



REVIEW

Local Food Markets as Human-Centered Hubs: Integrating Social Fragility and Health in Urban Regeneration

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ABSTRACT

Contemporary urban planning faces a complex convergence of challenges, including population ageing, increasing socioeconomic inequalities, and the intensification of climate-related phenomena such as the Urban Heat Island (UHI). These dynamics disproportionately affect vulnerable populations, particularly older adults, calling for a shift from technology-driven models toward a more human-centered paradigm of urban regeneration grounded in equity and health. This study aims to explore the potential of Local Food Markets (LFMs) as human-centered urban hubs that integrate food access, social cohesion, and health promotion into regenerative urban strategies. To this end, a narrative review methodology was adopted to synthesize interdisciplinary literature from urban studies, public health, sociology, and food systems research. Relevant sources were identified through major scientific databases using targeted keywords related to urban regeneration, food accessibility, ageing, and climate vulnerability. The findings highlight that LFMs can function as strategic nodes within neighborhood-scale regeneration processes, particularly by enhancing walkability, fostering social interaction through “third places,” and supporting healthier dietary behaviors among vulnerable groups. Moreover, their role becomes especially critical under conditions of reduced mobility and thermal stress, where proximity and accessibility directly influence food choices and social participation. The study contributes to the literature by conceptualizing LFMs as integrative infrastructures that connect spatial, social, and health dimensions of urban life, advancing a framework that links urban regeneration with thermal equity, ageing, and food systems. These insights provide a basis for policy and design strategies aimed at promoting more inclusive, resilient, and health-oriented urban environments.

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1. Introduction

In the contemporary era, we are confronted with challenges of unprecedented magnitude that far surpass those encountered in previous eras. Among the phenomena linked to climate change, the Urban Heat Island (UHI), combined with heatwaves, has the most significant impact in urban areas; therefore, it is essential to identify strategies to help the population mitigate its effects. In contemplating the urban landscape of the imminent future, it appears probable that, over the course of the coming decades, human populations will be increasingly attracted to the demographic category

that is considered the least productive category and, concomitantly, the one that experiences the highest incidence of illness (see **Figure 1**). Consequently, this category may exert the most substantial influence on our social system. In the context of increasing life expectancy, it is imperative to consider the potential ramifications for social expenditures, which could escalate exponentially. If scientific and technological progress remains at its present level, it is reasonable to hypothesize that the following scenario will unfold. Conversely, the social costs associated with an increase in the elderly population could escalate substantially.

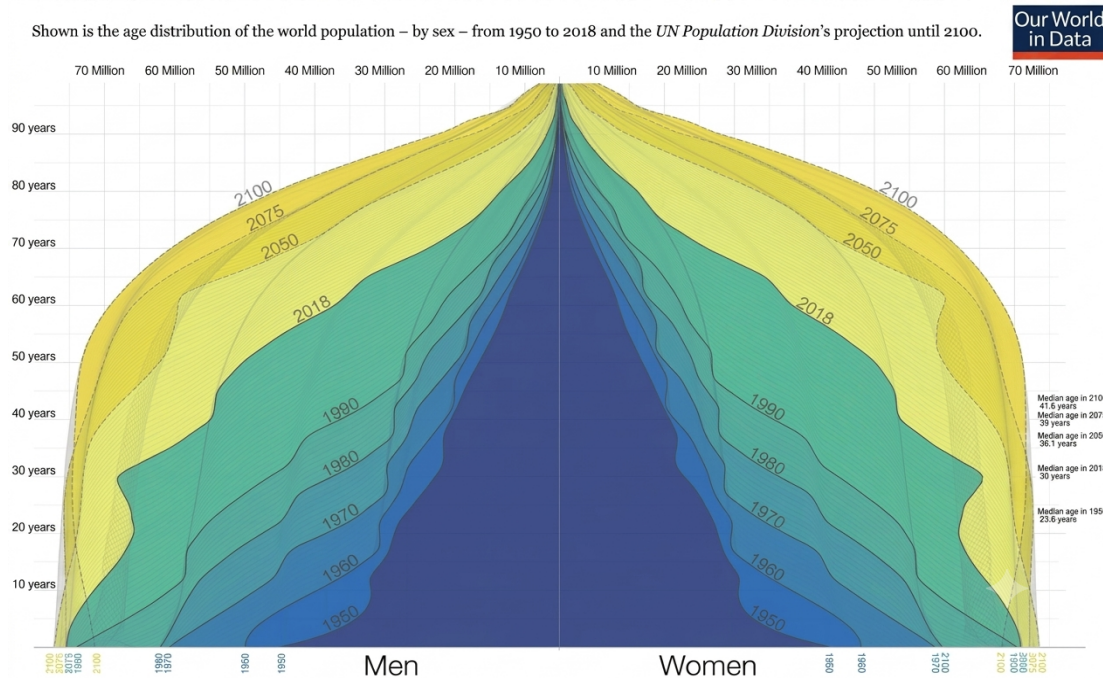


Figure 1. Distribution of the Population by Sex from 1950 to 2018, and the UN Population Division's Projection until 2100.

