

# Shaping Equitable Access to Food: Barcelona's Supply Planning and Policies in Perspective

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## Abstract

This article examines the interplay between urban planning, public policy, and food systems, focusing on the city of Barcelona as a case study. The study explores the historical shaping of access to fresh food by public urban policies and planning, ensuring a balanced territorial distribution across the city while addressing broader implications for public health, social equity, and sustainability. The analysis begins with an overview of Barcelona's food supply system, which is characterized by an extensive set of public market halls and specialty stores, strategically embedded within a compact urban fabric that ensures walkable access for residents. The research highlights the evolution of planning actions, from 19th century bylaws aimed at regulating food hygiene and spatial organization of food sales to contemporary initiatives influenced by the Milan Urban Food Policy Pact, which emphasize the proximity between households and providers and promote the consumption of local goods.

## Keywords

Barcelona; food planning; food retail; food supply; proximity

## 1. Introduction

The relationship between urban planning and health is close and inseparable (Barton & Grant, 2013; Pineo et al., 2020; Prior et al., 2023; Siri & Geddes, 2022). The origins of this bond lay in ensuring minimum standards of hygiene to combat the spread of communicable diseases (Corburn, 2004; Rodger, 2019). After addressing these concerns, urban policies and planning assume a pivotal role in shaping the health and well-being of residents by influencing access to fundamental health determinants, including education, nutritious food, healthcare, and social or recreational services (Harris & De Leeuw, 2023; McManus, 2023).

When this is also assured, urban policies and planning play a pivotal role in addressing the rise of non-communicable diseases resulting from harmful exposures and unhealthy habits such as air, noise, or light pollution, limited access to green spaces, insufficient physical activity, or less optimal diets (Fazeli Dehkordi et al., 2022; World Health Organization, 2017). Consequently, food emerges as a pivotal element in urban planning, aimed at fostering healthier urban environments, provided that basic hygiene standards are met.

The primary challenge concerning sustenance pertains to the limited access to food experienced by over 35% of the global population, a proportion that increases to 71.5% in low-income nations (Food and Agriculture Organization et al., 2024). In the absence of structural hunger problems, studies have observed that those urban areas that are more disadvantaged have a significantly scarcer healthy food supply—so-called “food deserts”—with fewer fresh produce stores, putting the health of lower-income residents at risk (Kaczynski et al., 2020; Sáenz de Tejada, 2024). From the perspective of urban planning, these spatial distribution deficiencies can be addressed by designs and policies that promote equitable access to essential services, thereby fostering a healthy lifestyle for the population. This approach involves addressing the correlation between population density and the location of minimum services. Such facilities are vital in facilitating access to medical treatments and promoting healthy dietary practices (Pratt et al., 2022).

In post-Fordist urban cultures where access to food is guaranteed, the relationship between citizens and food is often characterized by a passive approach, with eating becoming an act of energy supply for everyday functioning (Rosenthal & Flood, 2019). Nevertheless, how individuals procure groceries, encompassing the type of food purchased, the architectural design of the establishments that sell it, the distances and frequencies involved, and the means of transport used, differs for each metropolis. The particular configuration of the food supply in each location is influenced by the urban form; however, it is ultimately determined by a sequence of planning decisions that establish regulations and designs. These decisions, in turn, determine the spatial distribution of food suppliers and their subsequent equity in access, which is contingent upon the density and compactness of the urban form.

In suburban areas characterized by dispersed urbanization, access to food is often heavily reliant on car mobility, as public transit infrastructure in these territories is frequently inadequate (Dumas et al., 2021). The car-dependent mobility model has been demonstrated to impose limitations on access for non-drivers, thereby contributing to systemic societal inequities. This model has the potential to marginalize individuals lacking the capacity to drive and vulnerable populations, including low-income households and the elderly, who may encounter challenges in accessing reliable private transportation. This, in turn, can impede their participation in essential activities, such as food shopping (Bose, 2024). Consequently, while food availability may not be an issue, the reliance on automobiles underscores systemic challenges in ensuring equitable access to food resources.

In compact environments, the distribution of food premises affects the behavior of residents in terms of close proximity. The proximity of essential services fosters conditions to cope with shorter trips and promotes nonmotorized transport, reducing pollution and congestion problems; create a more democratic urban space, diminishing the social differences caused by diverse access to transport; make all the facilities in the city equally available to all kinds of people, and end up producing equal and socially sustainable traveling patterns (Gomez-Escoda et al., 2022; Marquet & Miralles-Guasch, 2015). In these compact

environments, walkability is regarded as one of the qualities that enhances the value of places in terms of health, social, economic, and environmental outcomes (Valls & Clua, 2023). Moreover, walkability has been demonstrated to contribute to the well-being of citizens across a range of time horizons, irrespective of their socio-economic circumstances (Carmona, 2018).

Conversely, the proximity of food sources has been shown to entail both advantages and disadvantages. In high-density urban areas, food outlet proximity influences purchasing behavior, with individuals more likely to consume healthier options when unhealthy alternatives are placed farther away (Hunter et al., 2019). However, food access can also drive gentrification and price inflation, as the presence of high-quality food suppliers in a neighborhood can increase property values, often displacing lower-income residents who originally relied on those food sources (Mackenbach et al., 2019). Conversely, despite proximity, the variety of food offerings may remain limited. Urban areas, particularly those with lower incomes, which are often characterized by a prevalence of unhealthy food options, have been termed “food swamps” and are associated with dietary imbalances and increased health risks (Cooksey-Stowers et al., 2017; Richardson et al., 2018).

Moreover, the concentration of food outlets in a given area can have a detrimental effect on the environment and noise pollution. This is because the presence of delivery trucks, waste disposal facilities, and an increase in foot traffic can negatively impact the local community. Conversely, the increased distance between food stores and their customers has been shown to be associated with an increase in food waste and the environmental impact of last-mile delivery. This relationship underscores the pivotal role that the relationship between population density and food outlet density plays in environmental sustainability (Conrad et al., 2018).

In light of the heterogeneity that characterizes food acquisition scenarios within diverse urban contexts, this article focuses on compact metropolitan environments, where supply is assured, and seeks to address the following research question: How do public urban planning policies and regulations influence the spatial configuration of the food supply system and impact equity in access to food?

Starting from the premise that access to food is determined by socioeconomic factors and conditioned by urban form, and therefore constitutes a particular footprint for each metropolis, this article examines the role of the evolution of public policies that have shaped and designed food procurement in the city of Barcelona in the last two centuries. The investigation refers to an urban reality in which food security is guaranteed following the accepted definition, which states that food security exists when “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization, 1996). The discussion is international in scope, although the research is based on a specific case study, which consequently allows for the presentation of data with a local character. The exemplary nature of the case and the approach methodology allow for comparisons to be made with other metropolitan realities.

## 2. Context and Methodology

Food purchases constitute approximately 16% of the household budget in Catalonia (Generalitat de Catalunya, 2023), the northeastern region of Spain in which Barcelona is situated. This figure is exceeded

only by that allocated to housing. This is in addition to the amount spent on eating out—including hotels—which is the fourth largest expenditure category, accounting for almost 9% of the family budget, after transport. This pattern of consumption is consistent with Engel's law, which posits that, as income rises, the proportion of income spent on food falls (Engel, 1857). This is so despite the fact that actual expenditure on food rises, resulting in wealthier households spending a much smaller proportion of their household budget on food (Cabannes & Marocchino, 2018).

