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Research article

The role of agrifood wholesale markets in urban fruit and vegetable distribution: the case of Parma, Italy

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Abstract

Agrifood wholesale markets are facing an evolution and innovation phase triggered by competition with the large-scale retail distribution chain. However, their presence in the Italian fruit and vegetable supply chain is important to keep traditional and ambulant retailers alive and may have a role in urban food planning. This study investigates the potential contribution of agrifood wholesale markets in fruit and vegetable distribution and provides policy implications. It involves an in-depth qualitative analysis of Parma as a case study, examining its role in municipal and provincial procurement from 2017 to 2023, and the perspective of wholesalers in terms of products, sales choices, and strategies to supply the local area through semi-structured interviews and Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. Based on the results, the agrifood wholesale market is strongly embedded in the local territory, supporting the small-scale traditional retail ecosystem, as well as the limitations and challenges faced. The main area of improvement concerns the need for a comprehensive supra-municipal strategy that transforms wholesale markets into a policy instrument to benefit local society.

Keywords: urban food policies, traditional food retailers, local development, supply chain governance, Italy.

JEL codes: Q13, Q18, R11.

Highlights:

- The public nature of agrifood wholesale markets and their embeddedness in the local territory determines its potential role in territorial development.
- Coordinated governance between agrifood wholesale markets, their wholesalers, local policymakers, and traditional and ambulant retailers is important for the implementation of urban food policies.
- There are opportunities to expand services and integrate agrifood wholesale markets into future food policies.

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1. Introduction

Urban food policy (UFP) and urban food planning (UFPI) represent ways to promote healthy living and a healthy urban environment (Morgan, 2009), contributing to the broader framework of the World Health Organization's Healthy Cities programme (Ashton *et al.*, 1986). Food plays a central role due to its multifunctional nature and impact on various sectors of urban living, including public health, social justice, energy, water, land, transportation, and economic development (Morgan, 2009).

The availability and accessibility of fruit and vegetables (F&V) are essential in encouraging healthy diets and preventing non-communicable diseases (Willet *et al.*, 2019; FAO, 2021) and also contribute to reducing the environmental impact of urban food systems, especially when F&V are fresh and minimally processed (Nelson *et al.*, 2016; Willet *et al.*, 2019; FAO, 2021). On the other hand, it requires a coordinated distribution system, although it is frequently fragmented from the production side and concentrated in the distribution phase, generating uneven value distribution among the supply chain actors (Petriccione *et al.*, 2011). This framework raises the question of how UFP and UFPI can support collective and coordinated actions within the urban distribution of F&V.

While UFP develops a local strategy to guarantee local food procurement at the urban level in the context of healthy cities and food security strategies (Morgan, 2009), UFPI connects different

aspects relevant to managing and implementing a food policy at the municipal level in an integrated manner (Cabannes, Marocchino, 2018). UFP can be considered a global strategy set at the local level, while UFPI is an operative tool aimed at developing specific strategies geared towards implementing the related UFP. Examples include support for the development of local and seasonal food supply chains by neighbourhood (Enthoven, Van den Broeck, 2021); support and guidance for public procurement activities (FAO, 2021; Mattas *et al.*, 2022); and the reinforcement of the F&V distribution infrastructure (FAO, 2021) and the promotion of local and short food supply chains (Moragues *et al.*, 2013). The connection between UFP, UFPI, and F&V distribution lies in how public institutions intervene in making F&V affordable and accessible through policy development (Slade *et al.*, 2016).

At the European level, the Common Agricultural Policy (CAP) implements measures to support the F&V sector from the supply side. It offers support to producer organisations and aims to increase the competitiveness of the agricultural sector and strengthen farmers' position in the value chain, contributing to a reduction in structural fragmentation. In line with CAP's goals, from the demand side, the "School Scheme"¹ and "Farm to Fork"² strategies encourage the consumption of F&V; the consumption of products from local and short supply chains; organic and quality products; and fair, healthy, and environmentally friendly food systems. However, these tools impact public procurement and consumer behaviours without directly addressing distribution infrastructure.

At the urban level, there are notable examples of how UFP can help reshape the distribution system. For example, the city of Montpellier, France, has implemented a long-term plan to improve the supply of organic and/or local products to the mass catering industry, contributing to the reduction of food waste, access to quality and healthy food for children, and the creation and consolidation of relationships between producers and the agri-food companies in the area (MUFPP, 2019). Similarly, the city of Ljubljana, Slovenia, has consolidated a plan to develop short food supply chains and to strengthen links between local producers, urban markets, and the Ho.Re.Ca. (Hotel, Restaurant, and Café/Catering) sector, leading to an increase in the consumption of locally produced food, including F&V (MUFPP, 2017b). Finally, the food policy of Copenhagen, Denmark, has focused on training kitchen staff while simultaneously restructuring procurement methods to ensure the supply of high-quality organic ingredients, leading to an increase in public organic procurement in the city (MUFPP, 2017a). These experiences demonstrate how UFP and UFPI can impact the distribution system through a combination of the demand side leverage, supply chain reorganisation, and access-oriented interventions. However, these examples do not address the infrastructural challenges of distribution. In this regard, the Milan Urban Food Policy Pact (MUFPP, 2024) stresses the importance of strengthening the food distribution system and explicitly recognises wholesale markets (WMs) as "essential public infrastructures for urban food policies". This infrastructure connects producers with intermediaries and consumers and can support UFP objectives.

In the Italian context, WMs represent a distribution channel that accounts for 50% of the national F&V trade (ISMEA, Italmercati, 2024). They typically operate under public control

¹ European Commission, *Proposal for a Council Regulation amending Regulation (EU) No 1370/2013 as regards the aid scheme for the supply of fruit and vegetables, bananas and milk in educational establishments ("EU school scheme")*, COM/2025/554 final, 16 July 2025, CELEX: 52025PC0554.

² European Commission, *Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system*, COM/2020/381 final, 20 May 2020, CELEX: 52020DC0381.

(MUFPP, 2024). Their importance has been confirmed by a decree³ signed by the Ministry of Agriculture, Food Sovereignty and Forests, allocating National Recovery and Resilience Plan funds to improve the logistical capacity of WMs (MASAF, 2022). Despite their structural relevance, there has been a lack of academic interest in WMs (Cadilhon *et al.*, 2003), and the literature remains limited. Therefore, this paper investigates the potential contribution of WMs in the distribution of F&V. An analysis of a relevant case study responsible for the trade of F&V at ⁴LAU⁵ and NUTS3 level is conducted, highlighting potential axes of development of WMs and discussing policy implications.

The rest of this paper is organised as follows. Section 2 addresses how the role of WMs has evolved within urban contexts. Section 3 presents the research design and the case study. Then, Section 4 describes the results concerning trends in urban and provincial distribution formats, WM activity, and the perceptions of WM wholesalers on their operations and on the WM strategies. Section 5 discusses the main axes of potential development of WMs within the local context. Finally, Section 6 focuses on policy implications.

2. The Italian F&V sector and the urban role of WMs

2.1. The Italian F&V sector

The F&V sector is a cornerstone of the Italian agrifood system, accounting for over 28% of the national agricultural production value and involving around 300,000 farms across 1.2 million hectares (ISMEA *et al.*, 2025). This sector plays an important role in both the domestic market and exports. In terms of domestic spending, F&V account for 20% of the household food budget. In terms of exports, they account for 18% of the total value, making them the leader in Italian agri-food exports (ISMEA *et al.*, 2025).

Data on the structure of the Italian agricultural sector show a polarisation in terms of both scale and geographic distribution, with significant differences between Northern, Central, and Southern Italy (CREA, 2025). In the horticulture and floriculture sector, 43% of standard output is generated by farms 5-20 hectares in size, and only 12% by farms larger than 50 hectares (Del Bravo, 2021). This configuration highlights the marginal role played by large-scale operators and the fragmentation of the F&V sector, presenting a challenge in terms of coordination and logistics (CREA 2025; ISMEA *et al.*, 2025).