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In the context of the global discourse on climate change, specific terminologies such as “resilience,” “equity,” and “renewability” are frequently employed. However, these phrases risk becoming ‘empty’ if not adequately defined with respect to the specific social distribution of the urban environment to be regenerated. The question must be posed: does this also consider whether these citizens can be treated

like others? Acknowledging that these citizens require a distinct, more inclusive approach is imperative. The fragility of the natural environment necessitates a particular strategy, necessitating the comprehensive implementation of climate justice principles and the integration of the ‘Project of Life’ concept^[2,3].

History, urban planning, and architecture have taught

us that defining a model of a city is a highly complex, if not impossible, task. This has led to the conclusion that a new paradigm is required; one capable of breaking the non-neutrality

of urban processes to reaffirm the centrality of the human being and adequately protect the most socially fragile groups in terms of quality and health. This human-centered approach moves towards constructing a healthy city and thus overcomes the limitations of what is now defined as a smart city. However, this could result in a less smart city for these social groups. The new urban regeneration concept has been established as an exploratory approach, focused on studying the use of urban spaces and the related social dynamics^[4]. The program aims to analyze and improve the physical, economic, and social environments of disadvantaged neighborhoods^[5,6]. The development of effective strategies to address these challenges requires a deep understanding of citizens' needs, behaviors, and lifestyles, as well as identifying key urban sites that, when suitably transformed, can attract and serve the local population. It is important to note that green open spaces receive particular attention for their well-documented capacity to enhance well-being, improve mood, and support health-promoting outdoor activities^[7–10]. Furthermore, it has been demonstrated that architectural, cultural, and artistic proposals can contribute to regeneration, as evidenced by several case studies conducted in Italy^[11–13] and in other European countries^[14,15]. Furthermore, social sites such as libraries^[16], urban squares^[17,18], and community centers play a vital role in fostering social interaction and supporting urban regeneration processes. Urban regeneration planning should be based on a multifaceted approach, creating not isolated zones, but a coherent network of places that adequately support inhabitants' daily lives^[19]. This paper aims to explore the role of Local Food Markets (LFMs) as human-centered hubs within urban regeneration processes, with particular attention to ageing populations, social fragility, and climate-related stressors. To address this objective, the study focuses on the following research questions:

- How does urban heat and reduced mobility affect food accessibility for vulnerable populations?
- In what ways can Local Food Markets contribute to social cohesion and health promotion in ageing urban contexts?

- How can LFMs be integrated into urban regeneration strategies to support more inclusive and climate-resilient cities?

2. Methods

This narrative review examines the social and cultural importance of neighborhood LFMs as a key element of urban regeneration, oriented towards vulnerable population groups, based on the evidence currently available in the literature. A narrative approach was selected due to the topic's complexity and multidimensionality. The literature search was carried out across multiple databases—including Web of Science, PubMed, Scopus, and Google Scholar—between November 24 and September 2025. Primary search terms included “urban regeneration,” “social regeneration,” “local food market,” “food desert,” “food availability,” “mental health,” “cognitive decline,” and “frailty.” The search was limited to English-language publications, with preference given to studies published within the past decade to ensure the integration of the most recent and relevant findings. Earlier works were also included when more updated evidence was lacking. Additional articles were retrieved from the reference lists of the original papers. The selection process involved the following sequential steps: initial screening of titles and abstracts, full-text evaluation. Exclusion criteria encompassed: (a) studies whose thematic focus did not align with the objectives of specific sections of the review, and (b) PhD dissertations, conference proceedings, abstracts, and unpublished materials. In total, 79 articles met the inclusion criteria and were incorporated into the final review.

3. Elderly, Heat, and Socialization

The conventional definition of a “food desert” typically relies on static Euclidean metrics, such as living more than one mile from a supermarket. However, for the elderly, access is a dynamic function of “traversability” rather than simple distance. Age-related declines in mobility, including osteoarthritis, sarcopenia (muscle loss), and balance deficits, make physical travel arduous under standard conditions.