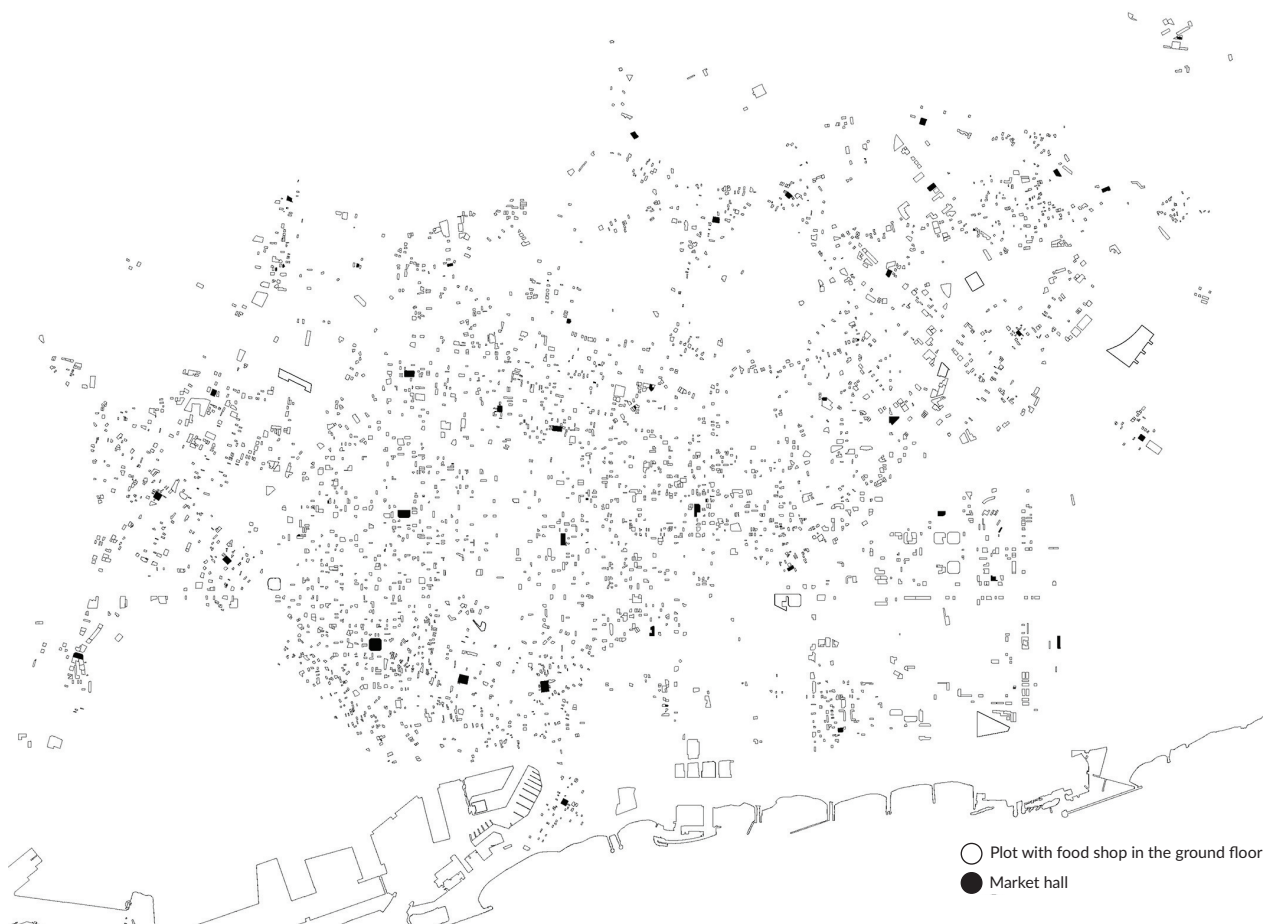
While urbanism and architecture often focus on how citizens live and move—considering that mobility expenses rank as the third-largest household cost—the issue of how citizens eat is seldom addressed in architectural and urban planning projects. This gap began to be discussed a decade ago with the signing of the Milan Pact, a global agreement among cities dedicated to “developing sustainable food systems that are inclusive, resilient, safe, and diverse; providing healthy and affordable food to all people within a human rights-based framework; minimizing waste; conserving biodiversity; and adapting to and mitigating the impacts of climate change” (Milan Municipality, 2015).

Barcelona, one of the signatory cities, has a 200-year legacy of design and planning strategies that have consistently prioritized ensuring its citizens have access to fresh food. To gain insight into the distinctive character of the food supply that serves the city today, this article examines the evolution of the public planning of the food commercial fabric, composed of 39 market halls and 5,834 food shops. From this standpoint, an analysis of the evolution of urban bylaws regulating food shops reveals that, historically, the administration has exhibited a propensity to either promote specific patterns of clustering or opt for the decentralization of food-related commodities. Conversely, the analysis of plans to strengthen and extend the public market halls system, as well as designs to make these essential public facilities more complex, elucidates the commitment that the municipality has had to food procurement over time.

The research employs a dual methodology. On the one hand, it incorporates both secondary sources and a systematic analysis of urban planning regulations available in the BCNROC Open Knowledge Repository of the Barcelona City Council. This approach provides a comprehensive description of the regulations enacted by the municipality to govern the location of food establishments. On the other hand, the quantitative approximation to food retail in the city is made possible by the open database that the City Council has been preparing periodically for a decade. The most recent iteration of the census, titled *Cens de locals en planta baixa destinats a activitat econòmica de la ciutat de Barcelona* (Census of first-floor premises intended for economic activity in the city of Barcelona), was completed in 2022 and published in 2024 (Ajuntament de Barcelona, 2024). The census is meticulously conducted through a fieldwork process that systematically visits all first-floor premises in the city, which geolocates the activities and classifies them according to the products they sell or services they offer. This database is processed in this research using GIS systems to quantify the establishments and map their position in the city. Utilizing data analysis techniques, the information is then graphically delineated into layers and the same GIS systems are used to produce heatmaps—which facilitate the identification of stores selling similar products within a 300-meter radius, offering a comprehensive view of the food suppliers' dynamics, as shown in Figure 2—and isochrone maps (as in Figures 3, 4, and 5) to illustrate the extension of market halls' influence across the city.

### 3. A Quantitative Approach to Barcelona's Supply System

The current distribution of food suppliers in Barcelona is the result of nearly two centuries of public policies aimed at progressively strengthening the food system. This system is unique in its presence of 39 public market halls, which are homogeneously distributed throughout the city, thereby ensuring access to fresh produce. Due to the compactness of the urban fabric, nearly a third of the city's households (31.51%) had a public market hall within 400 meters in 2023 (Gomez-Escoda & Fuertes, 2024). The food provision through public suppliers is complemented by a dispersed network of 1,457 privately owned specialty stores, which sell a variety of products, and 2,485 supermarkets (Ajuntament de Barcelona, 2024). Concurrently, the abundance of food providers reflects the urban compactness of the city, as illustrated in Figure 1.



**Figure 1.** Barcelona's food supply, 2024. Source: Author's elaboration.

Barcelona has one food shop for every 200 inhabitants. Consequently, the city can be considered, with few exceptions, a food oasis. With the exception of market halls, fresh food establishments can be categorized into seven primary groups: eggs and poultry; fish; meat and pork; mixed foods; fruit and vegetables; bread; and supermarkets. The distribution of these establishments is heterogeneous, with some being placed inside the market halls and others on the ground floors of mixed-use buildings.

As presented in Table 1, a comprehensive analysis of the available data reveals a distinctive sidewalk landscape, characterized by a significant presence of food retailers. It is noteworthy that markets tend to

house food retailers specializing in perishable or temperature-sensitive produce, with approximately 25% of the 7,500 fresh produce shops in Barcelona situated within public market buildings. Whilst supermarkets, bakeries, and greengrocers have a greater presence on the ground floors of urban markets than within the market buildings themselves, the opposite is true of butchers and delicatessens, which are found both inside and outside. Fish, egg, and poultry shops, conversely, are mostly concentrated inside the market. Finally, as Table 1 shows, there are more than twice as many specialized shops selling a particular type of food as there are general supermarkets.

