



# Urban informality in Nigeria: a midsize city perspective

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## Abstract

Midsize cities are important links between rural and urban spaces, providing accessibility to both local and metropolitan resources. They face unique challenges, and present opportunities for smart growth and development. However, the context of housing information in these cities has been widely under-studied, especially in Nigeria, where informality has taken over the urban periphery. This study seeks to develop an empirical understanding of informal housing formation in midsize cities. The empirical data analysis extracted primary data from Uyo, Awka, and Bauchi, which solidified it into an extensive dataset representing the four regions in Nigeria. Emergent informal housing formations resulting from the quest for urban life, low income, long waiting times for urban job opportunities, and free education for schoolchildren influenced by economic hardship were identified. Simultaneously, the prevalence of informal squatting settlements has been identified and largely attributed to urban migrants. The squatting system provides cheap housing and accommodates more migrants. However, its dependence on vulnerable urban migrants raises questions about human rights negligence. This study contributes to the literature on informal settlements in midsize cities in Africa and globally by providing a unique perspective in the context of housing information on these settlements.

**Keywords** Informal settlement · Urban · Settlement · Midsize city · Economic · Housing

## 1 Introduction

Midsize cities are urban areas between small towns and large metropolises, in terms of population and scale (Gómez et al., 2019; Siddiqui et al., 2021; Chouraqui, 2021). They often serve as important links between rural and urban spaces, providing a balance of accessibility for both local and metropolitan resources (Chouraqui, 2021; Sekushina, 2019). These cities can vary significantly in their characteristics, including economic functions, geographic positions relative to larger urban agglomerations, and socioeconomic conditions (Sekushina, 2019; Siddiqui et al., 2021). Midsize cities face unique challenges and present opportunities for smart growth and development. For instance, the implementation

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of smart city concepts, as observed in Rzeszow, Poland, can enhance service quality and economic growth through an intelligent infrastructure and open data systems (Duncan et al., 2020). Disparities in infrastructure can significantly impact the socioeconomic conditions within different areas of the same city (Asim et al., 2021). Moreover, the development of small and medium-sized cities is crucial in China's urbanization strategies, highlighting the need for characteristic industries and vocational education to support local employment and residency (Jian & Zhengang, 2015; Siddiqui et al., 2021). This indicates that midsized cities have diverse demographics, infrastructure, and economic roles. They are critical for integrating urban and rural environments, and have the potential for targeted sustainable growth. This development requires careful consideration of unique challenges and opportunities, with strategies tailored to their specific contexts.

Many studies on informal settlements in urban literature have focused on the challenges faced by metropolitan cities (Müller, 2017; Wu, 2021; Liu et al., 2022; Kekana et al., 2023; Khan et al., 2024; Hailu et al., 2024), because it is a tool used to assess urban theory (Boudreau & Davis, 2016; Hailu et al., 2024). Midsize cities are expected to play a key role in urban development, leading to metropolitan cities (Essien, 2022). Studies have provided a clear understanding of spatial confinement and static urban settings (Butler, 2010; Samper et al., 2020), which shows that urban literature does not uniformly support the notion that informal settlements are exclusively domains for the poor; rather, they are characterized by their aims and outcomes (Celhay & Gil, 2020; Chen & Wang, 2024; Lai & Lin, 2022). Informal settlements, as defined by Mohanty (2019), are residential areas developed without legal rights to the land or permission from authorities, often lacking adequate infrastructure and services. This definition does not inherently link informal settlements to poverty, but to legality and access to services. Pashton and Noorzai (2024) expanded on this by exploring various typologies of informal settlements, such as Spontaneous Sheltering and Self-Help Housing, which are not solely outcomes of poverty, but also of rapid urbanization and migration patterns. Moreso, Bikis and Pandey (2022) highlights that informal settlements in Addis Ababa are not only a result of poverty, but also of factors such as expensive formal land prices and urban policy failures. Other studies (Wu, 2021; Liu et al., 2022) in the western world recognized informal settlements known as ghettos as enemies of the nation by tracing urban crime to this region. Wu (2021), Müller (2017) and Wallin (2023). argued that unemployment and unaffordable urban housing schemes create stigmatization that forces vulnerable urban dwellers into these areas. Liu et al. (2022) held another perspective on urban informal settlement by demonstrating that settlement development may have different types of informality depending on the area, such as development that may not follow the appropriate land use policy, conflict resulting in land insecurity, and breach in renting and selling of land. Although rental housing in informal urban settlements plays a critical role in accommodating low-income households, yet it is often overlooked in policy and research (Lombard et al., 2020). This gap in understanding is particularly relevant given the complex nature of rental housing markets in informal urban neighborhoods, where tenants' rights are frequently under-respected and housing conditions are poor (Wallin, 2023). Despite the significance of rental services, there is a tendency to focus on illegal development and informal housing supply restrictions, as seen in Nairobi and Maputo, where such restrictions have led to increased costs and compromised livelihoods (Mottelson, 2023).