During extreme heat events, the physiological cost of walking increases dramatically. For an elderly pedestrian, a 15-min transit to a supermarket in 35 °C (95 °F) heat presents a significant cardiovascular and thermal stress test. The “crit-

ical radius” of mobility shrinks as temperatures rise. Consequently, behavioral adaptation occurs: older adults reduce their travel radius to avoid thermal discomfort, substituting distant supermarkets for proximal convenience stores. This results in an immediate dietary shift toward shelf-stable, ultra-processed foods, which are typically calorically dense but nutrient-poor, lacking the water content and electrolytes found in fresh produce^[20].

The syndemic^[21] is further complicated by economic constraints, specifically “energy insecurity”. Low-income older adults often face a “heat or eat” dilemma, a stark financial trade-off between purchasing adequate food and operating cooling appliances.

Hernández^[22] identifies this trade-off as a critical determinant of health. During summer months, limited financial resources are diverted to electricity bills to maintain a habitable indoor temperature and prevent heat stroke. This diversion of funds necessitates caloric restriction or the purchasing of cheaper, lower-quality food items. Conversely, “storage crisis” phenomena occur in housing units lacking air conditioning. High indoor temperatures can exceed 30 °C (86 °F), leading to the rapid spoilage of fresh produce, milk, and meat. To minimize waste and the risk of foodborne illness, residents may preemptively avoid buying perishables and instead rely on preservative-laden canned goods and processed dry foods. Thus, the UHI effect extends into the kitchen, shaping the nutritional quality of the diet.

The intersection of aging, food insecurity, and urban heat represents a silent emergency. It does not always manifest in singular catastrophic events. Still, in the slow, quiet erosion of health capacity in vulnerable populations, the seniors are conserving medication, rationing food, and enduring stifling heat alone. As climate change intensifies urban heat profiles, municipal policy must evolve. We must integrate thermal equity into food security planning, recognizing that a city that is too hot to walk in is one where the elderly cannot eat well. The well-being of the urban elderly depends on designing cities that account for their physiological and economic realities.

As mobility decreases and driving becomes hazardous or impossible, an elderly person’s “life radius” contracts to their immediate neighborhood. Within this reduced sphere, the loss of a spouse, the dispersal of children, and the passing of peers can create a vacuum of social interaction. Medi-

cal literature is clear on the result: prolonged isolation in the elderly is associated with a 29% increased risk of heart disease and a 32% increased risk of stroke^[23]. However, the remedy need not always be clinical. By analyzing the sociological functions of the marketplace through the lens of Oldenburg’s “Third Places”^[24] and Granovetter’s “Weak Ties”^[25], it is possible to demonstrate how accessible, walkable, and interaction-oriented retail environments serve as a vital remedy for elderly solitude. Granovetter taught us that the bonds that hold society together are often thinner than we think. For the elderly, the preservation of these thin bonds is not a luxury; it is a prophylactic against social death.

A robust Age-Friendly City must therefore prioritize spaces that generate weak ties. We do not necessarily need to force deep friendships upon loneliness; we need to build environments where they can be “regulars”. In the geometry of aging, the bridge is often more vital than the destination. If an elderly person orders groceries online, they receive the caloric nutrition but miss the “social nutrition” and remove themselves from the physical gaze of the community “bridge,” rendering them invisible to the informal safety net. Similarly, Oldenburg indicated that when retirement dissolves the “Second Place” (the workplace) and mobility issues constrain the “First Place” (the home), the elderly individual is often left with a vanishing social geography. The “Third Places”, as neutral and accessible grounds of conversation, are not merely recreational luxuries but essential psychological anchors.

4. Integrating Commercial Spaces and Food Accessibility in Urban Regeneration

The efficacy of urban regeneration plans depends on clear evidence of residents’ propensity to use proximity-based services during leisure time. This phenomenon concomitantly exerts a substantial positive influence on sustainable mobility outcomes. In addition to appealing green, social, and cultural spaces, an advanced, sustainable neighborhood should also ensure that its residents’ basic needs are met. Consequently, accessible and well-integrated commercial areas are instrumental in developing sustainable neighborhoods. In such contexts, the ability to access food retail outlets efficiently and conveniently is frequently identified

