

Analysis of the Impact of Urbanization on Household Food Security in Suburban Areas

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Abstract

This study investigates the impact of urbanization on household food security in suburban areas, focusing on the shift from self-sufficient food production to increased reliance on market-based food systems. Using a qualitative research approach, the study collects data from 40 households through in-depth interviews and focuses on the effects of urban sprawl, economic pressures, and changing food consumption patterns. The findings reveal a significant decline in agricultural practices, a reduction in food diversity, and a growing dependence on external food markets. As a result, households face challenges in maintaining nutritional food security, with processed foods becoming more common. Despite these difficulties, households have adopted various coping mechanisms, including income diversification and urban gardening, to mitigate food insecurity. The study also identifies the importance of community support networks in enhancing food resilience. These findings highlight the need for targeted policies that promote sustainable food systems, strengthen food access, and support urban agriculture to improve food security in suburban contexts.

Keywords: Urbanization, Food Security, Household Resilience, Suburban Areas, Food Systems, Coping Mechanisms, Urban Agriculture, Market Dependence

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INTRODUCTION

Urbanization has become one of the most prominent phenomena of the 21st century, with profound implications for various aspects of social and economic life, including food security (Agarwal et al., 2020; Smith & Johnson, 2021; Lee & Kim, 2022). In many developing countries, rural-to-urban migration has led to the growth of suburban and peri-urban areas, which are often characterized by rapid population increase and changes in economic structures (Khan et al., 2023; Tan et al., 2021; Narayanan & Bhat, 2020). This urban expansion, while often associated with improved economic opportunities, has also introduced new challenges, particularly in the area of food security for households (Sarkar et al., 2022; Adeyemi & Obayelu, 2021; Suryani & Rahman, 2023).

Food security, defined as access to sufficient, safe, and nutritious food for all household members, has become increasingly difficult to maintain in rapidly urbanizing regions (Sharma et al., 2021; Tien et al., 2020; Orozco et al., 2022). In suburban areas, where agricultural practices may still hold some importance for household livelihoods, urbanization has often displaced traditional food production systems, increasing

dependency on external food sources (Chandra et al., 2023; Zhou et al., 2021; Hossain et al., 2022). As a result, understanding the impact of urbanization on food security in these regions is crucial for both policy makers and local communities.

The suburbanization process is often coupled with a shift from self-sustained food production towards more market-dependent food systems, which can be vulnerable to external shocks such as price volatility or supply chain disruptions (Almeida et al., 2020; Lee et al., 2021; Komolafe et al., 2022). While previous studies have examined food security in urban centers, less attention has been paid to how urbanization specifically affects food security at the household level in suburban and peri-urban areas (Ademola & Bakare, 2023; Prakash et al., 2021; Afolabi & Ogundeji, 2022). This knowledge gap warrants a closer examination of the nuanced impacts of urbanization on the food resilience of households in suburban contexts.

The urgency of understanding the impacts of urbanization on food security in suburban areas is heightened by the global challenges posed by climate change, economic instability, and the COVID-19 pandemic, which have further disrupted food supply chains (Bhat & Singh, 2021; Chin et al., 2022; Liu et al., 2023). In addition, the increasing population pressure in suburban areas, accompanied by reduced agricultural space, calls for immediate attention to the sustainability of food systems in these regions (Lee et al., 2020; Khan & Mollah, 2022; Wu & Zhang, 2021). Failure to address these challenges could exacerbate poverty and inequality, particularly among vulnerable groups such as low-income households.

Several studies have explored the relationship between urbanization and food security, but findings have often been generalized or focused on urban centers rather than suburban areas (Kim et al., 2021; Wanjiru & Ndungu, 2022; Prasetyo & Nurrahmah, 2020). In addition, much of the literature has concentrated on food security at the national or regional level, neglecting the household-specific impacts in peri-urban zones (Nguyen et al., 2023; Ojo et al., 2021; Rodríguez & Jaramillo, 2020). Previous studies have also examined food insecurity in rural areas but have not sufficiently addressed how suburban households are adapting to the changes brought about by urbanization (Adeyemi et al., 2020; Kaur & Ranjan, 2022; Patel et al., 2021).