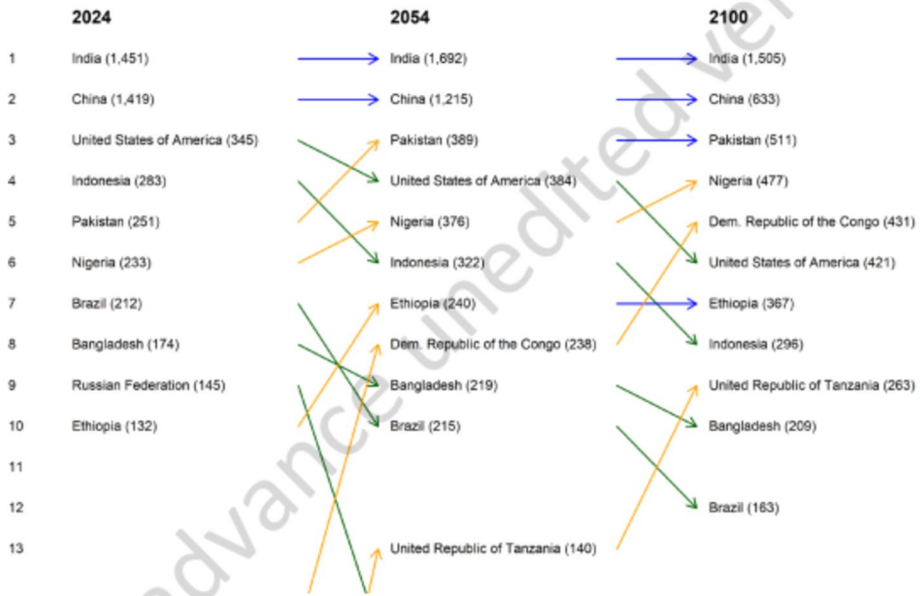
Furthermore, the dynamics of power and politics play a significant role in the governance and development of informal settlements (Debela, 2021; Malik et al., 2019). The comparative case study of São Paulo's informal settlements highlights the complexity of self-governance, which is influenced by intersecting nodes of power involving people,

organizations, institutions, resources, and spaces, challenging the simplistic binary of self-governance (Basile, 2022). Similarly, in Addis Ababa, the proliferation of squatter settlements was linked to the government's inability to implement housing policies effectively, with political factors contributing to this issue (Wondimu, 2020). Housing governance in Ghanaian slums is shaped by non-state providers and informal norms, indicating the political economy of informal housing provision (Paller, 2015). Although some municipal responses involve demolition or regularization strategies (Debela, 2021), others emphasize the importance of understanding fire dynamics to improve the sustainability of informal dwellings (Basile, 2022). The notion of tenure security is also crucial as it can lead to residential stability and improved living conditions (Malik et al., 2019). Despite various interventions, power and politics are deeply embedded within the fabric of informal settlement governance.

In the above debate, the effects of informal settlements and the problems faced by mid-sized cities have not been discussed, either globally or in developing countries. Urbanization in mid-sized cities presents multifaceted challenges encompassing issues such as economic support, industry coordination, and environmental impact (Gómez et al., 2019; Sekushina, 2018; Häußler & Haupt, 2021; Mishra et al., 2023). While large cities often experience saturation and a shift towards improving the inhabited environment and ecological protection, mid-sized cities continue to grapple with rapid changes and the need for sustainable planning (Jaoude et al., 2022; Zhu et al., 2016). Moreover, the socio-economic development of small- and medium-sized cities is intricately linked to the vitality of adjacent rural areas, suggesting that urbanization strategies must consider broader regional impacts (Jian & Zhengang, 2015; LI, 2017; Sekushina, 2018; Zumelzu & Espinoza, 2021). To address these issues, a combination of policy implications, ecological development mechanisms, and innovative urban planning are required. In addition, the role of mid-sized cities in the broader urban network and their influence on surrounding areas must be carefully considered to ensure a sustainable urbanization process. Especially in Nigeria, where there is no land selling policy in turn making land a lucrative business, many have sold their inherited properties and moved to urban areas for better opportunities (Albouy, 2016; Essien, 2023; Nwanyanwu & Benjamin, 2023; Odunfa et al., 2021). To this end, this study seeks a proper understanding of the impact of informal settlements in mid-sized cities on the urban housing market, given that the growth of informal settlements can exacerbate existing housing challenges and lead to social and economic inequalities. This study aims to (i) examine land ownership in mid-sized cities, (ii) explore the dynamic context of informal settlements in the study areas, and (iii) examine the rental market and daily challenges faced by urban migrants in these areas.

## 1.1 Global challenge of informal settlement

Informal settlements, often referred to as slums, are characterized by substandard housing conditions and a lack of access to basic services, which are a direct consequence of rapid urbanization and the urbanization of poverty (Hofmann et al., 2015; Goytia, 2016; Alegria et al., 2022; Camila et al., 2023; Elgohary et al., 2024). These settlements are home to a significant portion of the urban population, especially in countries such as Nigeria, India, and Indonesia, which are ranked among the top ten most populous countries globally (Fig. 1) (United Nations, 2024). Studies highlight the perception of informal settlements in urban literature, with some viewing them as 'slums of despair' while others see them as 'slums of hope' due to the innovative solutions developed by residents to improve



**Fig. 1** World ranking of the most populous countries. *Source* United Nations (2024). Note: A country's ranking status between the two specified years is represented by different colored arrows. A blue arrow signifies no change in rank, a yellow arrow denotes an improvement in position, and a green arrow indicates a decline in the country's standing