A fundamental pillar in the Italian F&V sector is represented by the more than 300 producer organisations, which operate with the aim of planning, focusing and enhancing the sector's offer. However, the main F&V distribution channel is the large-scale retail chain (LRC), which accounts for 85% of sales, compared with 11% for traditional distribution channels (ISMEA *et al.*, 2025). This reflects the concentration of distribution and reinforces power asymmetries along the value chains

³ Ministry of Agricultural, Food and Forestry Policies, *Decree of 5 August 2022 laying down provisions for the implementation of the PNRR measure "Development of logistics for the agri-food, fisheries and aquaculture, forestry, floriculture and nursery sectors through the improvement of the logistical capacity of wholesale agri-food markets"*, Official Gazette of the Italian Republic (G.U.), No. 252, 27 October 2022.

⁴ Local administrative unit.

⁵ Nomenclature of Territorial Units for Statistics, as established by Regulation (EC) No 1059/2003 of the European Parliament and of the Council.

(Petriccione *et al.*, 2011; Bogomolova *et al.*, 2026). In this context, WMs are relevant actors that are potentially capable of connecting upstream and downstream agents at a local level (considering urban and peri-urban dynamics) and reducing asymmetries (ISMEA *et al.*, 2025).

2.2. WMs in the urban context

WMs function as intermediaries between producers and consumers, ensuring stable food flows, price negotiation, compliance with quality standards, and the economic viability of small producers and retailers (ISMEA, Italmercati, 2024). At the upstream level, WMs connect agricultural producers and wholesale commercial intermediaries with wholesalers operating within WMs. At the downstream level, WMs represent a trading space connecting wholesalers with their customers, mainly traditional and ambulant retailers, comprising traditional small retail stores (small neighbourhood retailers [SNRs] and minimarkets) and street vendors (which sell in district markets). Other customers include the Ho.Re.Ca. sector and some big retailers (ISMEA, Italmercati, 2024). Therefore, wholesalers receive products from the primary sector (either directly or indirectly) and resell them to the distribution sector (various types of retailers).

However, the intermediary activity of WMs faces significant challenges that threaten their long-term viability. Alongside inflation – affecting fuel, energy, and the prices of agribusiness products (ISMEA, Italmercati, 2024) – the main threat to WMs is competition from the LRC, which increasingly dominates urban food supply and has contributed to a decline in SNRs (Cadilhon *et al.*, 2003; Bonfrer *et al.*, 2022; Liliia *et al.*, 2023). The growth of the LRC in Europe since the 1980s (Petriccione *et al.*, 2011), and in Italy during the 1990s, led to a replacement of WMs through its own distribution and logistics network based on economies of scale and highly competitive prices (Maggioni, 2016). The expansion of the LRC has reshaped distribution systems: they are now driven by customers and efficiency (Cadilhon *et al.*, 2003). This change was enabled by vertical integration of their supply chain, characterised by significant contractual power and a high capacity to meet consumer demands with high handling efficiency (Petriccione *et al.*, 2011). Between 2017 and 2024, the average annual growth rate of the value of the Italian food sector was 2.45%. Over the same period, the LRC exhibited a comparable growth rate (2.44%), while small retail stores experienced negligible growth (0.10%) (ISTAT, 2017-2024). In parallel, the proliferation of health and safety regulations along the supply chain has progressively reduced the role of WMs in health and safety control (Maggioni, 2016).

This context pushed WMs to embrace innovations, to adopt new objectives and strategies such as a shift towards the internationalisation (Petriccione *et al.*, 2011), and to seek a new position within urban strategies. Indeed, since the 2000s, WMs have evolved to respond to societal and market challenges and changes. They have transformed from simple and local structures into multifunctional innovation hubs that integrate logistics, education, sustainability, and digital platforms (INDIS, 2004; Decree 174/2006). Today, WMs are increasingly seen as “green logistic platforms” that ensure food quality, traceability, and freshness, particularly for local products, to support sustainable urban development (Sogemi, 2021; MUFPP, 2024). For instance, some WMs have repurposed their covered areas for recreational, educational, and commercial uses, creating “food citadels”. The city of Bologna, through an urban regeneration operation, converted part of its municipal WM infrastructure into the “Fabbrica Italiana Contadina (F.I.CO.) Eataly World project” (Fondazione Innovazione Urbana, 2014), a theme park designed as an educational open farm with production activities,

workshops, markets, and food stores (Eataly, 2025). Another example is the Milan WM, which has been redesigned as a strategic hub for fresh produce (SogeMi, 2021), linking 15 local covered markets that have been redeveloped and transformed into multifunctional spaces (SogeMi, 2025). The two aforementioned projects differ significantly despite both being based on renovation and requalification activities. In Milan, the goal is to bring the WM into the city, while in Bologna, the aim is to bring the city into the WM to make the most of underused spaces and to promote food education.

These examples of urban regeneration highlight the potential social role of WMs beyond their economic and logistic functions: they can contribute to food accessibility and redistribution, thereby reinforcing the urban food system (Lizzi, 2022; WUWM, 2023; MUFPP, 2024). Some authors have emphasised that WMs have a positive impact on socio-economic development by providing affordable high-quality food, promoting tourism, preserving culinary heritage (Lilia *et al.*, 2023), supporting employment, and enhancing urban and rural economic activities, particularly for small and medium-sized enterprises (Cadilhon *et al.*, 2003). Furthermore, given the shift in distribution towards the LRC, WMs help ensure the presence of SNRs, thereby preventing the erosion of the urban economic fabric, safeguarding the liveability of urban pedestrian areas, and enabling consumers to access a non-standardised range of products (Maggioni, 2016).

3. Research design

3.1. Case study

Based on the above framework, this study analyses the Parma WM, which is an agri-food and logistics centre (CAL) specialised in F&V. Parma is considered the centre of the “Italian Food Valley” due to its high concentration of market-leading food companies. Moreover, in 2015 Parma was acknowledged as a “UNESCO Creative City of Gastronomy” and is considered one of the richest Italian cities with a high standard of quality of life (based on 2023 data from the Ministry of Economy and Finance, processed by Mestre [CGIA]).

The CAL supplies traders in Parma and the neighbouring provinces of Emilia-Romagna, Lombardy, and Liguria. It is a key player in the Emilia-Romagna WM network, which comprises four regional WMs (Parma, Bologna, Rimini, and Cesena) that work together to promote internationalisation, digital innovation, and logistic efficiency. The network of regional WMs manages 780,000 tonnes of F&V per year, generating a turnover of €12.7 million (Emilia-Romagna Mercati, 2025).

The history of the CAL dates back to 1950 with the original urban street market located in the city centre, followed by a new WM in 1962 and a modernised facility in 2002 in a suburban neighbourhood of the city. The CAL operates as a public-private company, with 76% public share and the remaining 24% privately owned by banks and other local associations. Covering a total area of 80,000 m², the CAL accommodates 6 wholesalers and 10 farmers in the active market pavilion of 10,479 m² structured with 24 modules (each measuring 180 m²) for wholesale operations, leased through five-year concessions by public procedure. The CAL market is managed by a four-member commission, representing wholesalers, retailers, street vendors, and service providers, advising on market services and facility enhancements. Its activity concerns stall allocation, infrastructure

improvements, and operational oversight. The services provided to trading companies include storage of F&V, transportation, pricing, quality control, home delivery, and logistics support. Like other WMs, the CAL has experienced a period of financial crisis, which has led to significant bank exposure with interest payments and a potential risk of closure due to bankruptcy. It avoided closure thanks to its public utility function and a guarantee provided by the Municipality of Parma to the banks. Although the entire management was affected by this financial situation, the recovery plan led to the discharge of the debt in 2025.

Currently, the CAL follows a shared responsibility governance model, emphasising transparency, collaboration, and information exchange among stakeholders. Its main innovation concerns the acknowledgement of the importance of sustainability with the adoption of a sustainability governance system to monitor and oversee related processes. In 2021, the CAL launched the “Solidarity Logistics Project”, which aims to distribute surplus F&V managed by producer organisations directly to charitable organisations. This operation allows the CAL to cover its logistic costs and enables the Municipality of Parma to provide concrete support to vulnerable citizens. Moreover, the CAL collaborates with the national networks ANDMI & GFI Frischemärkte and ITALMERCATI (a national network of 22 WMs), strengthening Italy-Germany trade relations and supporting investment, employment growth, and digital innovation to improve the planning and management in regional and national WMs.