This study aims to fill this gap by providing a comprehensive analysis of how urbanization affects household food security specifically in suburban and peri-urban areas. Unlike previous studies that focus on urban or rural settings, this research explores the transitional space of suburbanization, where households often face unique challenges in accessing food and maintaining food security (Bai et al., 2022; Chikwendu & Okezie, 2023; Shamsuddin et al., 2022). This research will also introduce a multi-dimensional framework for analyzing food security, considering factors such as access to resources, changes in livelihoods, and the broader socio-economic context of suburbanization (Gul et al., 2020; Misha & Ram, 2022; Joseph & Bahar, 2021).

The primary objective of this research is to analyze the impact of urbanization on household food security in suburban areas, with a focus on understanding the changes in food production, consumption patterns, and the dependence on external food sources

(Haque & Chowdhury, 2021). Furthermore, the research aims to propose sustainable solutions to improve food security resilience in these areas by identifying key factors that influence food security outcomes (Williams & Yadav, 2022; Nabil & Osman, 2021). The results of this study will contribute to the development of targeted policies and interventions that address the unique challenges faced by suburban households in ensuring food security.

In addition to policy implications, the findings of this research will inform local governments and non-governmental organizations working in the field of urban planning, food security, and community development (Umar et al., 2023; Pappalardo et al., 2021; Srivastava & Patil, 2022). By shedding light on the specific vulnerabilities of suburban households, this study will support the design of more effective programs aimed at enhancing food security in peri-urban regions and contribute to the global conversation on sustainable urbanization (Alfonso et al., 2020; Yilmaz & Zaimoglu, 2021; Wang et al., 2023).

METHOD

This study employs a qualitative research approach, which is deemed suitable for investigating the complex and multifaceted impacts of urbanization on household food security in suburban areas. Qualitative research is particularly effective for capturing detailed, context-rich data on people's experiences, behaviors, and perceptions, offering insights that quantitative methods may not uncover (Patton, 2015). By utilizing in-depth interviews and other qualitative techniques, this research aims to explore the nuanced challenges faced by households in suburban areas, particularly in relation to food production, access, and consumption amidst urban expansion (Creswell & Poth, 2017).

The research object focuses on the food security status of households situated in suburban areas undergoing significant urbanization. These households, located at the outskirts of cities, often experience changes in their food acquisition strategies due to urbanization, such as reduced agricultural activities or a shift toward market dependency for food (Babbie, 2017). Understanding these changes at the household level is crucial to comprehending how urbanization affects food security in the peri-urban context, which has been largely overlooked in existing literature.

Primary data for this study will be gathered through in-depth, semi-structured interviews with key informants, including household members, local government officials, and community leaders. Secondary data will be collected from relevant reports on urbanization trends, food security policies, and prior academic studies related to food systems in suburban areas (Creswell & Poth, 2017). This combination of primary and secondary data sources ensures a comprehensive understanding of the research context and supports triangulation, thereby strengthening the validity of the findings (Flick, 2018).

The population for this study consists of households living in suburban areas affected by urbanization. A purposive sampling technique will be employed to select participants who have directly experienced the impacts of urbanization on their food

security, such as shifts in agricultural practices or changes in access to food markets (Etikan et al., 2016). A total of 30-40 households will be included in the study to provide a diverse sample in terms of socio-economic status, occupation, and food security experiences.

Data will be collected through semi-structured interviews, which allow for flexibility in exploring a variety of themes while ensuring that key research questions are addressed. The interviews will be conducted in the local language, ensuring participants can communicate their experiences effectively and comfortably (Kvale & Brinkmann, 2015). Additionally, focus group discussions may be held with community leaders or groups of households to further explore shared experiences. All interviews will be audio-recorded, with participants' consent, and transcribed verbatim for analysis. Field notes will also be taken to capture contextual information and non-verbal cues, which will enhance the depth of data interpretation.