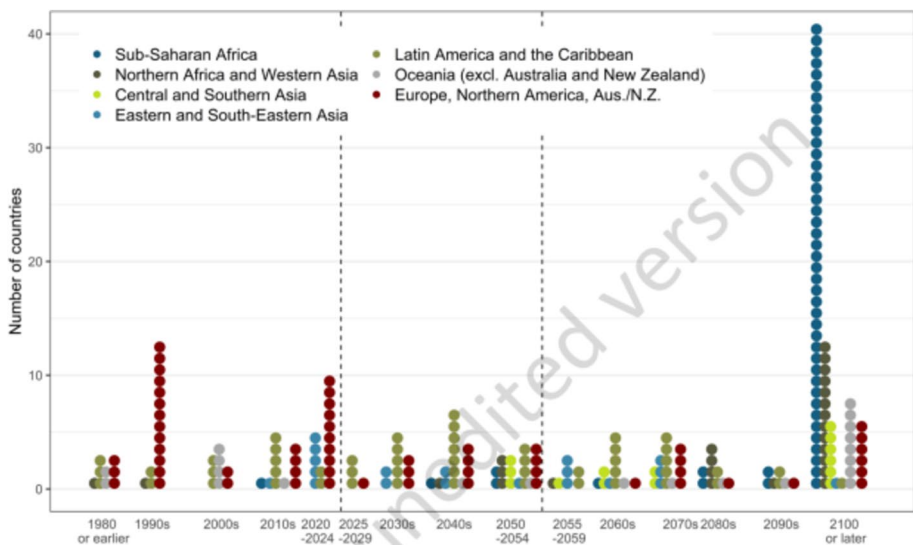
their living conditions (Corburn & Sverdlik, 2019; Camila et al., 2023). Moreover, the lack of systematic spatial knowledge regarding the genesis of slums complicates the efforts to address this challenge (Hofmann et al., 2015; Njeri et al., 2023). Despite adverse conditions, informal settlements are not uniformly negative spaces; they can exhibit resilience and community-driven improvement (Ono and Adrien 2024). The challenge of informal settlements is a pressing global issue that requires comprehensive understanding of the underlying socioeconomic and environmental factors that contribute to their development. Strategies to improve living conditions in these areas include slum upgrading and the development of validated scales to measure housing insecurity, which can inform interventions and policy decisions (Corburn & Sverdlik, 2019; Boateng & Adams, 2022; Boateng & Adams, 2023; Njeri et al., 2023; Elgohary et al., 2024). The development of such scales is crucial for tracking progress towards Sustainable Development Goal 11, which aims to make cities inclusive, safe, resilient, and sustainable (Boateng & Adams, 2023; Njeri et al., 2023; Elgohary et al., 2024).

Urban planning systems in the Global South have struggled to provide sufficient affordable land for housing, as demonstrated by the inadequate response to the growing demand (Goytia and Pasquini, 2016; Fransen et al., 2024). The most significant obstacle to obtaining land and housing is typically believed to be poverty (Godfred et al., 2023; Jelili et al., 2023). However, there is a growing agreement that we must consider the issue from a different perspective: land use regulations and laws hinder access to land through the formal market, which can have a bigger impact on access than poverty alone (UN, 2019;

Mengzhu and Xiang, 2022; Ariadna et al., 2024). Stricter regulations on formal markets lead to higher prices, compelling low-income households to resort to informal markets for affordable access to plots without any accompanying services or land tenure rights (UN, 2019; Kekana et al., 2023; Khan et al., 2024). The aim of these regulations was to establish optimal living conditions; however, they inadvertently promoted informal, untitled housing with low compliance with the law (Goytia, 2016; UN, 2019; Godfred et al., 2023). Lack of formal land and housing markets hinders development and pushes low-income households into the informal sector, resulting in low compliance with property laws (Goytia and Pasquini, 2016; Mengzhu and Xiang, 2022; Kekana et al., 2023). This is similar to our case study; however, the land market varies based on the development prospects and caliber of influencers buying land in the area. Land influencers can determine the land value, development fee, and price in a particular area. They offered to buy the land directly from the owner and resell it at a higher price to control and extinguish the middle class and the poor from the neighborhood. This practice has led to a greater expansion of informal settlements in mid-sized cities and has created a knowledge gap in urban housing literature. This study aims to shed more light on this topic.

## 1.2 Informal settlement in Nigeria

The proliferation of informal settlements in Nigeria, particularly in large cities, has been identified as a significant concern, with Nigeria among nations close to its population peak by 2054 (Fig. 2) (United Nations, 2024). This points to the rapid pace of slum growth in its urban centers and the reclassification of slums into inner-core slums and peri-urban slums (Nwachi et al., 2012; Obasi & Anierobi, 2021; Rikko et al., 2019). These areas are characterized by inadequate social amenities, infrastructure, and poor sanitation, with



**Fig. 2** Countries close to population peak by region. *Source* (United Nations, 2024) *Notes:* Each circle refers to a country or area

residents acknowledging both internal and external factors that contribute to their rapid growth (Nweke, 2020; Rikko et al., 2019). Contradictorily, while informal settlements are often seen as problematic, the "credibility thesis" suggests that they may offer functional benefits over formal housing, such as proximity to jobs and lower rates of neighborhood vandalism, as observed in Santiago, Chile (Celhay & Gil, 2020). This indicates that informal settlements can provide a better geography for some residents (Celhay & Gil, 2020). Moreover, informal settlements are not unique to Nigeria, this is a global phenomenon with significant health implications, as they are linked to both infectious and non-communicable diseases (NCDs) and are critical to achieving Sustainable Development Goals (SDGs) (Corburn & Sverdluk, 2019; Essien, 2023). This has led to unplanned urbanization and put significant pressure on urban housing in Nigeria (Essien, 2022; Essien & Samimi, 2019). In midsized cities, informal settlements have different types of housing systems in Nigeria, but the majority live in a popular one known as face-me I face-you because of its front similarity with formal housing and the existence of many outdoor bathrooms in the neighborhood. This indicates that there is a housing need for the urban population and rural–urban migrants across Nigeria in midsized cities. However, there is broad literature on rural–urban migration and informal settlements in large cities in Nigeria (Nweke, 2020; Rikko et al., 2019). The lack of empirical studies on informal housing in midsized cities in terms of neighborhood composition, living conditions, access to basic social needs, rental policy, and housing conditions raises the question of this study's objectives.