3.2. Stages of analysis

This study involves an in-depth qualitative analysis of the aforementioned case study and is developed across three stages: a macro level analysis concerning the context of the province in terms of distribution of the traditional and ambulant retailer and LRC sectors; a meso level analysis concerning the CAL’s general activities; and a micro level analysis concerning the description of the CAL wholesalers’ strategies, detailing their activities and perceptions (Figure 1). The discussion triangulates the information and results collected at each stage to highlight the opportunities covered and uncovered by the WM in the internal and external context. In this way, the analysis aims to highlight potential policy implications.

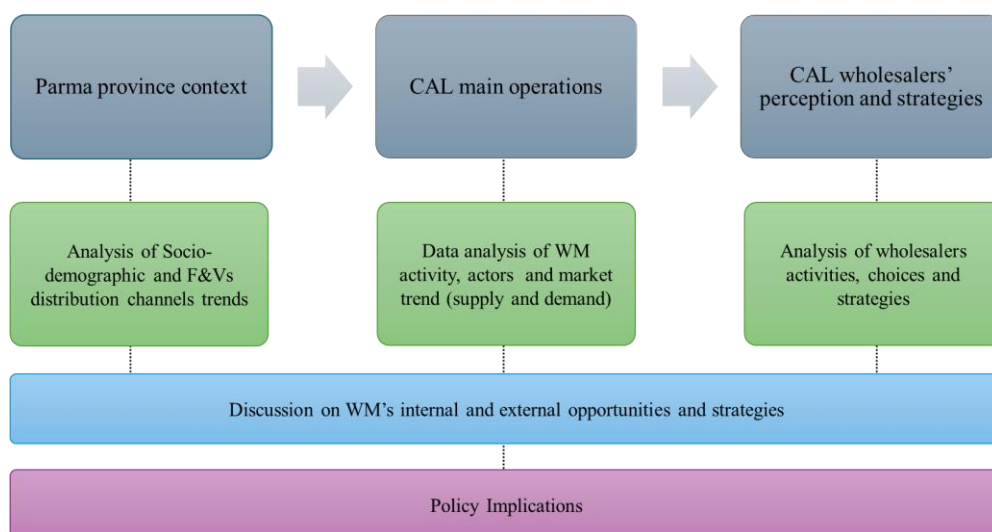


Figure 1. The stages of the case study analysis.

Source: prepared by the authors.

The Province of Parma context

This level of analysis focuses on the surrounding context of the CAL to contextualise its operational activities. Specifically, the following data are analysed: (a) the demographic trends in Parma at the NUTS3 level (Emilia-Romagna Regional Trade Observatory, ART-ER, 2017-2023), based on ISTAT data (Provincia di Parma, 2023); (b) the evolution of urban traditional and ambulant retailers for F&V products, obtained from the reports on trades in public areas (based on reports for 2017-2024) and fixed sites (Emilia-Romagna Regional Trade Observatory, ART-ER, 2018-2024) of the Emilia-Romagna Regional Trade Observatory and ART-ER, and data from Confesercenti (2024); and (c) the evolution of LRC grocery stores from the data of the report on retail trends (Emilia-Romagna Regional Trade Observatory, ART-ER, 2019-2024) of the Emilia-Romagna Regional Trade Observatory and ART-ER, developed in collaboration with the University of Parma.

Description of the main operations conducted by the CAL in terms of the volumes of goods and agents involved

At this level, the analysis focuses on data related to CAL activities conducted in the Province of Parma to highlight the relevance of the CAL in terms of local F&V procurement and supply chain development. The analysis considers: (a) the total volumes of F&V handled by the CAL between 2017 and 2023; (b) the origin of the marketed products, based on the list of items by price and origin (data are only available for 2023); and (c) the WM supply chain analysis considering the number and origin of the CAL's suppliers and buyers (data are only available for 2023).

Analysis of the strategies adopted by CAL wholesalers to exploit market potential at the local level

Semi-structured interviews were conducted with the six CAL wholesalers (coded as W1 to W6) between January and March 2024. Although the total number of interviews is limited, it corresponds to the entire population of wholesalers operating in the CAL at the time of the research. Therefore, the qualitative analysis is based on all the main actors involved in the WM rather than on a sample, thereby enabling an understanding of the possible internal dynamics of the case study. The following information was collected: (a) descriptive information of wholesalers (sales trends and revenues); (b) ranking of the drivers influencing the choice of products ("quality", "price", "offer variety", "seasonality", "geographic indications", and "organic certification") and suppliers (rated using a 5-point Likert scale to facilitate comparison and ranking); and (c) problems wholesalers face as well as opportunities and strategies to procure F&V for the city of Parma. The qualitative information is analysed using a Strengths, Weaknesses, Opportunities and Threats (SWOT) approach, given its usefulness in exploring both internal and external factors of an organisation to support the formulation of future planning through the definition of specific strategies (Kangas *et al.*, 2003; Namugenyi *et al.*, 2019). This approach has also been applied in other agrifood chain studies (Fiore *et al.*, 2018; Meena *et al.*, 2019; Dergan *et al.*, 2022; Madureira *et al.*, 2024; Salali *et al.*, 2024).

4. Results

The following subsections present the results from the three levels of analysis: the provincial context in terms of demographics and F&V distribution channels; the role of the CAL within urban and peri-urban distribution systems; and the perceptions of CAL wholesalers regarding their activities and WM strategies.

4.1. The Parma context: demographic and food retail trends in the province

The analysis of trends in F&V distribution channels (2016-2023) at the NUTS3 level considers both traditional and ambulant retailers (the main downstream agents of the CAL) and the LRC (Table 1).

Table 1. Evolution of traditional and ambulant retailers and LRC grocery channels in the Province of Parma (2016-2023).

Type of business	2016	2023	Average growth rate (%)
Street vendors			
Number of district markets	68	70	0.4%
Number of total vendor stalls	3,116	2,602	-2.5%
Number agri-food stalls	597	533	-1.6%
% of agri-food stalls of the total	19.2%	20.5%	1.0%
Small retailers			
SNRs (s.a.** ≤150 m ²)	2,126	2,309	1.2%
Minimarkets (s.a.** 151-400 m ²)	86	83	-0.5%
LRC stores			
Discount stores			
- Number of outlets	29	43	5.8%
- Sales surface (m ²)	124,801	37,103	-15.9%
Superettes (100-399 m ²)			
- Number of outlets	46	44	-0.6%
- Sales surface (m ²)	9,804	9,211	-0.9%
Supermarkets (400-2499 m ²)			
- Number of outlets	56	56	0.0%
- Sales surface (sqm)	56,305	61,554	1.3%
Superstores (2500-4499 m ²)			
- Number of outlets	6	6	0.0%
- Sales surface (m ²)	18,479	18,479	0.0%
Hypermarkets (over 4500 m ²)			
- Number of outlets	2	2	0.0%
- Sales surface (m ²)	10,525	10,525	0.0%
Total LRC stores			
- Number of outlets	139	151	1.2%
- Sales Surface (m ²)	219,914	136,872	-6.6%
Province of Parma population	448,899	454,149	0.2%

Number of SNRs (s.a.** $\leq 150 \text{ m}^2$) per 1000 inhabitants	4.74	5.08	1.0%
Number of minimarkets (s.a.** $151\text{--}400 \text{ m}^2$) per 1000 inhabitants	0.19	0.18	-0.7%
Number of discount stores per 1000 inhabitants	0.06	0.09	5.6%
Number of superettes (s.a.** $100\text{--}399 \text{ m}^2$) per 1000 inhabitants	0.10	0.10	-0.8%

Note: ** s.a. = sales area.

Source: prepared by the authors based on Emilia-Romagna Regional Trade Observatory, ART-ER Reports (2017-2023) and Provincia di Parma (2023).