as a pivotal factor in revitalizing local communities. Conversely, the ‘food desert’ phenomenon has been the focus of academic inquiry^[26]. This term refers to a situation in which access to affordable, nutritious food is limited due to failures in urban planning interventions^[27–29]. The prevalence of food deserts has been linked to poor dietary habits and an increased risk of morbidity, including mental health issues^[30]. Several studies have highlighted the limited availability of fresh fruits and vegetables in such areas^[31]. A strategy proven effective in improving access to healthy food is promoting local food markets (LFMs). These markets, initially designed for shopping, often serve as places to buy food and as community hubs. In this role, they facilitate social interaction, provide shared experiences, and potentially reinforce a sense of belonging. These markets are increasingly recognized as key elements in the urban food system^[32], with recent studies demonstrating the effectiveness of this approach^[33,34]. The potential of LFMs to enhance the social fabric can be realized by re-evaluating the role of food within communities. This re-evaluation should encompass the recognition of food as a constant companion in daily life, an element of pleasure and identity, and a source of nourishment. The dynamics of food supply and purchasing are pivotal factors in the context of a daily, necessary activity that substantially influences people’s economic well-being, social interactions, and health. Moreover, food available in local markets is often closer to traditional local gastronomy than goods from the grocery market. It can be associated with virtuous concepts such as biodiversity, seasonality, freshness, and local production. These features are closely related to tradition and the principles of the Mediterranean Diet, which, as Basagaña et al.^[35] emphasize, represents an outstanding sustainable resource for the Mediterranean area, promoting local production and consumption while reinforcing social cohesion and trust between citizens and food systems. In a context where consumers are increasingly distanced from industrial food production processes, LFMs and the Mediterranean Diet offer a return to practices perceived as more authentic, natural, and culturally coherent. This reconnection fosters a sense of autonomy and self-assurance in dietary choices, aligning with a pervasive aspiration for transparency and quality in everyday consumption. These values can be emphasized to promote appreciation among citizens, including older and vulnerable individuals, by highlighting the cultural

and emotional significance of food traditions. As Basagaña et al.^[35] observe, the aspiration for “pure,” “healthy,” and “authentic” food can be seen as indicative of a more extensive societal movement towards reclaiming food as a significant and reliable aspect of life.

5. Inclusive Local Food Markets Designed to Support Food Access for Elderly and Frail Residents

The notion of “age-friendly cities”^[36] is predicated on inevitable physical and cognitive deterioration associated with the ageing process^[37]. However, it can be expanded to include individuals who are not necessarily elderly, thereby facilitating the development of inclusive, fully accessible urban pathways. The development of people-friendly urban spaces that foster social interaction may transform older and vulnerable individuals from passive recipients of services into active contributors to society^[38], thereby enhancing their quality of life^[39] and safeguarding their autonomy^[40]. It has been posited that improving social cohesion in public open spaces is a pivotal factor in optimizing the well-being of the elderly^[41] (**Figure 2**). Local markets are often considered appealing destinations for tourists^[42]. However, the strategic implementation of LFMs can also meaningfully contribute to open space, even within enclosed areas, through fruits and vegetables that evoke a sense of naturalness. Furthermore, the appeal of local products extends not only to visitors but also to residents. Specifically, older adults spend most of their time in their local neighborhood environment for physical, emotional, and financial reasons^[4]. The incorporation of these entities thus presents a significant opportunity to revitalize local markets and fulfill their customary social function. Local stakeholders should design LFMs per these principles, incorporating provisions for seamless connections, functional and safe access, and internal pathways, while avoiding mobility barriers. As emphasized by Marquet and Miralles-Guasch^[43], the presence of walkable and accessible environments has been shown to impact older adults’ autonomy and physical activity levels substantially.

It is imperative to allocate attention to promoting well-being, encompassing temperature control during both warm and cool seasons, designated resting areas with seating or surfaces to lean on, access to drinking water, and accessi-

bility to essential services. Moreover, fresh and seasonal produce fosters a sense of authenticity and trust, reinforcing the role of LFMs as culturally coherent and socially inclusive spaces^[44].

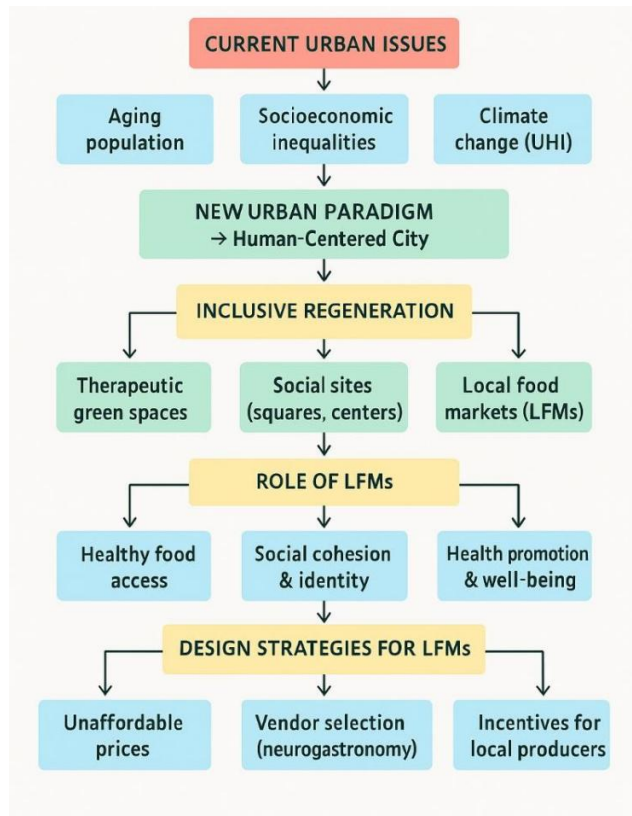


Figure 2. Conceptual diagram of Local Food Markets as Human-Centered Urban Hubs.

