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Keynote article

Dear old (and misunderstood) districts, let's look ahead

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Abstract. Food districts seem to be a phenomenon as widespread as they are somewhat little known and misunderstood. After thirty years of collective thinking and practice, we question what districts in the agricultural and rural domain actually are and whether we are yet to produce a scientifically consistent conceptual framework to fully understand them. This article aims to relaunch a debate about this theme, encouraging scholars to refocus their research on it, thereby hopefully prompting policymakers to revisit and review current policy. How the current conceptual framework develops from Becattini's interpretation of the Marshallian Industrial District and its impact on policy design and implementation are analysed and grey areas highlighted. Current transitions linked to sustainability and global challenges are explored through the relevant literature, highlighting the changing meaning of some key concepts that are necessary to reframe the district notion. Our conclusion is that a new generation of district is needed, in addiction to a new policy framework, which in turn will require a reframing and more robust conceptualization of what food districts are. We end by analysing some difficulties and caveats to begin to produce a theoretical definition of a new conceptual framework.

Keywords: food districts, sustainable development, rural development policy, food systems, digital, ecological transitions.
JEL codes: Q18, Q28, 013.

HIGHLIGHTS

- Since the very concept of district in the agricultural and rural domain seems to blur in its implementation, the gap between science and politics should be bridged.
- Food districts need a clearer legal framework, consistent with the conceptual one.
- Broader platforms for discussion and debate involving the general public, not just the agricultural and rural actors, are needed in order to establish how to move forward.

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1. SOMEWHAT UNKNOWN AND MISUNDERSTOOD

1.1. Introduction

The increasing number of food districts that entered the National Register established by the MASAF[1] reveals a phenomenon as widespread as it is somewhat little known and misunderstood, due to the lack of information sources and relevant research[2]. So far, the only research conducted on behalf of the NRN on a national scale dates back more than a decade (Toccaceli, 2012). The Register led not only to the definition of a growing variety of adjectives qualifying districts, but it provided for other phenomena associated to districts (La Sala *et al*., 2023), so that the very concept of district in the agricultural and rural domain seems to blur and some confusion reigns.

Several questions are arising. After thirty years of research and practice, what actually are districts in the agricultural and rural domain? Do they fit with a consistent conceptual framework? Are they able to reach territorial goals? If and how can they align to the current transitions and withstand the shocks and challenges we all face?

Our thesis is that there is no clearly and completely defined conceptual framework. As a result, we are of the opinion that clear elements are still missing to distinguish a district phenomenon in the agricultural and rural context from other types of organizational phenomena or governance arrangements. Yet, in this keynote article, our purpose is not to reframe the concept, rather we try to demonstrate why that reframing is needed by retracing the evolution of economic thought and regulatory construction and finally considering the old districts in the context of the emerging challenges.

We firstly approach this reflection from a conceptual point of view. The unique concept we can take into account is the Marshallian Industrial District (hereafter MID) as defined by Becattini (Becattini, 1989, 1991, 2000a, 2004; Becattini *et al*., 2009). In this section (paragraph 1.2, 1.3); we highlight the original idea, retrace how this concept has been used in the early attempt of application to the agricultural and rural field. In the second section, we retrace how that has affected the policy design and implementation and *vice versa*, and some consequent misleading interpretation. A new conceptual framework should allow to recognise districts able to face the great effort for sustainability. Therefore, in the third section, we face the "old" districts to the new global challenges to highlight how this can affect the reframing effort. The fourth section provides a short analysis of the caveats and difficulties in defining a new conceptual framework and adds some policy considerations.

Our purpose is to find some stimuli for relaunching a debate about this theme, encouraging scholars and, hopefully, prompting the political sphere to a renovated policy approach.

1.2. From Becattini to a dichotomous, branched concept

In Becattini's words, the MID is defined "*a socio-territorial entity, characterised by the active presence – in a circumscribed, naturally and historically determined, territorial area – of a community of people and a population of industrial firms. In the district […] the community and the firms tend to interconnect*" (Becattini, 2000a, p. 58). Becattini has expanded the original idea of MID – that used also non-production-related arguments, the Marshallian *industrial atmosphere* – to explain how in a geographically-defined area externalities were possible and allowed to generate increasing returns, so as to unfold why better performances are reached in one place rather than in another. MID is an unitarian concept based on an elementary combination of different components: the communitarian one (also defined social or human or cognitive, according to different profile of analysis), the industrial (or productive), the geographical (specificity of the place where it happens) and relational one. Dei Ottati (1995) clarified how the *communitarian market,* acting as the mechanism of governance of transactions, moves down opportunism, uncertainty and ambiguity, so that transaction costs drop.