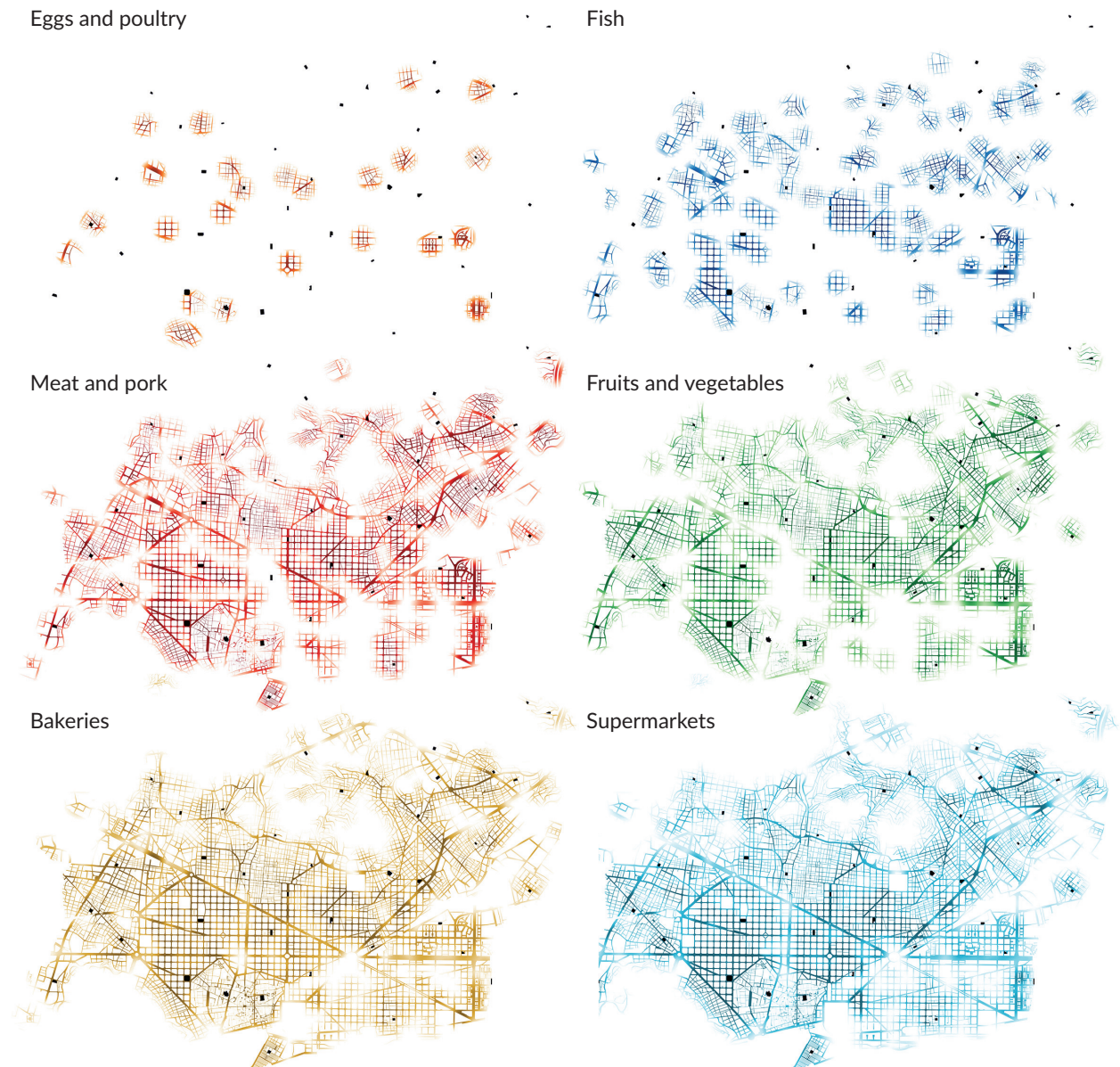
**Table 1.** Number of shops and market stalls offering a given type of food in 2024.

	Stalls in market halls	Shops on ground floors	Total per category	Ground floors/market halls
Eggs and poultry	240	25	265	10%
Fish	338	124	462	37%
Meat and pork	477	559	1,036	117%
Mixed foods	262	363	625	139%
Fruit and vegetables	301	749	1,050	249%
Bread	16	1,529	1,545	9,556%
Supermarkets	24	2,485	2,509	10,354%
<b>TOTAL (except bread and supermarkets)</b>	<b>1,618</b>	<b>1,820</b>	<b>3,438</b>	<b>112%</b>
<b>TOTAL</b>	<b>1,658</b>	<b>5,834</b>	<b>7,492</b>	<b>351%</b>

Source: Author's elaboration.

For establishments with a stronger presence on the ground floors than within the market buildings themselves, several reasons can be identified. First, the large presence of fruit and vegetable shops can be explained by a minimal initial investment requirement, due to the absence of significant infrastructure needs and the low-cost nature of the products offered. Consequently, these small businesses tend to function as arrival infrastructures (Bovo, 2020) and can work as social elevators (Blennerhassett et al., 2022) for immigrant communities, particularly those hailing from countries such as Morocco, India, and Pakistan. Second, the large number of bakeries can be explained because they play an important role in serving prepared food to the floating population, such as tourists and workers. These are establishments that can serve prepared food to take away without the need for a kitchen, which means that, although they sell the most essential of products, they are, in most cases, closer to catering services. It is, therefore, understandable that they require opening hours and operate more efficiently. Furthermore, the sale of bread, widely regarded as a staple food, has historically been subject to specific regulatory frameworks. The initial ovens utilized for the baking of dough were in limited numbers and required substantial infrastructure, given the elevated temperatures—subsequently supported by electrical power—attained within bakery environments (Corteguera, 2016; Feliu, 2016; López Guallar, 2016). Finally, supermarkets' inventory extends to a broad assortment of foodstuffs, encompassing dry, packaged, prepared, and frozen items. In addition to this, they offer a range of household products, including cleaning and hygiene products, so that one-stop shopping for food and other basic necessities can be resolved in a single act. In addition, they extend their opening hours to overlap with the end of the longest working days; when the less central markets are open only one or two afternoons a week.





**Figure 2.** Food shops per type and density of location in 2024. Source: Author's elaboration.

The distribution of food suppliers across the city offers insights into its morphology and helps anticipate predominant land uses, as shown in Figure 2. The series of maps is based on establishing heatmaps between shops selling each type of food and stores selling similar products within a 300-meter radius. In the heatmap, darker shades indicate a higher concentration of similar products while lighter shades signify lower intensity. The blank areas in the heatmaps indicate places with no food within a five-minute walk.

In the lower section, bakeries and supermarkets provide a comprehensive snapshot of urban structure, with some blanks in notable areas such as university districts to the west, elevated areas to the north, major transportation hubs to the northeast, and parks located to the southeast. Despite these gaps, these two types of establishments effectively reflect the urban layout. Each supermarket serves approximately 600 residents, while each bakery serves slightly over 1,000. As demonstrated by the analysis and numerical

data presented in Table 1, the establishment of these two types of stores was not contingent upon the presence of markets, thereby validating their dissemination throughout the city.

An intriguing comparison can be made between the distribution patterns of meat and fruit shops. Although fruit shops are nearly twice as numerous as meat shops outside of markets, both types of establishments exhibit similar gaps in service coverage. Moreover, fruit shops expand their reach to peripheral areas, including those near major transportation stations, while meat shops have a more limited presence in certain central thoroughfares. Both types of shops have a less significant presence in historic districts, with fruit shops being more scattered in these areas. In the old town, three markets are located within 1.5 kilometers of each other, which concentrate the majority of butchers in the neighborhood. The blank areas correspond to urban voids and zones with low population density but high activity intensity on the upper floors. This is expected given the connection between these establishments and domestic cooking.

Finally, although fishmongers and poultry-egg shops differ in their physical presence, they exhibit similar tendencies to cluster in less central neighborhoods. This trend is particularly noticeable in areas undergoing urban densification, facilitated by structured grid development. Fishmongers are more reliant on markets, with their trade concentrated around these sites, whereas poultry shops tend to fill gaps between market halls. In both cases, these products require refrigeration and cooking to be consumed, making it logical to associate them with households rather than places of activity.

#### **4. Planning the Food Supply: The Evolution of Urban Regulations and the Role of Market Halls in the Distribution System**

This section outlines the changes in public policies pertaining to food provisioning over the past two centuries, focusing on four distinct stages characterized by shifts in urban planning regulations and the evolving relationship between market halls and small food shops. They are policies that acted as local answers to the urban theories of that time (Garriga & Garcia-Fuentes, 2015).