Sources: Created by the authors.

6. Food Habits' Impact on Health and Wellness

It is evident that dietary behavior exerts a substantial influence on health^[38] and is a contributing factor to mental disorders^[45,46], including the development of Alzheimer's disease^[47,48]. This has led to a call for public intervention, particularly to increase fruit and vegetable intake among the population at high risk. Fu et al.^[49] proposed a protocol to encourage individuals with serious mental illnesses to adopt healthier eating habits. The intervention incorporated motivational strategies, including familiarizing local farmers' markets and visiting selected grocery stores. In urban contexts, LFMs can serve a comparable function by promoting access to healthy foods in supportive, inviting settings and

facilitating assisted access to specific functional foods for the elderly^[50] and frail people^[49,51]. As McCrickerd and Forde^[52] and Forde and de Graaf^[53] have demonstrated, sensory properties of food, both anticipated and encountered, play a pivotal role in determining consumer food preferences. LFMs, as effective conduits for targeted eating experiences, emerge as promising platforms for facilitating customer engagement. Providing informative sessions can complement the organization of tasting events. The content of these sessions may relate to the health properties of foods or the availability of foods that help prevent or manage specific diet-related diseases. LFMs have the potential to serve as focal points for initiatives to improve dietary habits by leveraging the communal nature of food consumption. Moreover, even the simple act of observing food, especially familiar and visually appealing items, has been shown to stimulate appetite. This is relevant to the elderly population, in whom reduced appetite is prevalent and can increase the risk of undernutrition and sarcopenia. The multisensory approach to food, as explored in the emerging field of neurogastronomy, emphasizes that all senses contribute to food perception, with sight reinforcing smell and taste stimuli^[54]. Innovative LFMs can leverage enhanced sensory experiences, particularly olfactory stimulation, to cultivate a positive relationship with eating by providing pleasant, immersive activities. Furthermore, providing sensory engagement opportunities for older and frail populations has the potential to monitor and counteract cognitive decline^[55]. Recent studies have confirmed that sensory appeal remains a key driver of food acceptance among older adults, even in age-related sensory decline^[56]. As demonstrated in the seminal work of de Boer et al.^[57], a robust body of evidence links age-related sensory decline to neurological disorders and to cognitive decline. This decline can harm eating behavior, as diminished sensory perception reduces the enjoyment of food and influences dietary choices^[58]. Initiatives such as the Food4Seniors project have demonstrated that enhancing sensory quality—texture, aroma, and visual design—can significantly improve dietary engagement and health outcomes in ageing populations^[59].

Nevertheless, research has demonstrated the efficacy of sensory training in promoting positive health outcomes^[60]. It is hypothesized that sensory stimulation may benefit older adults, primarily through the holistic framework of neurogastronomy. The olfactory system has been shown to be

highly responsive to training; enhancing the sense of smell has been shown to support learning transfer to other sensory domains^[61], improve memory^[62], and activate brain regions involved in semantic memory, such as the hippocampus^[63]. In line with urban regeneration objectives, LFMs can offer frail populations a welcoming environment in which to engage in social interactions and access opportunities to support their health through a knowledgeable approach to food choices. Moreover, an enjoyable food-shopping experience at LFM has been shown to act as a catalyst for home cooking, a practice consistently associated with improved health outcomes^[64].

7. Regulatory Instruments That Can Promote Inclusive Local Food Markets

To make local food markets the effective places of inclusion described above, stakeholders need to find a favorable economic and regulatory environment. An initial European regulatory reference supporting small and medium-sized enterprises and local urban commercial services is the Small Business Act^[65], with its key principle of “Think small first”: promoting models for aggregating commercial activities and services that would otherwise risk disappearing, crushed by competition from large retailers (large shopping centers, malls), adapting administrative rules and public policies to the micro-dimension of urban areas, in line with the needs of these aggregations. It is no coincidence that these aggregations become tools to fill the gaps created by food deserts associated with large-scale distribution and by the lack of access to services for vulnerable sections of the population. Throughout Europe, various models of “open-air” clusters of small commercial and craft businesses are emerging, found in historic centers as well as along main shopping streets. In Italy, these clusters of small businesses, in their earliest form, were called natural shopping centers (CCN) and became an operational and organizational tool to strengthen neighborhood SMEs against the expansion of large-scale distribution. These entities in Italy were regulated at the regional level for the first time in 1999, but starting with Legislative Decree No. 114 of 31 March 1998^[66]—the Reform of Trade Regulations, which gave the regions the power to legislate in the commercial sector, including support poli-