SNR outlets and minimarkets show relative stability during the period both in terms of number and density relative to the population of the Province of Parma. This trend underscores the resilience of neighbourhood food supply networks, despite small fluctuations. As no specific data were available at the urban level, an analysis conducted by the Italian trade association Confesercenti (2024) is considered. It highlights that in medium-large municipalities, such as Parma, in 2024 there was a negative trend with respect to 2014 and 2019 for minimarkets (10.60% and -5.80%, respectively) and SNRs (-0.30% and -3.90%, respectively), suggesting that urban contexts may experience stronger competitive pressures compared with the provincial level (Coca-Stefaniak *et al.*, 2005; Delage *et al.*, 2020).

Data on LRC stores underscore two main phenomena in the Province of Parma. First, discount stores report an increase in terms of the number of outlets alongside a significant reduction in sales surface. This suggests that discount stores, which are typically based on cost efficiency and convenience, are increasingly present but as smaller and more localised stores. Second, superettes (small retail outlets operating under dynamics similar to SNR outlets but under LRC brands) are slightly decreasing both in terms of number and sale surface. This phenomenon could be linked to the constant increase in SNRs and the strategy adopted by discount stores: an increased spread in the territory in smaller formats. These results are consistent with recent studies on the trend of the European LRC that stress the expansion of the discount format, confirming their increasing role in the distribution system (EuroCommerce, McKinsey & Company, 2025) and, at the same time, the opening of small proximity stores to meet demand for convenience (Dekimpe *et al.*, 2023).

4.2. The F&V WM of the CAL

This subsection examines the CAL and its associated agents in order to assess the extent of their activity within the Province of Parma.

Volumes, trends, and items

The analysis of F&V volume managed by the CAL's wholesalers shows a clear downward trend over the period of 2017-2022, followed by a partial recovery in 2023 (Figure 2), suggesting an early sign of stabilisation.

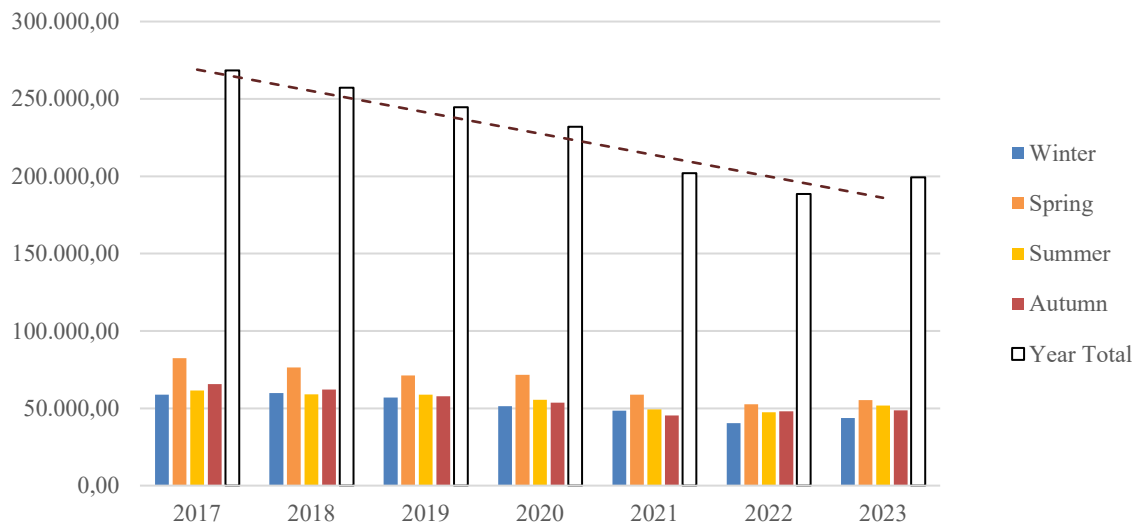


Figure 2. Seasonal volumes of goods managed by the CAL per year from 2017 to 2023 (in tonnes).
Source: prepared by the authors based on CAL primary data.

The analysis of the catalogues shows a high diversity of products (467 references) coming from both national and international markets. Overall, 56% of items come from Italy (mainly citrus, fruits, vegetables, and dry goods); 13.5% are from Spain; and 9.3% are from France, the Netherlands, Chile, and Israel. Note that these percentages do not reflect the volumes of each item type traded; they only indicate the origin. However, the following results highlight the strong role of domestic supply chains and, at the same time, the integration of the CAL with foreign markets.

The supply chain of the F&V WM of Parma

Considering the analysis of the agents involved in the CAL supply chain in 2023 (by type and figure), interactions are mainly generated between national and local agents (Figure 3).

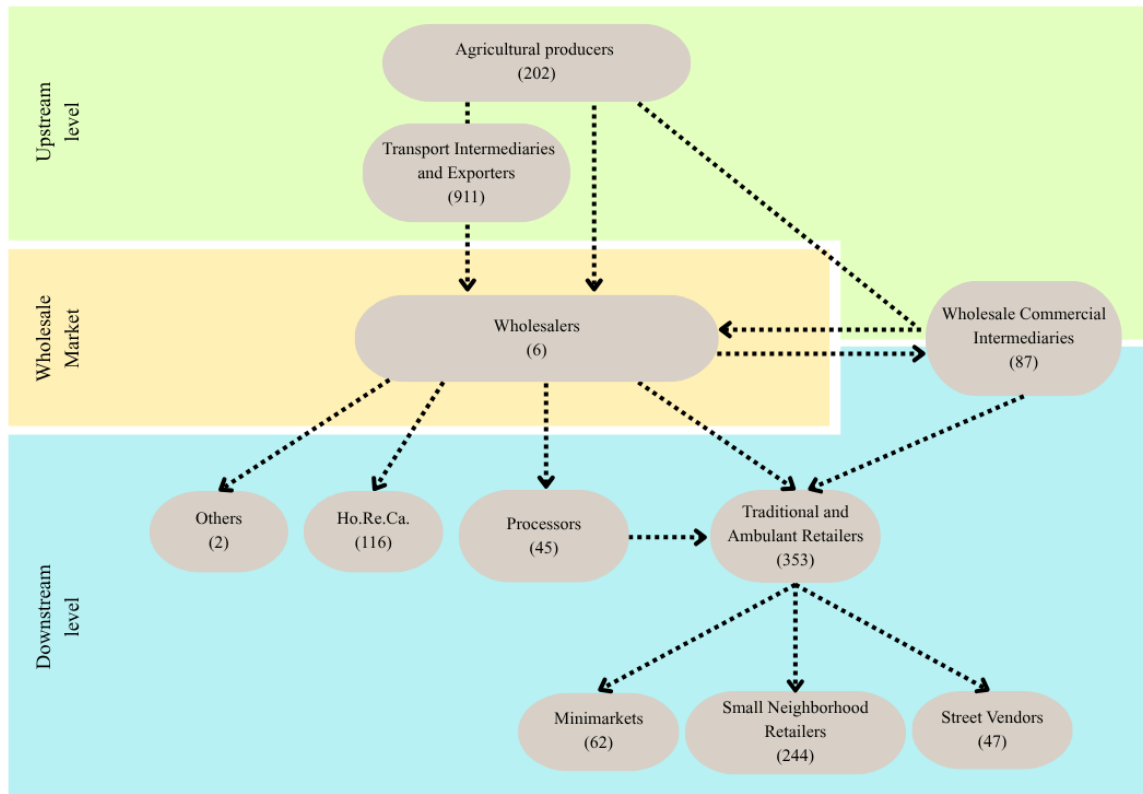


Figure 3. The supply chain of the F&V WM of Parma for 2023.

Note: The numbers in parentheses indicate the number of agents per each category. The upstream level includes the product suppliers who supply the wholesalers. The downstream level comprises the retailers or other businesses that buy from wholesalers and sell products to consumers.

Source: prepared by the authors based on CAL primary data.

At the upstream level, direct and indirect suppliers (transporters or international export intermediaries who deliver products from unregistered sources) are mainly Italian (100% and 97%, respectively). Among all suppliers, 17.7% are local (within 70 km of Parma), and of those 41.1% come from the Province of Parma. Considering only direct suppliers, 77.7% are local (within 70 km from Parma).