##### ***4.1. The First Regulations of Food Commerce Through Bylaws (1856–1930s)***

The Barcelonan market hall system, defined as an assemblage of “facilities that bring together a set of independent retail establishments, primarily for fresh food, in a publicly owned building” (Ajuntament de Barcelona, 2015, p. 4), originated without a formalized plan in the mid-15th century, with the establishment of the open-air markets in the old town. Over time, the market halls have been adapted to serve a variety of purposes. They have been used as a public forum for discussing issues related to food safety, pricing, transparency, quality assurance, and variety. Additionally, they have provided essential goods and services to new neighborhoods and contributed to the revitalization of commercial fabric (Fuentes & Gomez-Escoda, 2020).

The majority of the eighteen markets constructed in Barcelona before the mid-twentieth century were derived from earlier open-air activities, with evidence of this history manifesting not only in the buildings themselves but also in their relationship with the surrounding area. As markets evolved from a street-based structure to a more formal facility, they retained their designation as a public space and their capacity to concentrate urban activity around food.



The initial point of reference for the documentation of the planning regulations is 1856, which coincides with the construction of the inaugural food markets situated beyond the confines of the old town. These bylaws are indicative of the primary objective of regulating the food supply through the implementation of vendor localization measures. Concurrently, they serve as a testament to the historical interconnection between the food supply and public space: “To sell food in a public place, permission is required from the municipal authority, which will indicate the stall for each vendor” (Ajuntament de Barcelona, 1856, p. 89). These same bylaws end with a single article that refers to three actions: to live, to feed, and to carry—the main actions that the city catalyzes. A concise characterization of each is provided, along with a set of fundamental principles pertaining to their functionality and the dynamics of their coexistence. Concerning the food supply, the nexus with the prevailing concern for health is documented for the first time in the city’s historical record:

The need to live is followed by the need to eat, and here it cannot be overlooked how hygiene, industry, and the rules of law are closely intertwined and linked so that maintenance does not alter the health of the body, so that sellers do not scatter articles through deceptive measures, and finally so that the people who contract in shops and markets maintain the good faith and order necessary in such a populous city. (Ajuntament de Barcelona, 1856, p. 189)

In the following bylaws, drafted in 1891—whose wording is repeated almost identically in the following Ordinances in 1923—two complete chapters are dedicated to regulating the supply of food in the city: the first (chapter 32) to markets, and the second (chapter 33) to the preparation and sale of foodstuffs (Ajuntament de Barcelona, 1891, 1923). Two facts stand out in these more extensive rules. On the one hand, the by-laws specify the opening hours of market halls—from 4 a.m. to 10 p.m. in summer and from 5:30 a.m. to 9 p.m. in winter. These extended operational hours offer insight into the enduring connection between the urban environment and the fresh food stalls—operated by farmers and producers who traveled from the hinterlands to supply the city with fresh produce. Conversely, the ordinances emphasize the spatial characteristics of the stalls, the freshness of the food sold in them, and the conditions of preparation and sale of each product. This aligns with the understanding of food supply as a matter of public health.

#### **4.2. Public Protectionism in Times of Autarchy (1939–1975)**

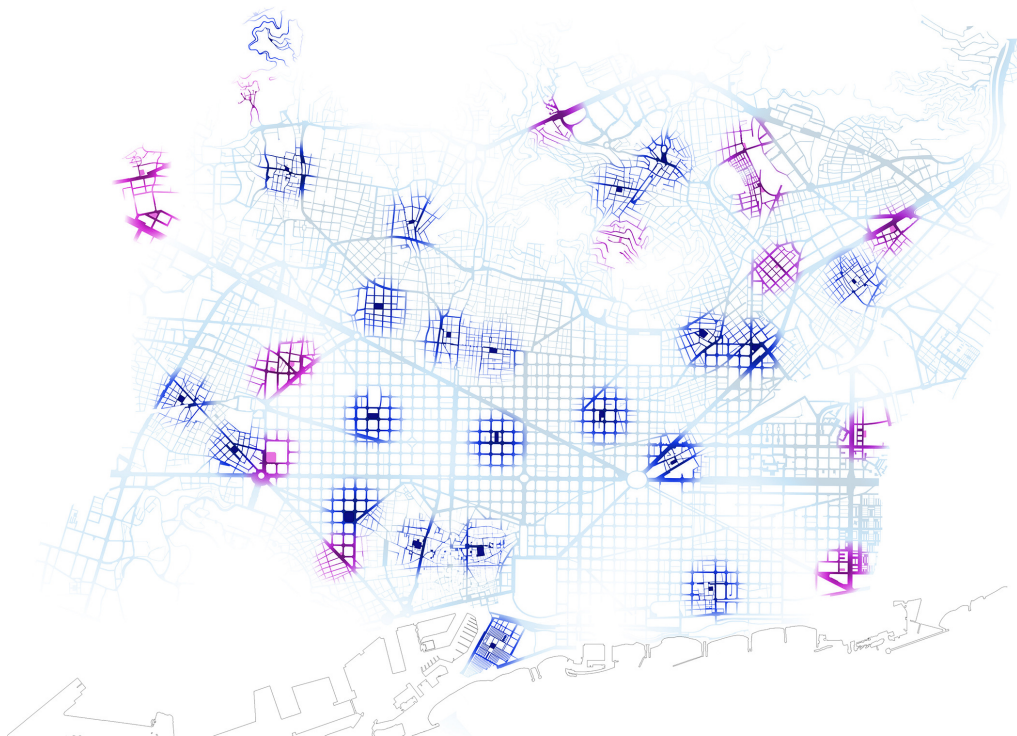
The bylaws drafted in 1947 were shaped by a context of self-sufficiency in a city struggling with food shortages. The country was by then in a state of autarchy under the Francoist dictatorship that lasted between 1939 and 1975, a fact that translates into interventionism in the regulation of food establishments.

According to this, the bylaws set, for the first time, distances between markets and other food shops: Not all vendors were controlled by the public forces, and those outside the markets were understood as competitors. In this context, groceries, delicatessens, dairies and poultry, hunting and salt fishing, cooked legumes, fruits and vegetables, fresh fish and dairies, and bakeries may not be established less than 300 meters from the nearest market hall, counting the distance from the center of the market door closest to the establishment. Other premises would respect longer distances: horse butcher shops (350 meters) and butcheries and pork shops (750 meters). Additionally, a distance of 300 meters to any other type of food shop was to be respected. In this manner, the initial regulatory framework was devised, whereby licenses were granted on a first-come, first-served basis, taking into account the relative distances in space. For the same reasons as food procurement control, the regulations monitored the monopoly and prevented the same owner from having stores both outside and inside market halls (Ajuntament de Barcelona, 1947).

After the initial regulatory framework, which was predicated on the distances between food stores to regulate density and the monoculture of uses, the municipal council initiated the first systematic intervention in the market network, which had remained minimally operational during the post-civil war period (1936–1939). In a context where the modernization of food distribution in Europe was leading to the disappearance of market halls (Guàrdia & Oyón, 2010), the food supply system in Barcelona was reinforced by generating a system of facilities intended to strengthen small neighborhood centers, reutilizing the existing market halls or building new ones, occupying spaces based on the opportunity and availability of land in dense urban areas. The objective was to extend the market system throughout the territory while guaranteeing the supply of fresh food to the population of an expanding city, where supermarkets and self-service stores had not yet begun to be established. As part of this strategy, initiated in 1957, half of the existing market halls were constructed.

At the time, a total of 22 markets were in operation, and an additional 27 were proposed. Of these, 14 were constructed, representing a 50% completion rate. The markets constructed during this period provided essential facilities to areas of the city that had emerged due to social necessity, coinciding with the development of mass housing estates in peripheral neighborhoods. The city was undergoing rapid growth, coping with the arrival of immigrant populations from other regions of Spain, and the construction of markets was temporarily transferred to private entities. The objective was to ensure the continued provision of fresh food in urban areas, with the maintenance of the markets' public status being secondary. Market halls were the first infrastructure to be provided to these neighborhoods.