cies and urban planning. The first to mention CCNs was the Region of Tuscany in 1999, followed by many others, such as Emilia-Romagna, Lazio, Marche, Sicily, and Sardinia. These entities do not have financial autonomy; in fact, they depend heavily on voluntary contributions from associated commercial activities, regional contributions, support from foundations, municipal co-financing, or participation in regional calls for proposals or European funding. Today, the concept of CCN has evolved into “Commercial Districts” or “Urban Hubs” and “Proximity Hubs”. These new entities involve public-private partnership agreements and the identification of a party to provide management services. The relevant legislation clearly refers to tourism, spatial planning, and urban regeneration. For example, in Emilia-Romagna, Law No. 12 of 2023—Development of the urban economy and qualification and innovation of the commercial and services network^[67]—the proximity hub shifts the focus to its strategic impact on the urban and social fabric. In contrast, in the original CCN concept, the social and regeneration aspects remained implicit, and the focus was mainly on commercial aggregation. The proximity hub thus becomes an operational tool to support the urban and local economy, aiming to innovate the service network and attract new investment. Here, the paradigm shift is clear: commerce is no longer the sole purpose of every idea, but becomes one of the tools of shared governance within a strategic vision for the short, medium, and long term.

There are similar commercial models and initiatives at European and international level, among which the most widespread and integrated is the Business Improvement District (BID), widely used in England^[68]. A BID is a well-defined area, which may be a section of a shopping street or part of a town centre, where local businesses come together in a private company or public-private partnership to improve their trading by self-financing (through a compulsory levy) the implementation of initiatives voted for by the majority. In addition to improving their trading, businesses take on the responsibility of promotion (organizing events), maintenance of street furniture (decoration and cleaning), and security through private patrols. Self-taxation guarantees greater resource stability, making the model more effective than the Italian version, which remains tied to voluntary contributions or public tenders.

Similarly, the “Action Coeur de Ville” is a French

model that stems from a 2018 national policy aimed at revitalising the urban centres of medium-sized cities, which account for about 25% of the national territory^[69]. The leaders are the municipalities, guides of a complex, cross-sector partnership, which are called upon to define their priorities at the urban level, leveraging partners and state funding. The main objectives are: 1. Supporting ecological projects by encouraging ecological transition: planting trees, managing public spaces, and reducing the carbon footprint of buildings; 2. Improving services and creating local jobs; 3. Revitalizing city centers by redeveloping buildings and developing public spaces; 4. Accelerating complex projects through financial and human support, ensuring their completion within optimized timeframes. The aim here is not only to revive trade but also to carry out urban and building renovations in parts of cities experiencing difficulties. Another model, which is much closer to Italian urban and neighborhood hubs, stems from the “15-min city” initiative, which identifies the neighborhood as a “neighborhood hub” designed to ensure that people can meet all essential needs within 15 min. Small traders and local associations are active participants in the regeneration and adaptation of urban spaces. However, here the criticism that this study starts from re-emerges, concerning the need to go beyond the standardization of the average citizen to whom this urban model typically refers.

A model of a city that has a fair approach to integrating services and promoting well-being, with attention to vulnerable populations in its regeneration, is the Longevity City^[70], deeply aligned with the social concepts of Italian neighborhood hubs and BIDs. The central objective of the Longevity City is to promote the health of every citizen, social inclusion and active ageing. It is therefore implicit that any service of potential interest to the vulnerable and elderly population can also host social and health services to diversify the offer and serve as a potential place for meeting and participation to combat social isolation.

Once the possibility and convenience of expanding one’s business with a new one that responds to certain social and climatic needs has been defined, an essential for a commercial and service activity is to find an administrative and bureaucratic apparatus that facilitates and accelerates investment and the possible implementation of works related to the new business idea as much as possible. In a country such as Italy, this means understanding the existing regula-