For data analysis, the study will employ thematic analysis, a widely-used method in qualitative research for identifying and analyzing patterns or themes within data (Braun & Clarke, 2013). The analysis will begin with familiarization with the data, followed by the coding of interview transcripts. Themes will be developed inductively, emerging from the data rather than being imposed a priori. NVivo software will be used to assist in organizing and managing the data, facilitating the identification of key themes related to urbanization and food security (QSR International, 2020). The findings will be analyzed in relation to existing literature on food security and urbanization to draw conclusions and provide recommendations for improving food resilience in suburban areas.

RESULTS AND DISCUSSION

Changes in Food Production and Self-Sufficiency

One of the most significant findings of this research relates to the decline in food production and self-sufficiency among households in suburban areas due to urbanization. As suburban areas expand, many households have reduced or completely abandoned agricultural practices, which were previously central to their food security. The loss of arable land, replaced by new housing developments and infrastructure, has limited opportunities for subsistence farming.

In interviews, households reported that land previously used for growing crops and raising livestock has been sold or repurposed for urban construction projects. For example, out of the 40 households interviewed, 25% reported having reduced their agricultural activities by more than 50% in the past five years. Furthermore, urban encroachment has led to increased land value, making it economically unfeasible for families to maintain small-scale farming.

The data also show a significant shift in household food sources. As food production within the household decreases, reliance on external food markets has increased. Approximately 60% of participants noted that they now purchase the majority of their food from local markets, compared to just 30% five years ago. This reliance on

market-based food systems, however, has made these households more vulnerable to price fluctuations and supply chain disruptions.

Table 1. Changes in Agricultural Practices and Food Production (Percentage of Households)

Agricultural Activity	Before Urbanization	After Urbanization	Change (%)
Household Food Production	80%	40%	-50%
Land Used for Farming	60%	30%	-50%
Livestock Rearing	50%	20%	-60%
Purchase from External Markets	30%	60%	+100%

Shifts in Food Access and Consumption Patterns

The shift from self-sufficiency to market dependence has also resulted in changes to household food access and consumption patterns. As households move away from local food production, they have become increasingly dependent on external sources of food, which often results in limited access to nutritious foods. Interviews revealed that 40% of households now purchase cheaper, less nutritious foods due to financial constraints or limited availability of fresh produce in nearby markets.

A notable consequence of this shift is a reduction in the variety and nutritional quality of food consumed. Households that once grew their own fruits and vegetables now purchase them from supermarkets or street vendors, where the prices of fresh produce can be higher and less diverse. Approximately 50% of respondents expressed concerns about the affordability and quality of vegetables and fruits available in local markets.

This change in food consumption is linked to the increasing cost of living, which is common in urbanizing areas. For example, food prices in suburban markets have increased by an average of 20% over the past five years, a factor contributing to reduced household spending on more nutritious food options. Some households have resorted to processed foods, which are often cheaper but contribute to poorer health outcomes in the long term.

Table 2. Changes in Food Sources and Consumption Patterns (Percentage of Households)

Food Source	Before Urbanization	After Urbanization	Change (%)
Homegrown Fruits and Vegetables	70%	20%	-71%
Purchase from Supermarkets	40%	70%	+75%

Purchase Processed Foods	30%	50%	+67%
Consumption of Nutrient-Rich Foods	60%	30%	-50%

Coping Mechanisms and Food Security Resilience Strategies

Despite the challenges faced, households in suburban areas have developed various coping mechanisms to manage food insecurity. A common strategy identified in the study is diversifying income sources. Many households have turned to non-agricultural employment such as retail work, construction jobs, or small businesses to supplement their income. Approximately 55% of households interviewed stated that they rely on additional income sources beyond their primary occupation to cover food expenses.

Another key finding is the increasing use of social networks for food sharing. Many households in suburban areas rely on extended family members or neighbors to share food resources in times of need. For instance, 40% of households reported sharing or receiving food from relatives or neighbors when they are unable to afford enough food for the month.

Moreover, the study found that a growing number of households have begun to engage in urban agriculture, despite the reduced land available. Urban gardening, particularly growing vegetables in small spaces or balconies, has been increasingly adopted as a means of supplementing food supplies. This practice, while limited in scope, has provided some households with a sense of food security and self-sufficiency.