With the market system strengthened, a new bylaw was drafted in 1968. The first specific regulation on markets was drawn up, regulating the rights, obligations, and behaviors of vendors and buyers, the cleanliness



**Figure 3.** Proximity areas around market halls in 1957. Existing market buildings (blue) and proposals for extension of the system with new halls (magenta). Source: Author's elaboration.

and hygiene of common areas and individual stalls, the shape, materials, and dimensions of stalls, the types of food products that could be sold in each type of stall, and the locations and conditions of food storage (Ajuntament de Barcelona, 1968). This was a holistic regulation whose original wording has been maintained throughout successive revisions, until the most recent one, in force since 2016. The birth of the food system in which public providers were one of the backbones of urban health in the city can be dated back to this pre-democratic period.

#### ***4.3. A Public Bet Into the Food System: An Urban Institute to Manage Markets and a Public Plan to Regulate Food Retail (1986–2011)***

In 1986, a new public governance document, the Pla d'Establiments Comercials Alimentaris de Barcelona (Barcelona Food Establishment Plan—PECAB), was drafted to implement a model for reform and expansion that would establish municipal markets as the central point of the fresh food distribution network. The PECAB was conceptualized in a period marked by substantial shifts in the food supply landscape. This was due to several factors, including the introduction of new technologies which affected food production and distribution. These included the relocation of productive sources, the spread of cold storage, and the increased use of artificial preservatives. Furthermore, shifts in dietary and consumption patterns, including the advent of packaged foods, the integration of women into the labor force, and a decline in the time allocated to domestic responsibilities, also contributed to this transformation (Fuertes & Gomez-Escoda, 2020). In this context, the introduction of self-service in food purchasing—supermarkets—transformed the customer into an autonomous entity, effectively rendering the stallholder obsolete. The scale of food provisioning underwent a significant transformation with the advent of large shopping malls linked to metropolitan infrastructure. This introduced private mobility into the supply process, facilitating the introduction of packaged products that were easily transportable, stored, and had a longer shelf life than fresh produce. This shift imparted a sense of modernity to food, leading to a sudden transformation in the markets, which acquired an aging quality that they had previously carried with dignity.

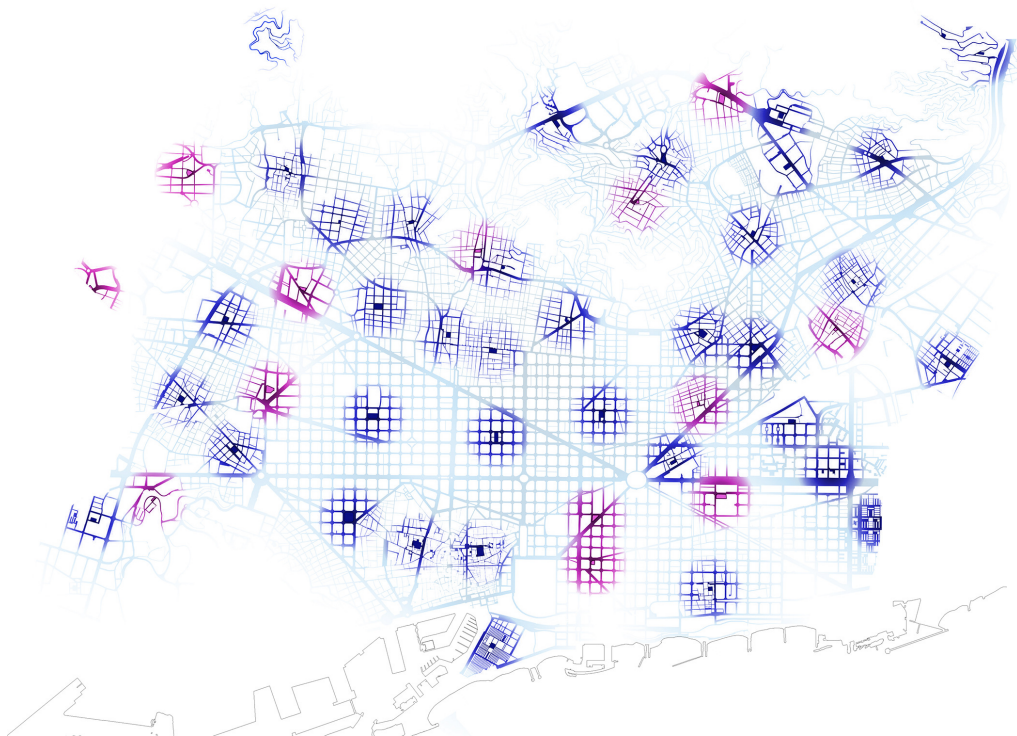
The aforementioned changes arrived in Barcelona later than in other European cities, partly due to the 37 years of dictatorship that preceded them. However, this delay proved to be crucial for the survival and subsequent consolidation of the markets in the city. At the time, the advent of novel retail formats, such as supermarkets and expansive commercial zones in peripheral locations, stood in stark contrast to an urban fabric where commerce was dispersed and operated on a modest scale. In fact, 90% of shops were less than 60 sqm in size, with an average area of 36 sqm per establishment. This small-scale constellation attracted the attention of the PECAB authors, who perceived an opportunity to reinforce it and replicate it deliberately across the territory to concentrate food retail around the markets (Ajuntament de Barcelona, 1986).

The initial phase of the strategy entailed a reduction in the number of shops and an increase in their size. A minimum area for sales rooms was established, ranging from 60 sqm for traditional multipurpose establishments and self-service stores to 400 sqm for supermarkets. In the case of establishments specializing in the sale of fresh food, the minimum area required for sales rooms varied according to the type of product in question. Thus, for the sale of eggs, the minimum area was 20 sqm, while for bread it was 25 sqm. In the case of fruit and vegetables, however, the minimum area was set at 40 sqm. The only exception to this was market stalls, which were permitted a minimum area of 10 sqm. This regulation permitted a dual interpretation, as it provided vendors who lacked the financial resources to rent or maintain

a space of such dimensions outside the market with a shelter for their activities within municipal facilities. Despite initial objections from merchants and business owners who considered it interventionist in free competition, the last PECAB (2015) was a review, nearly 30 years later, of the document that was launched with the suspension of licenses for food sales premises that did not meet the set recommendations.

The original PECAB aimed to reinforce the system of 40 markets with an additional 15 in positions proximate to those not constructed in 1957. However, these were ultimately not built either. The principal objective of the PECAB 86 was to consolidate the market system that had been inherited. During this period, the construction of new buildings was the exception, with efforts focused on transforming existing ones (Figure 4). The successive revisions of the PECAB modified the polarity areas following the city's growth and the concomitant increase in neighborhood density. In 2011, these areas began to include sectors where the node of the network was no longer a market but a shopping center. By the time the 2015 version was released, there were 13 such sectors included.

A new urban institute, the Institut Municipal de Mercats, was established in 1991 and continues to guide municipal action on food supply to this day aimed to “make the municipal markets the centers of the fresh food distribution network” (Ajuntament de Barcelona, 2011, p. 32). Concurrently, a reform policy has been implemented to restructure the market halls since the year 1990. The renewal of buildings since has consistently addressed several recurring issues, with each market receiving a bespoke response. On the one hand, several constants can be identified, including a reduction in the number of stalls while increasing their surface area, the management of goods and waste in a basement level, modifications to environmental conditions in the interior space, and the incorporation of a supermarket and a public car parking. In the first



**Figure 4.** Proximity areas around market halls in 1986. Existing market buildings (blue) and proposals for extension of the system with new halls (magenta). Source: Author's elaboration.

case, the objective was to augment individual purchase transactions with supplementary non-food merchandise, a strategy that supermarkets could implement. In the second case, the initiative sought to capitalize on the construction or renovation of existing facilities and the necessity for a basement to accommodate logistics operations. This approach involved introducing a publicly managed parking scheme in the basement, thereby reinforcing an additional strategy: meeting the demand for parking in the neighborhood's central areas while minimizing the presence of vehicles in public areas as much as possible.