### 1.3 Urban stakeholders' theory

Urban stakeholder theory encompasses the diverse perspectives and interests of the various parties involved in urban development and management (Awa et al., 2024; Liao & Liu, 2023). It is rooted in the broader stakeholder theory, which posits that organizations should consider the interests of all parties that can affect or be affected by their actions (Fiore et al., 2021; Liao & Liu, 2023). In the context of the environment, this includes a wide array of actors such as residents, businesses, government entities, and non-governmental organizations (Fiore et al., 2021). The literature reveals that urban renewal projects often face challenges owing to the conflicting interests of stakeholders, which can impede progress (Liao & Liu, 2023). Similarly, in urban transport systems, stakeholder satisfaction is crucial and requires a continuous improvement approach to service quality, considering the different needs and expectations of various stakeholders (Beck & Storopoli, 2021). The importance of stakeholder engagement in organizational decision making has also been emphasized, with a focus on creating value sustainably and ethically (Gooyert et al., 2017). Moreover, the effectiveness of stakeholder theory in the organizational process of technological change highlights the significance of involving all stakeholders in decision making (Alsbaity, 2018; Awa et al., 2024). Urban stakeholder theory is a multifaceted concept that addresses the interactions and interests of the various parties involved in urban development. This highlights the importance of considering stakeholders' diverse expectations and needs to facilitate successful urban renewal and management. This is in contrast, especially in Nigeria, where most decisions and policies have been amended without the opinions of community leaders and urban experts. This calls for a reform that aligns with empirical findings that address the critical barriers and point towards potential strategies for stakeholder engagement, which is essential for urban development, and that measuring and improving service quality in urban areas can lead to better stakeholder satisfaction (Liao & Liu, 2023). Additionally, integrating stakeholder theory into urban housing

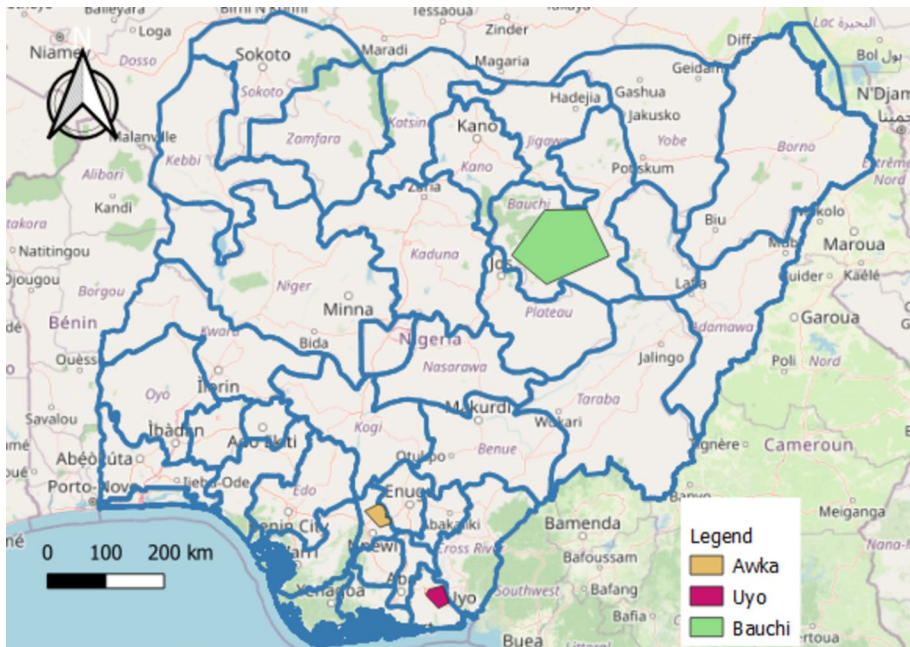
decision-making can lead to more sustainable and ethical value creation, and involving stakeholders in technological change processes can significantly impact governance (Alsbaity, 2018; Awa et al., 2024).

## 2 Research framework

The conceptual framework of this study spins three debates stemming from urban housing literature, which will be revisited in this study. Our first argument, according to the findings in the urban housing literature, is that urban labor migrants put enormous pressure on increased urban housing costs (Goytia and Pasquini, 2016; UN 2019). These migrants settle in urban areas because of basic social needs and employment opportunities. However, most migrants do not have professional jobs because of their educational qualifications, and employment opportunities in the study areas are quite limited. This makes formal urban housing unaffordable for migrants, who are mostly hooked with low-paying jobs. We argue that urban migrants in the study area do not contribute to the high cost of housing; rather, they are pushed to informal settlements in suburban areas. Second, the role of urban migration in the development of urban housing formations is wholly different from that in the Western world. In the absence of social housing for the poor, migration is low because of the high cost of housing and dwindling local economy. At the same time, out-migration is moderate given the lack of employment opportunities in urban areas in Nigeria (Essien, 2023). The lack of local economic growth to create employment opportunities has led to unregulated informal settlements in both urban and suburban areas. This type of settlement is known as a primitive settlement pattern in Nigeria. We argue that informal settlement types are now encroached upon and lie directly within the formal settlement type. Third, the uneven spread of urban development, which shifted the local economy in one direction, resulted in sparse urban housing. Urban housing schemes rely less on government building approval before the structures are erected. This housing system is common in Africa and can fuel the emergence of segregated communities, neighborhoods with no social connections, and increased crime rates. These emergent informal urban housing schemes are autonomous and their long-term resilience and sustainability are arguable. We argue that unapproved urban housing schemes lack structural dependency and place inhabitants of these buildings at risk.

### 2.1 Study area

The data for this study were drawn from three major emerging mid-sized Nigerian cities, Uyo, Awka, and Bauchi (Fig. 3). The survey was conducted in two stages: (i) field visits to the study areas, and (ii) data collection in the designated study areas. The first stage comprised of three reconnaissance visits. These data were used to validate the interviews. Most of the study areas showed clusters of urban housing systems, with many informal settlements cutting across different suburban areas. According to NPC (2023) population data, these cities have a high influx of migrant workers, approximately four hundred and twenty thousand in Uyo, two hundred and ten thousand in Awka, and one hundred and ninety-two thousand in Bauchi due to ongoing construction work in these cities. This has created a significant challenge for each city in terms of housing provision for these migrant populations. We gathered information, outlined different types of informal settlements during our fieldwork (Table 1), and cross-validated it using interview data.