The concept has been used by Italian scholars to try a translation from the industrial to the agricultural and rural field. Toccaceli (2015) presented an analysis of the difficulties the scholars tried to solve. As an additional example, we can bring to mind the attempt of Amodio *et al.* (2005) to classify a number of types that gradually approach that of the district.

This debate, which flourished in the 1990s and 2000s, was aimed to answer the crucial question of clearly defining the conceptual framework of districts in agriculture. The riddle was only partially solved, due to the difficulties of the adaptation exercise that were

[1] MASAF - Registro nazionale dei Distretti del Cibo (politicheagricole.it).
[2] The availability of information coming from MASAF and Regions and the Autonomous Provinces (which have competence in the matter) is scarce. A number of studies have been developed over a period of twenty-five years, mostly with a case-by-case or regional approach. Georgofili Academy, by means of its Centre for Economic Studies on the Economic Organization of Agriculture and Rural Development GAIA, have newly opened a debate organising the seminar on "Food Districts for the sustainability of territories and supply chains" and promoting a national Observatory on food districts which hosted the first Forum of the food districts CREA is starting to pay new attention to the district phenomenon (Henke *et al*., 2023; La Sala *et al*., 2023; Tarangioli, 2023).

threefold. First, there were different starting points for the speculation. On the one hand there was the need to explain the success of industrial SME's systems, on the other there was the purpose to recognize if, where, when, under which conditions a phenomenon occurred to which MID applied. The second difficulty was derived from the complexity of agricultural production systems in the rural context, which gave rise to a number of specifications that coincided with generating a branched and somewhat unclear concept. Thirdly, and the most relevant in our reasoning, Becattini's notion has been used in a dichotomous way, separating the organizational productive component – which has been used mostly for recognising agricultural district, supply-chain districts and agro-industrial districts (Iacoponi, 1990) – from the socio-communitarian one – mostly used to shape a definition of rural districts (Cecchi, 1992; Iacoponi, 2002) – finally identifying four inhomogeneous types of districts in the agricultural and rural domain[3].

Becattini, (2000b, pp. 266–268) whilst thinking of it as *"coquetry"*, expressed comprehension of the deep reasons that moved his contemporary agrarian economists to the *district hunt*. He retrieved in Bandini some roots of an *ante litteram* district phenomenon – taking into account the peculiar structural characteristics of agriculture. Following Musotti (2004, p. 152), Bandini's analysis of agricultural systems, going beyond the agricultural zones defined by Serpieri, appears coherent with the foundations of the theory of local development described by Becattini (2000b). The ability to represent agriculture as a set of agricultural systems, each having its own characterizations, pushes Bandini's analysis to claim "*the need for an agricultural policy divided into zones and the fact that the shift of the relevant competences from the national level to the regional one does not in itself appear to guarantee an approach to the specific needs of operators*" (Musotti, 2004, p. 155).

Becattini also clearly expressed an articulated criticism towards "*district hunting*", pointing out the reasons for non-comparability of two such different phenomena. Trying to provide an answer, De Rosa and Turri (2004, pp. 411-412) highlighted the need to achieve a unitarian theoretical approach, as there was "*the risk of arriving at a plethora of undifferentiated local systems that cannot always be traced back to the district logic*".

On this basis, we can sustain that a clearer conceptual framework must be attempted and that we need to identify a strong theoretical background.

1.3. … and to a flattened concept

Choosing a political approach, i.e. considering the rural district as an instrument to put in place the emerging idea of rural-territorial development, Pacciani developed a different notion of rural district and really put it in place in the prototypal case of the Maremma rural district[4] – hereafter MRD, see Appendix Box 1 – (Pacciani, 1997, 2002, 2003; Pacciani, Toccaceli, 2010; Belletti, Marescotti, 2010). This rural district notion had its roots in the CAP debate on the Agenda 2000 reform underway in the mid-1990s. Only a few years after the Mac Sharry reform, the main threads of that debate – on which the notion of rural district was then grounded – derived from the emerging of both environmental issues and the need for a territorial integrated approach to rural development (Buckwell, 1997; Buckwell, Sotte, 1997; European Commission, 1997). The first issues focused on the multifunctionality of agriculture and its ability to provide public goods with the support of public policy due to market failures. The latter aimed to design a "wider rural policy" (Copus, van Well, 2015) that, as stated in the Cork declaration (European Commission, 1996), aimed to implement a sustainable, endogenous, integrated, rural development policy, in which "*farmers as land/landscape managers, custodians of the rural environment, biodiversity, traditional social structures and culture […] are also seen as 'a platform for economic diversification'*" (Cooper *et al*., 2009 quoted in Copus, van Well, 2015, p. 56).