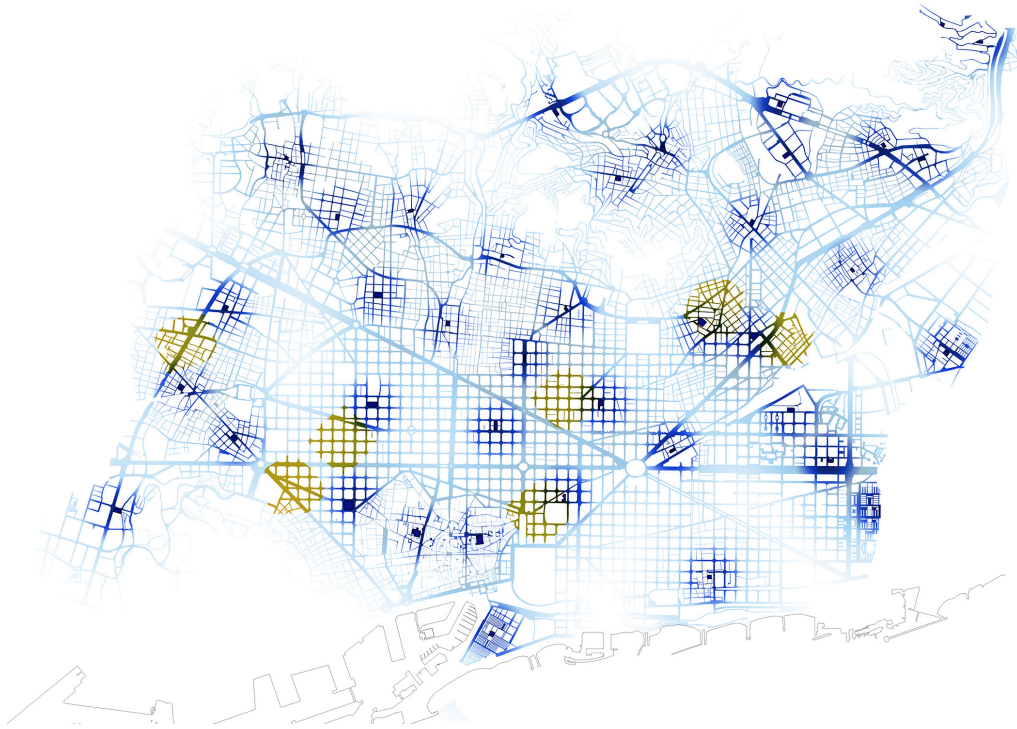
#### ***4.4. The Milan Pact Aftermath: An Expansion Backed in the Public Space Layout (2015–2025)***

In 2017, as a consequence of the Milan Urban Food Policy Pact, a new strategy was initiated to establish eight farmers' markets, each comprising 15 stalls. The objective was to provide direct selling spaces for producers, offering fresh, seasonal, and local food. The new markets were placed in streets and squares throughout the city, reversing the original urban ordering initiative of the initial market buildings and reinstating food sales in public spaces (Figure 5). In contrast to the street markets of the 19th century, which gave rise to the market system in an attempt to order the city, these markets coexist with busy public spaces that have recently been redesigned to accommodate this temporary activity on an intermittent basis.

This strategy of occupying public space with temporary retail should be seen in the context of a series of urban strategies that the city undertook in 2015 and intensified in 2020 after the lockdown caused by Covid-19. These are the Superblocks and Green Axes projects, which reclaim street space previously used for traffic for pedestrians, in some cases through tactical painting and mobile street furniture, and in others through redevelopment projects that provide streets with a shared platform for pedestrians and service vehicles that cannot travel faster than 10 km/h.

In the context of pacifying public space and anticipating the potential consequences of these improvements, including increased rental prices and alterations like activities on the ground floor, the granting of activity licenses was suspended while a Pla d'Usos (Plan of Uses) was drafted for the Eixample district, which was transforming certain streets. Concurrently, in February 2023, an urban planning strategy for the Eixample district was presented. The objective of this strategy was to limit the presence of bars, restaurants, nightclubs, and food shops in the area, to avoid saturation and ensure a balance of uses and the coexistence of users. This regulatory instrument originates from the Pla Especial d'Establiments de Concurrencia Pública i Altres Activitats (Special Plan for Public Establishments and Other Activities), which was implemented in the early 1990s. The primary objective of this instrument was to regulate the implementation of specific activities within delineated neighborhoods, thereby achieving equilibrium between the uses generated by these activities and minimizing their impact. The first district to implement such a plan was the old town of Barcelona, Ciutat Vella, in 1992. The plan was subsequently revised on several occasions, in 1997, 2000, 2005, 2010, and 2018 (Ajuntament de Barcelona, 2018). The 2023 version introduced a novel focus on food activities, anticipating the transformation of the retail fabric in the context of public space layout renovation. It was hypothesized that essential establishments selling food would be the first places to undergo gentrification processes in areas undergoing public space renovation, and this planning strategy was the anticipated response to this. To circumvent this issue, a series of regulations was implemented, stipulating minimum distances between establishments and maximum density limits. Consequently, the allocation of licenses was subject to a first come, first served basis.





**Figure 5.** Proximity areas around market halls in 2024. Market buildings (blue) and open-air weekly farmers' markets (ochre). Source: Author's elaboration.

## 5. Discussion

In recent years, the intersection of food and urban life and form has garnered significant attention across disciplines such as urbanism, sociology, and urban geography. Concerning dense urban contexts, this interest has been driven by two key developments: the growing focus on the ordinary and everyday aspects of urban living, and the increasing consumption of land for food-related uses such as fast-food outlets, cafes, restaurants, and markets (Parham, 2015). These trends are particularly evident in the visible proliferation of food establishments in tourist and gentrified neighborhoods of European cities which, in turn, can result in the so-called “foodification” of urban space (Bourlessas et al., 2021; Joassart-Marcelli & Bosco, 2023).

Food is presented as an integral element in the temporal and spatial dimensions of contemporary urban existence (Ascher, 2005). The ability of food—and gastronomy in general—to activate the space around it is indisputable. Food is capable of stimulating and transforming space, testing it, dynamizing it, and temporarily or definitively modifying its perception and use (Mària, 2018), as “food attracts people who attract other people” (Whyte, 1980). The debate is dual in nature due to the consequences that this capacity of food has to model urban environments. On the one hand, food has emerged as a potent cultural concern, celebrated as an alternative art form, a literary genre, and an academic field (Horwitz, 2004) that triggers accelerated urban transformations. On the other hand, food supply is a basic service on which the health of citizens depends.

From this standpoint, it is essential to establish guidelines so that urban design and planning professionals take into account these spatial and temporal aspects of food supply. It is crucial to understand that the

configuration of suppliers will be decisive in the health of the city and to acknowledge the influence of public urban planning policies and regulations on the configuration of the food supply system and the subsequent impact on equity in accessing food. This requires a shift in perspective, whereby the responsibility for ensuring a healthy and equitable food supply is recognized as both technical and public, rather than being entrusted solely to individual decisions. In this regard, the presented case study emphasizes the role that urban planning has played in shaping the spatial distribution of food suppliers.

The case of Barcelona is distinctive in that the renovation of the market halls preserved their function as food providers, a departure from the trend of converting them into food courts as has occurred in numerous cities (Drain, 2015; Eckenschwiller, 2019; Franzén, 2005; González & Waley, 2013). In these novel spaces, food remains the catalyst for surrounding activity, albeit within a gentrification process that diverts it from its role as a fundamental service and a vital product associated with public health. Another distinctive feature of this case study is the integration of urban planning regulations—once used to limit the proliferation of food establishments—with recent reforms to the city’s public spaces. These regulations establish the distances between establishments, define their surface areas, or set their maximum density limits, thereby contributing to the health and well-being of the population from the public sector.

## 6. Conclusion

The evolution of food systems in urban environments highlights the profound interplay between urban planning, socio-economic structures, and public health outcomes. The case of Barcelona illustrates how strategic public policies and infrastructural designs can mitigate spatial inequities in food access, ensuring that proximity to fresh food becomes a shared benefit rather than a privilege. By leveraging an integrated system of public markets which in turn organize a dispersed constellation of specialty food shops, Barcelona has created a robust framework that addresses both the physical and socio-economic dimensions of food security. This model underscores the necessity of embedding food supply considerations within urban planning to promote inclusive and sustainable urban living.