The interaction with operators settled in the local area confirms the role of the CAL as a locally rooted hub. Wholesale commercial intermediaries (all Italians) represent a hybrid agent category that operates at both the downstream and upstream levels by, respectively, buying products from agricultural producers and selling it to wholesalers, and buying from wholesalers and reselling products to downstream agents.

At the downstream level, based on their ATECO code⁶, the agents are mainly traditional and ambulant retailers (68.5%) and Ho.Re.Ca. operators (22.4%). Within the first group, the largest share is represented by SNRs, which account for 47.5% of the total of downstream actors, while, within the second group, restaurants represent the largest subgroup (12.5% of the total). Almost all of them (92.7%) are located near the Parma area. It is important to note that the main downstream agents who sell fresh F&V (the traditional and ambulant retailers) are mostly located within a 70-km radius of

⁶ An alphanumeric combination that indicates the economic activity and sector in which the business operates.

Parma and within the Province of Parma. However, while the distribution of SNRs is relatively equal between the province and the city, minimarkets are more concentrated in the city while street vendors are more concentrated in the province (Table 2). The CAL supply chain structure reveals a strong territorial embeddedness, which represents a potential asset.

Table 2. The downstream agents (DA) of the CAL for each geographic location in 2023.

Downstream agent categories	Total CAL DA	DA within a 70 km radius		DA in the Province of Parma		DA in the city of Parma	
	n	n	% per category*	n	% per category*	n	% per category*
Traditional and ambulant retailers	355	335	94.4	221	62.3	111	31.3
SNRs	246	231	93.9	145	58.9	72	29.3
Minimarkets (s.a.** 151-400 m ²)	62	60	96.8	46	74.2	31	50.0
Street vendors	47	44	93.6	30	63.8	8	17.0
Ho.Re.Ca.	116	104	89.7	98	84.5	61	52.6
Restaurants with or without on-site consumption	65	63	96.9	60	92.3	36	55.4
Bars	21	20	95.2	18	85.7	12	57.1
Social, recreational, and sports activities of fairs, clubs, and associations	15	12	80.0	11	73.3	8	53.3
Hotels	9	4	44.4	4	44.4	2	22.2
Catering and food services	6	5	83.3	5	83.3	3	50.0
Processors	45	40	88.9	35	77.8	20	44.4
Processing firms	26	21	80.8	18	69.2	5	19.2
Delis, bakeries, ice-cream shops, and pastry shops	19	19	100.0	17	89.5	15	78.9
Others	2	1	50.0	1	50.0	1	50.0
Supermarkets	1	1	100.0	1	100.0	1	100.0
Importers	1	0	0.0	0	0.0	0	0.0
Total	518	480	92.7	355	68.5	193	37.3

Note: * The percentages are calculated on the Total CAL DA values. ** s.a. = sales area.

Source: prepared by the authors based on CAL primary data.

Unexploited local market potential

The data for the Province of Parma suggest that there is an unexploited submarket. Given the concentration of SNRs, minimarkets, and street vendors within the province (see Subsection 4.1), in 2023 the CAL wholesalers served only 5.8% of agrifood street vendors, 6.2% of SNRs, and 55.4% of minimarkets. These figures highlight the province's economic role in supporting CAL wholesalers. At the same time, they highlight the social role played by the CAL in ensuring the supply of F&V in the Province of Parma. However, the local presence of the CAL does not appear to translate into a clear strategy by the WM to systematically develop the surrounding area as a priority market.

4.3. The drivers of CAL wholesalers' choices

To understand the strategies of wholesalers operating within the CAL, its six wholesalers were interviewed. The wholesalers show differences in turnover and a highly concentrated distribution of the market share (Table 3). This configuration highlights a structure where a few wholesalers hold considerable influence.

Table 3. Characteristics of the wholesalers interviewed.

Wholesalers	Gender (M or F)	Province	Years of activity	Annual turnover (millions of euros)	CAL market share (2023)
W1	M	PR	22	13	27%
W2	M	PR	44	12	25%
W3	M	PR	68	3	5%
W4	M	RE	36	18	35%
W5	M	PR	8	0.2	0.003%
W6	M	PR	60	3.5	6%

Source: prepared by the authors.

Their strategies can be summed up as “high quality, high price”. Considering the score distribution related to the drivers, their product selection is primarily driven by “quality” (mean = 5.00, standard deviation = 0) followed by “price” (mean = 4.00, standard deviation = 0.63), which must always be consistent with quality, indicating that value for money is the key sales lever. However, quality is interpreted in terms of intrinsic characteristics of the product relating to freshness, taste, and appearance, especially considering the low scores attributed to “seasonality” (mean = 2.50, standard deviation = 1.76), “organic certification” (mean = 1.50, standard deviation = 0.84), and “geographic indications” (mean = 2.33, standard deviation = 1.03).

The high standard deviation for “seasonality” reflects significant divergence in perceptions among the interviewed wholesalers. Indeed, while some still consider it a relevant criterion (W5 and W6), others (W1, W2, W3, and W4) believe it has lost relevance because consumers now expect most products to be available year-round and are less aware of seasonal product cycles. This phenomenon is linked to another driver, “offer variety”, ranked third in importance (mean = 3.67, standard deviation = 0.82), which helps explain the low relevance of seasonality, clarifying wholesalers' commercial priorities. The wholesales assign a marginal role to “organic certification”: some believe that organic certification is too expensive for their customers, mentioning limited demand and the scarcity of certified retailers, which increases the risk of contamination and mixing with conventional products, compromising profitability (W3 and W4).

The choice of the origin of F&V is driven by the “relationships with the suppliers” (mean = 4.67, standard deviation = 0.52), which is usually long term and conducted on a consignment basis, and thus rooted in trust-based relationships. The second most relevant driver is the “regional specialisation towards a specific production” (mean = 4.00, standard deviation = 0.89) which is valued primarily for its perceived reputation among consumers (W3). Conversely, “transportation costs” are not widely perceived as a significant factor (mean = 2.3, standard deviation = 1.5), although there is notable variability in the responses.

In terms of product demand, the wholesalers follow seasonality but always prioritise a full assortment. Four of the six wholesalers who also sell exotic and ethnic products have noticed an increase in demand for them. This trend may be driven by the growing popularity of international cuisines, which have introduced new consumption patterns.

4.4. SWOT analysis of the wholesalers' strategies

Based on interviews with six wholesalers, a SWOT analysis was developed to assess F&V distribution activities within the WM (Table 4).

As a strength, wholesalers recognise their ability to offer efficient logistical services tailored to the clients' needs (W1 and W4) and to foster loyalty among both suppliers through exclusivity (W4) and purchasing clients (W6). This is achieved through clear communication and product transparency (W2). These elements support customer loyalty and reinforce their role within the local distribution system.

However, there are several critical weaknesses. First, existing sales formats are considered inadequate to meet private consumer demand (W1) because "selling in bulk packages rather than by [the] kilo and [with] household sizes steadily shrinking" potentially limits the reach of the supply chain and, consequently, "there are fewer and fewer private [consumers]". Second, there is a notable deficiency in the CAL's external promotion strategies towards the access to private consumers (W2). Third, F&V have an important role in daily consumption (W4), which may undermine public awareness and impact consumer behaviour adversely. Fourth, inadequate internal communication from the CAL to its wholesalers exacerbates these problems, creating informational gaps that impede efficient coordination and collaboration (W6).

Three main threats emerged. First, there is competition with the LRC, which has established direct supply contracts over time, bypassing intermediaries such as the WM and leveraging cost advantages (W2). The second refers to product usability. Indeed, W1 highlighted the difficulty of selling "a product that requires home preparation" when "it is much easier nowadays to purchase a pre-packaged bag of salad, even though [...] it is ultimately less cost-effective when considering price per kilogram". This observation underscores a shift in consumer purchasing behaviours driven by convenience. Third, the erosion of SNRs has negatively impacted the F&V WM. In fact, as stated by W2 and W3, there is an obvious dependence linkage with the retailers: "we [wholesalers] sell if the SNRs sells. If the SNRs struggle, the market [WM] struggles."