**Fig. 3** Map of Nigeria showing the study areas. *Source* Authors GIS lab work 2023

**Table 1** Informal housing types

Blocks and concrete decking

Wood and zinc

Plastered block and zinc

Zinc and zinc

Block and zinc

*Source* Authors field survey 2023

For Uyo and Awka, we identified informal settlements across the urban periphery (Fig. 5), although the government demolished a few due to the former administrative head's urban restructuring programme. In Bauchi, this settlement type was adjacent to formal settlements; however, there were areas restricted to formal settlements alone. Based on informal settlement information presented (Table 1).

## 2.2 Method

First, we conducted a survey followed by semi-structured interviews as part of a broader investigation of the informal settlements in the region under study. This study focused on informal housing information and the lack of basic infrastructure across mid-sized city settlements in Nigeria, and aimed to highlight the uniqueness of this settlement type in the study area. An in-depth interview was designed to identify the challenges faced by informal

settlement dwellers in mid-sized cities in the study area, using a snowball sampling strategy (Jarrah et al., 2019). Interviews were conducted with public stakeholders, informal urban dwellers, and environmental experts in each of the three study areas, ensuring a minimum of two respondents per household in terms of informal urban dwellers. In our interviews with public stakeholders and environmental experts, we inquired about the cause of urban informality: What are the government plans to decentralize infrastructure facilities in urban areas? What are the drivers of informal settlements in these areas, and aside from demolition, do the administrative head endeavor to use other approaches to curb the spring-up of informal settlements in urban areas? Etc. In addition, hundred and fifty structure questionnaires were distributed to households in informal settlements. These households were selected based on the buildings listed in (Table 1), and were compact in nature because this is the likely attribute of informal settlements in the study areas. To include urban migrants in this study, face-to-face interview appointments were scheduled on weekends for this group of migrants because they worked on weekends, but the majority were likely to be at home. However, 90 percent of this group were successfully interviewed. In total 1103 questionnaires were retrieved after the interviews with all the intended stakeholders and our respondents, which exceeded our budget and represented a large dataset for the study areas. The survey questionnaire required approximately 20 min for participants to complete, and it comprised a variety of open-ended questions, several of which were multiple-choice questions such as how long have lived here, what was this settlement like in the last ten years (depending on how long they have lived there)? What was the nature of the infrastructure when you came here and now? What were the land prices then and now? Was there any governmental plan to relocate the residents of this settlement? Etc. The survey gathered information on respondents' education, cultural background, socioeconomic status, and employment status in terms of employment availability in these areas. In addition, multiple criteria questions were assigned and individuals were allowed to respond willingly. This was done to prevent repeated answers and to promote efficient data collection.

### 2.3 Mixed method

We used the mixed-method approach proposed by (Creswell & Clark, 2017; Fasil et al., 2023) to investigate the dynamics of informal settlements in the study area. These methods combine qualitative and quantitative approaches such as the use of participant viewpoints, data collection, analysis, and reasoning techniques. Qualitative approaches are mostly used when exploring a problem, directly reflecting participants' voices or having different perspectives from multiple participants (Fasil et al., 2023). Quantitative methods are used to understand the relationships between variables or to compare different groups (Creswell & Clark, 2017; Fasil et al., 2023). A mixed-method study was used for broad purposes of width and depth of understanding and corroboration (Fasil et al., 2023). We opted to use this method because it is well suited to answering our research question.

### 2.4 Research approach

This study consists of two parts. First, we used the qualitative method as an ideal methodology for exploratory research, with the aim of obtaining expert opinions and assessing informal settlements in the study area (Brown, 2018; Castillo-Montoya, 2016). This technique involves interviewing experts to explore their different opinions (Brown, 2018). We followed the research interview framework designed by Castillo-Montoya (2016), and

Fadil et al (2023), which comprises four stages: (i) to ensure that the interview questions align with the research questions, as there is a distinction between research questions and interview questions; (ii) to develop an interview procedure, which is considered an instrument of investigation; (iii) to receive feedback on the interview procedure, which enhances the reliability and trustworthiness of the research instrument; and (iv) to simulate the actual interview in real conditions as possible by piloting the interview protocol. Second, we use Creswell and Clark's (2017) approach to translate the results of the qualitative approach into an instrument for quantitative research. We highlight significant findings such as urban migration, housing costs, and high crime rates. These were translated into quantitative variables and used to statistically validate the study variables and empirically test the following hypotheses.

**H0** There is no relationship between the high migrant rate and high-cost housing factors in the context of triggering an increase in crime rate.

**H1** There is a relationship between high migrant rates and high-cost housing factors in the context of triggering an increase in crime rate.

A scale of 1 to 7 was applied, where 1 represented negative answers and 7 represented positive answers (Bhattacharjee, 2012; Fadil et al., 2023), with a P-value of 0.04 indicating the relationship between urban migrants and the high cost of housing in relation to urban crime. As with the qualitative questionnaire, a post-study was conducted to test and validate the quantitative survey (Bhattacharjee, 2012; Fadil et al., 2023). Peer debriefing was used to validate the analysis and coding decisions, including category formation of categories (Amin, 2018; Guest et al., 2016). The transferability of the current study was ascertained by the rich narrative and recording of the research procedure (Amin, 2018; Guest et al., 2016). Future studies should validate the transferability based on a comprehensive description of this study. The problem of dependability was addressed through field notes according to (Amin, 2018; Guest et al., 2016). By referring to these field materials, we can verify the extrapolations, interpretations, and other related errors that may arise. The content analysis findings were presented by describing each part of the model data analysis with the aim of gathering new information on informal settlements in mid-sized cities in Nigeria. The findings are presented in the tables and diagrams.