The urban regulations concerning food in Barcelona were developed without a comprehensive, long-term strategy. Instead, they were intended to address the fluctuating issues of oversupply and scarcity in a given period. However, an examination of their historical progression reveals the pivotal function of governance in fostering resilient and equitable food systems. From the 19th century bylaws to contemporary initiatives influenced by the Milan Urban Food Policy Pact, the city has prioritized public interventions that align food supply with public health and urban heritage—through the architectures of public market halls. This case study demonstrates the influence of public urban planning policies and regulations on the spatial configuration of the food supply system, highlighting the implications for spatial equity in accessing food. It serves as a compelling paradigm for other metropolitan regions seeking to address contemporary urban challenges with the pressing global need for food security and environmental sustainability. As cities globally continue to grapple with diverse urban forms and food access dynamics, the principles underpinning Barcelona’s system—proximity, equity in access, and public accountability—provide a scalable blueprint for addressing these challenges.

The research presents some limitations both from a methodological and conceptual perspective to be implemented in future studies.

Firstly, before the advent of the first automated censuses, no information on the food suppliers' physical distribution—apart from the location of the market halls—was available. However, a comprehensive review of historical records concerning activity licenses could facilitate the reconstruction of the image of food stores in the city. This would contribute to a more complete understanding of Barcelona's food supply and the spatial impact of different regulations, including the appropriation or allocation of establishments (from the markets or among themselves). However, it should be noted that this extends previous research, requiring extensive archival consultation to ensure accurate and comprehensive findings.

Secondly, the research approaches markets and the food system in a favorable light, conceptualizing them as public instruments with the capacity to transform how the city is fed. However, there is a lack of inquiry into how many of these markets have already become tourist attractions and the primary mechanisms for displacing the local population from the most central neighborhoods of the city. This hypothesis could be further investigated through research examining consumer habits in neighborhoods experiencing the most pronounced signs of gentrification.

Finally, the study of equity in access to food is conducted from the perspective of a pure urban form, establishing distances and numbers of suppliers without considering population density. A study that incorporates the relationship between food suppliers and the population they serve would elucidate the strengths and weaknesses of the system. Furthermore, this approach to the population should be informed by its composition, including age, gender, and social income, to generate more precise planning recommendations. However, the preliminary modeling presented in this research was necessary to determine a network proportionate to the capacity, influence, and frequency of use of the market system.

Despite the described constraints, this research can be considered a first step to rethink the public food commercial fabric in compact metropolises to promote equal access to food. Therefore, researchers and professionals can use the established methods to evaluate other realities in the same way that the results presented can be considered a starting framework for future research that addresses a deeper analysis of urban food planning and design in Barcelona.

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### Conflict of Interests

The author declares no conflict of interests.

## Data Availability

Due to the nature of the research, data sharing is not applicable to this article.

## References

- Ajuntament de Barcelona. (1856). *Ordenanzas municipales de la edificación*. <http://hdl.handle.net/11703/96466>
- Ajuntament de Barcelona. (1891). *Ordenanzas municipales de la edificación*. <http://hdl.handle.net/11703/100152>
- Ajuntament de Barcelona. (1923). *Ordenanzas municipales de la edificación*. <http://hdl.handle.net/11703/96469>
- Ajuntament de Barcelona. (1947). *Ordenanzas municipales de la edificación*. <http://hdl.handle.net/11703/96471>
- Ajuntament de Barcelona. (1968). *Ordenanzas municipales sobre mercados*. <http://hdl.handle.net/11703/96461>
- Ajuntament de Barcelona. (1986). *Pla especial d'equipament comercial alimentari de Barcelona PECAB*. <http://hdl.handle.net/11703/91552>
- Ajuntament de Barcelona. (2011). *Pla especial d'equipament comercial alimentari de Barcelona PECAB*. <http://hdl.handle.net/11703/91482>
- Ajuntament de Barcelona. (2015). *Pla especial d'equipament comercial alimentari de Barcelona PECAB*. <http://hdl.handle.net/11703/86879>
- Ajuntament de Barcelona. (2018). *Pla especial urbanístic d'ordenació de les activitats de pública concurrència, comerços alimentaris, serveis turístics i altres activitats al Districte de Ciutat Vella (Pla d'usos de Ciutat Vella)*. <http://hdl.handle.net/11703/108624>
- Ajuntament de Barcelona. (2024). *Cens de locals en planta baixa destinats a activitat econòmica de la ciutat de Barcelona*. <https://opendata-ajuntament.barcelona.cat/data/en/dataset/cens-activitats-comercials>
- Ascher, F. (2005). *Le mangeur hypermoderne: Une figure de l'individu éclectique*. Editions Odile Jacob.
- Barton, H., & Grant, M. (2013). Urban planning for healthy cities. A review of the progress of the European Healthy Cities Programme. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 90(Suppl 1), 129–141. <https://doi.org/10.1007/s11524-011-9649-3>
- Blennerhassett, C., Moore-Cherry, N., & Bonnin, C. (2022). Street markets, urban development and immigrant entrepreneurship: Unpacking precarity in Moore Street, Dublin. *Urban Studies*, 59(13), 2739–2755. <https://doi.org/10.1177/00420980211040928>
- Bose, P. S. (2024). Getting people to food and food to people: Considering transportation barriers and food access in the future of food. *Geographical Review*, 115(1/2), 1–15. <https://doi.org/10.1080/00167428.2024.2383459>
- Bourlessas, P., Cenere, S., & Vanolo, A. (2021). The work of foodification: An analysis of food gentrification in Turin, Italy. *Urban Geography*, 43(9), 1328–1349. <https://doi.org/10.1080/02723638.2021.1927547>
- Bovo, M. (2020). How the presence of newly arrived migrants challenges urban spaces: Three perspectives from recent literature. *Urban Planning*, 5(3), 23–32. <https://doi.org/10.17645/up.v5i3.2894>
- Cabannes, Y., & Marocchino, C. (Ed.). (2018). *Integrating food into urban planning*. UCL Press.
- Carmona, M. (2018). Place value: Place quality and its impact on health, social, economic and environmental outcomes. *Journal of Urban Design*, 24(1), 1–48. <https://doi.org/10.1080/13574809.2018.1472523>
- Conrad, Z., Niles, M. T., Neher, D. A., Roy, E. D., Tichenor, N. E., & Jahns, L. (2018). Relationship between food waste, diet quality, and environmental sustainability. *PLOS One*, 13(4), Article 0195405. <https://doi.org/10.1371/journal.pone.0195405>