Two opportunities emerge. First, customers and end-consumers have shown increasing interest in traceability and transparency with a view to food safety and increasing product information (W1, W2, W3, and W6). Second, there is a growing demand for different types of products, from exotic (W5) to local (W3), that allow specific market niches to be occupied.

Table 4. SWOT analysis of wholesalers' perspectives on their sale activities.

Strengths	Weaknesses
• Offer client-specific logistics services • Reservations of goods by clients through online platforms • Transparent information to the client to be transmitted to consumers • Local products • Collaboration with large-scale retailers • Transparency and exclusivity of the supply chain (suppliers) • Exotic and special products • Customer loyalty through quality	• Sales formats not adequate for private demand • Poor promotion by the CAL of the access to private consumers • Poor external communication by the CAL on the importance of fruit and vegetable consumption • Poor internal communication by the CAL towards wholesalers
Opportunities	Threats
• Interest in food safety and traceability • Clients' and consumers' need for transparency • Use of digital tools • Growing demand for diverse types of products • Collaboration with small local supermarkets	• Difficulties in competing with large-scale distribution due to low prices linked to its control over the supply chain • Difficulty in competing with the large-scale distribution due to the offer of a wide range of products and ready-to-eat products • Erosion of the retail sector

Source: prepared by the authors based on the interviews with the wholesalers.

To face these challenges, wholesalers have identified several potential strategic actions. The first involves enhancing communication efforts to consumers. W4 and W6 specifically recommend the development of food education projects in schools, “teaching children the importance of eating fresh fruits and vegetables and investing in young people”. W1 and W5 focused on increasing public awareness of the CAL by advertising the activity of small retailers and other events designed to engage citizens. Second, the market could be transformed into an extension of public health offices to ensure food safety services (W2). Third, a shared strategy under strong collaboration between the CAL, institutions, small retailers and street vendors, and the citizens could be developed. Finally, the opening hours of SNRs and district markets could be adjusted to improve accessibility for workers and students (W3).

5. Discussion

5.1. Local distribution channels: covered and uncovered opportunities of the wholesalers

Based on the SWOT analysis of the interviews with wholesalers, there are several reasons for the CAL's decline. The main threat originates from changes in the external environment, particularly competition from the LRC in terms of both price and product variety. The increased competitiveness of the LRC is detrimental to SNRs, which struggle to develop effective strategies, resulting in their closure. Over the period considered in this study, the LRC remained stable, while smaller discount stores expanded through a process of territorial capillarisation. A second threat is represented by the economic crisis that has affected the Italian economy since 2017, which has reduced the purchasing power of consumers (ISTAT, 2025). This has prompted a shift towards the LRC, which, through a

mix of marketing strategies, offers lower prices and thereby attracts a growing consumer base. Indeed, national data confirm a steady increase in consumers choosing private labels and discount channels, driving the success of retail formats that enable significant cost savings (CoopItalia, Nomisma, 2024; The European House – Ambrosetti, 2024). The literature confirms this trend, highlighting the link between the decline of SNRs, in terms of diversity and density in small and medium-sized cities across Europe, and the increasing competition of larger and more efficient retail formats, which are better suited to structural changes in consumption patterns (Delage *et al.*, 2020; Dekimpe *et al.*, 2023).

In contrast to the wholesalers' perceptions, the NUTS3 data show slight but steady growth in SNRs, while minimarkets and farmers selling in district markets remain stable. This trend can be associated with higher population density in the Parma neighbourhoods and the nearby municipalities (within 25 km). This implies a reduced turnover potential in rural and peripheral areas, which would make operations economically unsustainable for the LRC. This context favours SNRs and, consequently, the WM that supplies them. The CAL data indicate that most SNRs supplied are located within a 70 km radius of Parma, highlighting strong territorial embeddedness. However, the number of provincial SNRs supplied compared with total provincial SNRs reveals an untapped market and a potential strategic role for the CAL in ensuring the availability of F&V in the rural areas surrounding Parma. Moreover, the CAL could also serve as a marketing channel for local farms, bringing their products directly to the CAL and, thus, to the urban market.

5.2. *The perception of quality and choices of wholesalers*

A key issue emerging from the interviews with the wholesalers concerns their notion of “quality” as a guiding factor of their purchasing decisions. CAL wholesalers perceive quality as the main factor differentiating traditional and ambulant retailers from the LRC. However, wholesalers interpret quality exclusively through intrinsic product characteristics (colour, flavour, texture, and ripeness), while disregarding extrinsic attributes, particularly those linked to organic or certified production. As a result, wholesalers fail to meet the expectations of growing consumer segments, especially younger and “conscious” consumers, who increasingly seek healthier diets and environmentally friendly or local products (Ahmed *et al.*, 2021; Wongprawmas *et al.*, 2021; CoopItalia, Nomisma, 2024; EuroCommerce, McKinsey & Company, 2025). This suggests that quality should be viewed as a multidimensional concept, encompassing both intrinsic and extrinsic aspects, recognising organic certifications and local production as guarantees of contemporary quality standards.

This misalignment can be interpreted within broader structural transformations affecting the retail system. As highlighted by Fernandes, Chamusca (2014), SNRs respond heterogeneously to these changes, ranging from resistance to adaptation or modernisation. Coca-Stefaniak *et al.* (2005) point out that SNRs could survive by positioning themselves as niche outlets or by offering services that the LRC does not provide. In this context, the role of WMs could be oriented towards reducing the fragmentation of SNRs by coordinating a network of retailers specialised in quality schemes or local products. This aligns with the recent analyses on the urban role of WMs (Sgroi, Musso, 2022), which emphasise their potential to support short food supply chains and small local producers. Strengthening the competitiveness of local and niche producers represents a strategic avenue for WMs to sustain local economies and to promote environmental sustainability.

5.3. Internal cooperation and communication between the CAL and wholesalers

The interviews highlight is a great market opportunity for CAL wholesalers in the local area, raising the question of why the CAL has not yet capitalised on this potential. Wholesalers also reported shortcomings in internal communication with the CAL governance, revealing a misalignment between the wholesalers' strategic proposals and the CAL's development priorities.

Indeed, wholesalers suggested strategies focused on local-scale actions based on promotional activities, cooperation with local actors and differentiation of CAL urban services, while the CAL management engages in two strategic actions beyond its core market operations. Locally, the "Logistica Solidale" project supplies fresh F&V to vulnerable people via charity associations, redirecting products from producer organisations (CAL, 2024). Internationally, the CAL promotes local products through participation in trade fairs and establishing partnerships with Middle east and Southeast Asian markets (particularly Dubai and Singapore) to open new commercial channels. Neither action focuses on enhancing urban distribution.

Several European WMs (Barcelona, Paris, and Tirana) confirm the strategic directions identified in this study. Barcelona's Mercabarna has introduced a dedicated area for organic products only (a biomarket) and has proposed local products to support the territorial economy, while also engaging in sustainability initiatives and local community activities such as food banks' donations and educational programs. Similarly, Paris's Rungis guarantees organic and local offerings; implements recycling, recovery and waste management practices; donates food through food banks; and provides heat supply via an on-site incinerator. Moreover, it has expanded the service offerings within the market (i.e., police stations, restaurants, public transport stations, and banks) and is developing a new market dedicated to agroecological and local products. Finally, Tirana's AgroPark stands out for strong social and local impacts, focusing on organic products sold directly by local farmers and offering open community spaces for educational and awareness-raising initiatives on sustainable diets and local gastronomic culture (WUWM, 2023).

In Italy, Milan and Bologna show divergent approaches to embed WMs within UFP. While Bologna still has a fledgling UFP and has made an unsuccessful attempt to revitalise its WM, Milan represents a successful model. It includes the WM as a hub linking the peri-urban agricultural sector with the urban context through a network of covered markets. The Milan UFP thus expands access to F&V at controlled prices while supporting wholesalers.

Overall, these experiences underscore the importance of coordinated strategy with local authorities to connect WMs to the urban ecosystem and prioritise local and high-quality production. Indeed, Fernandes, Chamusca (2014) highlight that the resilience of SNRs depends on urban planning policies, which must be adapted to local specificities as opportunity to regenerate urban centres and local economies. Thus, considering that Italy, compared with other European countries, shows a lower level of concentration in the food retail market and a slower transition towards the LRC (Dobson *et al.*, 2003), there are opportunities to intervene through multi-level governance measures.

