South.

Conclusion

The findings of this study highlight the critical role of informal street markets as central nodes where urban livelihoods, consumption practices, and climate resilience intersect. These markets are not merely passive victims of climate change; rather, they function as dynamic socio-economic systems that adapt to environmental stress through everyday practices. Vendors and consumers engage in continuous adjustments, ranging from modifying working hours and product offerings to changing purchasing routines and relying on social networks, demonstrating a high level of practical adaptability.

The comparative analysis reveals that while context-specific differences exist, such as the structured associations and partial institutional support in Brazilian markets versus community-based networks in African markets, both regions display co-produced resilience.

This interaction between vendor and consumer behaviors sustains market operations under conditions of heat stress, flooding, and unpredictable weather, emphasizing the relational and context-dependent nature of vulnerability.

Moreover, informal governance mechanisms emerge as central to maintaining order, coordination, and conflict resolution within market spaces. These locally embedded structures, including unwritten rules, market associations, and peer-to-peer cooperation, provide stability and reinforce resilience, particularly in areas where formal institutional support is limited. The findings underscore the importance of viewing informal markets not as marginal or residual spaces but as active agents of adaptation in urban systems.

This study also demonstrates that climate stress reshapes consumption practices, thereby influencing the broader dynamics of informal markets. Consumers' responses to fluctuating availability, price changes, and environmental uncertainty directly affect vendor decisions, creating feedback loops that reinforce adaptation strategies. Recognizing these interdependencies is crucial for developing a comprehensive understanding of urban climate resilience and the role of informal economies within it.

In conclusion, supporting informal street markets through context-sensitive policy interventions, such as improving infrastructure, acknowledging informal governance arrangements, and integrating these markets into climate adaptation planning, can enhance both social and economic resilience in cities across the Global South. By foregrounding the everyday practices through which adaptation occurs, this study contributes to theoretical, empirical, and policy debates on urban informality, sustainable consumption, and climate change adaptation, providing insights relevant for planners, policymakers, and development practitioners.

Recommendations

1. Strengthening Infrastructure and Market Facilities

Investments in basic infrastructure, including sheltered stalls, storage facilities, drainage systems, and access to water and electricity, are essential to reduce vulnerability to climate stress. Improved infrastructure enhances the resilience of both vendors and consumers, minimizing losses from heatwaves, flooding, and extreme weather events, while supporting the continuity of everyday market operations.

2. Recognizing and Supporting Informal Governance

Policy interventions should formally acknowledge the role of informal governance mechanisms such as market associations, unwritten rules, and peer-to-peer coordination. Providing legal recognition, technical support, or capacity-building initiatives for these structures can enhance market stability and promote collective adaptation strategies without undermining locally embedded practices.

3. Integrating Markets into Urban Climate Planning

Informal street markets should be incorporated into broader urban climate adaptation strategies. This includes mapping vulnerable markets, assessing climate risks, and designing context-sensitive interventions that consider local social networks, vendor-consumer interactions, and adaptive practices. Integration ensures that climate policies are inclusive and grounded in the realities of informal economies.

4. Promoting Flexible and Adaptive Market Practices

Support programs can encourage vendors to diversify products, adjust working hours, and develop contingency plans for environmental disruptions. Training, microfinance, or small-scale subsidies for climate-resilient equipment and storage solutions can strengthen the capacity of vendors to respond proactively to climate stress.

5. Enhancing Social Capital and Community Networks

Policies that foster social cohesion and mutual support among market actors improve collective resilience. Facilitating networking opportunities, cooperative arrangements, and access to informal credit can empower both vendors and consumers to navigate climate-related disruptions more effectively, reinforcing the co-produced adaptation observed in street markets.

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