tions, which, if slightly modified and combined with other existing ones, could fully meet the new requirements. For example, in the Emilia Romagna region, there is the DEHOR regulation—outdoor spaces equipped with tables and chairs, which a public establishment, such as a bar or restaurant, uses to welcome customers outdoors during the summer months, for which they pay the municipality a tax for occupying public land and a concession fee. This regulation is implemented at municipal level (e.g., regulation of the Municipality of Bologna)^[71]. Where the urban fabric allows, these spaces could be expanded, even considering NBS, or in any case, areas (with different sizes depending on the possibilities and initiatives) that could become meeting places, activity and refreshment areas, partly even without the obligation to consume, because fragility is not only health-related or due to old age, but also economic, and often the two are strongly correlated. During the COVID-19 emergency, legislation was enacted on DEHOR, currently still in force, to simplify the occupation of public land by light and removable structures (D.P.R. No. 31/2017—Regulation for the simplification of procedures relating to cultural and landscape heritage^[72]; with additions in Decree Laws such as D.L. No. 76/2020^[73] and subsequent ones), in areas not subject to Superintendency restrictions, delegating local regulation to municipalities in all cases^[74]. This type of simplification, although it starts with emergency measures, can have positive repercussions by creating physical areas where social activities can be carried out, which also serve as microclimatic refreshment stops during the summer months. Supporting this potential for public-private agreements is a new legislative framework that focuses on the elderly and disabled throughout their life journey and social integration. This new, advanced legislation in Italy proposes a personal, non-standardized pathway for people with disabilities, designed to move beyond the concept of need and focus on the person’s desires and expectations. The aim is to identify the support needed to improve quality of life, develop individual potential, and promote social participation, autonomy, and the ability to choose one’s own life context. It aims to facilitate social inclusion and participation in various life contexts on an equal footing with others (Legislative Decree 62/2024—Life Project^[75]). Furthermore, Italy implemented legislative measures through the National Law No. 33/2023—Elderly and Caregivers^[76], which aims to reorganize the care system for the dependent

elderly and to support family caregivers. The innovation lies in the assessment of each care case, integrating health and social services, with a customized plan that defines the services needed by the elderly person and how to support the caregiver. The aim is to ensure fairer and more uniform access to services and to recognize the role of carers. As both regulations are very recent, the sectors involved are in the initial phase of application and experimentation, with implementation underway in each local area. For this reason, this study briefly examined, for example, the regulatory options available to the Emilia-Romagna Region^[67] and the Municipality of Bologna^[71].

At the Italian national level, the reform of the regulations governing the commercial sector, introduced by Legislative Decree 114/1998^[66], encourages the diversification of commercial activities, in line with the European principles of free competition and simplification with a view to functional mixed use, thereby encouraging markets to become multifunctional places. Diversification is encouraged at both the local and national levels across European countries. At the European level, an important regulation is the General Block Exemption Regulation^[77], which exempts certain state aid from prior authorisation by the European Commission. These categories include the development of small- and medium-sized enterprises, regional aid to support local economic development, and aid for environmental protection (such as energy upgrades for covered markets). This regulation allows regions to finance redevelopment and regeneration programmes and support neighbourhood businesses, significantly shortening the authorisation procedures by the European Commission.

At the international level, initiatives that embrace these concepts include, for example, the World Health Organization (WHO) Global Network for Age-Friendly Cities and Communities^[78], which, since 2010, has brought together communities around the world that want to make their communities ideal places to grow old, focusing on all those local actions that see the full participation of older people in the life of the community itself. Another initiative is the European Innovation Partnership on Active and Healthy Aging^[79], which promotes active and healthy aging to improve the efficiency and sustainability of health and social care systems, closely linked to the principle underlying the Longevity City.

A regulatory framework to support inclusive local mar-

kets appears well established at all levels, and several regeneration and redevelopment experiments are underway. What remains to be defined is the set of risk thresholds to be taken into account when hypothesising the social and identity-based urban forms of the near future.

8. Discussion

This study set out to explore the potential of LFMs as human-centered hubs within urban regeneration processes, particularly in relation to ageing, social fragility, and climate-related stressors such as urban heat. The analysis of the interdisciplinary literature highlights several key insights that advance current debates in urban planning and public health.

First, the findings confirm that access to food in ageing urban populations cannot be understood solely through conventional spatial metrics (e.g., distance to supermarkets), but must instead be reframed as a function of environmental accessibility, which includes walkability, thermal conditions, and physical capability. In this perspective, the concept of “food deserts” becomes dynamic and context-dependent, particularly under extreme heat conditions, where mobility limitations significantly reduce the effective radius of daily life. This expands previous literature by explicitly linking food accessibility with climate stress and physiological vulnerability.

Second, LFMs emerge as multifunctional infrastructures that simultaneously address nutritional, social, and psychological needs. Beyond providing access to fresh food, they serve as “third places” that foster weak social ties and mitigate loneliness among older adults. This confirms and extends sociological theories on social interaction by situating LFMs within the spatial framework of neighborhood-based urban regeneration. In particular, the analysis suggests that proximity-based, interaction-oriented spaces are not merely supportive but essential components of age-friendly cities.