6. Conclusions

This case study shows how WMs in small and medium-sized cities are still embedded in the local context. It presents a WM at an initial stage of functional renewal, where challenges are recognised but have not yet been addressed through a coordinated strategy, namely a food policy. On the one hand, WMs in such urban contexts are still capable of managing a wide trading network connecting urban and rural actors. On the other hand, an underexploited segment of traditional local retail sectors emerges together with a strong awareness of the effects and threats of LRC expansion. This context highlights the potential modernised role of WMs in the urban dimension and leads towards their social and public role in line with the public administration that often owns them.

The need for stronger internal and external cooperation and communication along with the limited collaboration with provincial SNRs and the insufficient presence of organic and local products are important structural shortcomings. These issues suggest the need to move beyond an approach that exclusively uses UFP and towards the development of a supra-municipal food policy capable of coordinating resources and strategies on a broader scale. In practical terms, new policy could act through four main interconnected interventions. First, the creation of a dedicated agriculture policy table involving representatives of the local farmer sector could help coordinate resources, production availability, and citizens' needs. Second, the aggregation of organic and local products could transform WMs into logistics hubs for certified-quality products, facilitating their distribution towards traditional distribution channels, meeting the growing demand for high-quality products. Third, the promotion of a digital platform communicating product types, quality, and prices could help reach new clients across a wider territorial area for wholesalers, improving transparency. Fourth, the diversification of WM services could involve opening spaces to the public, collaborating with educational and public institutions to reinforce its social function, and acting as a tool to facilitate public procurement (i.e., supplying schools).

In this way, WMs in medium-sized urban contexts could transform into multifunctional hubs without losing their original nature as F&V distribution infrastructure. They could become a logistical instrument for policymakers to manage public procurement networks that both source from and support the local production sector.

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References

- Ahmed N., Li C., Khan A., Qalati S.A., Naz S., Rana, F. (2021). Purchase intention toward organic food among young consumers using theory of planned behavior: Role of environmental concerns and environmental awareness. *Journal of Environmental Planning and Management*, 64(5): 796-822. DOI: <https://doi.org/10.1080/09640568.2020.1785404>.
- Ashton J., Grey P., Barnard K. (1986). Healthy cities—WHO’s new public health initiative. *Health Promotion International*, 1(3): 319-324. DOI: <https://doi.org/10.1093/heapro/1.3.319>.
- Bogomolova S., Lesar L., Baum N., Jardine B., Lockshin L., Loch A., Buckley J. (2026). Exploring the intensity of power asymmetry in food supply systems: an application of systems thinking. *Industrial Marketing Management*, 133: 53-66. DOI: <https://doi.org/10.1016/j.indmarman.2026.01.002>.
- Bonfrer A., Chintagunta P., Dhar S. (2022). Retail store formats, competition and shopper behavior: A systematic review. *Journal of Retailing*, 98(1): 71-91. DOI: <https://doi.org/10.1016/j.jretai.2022.02.006>.
- Cabannes Y., Marocchino C. (eds) (2018). *Integrating Food into Urban Planning*. UCL Press, London.
- Cadilhon J.J., Fearne A.P., Hughes D.R., Moustier P. (2003). Wholesale markets and food distribution in Europe: New strategies for old functions. *Department of Agricultural Sciences, Imperial College London (Wye Campus)*, 34 [Working paper].
- CAL (2024). *Report di sostenibilità 2023: ortofrutta bene condiviso*, Centro Agroalimentare di Parma, Parma.
- Coca-Stefaniak A., Hallsworth A.G., Parker C., Bainbridge S., Yuste R. (2005). Decline in the British small shop independent retail sector: exploring European parallels. *Journal of Retailing and Consumer Services*, 12(5): 357-371. DOI: <https://doi.org/10.1016/j.jretconser.2004.11.007>.
- Confesercenti (2024). *Commercio e servizi: Le oasi nei centri urbani*, Confesercenti Nazionale, Rome.
- CoopItalia, Nomisma. (2024). *Rapporto Coop 2024 – Consumi e stili di vita degli italiani di oggi e di domani*. Italiani.coop, Rome.
- CREA (2025). *Annuario dell’agricoltura italiana 2024, Volume LXXVIII*. Consiglio per la Ricerca in Agricoltura e l’analisi dell’Economia Agraria, Rome.
- Dekimpe M. G., Gijsbrechts E., Gielens K. (2023). Proximity-store introductions: A new route to big-box retailer success? *Journal of Retailing*, 99(4): 621-633. DOI: <https://doi.org/10.1016/j.jretai.2023.11.006>.

- Delage M., Baudet-Michel S., Fol S., Buhnik S., Commenges H., Vallée J. (2020). Retail decline in France's small and medium-sized cities over four decades. Evidences from a multi-level analysis. *Cities*, 104, 102790. DOI: <https://doi.org/10.1016/j.cities.2020.102790>.
- Del Bravo F. (2021). *L'ortofrutta e la catena del valore*. In *Il valore nell'ortofrutta, dalla filiera al sistema* (online event, CIA – ISMEA) [Presentation slides available in: https://static.tecnichenuove.it/rivistafrutticoltura/2021/04/Cia_valore_filiera_ortofrutticola.pdf].
- Dergan T., Ivanovska A., Kocjančič T., Iannetta P.P., Debeljak M. (2022). 'Multi-SWOT' multi-stakeholder-based sustainability assessment methodology: Applied to improve Slovenian legume-based agri-food Chains. *Sustainability*, 14(22), 15374. DOI: <https://doi.org/10.3390/su142215374>.
- Dobson P.W., Waterson M., Davies S.W. (2003). The patterns and implications of increasing concentration in European food retailing. *Journal of Agricultural Economics*, 54(1): 111-125. DOI: <https://doi.org/10.1111/j.1477-9552.2003.tb00053.x>.
- Eataly (2025). *FICO Eataly World: From Field to Fork*.
- Emilia-Romagna Mercati. (2025). *Mission & Vision*, Emilia-Romagna Mercati – Rete di Imprese, Bologna.
- Emilia-Romagna Regional Trade Observatory, ART-ER (2017-2023). *Il commercio su aree pubbliche in Emilia-Romagna*, Regione Emilia-Romagna, Bologna.
- Emilia-Romagna Regional Trade Observatory, ART-ER (2018-2024). *Il commercio in sede fissa in Emilia-Romagna*, Regione Emilia-Romagna, Bologna.
- Emilia-Romagna Regional Trade Observatory, ART-ER (2019-2024). *I trend della distribuzione in regione Emilia-Romagna*, Regione Emilia-Romagna, Bologna.
- Enthoven L., Van den Broeck G. (2021). Local food systems: Reviewing two decades of research. *Agricultural Systems*, 193, 103226. DOI: <https://doi.org/10.1016/j.agsy.2021.103226>.
- EuroCommerce, McKinsey&Company. (2025). *The State of Grocery Retail 2025: Europe*, EuroCommerce, Brussels.
- FAO. (2021). *FAO/WHO International Workshop on Fruits and Vegetables in preparation for the International Year of Fruits and Vegetables 2021*. Food and Agricultural Organization of the United Nations, Rome.
- Fernandes J.R., Chamusca P. (2014). Urban policies, planning and retail resilience. *Cities*, 36: 170-177. DOI: <https://doi.org/10.1016/j.cities.2012.11.006>.
- Fiore M., Stašys R., Pellegrini G. (2018). Agri-food supply chain optimization through the SWOT analysis. *Vadybos mokslas ir studijos – kaimo verslų ir jų infrastruktūros plėtrai: mokslo žurnalas*, 40(1): 28-36. DOI: <https://doi.org/10.15544/mts.2018.03>.
- Fondazione Innovazione Urbana (2014). *FICO Eataly World*, Fondazione Innovazione Urbana, Piazza Maggiore.
- INDIS. (2004). *I mercati agroalimentari all'ingrosso: il quadro attuale e le prospettive future*. Maggioli Editore, Santarcangelo di Romagna.