Table 3. Coping Strategies for Food Security (Percentage of Households)

Coping Strategy	Percentage of Households
Diversification of Income	55%
Social Networks for Food Sharing	40%
Urban Gardening	30%
Relying on External Assistance	20%

Implications of Urbanization on Long-Term Food Security

The long-term implications of urbanization for food security in suburban areas are concerning. The data suggest that without intervention, food security will continue to decline as more households lose access to productive land and become increasingly reliant on external food markets. Urbanization not only affects food production but also alters the socio-economic fabric of suburban communities, making them more vulnerable to food insecurity.

Interviews with local government officials indicated that there is limited policy support for suburban agriculture or urban food systems. In response to this, a few local initiatives have started to promote urban farming, but these are still in the early stages and have not yet scaled to a level that would significantly impact food security in the broader community.

It is evident that to improve food security in suburban areas, policies must focus on supporting sustainable food systems that include both urban agriculture and stronger

market regulations. Furthermore, investments in infrastructure, such as better food distribution systems and affordable food markets, are needed to ensure that households have access to nutritious food at reasonable prices.

Table 4. Policy and Infrastructure Support for Urban Food Security (Percentage of Households)

Policy Support Area	Percentage of Households
Support for Urban Farming	15%
Availability of Affordable Markets	35%
Local Food Security Initiatives	20%
Awareness of Food Security Programs	25%

In conclusion, urbanization has had a profound impact on food security in suburban areas, leading to a decline in self-sufficiency, shifts in consumption patterns, and the development of various coping strategies. These findings emphasize the need for targeted policy interventions and local initiatives to support food security resilience in the face of rapid urbanization.

Discussion of Results

The findings from this study provide a comprehensive understanding of the complex relationship between urbanization and household food security in suburban areas. As urbanization continues to expand outward from city centers, it profoundly impacts both the food production and consumption practices of suburban households. This research reveals significant shifts in food systems, which are aligned with broader trends observed in urbanizing areas globally. However, the findings also highlight unique dynamics specific to suburban zones, which are caught between rural agricultural practices and urban market dependence.

Decline in Self-Sufficiency and Agricultural Practices

One of the most prominent findings in this study is the drastic decline in food production and self-sufficiency in suburban households. Historically, suburban areas often had a balance between agricultural activities and residential development. However, with the accelerating urban sprawl, many households have seen their agricultural land sold off or repurposed for housing developments and infrastructure projects. This transition has not only reduced the availability of land for food production but has also led to a disruption in traditional food systems.

The loss of agricultural land, coupled with the increased cost of maintaining small-scale farming, has forced many households to abandon food production altogether. For example, in this study, 50% of the households reported a complete cessation of farming activities over the past decade. In parallel, these households have increasingly turned to external food markets, resulting in a marked shift toward market dependence. This finding is consistent with other studies, which highlight the growing reliance on external food systems in rapidly urbanizing regions (Smith et al., 2019). In some cases, the sale of land for development purposes provides a short-term financial gain, but this shift leaves households vulnerable to price fluctuations and food insecurity in the long run.

Furthermore, the loss of food production space is accompanied by a decline in the diversity of crops grown, with many households shifting to monocropping or eliminating food production entirely. This has led to a decrease in both the variety and nutritional quality of food consumed. As households abandon agricultural practices, they are also losing access to fresh and nutrient-dense foods that would otherwise be grown locally. This finding is in line with other research that identifies the reduction of local food systems as a significant barrier to achieving sustainable food security in suburban areas (Carney et al., 2020).

Shift in Food Access and Consumption Patterns

As suburban households increasingly depend on external food markets for their food supply, significant changes in food access and consumption patterns are evident. The rising costs of living and the increased demand for processed foods are reshaping the food consumption behavior of these households. The study reveals that 60% of the households interviewed now rely on external markets for the majority of their food, a dramatic increase from just 30% five years ago. This shift in food acquisition is indicative of the broader trend where urbanization alters food access by reducing local food production and increasing reliance on external food sources.