## 2.5 Data validity and reliability

First, to ensure that the reliability of the quantitative survey instrument meets quality standards, the reliability of the instrument was tested. A Cronbach's alpha score of  $0.720 > 0.60$ , is considered a reliable score (Heale & Twycross, 2015). The test of the research hypothesis indicated a significant relationship ( $r = 0.264$ ,  $p < 0.001$ ) between the model's dimensions of high migrant rate and high-cost housing factors in the context of triggering an increase in the crime rate. This shows that the null hypothesis is rejected and the alternative hypothesis is accepted (Schober & Schwarte, 2018). Second, the trustworthiness of the qualitative study was examined, based on the principles suggested by (Amin, 2018; Guest et al., 2016), which includes dependability, confirmability, transferability, and credibility. Credibility was largely ascertained through inspections of team members and peer debriefing. Team member inspection was used in various phases of data collection and data analysis, such as (i) prior to starting the interview, the interview questions were discussed

with the participants, (ii) during the interviews, we paraphrased ideas and text to the participants to refine the interpretation of the data, (iii) in the post-interview discussion, each participant was provided with the opportunity to discuss the research findings, and (iv) stakeholders in a group of six participants were willing to provide feedback and evaluate their transcripts, as well as the research findings were provided the opportunity.

### 3 Results and discussion

#### 3.1 Informal housing system in mid-sized cities

According to our reconnaissance visits and survey data, there are government housing schemes in suburban areas; however, this housing scheme is intended for the middle class and government workers. The rental system is based on criteria set by the individual who bought the house outright from the government. Our public stakeholder's respondent data in the three study areas showed that 74% of urban migrants in Uyo, 78% in Awka, and 81% in Bauchi could not afford these urban housing schemes (Table 2). This led to the development of new informal housing extensions to accommodate urban migrants. Aside from the high cost of housing (82% in Uyo, 76% in Awka, and 71% in Bauchi), it was ascertained that informal settlements are unregulated and provide a uniform payment system in terms of utility bills, such as electricity and water (Table 2). However, these settlement conditions are characterized by overcrowding, poor infrastructure, and a lack of basic social amenities.

In Uyo, Awka, and Bauchi 68%, 62% and 73% of the housing space is 6 m square, which is below the recommended average housing space of 16 m square (Guarneri et al., 2020; Habitat for Humanity, 2019). Our public respondent data demonstrated that most housing units in the study area are in one room. This housing system usually accommodates three–five single or married families. These results agree with those of related studies, which show that informal housing systems are very crowded and have compact living conditions (Müller, 2017; Wu, 2021). Our public stakeholders' data findings show that there are no governmental regulations on minimum or maximum living space in informal housing systems, but according to the UN standard 6 m square informal housing in the study areas contradicts standard housing dimensions (Guarneri et al., 2020). The government has established different measures to regulate informal housing systems in the study area, such as demolition, compensation, and negotiations. However, there are new extensions at the edges of old housing units that usually spring up depending on the urban migrant

**Table 2** Living condition in informal settlement

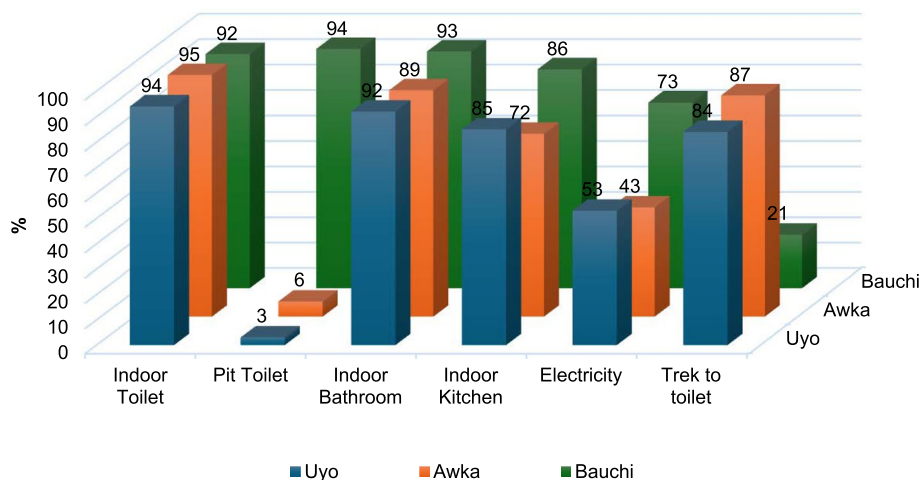
	Uyo (%)	Awka (%)	Bauchi (%)
Housing cost	74	78	81
Housing space	68	62	73
Unregulation	82	76	71
Monthly salary (range)	71	75	66
Monthly rent	82	85	79
System of ownership	63	68	58

Source Authors field survey 2023

population. Data from our environmental planner respondents attributed this to rural urban migration and low salaries in urban areas that are below the standard minimum wage.

Furthermore, our public respondent data show that 82% of the average monthly rent for a room in informal settlements in Uyo range from 2000 to 4000naira (8\$), 85% affirmed from 3000 to 5000naira (9\$), while Bauchi was 79%, ranging from 1000 to 3000naira (7\$) (Table 2). However, the rooms are not charged per square meter, and renting a house is not based on monthly income, but on your acquaintance with the previous tenant or property owner. Property owner interview data show that with cheap rent in these areas, urban migrants find it challenging to pay their monthly rent because of the economic hardship that mostly affects tenants with large families in these areas. Table 2 shows that rent is much cheaper in Bauchi owing to the use of a wooden thatch housing system that barely secured they tenants and property. Apparently, this has increased the low crime rate usually experienced in these areas, while property owners suggest that the income generated is not sufficient to renovate houses and call for government support to make settlements more habitable for urban migrants. Additionally, our property owner data show that 63% and 68% of the people living in informal settlements in Uyo and Awka, respectively, inherited property through tenured ships and extended it to accommodate the growing urban population. In the case of Bauchi, 58% inherited it (Table 2). This ownership system differs from the conventional system, which entails land acquisition, property registration, and building approval (Fransen et al., 2024; Mengzhu & Xiang, 2022). This raises the question of the process of owning an informal settlement in a mid-sized city. This has been overlooked in the global literature on informal housing. In our property owner interview data, in addition to the tenure system, informal settlement land originally belonged to urban communities and was meant for public facilities, such as schools or markets. Communities usually assign this land to the state government to build urban infrastructure. Owing to changes in governmental administration and political affiliation, most infrastructure projects have been abandoned. This creates room for individuals to convert and sublet abandoned public infrastructure facilities into living spaces, add extensions, and claim ownership of these properties. Communities support this and incur development costs. These have brought about conflict between the government and the informal community, but they have always been settled out of court due to pressure put on the government for trying to marginalize the poor.