- Cooksey-Stowers, K., Schwartz, M. B., & Brownell, K. D. (2017). Food swamps predict obesity rates better than food deserts in the United States. *International Journal of Environmental Research and Public Health*, 14(11), Article 1366. <https://doi.org/10.3390/ijerph14111366>
- Corburn, J. (2004). Confronting the challenges in reconnecting urban planning and public health. *American Journal of Public Health*, 94(4), 541–546.
- Corteguera, L. R. (2016). Pa i política als segles XVI i XVII. In M. Renom (Ed.), *Proveir Barcelona. El municipi i l'alimentació de la ciutat* (pp. 73–85). Museu d'Història de Barcelona; Ajuntament de Barcelona; Institut de Cultura.
- Drain, K. (2015, August 27–29). *Strategies and conflicts of market hall renovation: The case of Helsinki* [Paper presentation]. The Ideal City: Between Myth and Reality—Representations, Policies, Contradictions and Challenges for Tomorrow's Urban Life, Urbino, Italy.
- Dumas, B. L., Harris, D. M., McMahon, J. M., Daymude, T. J., Warnock, A. L., & Moore, L. V. (2021). Prevalence of municipal-level policies dedicated to transportation that consider food access. *Preventing Chronic Disease*, 18, Article 210193. <http://doi.org/10.5888/pcd18.210193>
- Eckenschwiller, C. (2019, June 2). Food halls are the new food courts (with an authentic twist). *Hospitality Insights*. <https://hospitalityinsights.ehl.edu/food-halls-trends>
- Engel, E. (1857). *Die Productions- und Consumptionsverhältnisse des Königreichs Sachsen*. Statistics Bureau of Saxony.
- Fazeli Dehkordi, Z. S., Khatami, S. M., & Ranjbar, E. (2022). The associations between urban form and major non-communicable diseases: A systematic review. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 99(5), 941–958. <https://doi.org/10.1007/s11524-022-00652-4>
- Feliu, G. (2016). El pa al segle XVIII: Continuitats i canvis. In M. Renom (Ed.), *Proveir Barcelona. El municipi i l'alimentació de la ciutat* (pp. 215–229). Museu d'Història de Barcelona, Ajuntament de Barcelona & Institut de Cultura.
- Food and Agriculture Organization. (1996). *Report of the World Food Summit*.
- Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, United Nations Children's Fund, World Food Programme, & World Health Organization. (2024). *The state of food security and nutrition in the world 2024: Financing to end hunger, food insecurity and malnutrition in all its forms*. Food and Agriculture Organization. <https://doi.org/10.4060/cd1254en>
- Franzén, M. (2005). *The market hall revisited*. Linköping University, Department of Culture Studies.
- Fuertes, P., & Gomez-Escoda, E. (2020). Supplying Barcelona. The role of public market halls in the construction of the urban food system. *Journal of Urban History*, 48(5), 1121–1139. <https://doi.org/10.1177/0096144220971821>
- Garriga, S., & Garcia-Fuentes, J. M. (2015). The idealization of a 'Barcelona model' for market halls renovation. In G. Cinà & E. Dansero (Eds.), *Proceedings of the 7th AESOP International Food Planning Conference* (pp. 336–342). Politecnico di Torino.
- Generalitat de Catalunya. (2023). *Anuari Estadístic de Catalunya*. Institut d'Estadística de Catalunya. <https://www.idescat.cat/indicadors/?id=basics&n=10425>
- Gomez-Escoda, E., Crosas, C., & Berra, M. (2022). Forms and patterns of mixtcity in compact cities: Mixed-use synergies in the Sagrada Família neighbourhood of Barcelona. *Journal of Urban Design*, 28(4), 375–396. <https://doi.org/10.1080/13574809.2022.2128314>
- Gomez-Escoda, E., & Fuertes, P. (2024). Proximity and temporality: The role of weekly markets in the metropolitan food system of Barcelona. In A. A. Kantarek, M. Hanzl, T. Figlus, & Ł. Musiaka (Eds.), *XXIX International seminar on urban form: Urban redevelopment and revitalization—A multidisciplinary perspective* (pp. 379–391). Lodz University of Technology.



- González, S., & Waley, P. (2013). Traditional retail markets: The new gentrification frontier? *Antipode*, 45(4), 965–983. <https://doi.org/10.1111/j.1467-8330.2012.01040.x>
- Guàrdia, M., & Oyón, J. L. (Ed.). (2010). *Hacer ciudad a través de los mercados*. Museu d'Història de Barcelona, Ajuntament de Barcelona & Institut de Cultura.
- Harris, P., & De Leeuw, E. (2023). Infrastructure and health: Laying down the big connections for well-being. *Oxford Open Infrastructure and Health*, 1, Article ouac002. <https://doi.org/10.1093/ooih/ouac002>
- Horwitz, J. (2004). Eating space. In J. Horwitz & P. Singley (Eds.), *Eating architecture* (pp. 259–273). The MIT Press.
- Hunter, J. A., Hollands, G. J., Pilling, M., & Marteau, T. M. (2019). Impact of proximity of healthier versus less healthy foods on intake: A lab-based experiment. *Appetite*, 133, 147–155. <https://doi.org/10.1016/j.appet.2018.10.021>
- Joassart-Marcelli, P., & Bosco, F. J. (2023). Best for foodies: Food, digital media and planetary gentrification. *International Journal of Urban and Regional Research*, 48, 74–93. <https://doi.org/10.1111/1468-2427.13212>
- Kaczynski, A. T., Eberth, J., Stowe, E. W., Wende, M. E., Liese, A., McLain, A. C., Breneman, C. B., & Josey, M. J. (2020). Development of a national childhood obesogenic environment index in the United States: Differences by region and rurality. *International Journal of Behavioral Nutrition and Physical Activity*, 17(1), Article 83. <https://doi.org/10.1186/s12966-020-00984-x>
- López Guallar, M. (2016). El proveïment del pa a Barcelona sota el règim de Nova Planta. In M. Renom (Ed.), *Proveir Barcelona. El municipi i l'alimentació de la ciutat* (pp. 203–214). Museu d'Història de Barcelona, Ajuntament de Barcelona & Institut de Cultura.
- Mackenbach, J. P., Rubio Valverde, J., Bopp, M., Brønnum-Hansen, H., Deboosere, P., Kalediene, R., Kovács, K., Leinsalu, M., Martikainen, P., Menvielle, G., Regidor, E., & Nusselder, W. J. (2019). Determinants of inequalities in life expectancy: An international comparative study of eight risk factors. *The Lancet Public Health*, 4(10), 529–537.
- Mària, M. (2018). Barcelona eats. *Quaderns*, 271, 102–123.
- Marquet, O., & Miralles-Guasch, C. (2015). The walkable city and the importance of the proximity environments for Barcelona's everyday mobility. *Cities*, 42, 258–266. <https://doi.org/10.1016/j.cities.2014.10.012>
- McManus, P. (2023). Infrastructure, health and urban planning: Rethinking the past and exploring future possibilities as a response to Harris & De Leeuw (2022). *Oxford Open Infrastructure and Health*, 1, Article ouac001. <https://doi.org/10.1093/ooih/ouac001>
- Milan Municipality. (2015). *Milan urban food policy pact*. <http://www.milanurbanfoodpolicypact.org>
- Parham, S. (2015). *Food and urbanism*. Bloomsbury Publishing.
- Pineo, H., Zimmermann, N., & Davies, M. (2020). Integrating health into the complex urban planning policy and decision-making context: A systems thinking analysis. *Palgrave Communications*, 2020(6), Article 21. <https://doi.org/10.1057/s41599-020-0398-3>
- Pratt, K. J., Blalock, J., Breslin, L., Kiser, H., Hanks, A., Focht, B. C., Outrich, M., Noria, S., & Needleman, B. (2022). Patient access, utilization, and perceptions of neighborhood and built environment resources. *Obesity Surgery*, 32(2), 416–427. <https://doi.org/10.1007/s11695-021-05788-x>
- Prior, J., Liu, E., de Leeuw, E., Morrison, N., & Tsouros, A. (2023). Urban planning and development for health: Key principles to guide action and change. *Public Health Research and Practice*, 33(4), Article 3342329. <https://doi.org/10.17061/phrp3342329>
- Richardson, K. J., Lewis, K. H., Krishnamurthy, P. K., Kent, C., Wiltshire, A. J., & Hanlon, H. M. (2018). Food

- security outcomes under a changing climate: Impacts of mitigation and adaptation on vulnerability to food insecurity. *Climatic Change*, 147, 327–341. <https://doi.org/10.1007/s10584-018-2137-y>
- Rodger, R. (2019). Urban public health: A historical perspective. In S. Galea, C. K. m. Ettman, & D. Vlahov (Eds.), *Urban health* (pp. 169–178). Oxford University Press.
- Rosenthal, M., & Flood, C. (2019). *Food: Eating tomorrow*. V&A Publications.
- Sáenz de Tejada, C. (2024). Salud y proximidad en Madrid. In C. Crosas & E. Gomez-Escoda (Eds.), *Metro-mix: Proximidad y mixticidad para una ciudad saludable* (pp. 69–73). RU Books.
- Siri, J. G., & Geddes, I. (2022). Mainstreaming health in urban design and planning: Advances in theory and practice. *Cities & Health*, 6(5), 853–857. <https://doi.org/10.1080/23748834.2022.2148844>
- Valls, F., & Clua, A. (2023). Modeling Barcelona sidewalks: A high-resolution urban scale assessment of the geometric attributes of the walkable network. *PLOS One*, 18(7). Article 0284630. <https://doi.org/10.1371/journal.pone.0284630>
- Whyte, W. H. (1980). *The social life of small urban spaces*. Conservation Foundation.
- World Health Organization. (2017). *Urban green space interventions and health: A review of impacts and effectiveness*. <https://www.who.int/publications/i/item/9789289053183>

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