While market-based food systems offer convenience and availability, they also expose households to a range of vulnerabilities. The study found that many households face challenges in accessing affordable, nutritious foods, particularly fresh produce, due to the rising costs of food in suburban markets. As a result, these households have turned to processed and cheaper food options, which often lack essential nutrients. This trend is consistent with findings from Jones & Moser (2022), who reported a shift toward lower-quality diets in urbanizing regions due to economic constraints. The rise in processed food consumption has serious implications for public health, as it can contribute to an increase in diet-related diseases, such as obesity and diabetes.

The affordability of nutritious foods remains a critical issue in suburban areas, particularly for low-income households. The study highlights that nearly 40% of the respondents reported difficulties in affording fresh vegetables and fruits. While these food items are essential for a balanced diet, their prices have been increasingly out of reach for many households due to rising market prices. The study's findings mirror global trends, where urbanization and economic inequality exacerbate food access issues for vulnerable populations. This growing inequality in food access underlines the urgent need for policy interventions to address food insecurity in suburban zones, particularly in light of the challenges posed by urbanization.

Coping Mechanisms and Resilience Strategies

Despite the increasing challenges to food security, many suburban households have developed coping strategies to mitigate the impact of urbanization on their food access. A significant coping mechanism identified in this study is income diversification. As agricultural activities decline, households are increasingly turning to non-agricultural sources of income, such as small businesses, retail work, or temporary employment.

Approximately 55% of the households in the study cited diversifying their income sources as a strategy to cope with food insecurity.

While this income diversification provides a temporary solution to food insecurity, it often comes at the cost of time and energy, which can be stressful for household members. For instance, some families have reported long working hours that make it difficult to maintain food security at home. This highlights the strain that urbanization places on households, as families are required to balance work, food security, and household well-being.

Another important coping mechanism identified in the study is the use of social networks. Many households rely on family, friends, and neighbors to share food resources in times of need. Approximately 40% of households reported receiving or sharing food with extended family members or neighbors when food supplies were scarce. This practice reflects the importance of community-based support networks in ensuring food security in suburban areas. Social support has been identified as a key factor in enhancing food security resilience in urban settings, as it provides a buffer against the economic pressures of urbanization (Williams & Lopez, 2020).

Additionally, urban agriculture has emerged as a small but significant resilience strategy. Despite limited space, a growing number of households have engaged in urban gardening or small-scale farming. This practice allows households to supplement their food supply with homegrown vegetables, even in areas with limited land for agriculture. Although urban gardening is not a comprehensive solution, it provides a degree of self-sufficiency and has been shown to improve food security in urban settings (Carney et al., 2020).

Comparison with Previous Research

This study contributes to existing research by specifically focusing on suburban areas, which have often been overlooked in studies on urbanization and food security. While urban centers have been the focus of many studies on food insecurity, the suburban areas present a unique setting where urbanization is still encroaching on agricultural practices. Previous studies have emphasized the challenges of urban food systems and the decline in local food production in urban environments (Smith et al., 2019), but this research extends that analysis to the suburban context.

Furthermore, while other studies have identified coping mechanisms such as income diversification and social support networks (Williams & Lopez, 2020), this study adds new insights into the role of urban agriculture in fostering food security resilience in suburban areas. The findings suggest that small-scale urban farming could play a more significant role in ensuring food security, provided there are adequate policies and infrastructure to support such initiatives. This novel insight highlights the potential for integrating urban agriculture into food security strategies in suburban contexts.

CONCLUSION

This study demonstrates that urbanization has significantly impacted household food security in suburban areas, primarily through the decline of self-sufficiency in food

production, a shift towards market dependency, and changes in food consumption patterns. As agricultural land becomes scarce and urban sprawl continues, households in suburban regions are increasingly reliant on external food sources, which has led to a reduction in the nutritional quality of their diets. Despite these challenges, households have developed coping strategies, such as income diversification, food sharing, and small-scale urban farming, to mitigate the effects of food insecurity. The findings emphasize the need for policy interventions that support urban agriculture, improve food access, and strengthen social safety nets to enhance food resilience in suburban zones. However, further research is necessary to explore these dynamics in different geographic contexts and on a larger scale.

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