Figure 4 shows the percentage of informal settlements in our area that lacked basic indoor housing needs, divided by location. Our interviewed data with informal settlement dwellers indicate that 84% in Uyo, 87% in Awka lack basic toilet, and the informal settlement dwellers trek around 2 km to defecate in nearby bush or farmland very early in the morning or evening when the weather is dark to avoid being caught by the farm owners, for the case of Bauchi, there is existence of pit toilet in these communities. However, it is not hygienic and does not meet the standard toilet recommendations (UN, 2019; Haruka & Uwamahoro, 2024). Simultaneously, 85% in Uyo, 72% in Awka, and 86% in Bauchi indicated the absence of an inbuilt kitchen in the study areas. Additionally, our data show that most informal urban migrants use firewood and sawdust to cook outside or beside the apartments, where the smoke from firewood can easily affect their neighbors and create conflicts that usually require a third party to resolve it. This study agrees with other related studies showing that informal settlements exhibit different characteristics in developing countries (Mengzhu & Xiang, 2022; Agyabeng et al., 2022; Camila et al. 2023; Godfred et al., 2023; Ariadna et al., 2024), however, our case study could serve as a reference study in Nigeria and fill global knowledge gap regarding informal settlements underrepresentation in mid-sized cities in urban housing literature.



**Fig. 4** Housing conditions in informal settlements. *Source* Authors field survey 2023

### 3.2 Context of informal settlement in mid-sized cities

According to our public interview data, 65% of the urban informal settlement dwellers in Uyo, 33% in Awka, and 23% in Bauchi lived with their families, while 41% in Uyo, 37% in Awka, and 44% in Bauchi lived alone (Table 3). This is in contrast to rural urban migration, which is mostly attributed to single male workers (Essien, 2023). In Uyo and Awka, 33% and 19% of informal settlement dwellers were born and raised within these neighborhoods, respectively. These areas had a long history of informal settlement, but they were scientifically neglected in urban literature. Public interview data indicate that most children in these neighborhoods are of school age; however, most sell and hawk food items during school hours to help their parents raise school fees and rents. The informal urban dweller respondents agreed that “the high cost of housing had a negative effect on children. In the case of Bauchi, 44% of the children do not go to school but are encouraged to beg on the street because of economic hardship and religious beliefs”. Though, the government offers free education to all school-aged children in this area. This finding indicates that free education can be influenced by economic hardship in urban communities.

Our property owner interview data show that homeowners in the study areas extend informal buildings without governmental approval because of the high influx of urban dwellers. The respondents shed more light on the continuous expansion of informal

**Table 3** Context of informal settlement

	Uyo (%)	Awka (%)	Bauchi (%)
Live in a family house	65	33	23
Live alone	41	37	44
Born there	33	19	11
Children of school age	55	44	44
Children in school	64	55	21
House extension	24	37	5

*Source* Authors field survey 2023

settlements, where most houses are built as shops for commercial purposes (see Awka, Fig. 5). However, urban migrants working as shop helpers plead to occupy the inner corners to avoid long-distance commuting to work. This settlement transitions to urban



**Fig. 5** Formal housing seating with informal settlements in the study area. *Source* Photo by authors (2023)

migrant offerings to pay for inconvenient accommodation, thereby providing the shop owner with the opportunity to earn more income. This has led to several extensions of informal settlements, without the inclusion of basic housing needs (Fig. 5). This agrees with public stakeholders interviewed and Fig. 5 (see Uyo), which shows that “informal settlements are not just for urban migrants but also for urban dwellers with high incomes and large families that require landed property in less expensive areas”. However, Fig. 5 shows that the drone ariel view of informal settlements in the study area has extended beyond its boundaries and has attracted the rich and middle class to build directly inside these settlements, since this settlement has encroached the urban periphery (Fig. 5). This has created a mixed neighborhood with unplanned urban development that presents new challenges, such as an increase in crime rate, noise, and air pollution due to the use of improvised electricity supplies, such as power generators that emit high carbon dioxide (CO<sub>2</sub>) (Essien, 2023).

According to our urban informal settlement dweller survey data, 33% and 27% of informal settlement dwellers in Uyo and Awka, respectively, have formal education certificates, in contrast to 9% in Bauchi (Table 4). For Uyo and Awka, 24% and 13%, respectively, have formal university degrees; however, due to a lack of employment opportunities and social welfare from the government, these urban migrants are forced into low-income informal housing. Most urban job hunters affirmed that they used these periods to wait for urban opportunities that is difficult to come by.

In terms of occupation, 23% and 19% in Uyo and Awka, while 27% in Bauchi engaged in daily wage work (Table 4), which is often seasonal, with low pay. Simultaneously, 33% of Uyo and 29% of Awka engage in various other sources of livelihood, such as menial jobs, roadside hocking, weed clearing in farmland, building construction work, and teaching in schools within urban communities. Few are self-employed and are in business such as laundry cleaning, barbing salons, and phone repairs. However, these businesses are small-scale and provide employment to family members only, while others are in small-scale retail that is struggling to grow because demand is higher than supply in terms of family expenditure. In the case of Bauchi, 21% are mostly employed in menial jobs such as bike riding (a common means of urban transportation) and meruwa (pushing water in wheelbarrows to sell), while 4% are self-employed, are in sugar cane business, roadside food vendors, and small-scale shops, and 27% are engaged in street begging with their children (Table 4). This indicates the diversity of informal settlements within the context of the study area. Our findings suggest that there is a need

**Table 4** Education and income in informal settlement

	Uyo (%)	Awka (%)	Bauchi (%)
Formal education (school certificate)	33	27	9
University degree	24	13	2
No education	38	42	51
Selves employed	9	16	4
Daily wages workers	23	19	27
Other source of livelihood	33	29	21
Monthly workers	14	18	10
Farmers	2	1	14

Source Authors field survey 2023

for a change in policy and practice to prioritize provisions to empower and strengthen the local economy and create sustainable employment for informal urban dwellers.