- ISMEA, Italmercati (2024). *I Mercati all'Ingrosso nella Filiera Agroalimentare: Un'indagine sulla rete Italmercati*, Programma Rete Rurale Nazionale 2014-22, Istituto di Servizi per il Mercato Agricolo Alimentare, Rome.
- ISMEA, Italmercati, CENSIS (2025). *Rigenerare il fresco: I mercati all'ingrosso tra innovazione e sfida dei consumi*, Istituto di Servizi per il Mercato Agricolo Alimentare, Rome.
- ISTAT (eds) (2017-2024). *Commercio al dettaglio*, Istituto Nazionale di Statistica, Rome.
- ISTAT (2025). *Rapporto annuale 2025. La situazione del Paese*, Istituto Nazionale di Statistica, Rome.
- Kangas J., Kurttila M., Kajanus M., Kangas A. (2003). Evaluating the management strategies of a forestland estate – The SOS approach. *Journal of Environmental Management*, 69(4): 349-358. DOI: <https://doi.org/10.1016/j.jenvman.2003.09.010>.
- Liliia M., Ekaterina V., Olga K. (2023). Changing the designs of business models of wholesale food markets in the context of the transformation of the state regulatory system. *TEM Journal* 12(2): 1069-1081. DOI: <https://doi.org/10.18421/TEM122-53>.
- Lizzi R. (2022). Urban food policies against waste and supporting food donations. Actors, mechanisms and facilitating factors of collaborative governance in the Italian case. *Rivista Italiana di Politiche Pubbliche*, 17(3): 319-348. DOI: <https://doi.org/10.1483/105511>.
- Madureira T., Nunes F., Mata F., Vaz-Velho M. (2024). A SWOT analysis of organizations in the agri-food chain sector from the Northern region of Portugal using the PESTEL and MEETHS frameworks. *Agriculture*, 14(9), 1554. DOI: <https://doi.org/10.3390/agriculture14091554>.
- Maggioni, A. (2016). *La regione logistica milanese*, Associazione Economia e Sostenibilità, Milan.
- MASAF - Ministero delle politiche agricole alimentari e forestali. (2022). *Decreto 5 agosto 2022: Disposizioni necessarie all'attuazione della misura PNRR "Sviluppo logistica per i settori agroalimentare, pesca e acquacoltura, silvicoltura, floricoltura e vivaismo, tramite miglioramento della capacità logistica dei mercati agroalimentari all'ingrosso"*. Gazzetta Ufficiale della Repubblica Italiana, Serie Generale, 252, 27 ottobre 2022.
- Mattas K., Tsakiridou E., Karelakis C., Lazaridou D., Gorton M., Filipović J., Hubbard C., Saidi M., Stojkovic D., Tocco B., Tregear A., Veneziani M. (2022). Strengthening the sustainability of European food chains through quality and procurement policies. *Trends in Food Science & Technology*, 120: 248-253. DOI: <https://doi.org/10.1016/j.tifs.2021.11.021>.
- Meena S.R., Meena S.D., Pratap S., Patidar R., Daultani Y. (2019). Strategic analysis of the Indian agri-food supply chain. *Opsearch*, 56(3): 965-982. DOI: <https://doi.org/10.1007/s12597-019-00380-5>.
- Moragues A., Morgan K., Moschitz H., Neimane I., Nilsson H., Pinto M., Rohrer H., Ruiz R., Thuswald M., Tisenkopfs T., Halliday J. (2013). *Urban food strategies: the rough guide to sustainable food systems*, FP7 project FOODLINKS (GA No. 265287), European Commission, Brussels.
- Morgan K. (2009). Feeding the city: The challenge of urban food planning. *International Planning Studies*, 14(4): 341-348. DOI: <https://doi.org/10.1080/13563471003642852>.
- MUFPP (2017a). *Policy brief no. 15: Copenhagen – Organic public procurement and sustainable food systems*, Italian Agency for Development Cooperation, Milan, <https://www.milanurbanfoodpolicypact.org/wp-content/uploads/2020/12/Brief-15-Copenhagen-2017.pdf>

- MUFPP (2017b). *Policy brief no. 5: Ljubljana – Short food supply chains and local food systems*, Italian Agency for Development Cooperation, Milan, <https://www.milanurbanfoodpolicypact.org/wp-content/uploads/2020/12/Brief-5-Ljubljana-2017.pdf>
- MUFPP (2019). *City Montpellier - Structuration de l'approvisionnement durable*, Italian Agency for Development Cooperation, Milan, <https://www.milanurbanfoodpolicypact.org/wp-content/uploads/2020/12/FSD-Montpellier-2019.pdf>
- MUFPP (2024). *Wholesale markets: Public spaces for interconnected food policies*, Italian Agency for Development Cooperation, Milan.
- Namugenyi C., Nimmagadda S. L., Reiners T. (2019). Design of a SWOT analysis model and its evaluation in diverse digital business ecosystem contexts. *Procedia Computer Science*, 159: 1145-1154. DOI: <https://doi.org/10.1016/j.procs.2019.09.283>.
- Nelson M., Zak K., Davine T., Pau S. (2016). Climate change and food systems research: current trends and future directions. *Geography Compass*, 10(10): 414-428. DOI: <https://doi.org/10.1111/gec3.12281>.
- Petriccione G., Dell'Aquila C., Perito M.A. (2011). Ortofrutta e catena del valore globale. *Agriregionieuropa*, 7(27): 10.
- Provincia di Parma (2023). *La popolazione in Provincia di Parma all'1.1.2023 e gli scenari future*, Provincia di Parma, Parma.
- Salali H.E., Akyüz Y., Atakan P., Günden C., Yercan M. (2024). *A review of guidelines on agri-food value chain modeling*. In Mattas K., Baourakis G., Zopounidis C., Staboulis C. (eds) *Value Chain Dynamics in a Biodiverse Environment*. Cooperative Management, Springer, Cham. DOI: https://doi.org/10.1007/978-3-031-49845-9_6.
- Sgroi F., Musso D. (2022). Urban food strategies and sustainable agri-food systems: Results of empirical analysis in Palermo. *Journal of Agriculture and Food Research*, 10, 100436. DOI: <https://doi.org/10.1016/j.jafr.2022.100436>.
- Slade C., Baldwin C., Budge T. (2016). Urban planning roles in responding to food security needs. *Journal of Agriculture, Food Systems, and Community Development*, 7(1): 33-48. DOI: <https://doi.org/10.5304/jafscd.2016.071.005>.
- SogeMi (2021). *Foody, mercato agroalimentare Milano*, SogeMi S.p.A., Milan.
- SogeMi (2025). *Mercati di quartiere*, SogeMi S.p.A., Milan.
- The European House – Ambrosetti (2024). *Marca del Distributore e Made in Italy: il ruolo della Distribuzione Moderna*, ADM Associazione Distribuzione Moderna, Milan.
- Willett W., Rockström J., Loken B., Springmann M., Lang T., Vermeulen S., Garnett T., Tilman D., DeClerck F., Wood A., Jonell M., Clark M., Gordon L.J., Fanzo J., Hawkes, Rami Zurayk C., Rivera J.A., De Vries W., Majele Sibanda L., Afshin A., Chaudhary A., Herrero M., Agustina R., Branca F., Lartey A., Fan S., Crona B., Fox E., Bignet V., Troell M., Lindahl T., Singh S., Cornell S.E., Reddy K.S., Narain S., Nishtar S., Murray C.J.L. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, 393(10170): 447-492. ISSN 0140-6736. DOI: [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4).

- Wongprawmas R., Mora C., Pellegrini N., Guiné R.P., Carini E., Sogari G., Vittadini E. (2021). Food choice determinants and perceptions of a healthy diet among Italian consumers. *Foods*, 10(2): 318. DOI: <https://doi.org/10.3390/foods10020318>.
- WUWM (2023). *2023 Cancun Conference Report - The future of Food Markets: modernizing wholesale and retail markets to meet customer expectations by 2030*, World Union of Wholesale Markets, Rungis.