Another important insight concerns the integration of LFMs into broader urban regeneration strategies. The literature reviewed indicates that successful regeneration requires not only physical redesign but also the activation of socially meaningful functions within urban spaces. In this regard, LFMs contribute to building local identity, reinforcing cultural food practices, and promoting healthier lifestyles.

However, the effectiveness of this model depends on the coherence between spatial design, governance frameworks, and economic accessibility. For instance, issues such as affordability and vendor selection may represent critical barriers, potentially limiting the inclusiveness of these spaces.

From a planning and policy perspective, the findings underline the importance of aligning regulatory instruments, economic incentives, and spatial design strategies. Existing European and national frameworks—such as proximity hubs, business improvement districts, and age-friendly city initiatives—provide a supportive institutional context; yet their potential remains underexploited when not explicitly oriented towards vulnerable populations. The conceptualization of LFMs as human-centered hubs offers a practical entry point to operationalize these frameworks in a more integrated and socially responsive manner.

This study also contributes to the literature by proposing a conceptual framework that connects urban regeneration, food systems, and public health through the lens of vulnerability and climate adaptation (Figure 2). The diagram should be interpreted not merely as a descriptive model but as an analytical tool that highlights the interdependencies among spatial conditions, social dynamics, and health outcomes. It emphasizes how design strategies (e.g., accessibility, sensory environments, and social interaction) can directly influence both food behaviour and well-being.

Despite these contributions, several limitations should be acknowledged. As a narrative review, the study does not provide a systematic quantitative assessment of the evidence, and thus, some degree of subjectivity in the selection and interpretation of sources cannot be excluded. Furthermore, the analysis is primarily focused on European contexts, which may limit the generalizability of the findings to other urban settings with different socio-economic and climatic conditions. Future research should therefore aim to empirically validate the proposed framework through case studies and comparative analyses, and to explore the measurable impacts of LFMs on health outcomes, social cohesion, and climate resilience.

Overall, the results suggest that reconsidering LFMs as integrative components of urban regeneration can help bridge existing gaps between planning, public health, and social policy. By embedding food access within a broader human-centered and climate-sensitive perspective, LFMs

can serve as strategic nodes in the transition toward more inclusive and resilient cities.

9. Conclusions

This study has shown that Local Food Markets can function as integrative infrastructures within urban regeneration processes, linking food access, social interaction, and health promotion, particularly for vulnerable and ageing populations. The findings highlight that accessibility, proximity, and environmental conditions—especially under urban heat stress—play a decisive role in shaping both dietary behaviors and social participation. Local Food Markets frequently offer products that reflect local culture, history, and agricultural traditions. This approach can engender a sense of belonging and familiarity, facilitating a more comfortable and engaging approach to food choices. Nevertheless, a significant constraint to implementing these proposals, beyond site accessibility, may be current goods prices, which are often unaffordable for the general population, especially vulnerable or low-income groups. Consequently, in addition to ensuring that markets are located in accessible, safe, and welcoming environments, stakeholders should prioritize selecting producers and retailers who are willing to offer their products, particularly fruits and vegetables, at affordable prices. To support this socially valuable initiative, it may also be necessary to consider offering targeted incentives to participating vendors. A mundane activity, such as visiting the market, where older people can access dietary counseling and a social and human environment, presents an opportunity for them to preserve a sense of dignity and active involvement in society. If it is time to act, and it is, in building resilient and equitable communities, the strong interactions, for better or for worse, of the city with the most vulnerable must be deeply understood to develop real equitable policies which combine a global call to action from all actors on the urban scene, remembering that the protection of the most vulnerable corresponds to the truly defense of us all.

Author Contributions

Conceptualization, T.G., S.P., M.C., L.C. and C.M.; methodology, M.C., T.G. and S.P.; formal analysis, T.G., S.P., M.C., L.C. and C.M.; investigation, M.C., C.M. and

L.C.; resources, T.G. and S.P.; writing-original draft preparation, T.G. and M.C.; writing-review and editing, T.G., L.C. and M.C.; visualization, L.C. and C.M.; supervision, T.G.; project administration, T.G. and S.P.; funding acquisition, T.G. All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement

Not applicable.

Data Availability Statement

Data sharing does not apply to this article as no new primary datasets were generated or analyzed during the current study.

Conflicts of Interest

The authors declare no conflict of interest.

AI Use Statement

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) solely for language refinement and editing. No AI tools were used for data analysis, interpretation, or generation of scientific content. All outputs were critically reviewed and edited by the authors. The authors take full responsibility for the integrity and accuracy of the work.

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