### 3.3 House contract in informal settlement

According to the UN (2019), standard house leasing should involve a written contract to provide security for both parties. Our public informal settlement dwellers questionnaire data show that (Table 5) 98% in Uyo, 94% in Awka, and 92% in Bauchi have no house contracts, while 63%, 77% in Uyo and Awka, and 81% in Bauchi affirmed that renting informal settlement in these areas is through verbal agreement (Table 5). Interview data from informal settlement property owners show that 23% of Uyo, 18% of Awka, and 44% of Bauchi do not know their tenants because tenants can easily rent their room out when they are leaving without the consent of the property owner. This suggests that there are no written rules to abide by when renting rooms in these settlements, and the property owner can easily eject the tenant because the verbal agreement has no legal binding. This informal renting system has a more negative effect than a positive one, and usually affects both parties. At the same time, studies show that formal housing systems in Nigeria also struggle in this aspect (Jelili et al., 2023; Obasi & Anierobi, 2021). This indicates that formal and informal renting is a developing process in Africa, and should be publicly encouraged to promote rent security between the parties involved.

Furthermore, informal settlement dweller data show that self-employed, small-, and large-scale business owners face no discrimination in renting informal settlements. Property owners focus more on the timely availability of rents. This provided the tenant with flexibility in terms of renting the house to more people without paying extra charges. This is known as the squatting housing system, which denotes a form of housing extension-based carving out of a room in a limited space to accommodate more urban migrants. The squatting system provides cheap housing and accommodates more migrants. However, its dependence on vulnerable urban migrants raises questions about human rights negligence. Property owners are mostly unaware of this because rent is paid yearly, while a few property owners demand rent at once for two or three years. Re-renting apartments in informal settlements have made these areas more compact and complex, making it challenging for dwellers to identify their neighbors because they often encounter new faces. This has led to a high crime rate and has provided room for criminals to be harbored in these areas because of the lack of a formal house numbering system. However, the government often chooses to demolish informal settlements when the crime rate is high, instead of restructuring them by providing shelter for the poor and regulating the housing market to enable urban migrants access to affordable, flexible, and cheap accommodation in formal settlement areas.

**Table 5** Informal settlement housing system

	Uyo (%)	Awka (%)	Bauchi (%)
House contract	98	94	92
Written note on rent payment	75	67	46
Verbal agreement	63	77	81
Property owner tenant relationship	23	18	44
Discrimination toward renting	82	61	51

Source Authors field survey 2023

## 4 Conclusion

Our study seeks to illuminate informal urban settlements in mid-sized cities in Nigeria and builds on the existing urban housing literature. We used an on-site research approach, informal urban housing theory, and an interview questionnaire to allow us to interact with our empirical data. Observations made during the study revealed a lack of proper housing information in informal settlements, such as absence of house contracts, toilets, bathrooms, indoor kitchens, and other basic indoor housing needs. We found a significant gap in the provision of housing information in informal settlements at the three study sites. The primary driver of informal settlements is economic hardship, which defies government-free education for school-aged children. A significant quest for urban employment and life is a key driver of the continuous expansion of informal urban settlements in the study area. Employment quests occurred among the Nigerian younger generation, resulting in the emergence of compact informal settlements across the study area. Simultaneously, informal agglomeration processes are more substantial in the cases of Uyo and Awka, which are virtually complex. In terms of housing regulations, contracts, and security, no streak role governs these areas.

The process of informal settlements in the study areas deviates, primarily from Western and developing countries, with respect to the lack of basic infrastructure and housing needs, such as electricity, room space, Internet, kitchens, and indoor toilet bathrooms. Electricity is often shared by neighbors using estimated billing systems without proper meter reading, resulting in overestimated billing and frequent power outages due to illegal connections. Public stakeholders should consider providing these basic needs to enable better living conditions. A master plan for new housing structures should be designed to avoid unnecessary extension of informal settlement structures, and policy and law should be enacted to make it mandatory for children of school age in these areas to go to school. However, rental laws that encourage contractual agreements should be encouraged to promote rent security in these areas and other developing countries. Additionally, this study provides insights into the challenges faced by residents of mid-sized cities in accessing limited employment opportunities in urban areas. Hunting for employment opportunities can also create more informal settlements in the urban periphery and indirectly trigger the prospect of these settlement extensions towards residential areas.

Our findings may not be generalizable to all informal settlements in mid-sized cities across the globe, because of the diverse nature of these settlements. However, our case study could serve as a reference for many mid-sized cities in Africa, especially informal settlements in African cities that are yet to be recognized but experience complex settlement patterns and an increase in urban labor migration. Simultaneously, this study contributes to the literature on informal settlements in mid-sized cities by providing a unique perspective on the context of informal housing information in these settlements. Although social segregation is challenging for urban migrants, hundreds of people live in informal settlements. This calls for restructuring informal settlements across cities in developing nations. Further research is needed to determine the potential impact of improved housing information availability on the living conditions of informal settlement residents.

**Data availability** The corresponding author can provide access to the data used in this study's findings upon request. However, the dataset is not openly accessible due to certain limitations, such as the potential risk of compromising research participants' confidentiality through the disclosure of sensitive information.

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