The MRD purposely targets cohesion aims together with an agricultural objective. Yet, also this cohesive and rural approach did not result in a clear conceptualisation. Albeit a concept of "rural cohesion policy" (Copus, van Well, 2015) was fashionable then, remaining for some years afterwards, it was never codified in the rules until it finally downed when rural development policy was definitively attributed to the Agricultural Commissioner (Sotte, 2023, p. 100, 122, 132). Because of its political rooting, the rural district based on a territorial approach has been flattened into developing a rural policy informed on a rigorous sectoral approach (Copus, van Well, 2015).

Once "flattened", the rural district notion could not answer to the different instances coming from the great variety of rural areas in terms of human-geographic type, the territorial scale at which an identity community can recognise itself, the economic scale, which can range in relation to the different geographic/spatial conditions,

[3] For a more complete literature review on this point see (Toccaceli, 2015, p. 6-9). For a critical review of the theoretical background see (De Rosa, Turri, 2004).

[4] In the role of minister for rural development of the province of Grosseto (1995-2004). In those years, on behalf of the Region, Tuscan Provinces were in charge of governmental power in matters of agriculture.

types of products, supply-chain and agri-business systems. Those gaps directly affected the shaping of national and regional rules on agricultural districts and their implementation, as analysed in the following section.

Summarizing what has so far been analysed, we confirm the need: i) to overcome a dichotomous and branched concept and take together the organizational, productive components with the intangible, social, relational, cognitive ones; ii) to achieve a unitarian theoretical approach grounding on the huge literature on the cognitive approach to local development (De Rosa, Turri, 2004), but iii) abandoning the idea of a sectoral translation of the district concept from industry to agriculture, as it has been demonstrated to be unfruitful; iv) to achieve a conceptual framework allowing us to respond to the need for "an agricultural policy divided into zones" (Musotti, 2004) and v) allowing the district phenomena to be systematically analysed and assessed.

2. DEAR (AND NOT DEAR) DISTRICTS IN POLICY AND POLITICS APPROACH

2.1. The flattened, cluttered concept established by law

National laws on agricultural districts were established and then renewed in two different historic moments.

The Orientation law n. 57/2001 aimed to favour organizational innovation in Italian agriculture to make the farm response to the Agenda 2000 policy more effective. In article 7 c.3, the law entrusted the Government with the task of defining the legislative decrees, consistent with the agricultural policy of the European Union, aimed, among other things, at supporting, also through the concertation method[5], economic and social development of agriculture, aquaculture, fishing and agri-food systems according to the productive vocations of the territory, identifying the prerequisites for the establishment of quality agri-food, rural and fisheries districts and ensuring the protection of natural resources, biodiversity, cultural heritage and the agricultural and forestry landscape.

In the legislative decree n. 228/2001 article 13, districts were then defined in two different manners. Rural districts were defined as "*local production systems*[6] *characterised by homogeneous identity from a historical and territorial point of view, arising from integration between agricultural activities and other local activities, as well as the production of goods or services of particular specificity, consistent with traditions and natural and territorial vocations.*"

Quality agrifood districts were defined as "*local production systems, even interregional, characterised by significant economic presence and production interrelationship, and by interdependence of farms and agri-food enterprises, and by one or more certified or protected products in compliance with applicable Community or national regulations, or by traditional or typical products*".

The different relevance of the territorial contiguity leads us to think with Musotti (2001) that two ways were identified to recognise districts: the territory for the rural districts and the certified quality product for the quality agrifood districts. As these distinctions are extremely simplifying the reality, we consider with Musotti (2001) that this law would scarcely help in identifying the actual district situations, but nevertheless the conceptual dichotomy was established by law.

Furthermore, the definition of the preconditions was shaped on the model of the legal definition of the industrial district. No other indications were added about their constitution and functioning, nor were specific aims assigned. By law, the competences in the matter were (and still are) in charge of the Regions and Autonomous Provinces that over time have established their own laws. This has generated a multiplying factor of both types and politic interpretations of this policy tool, far beyond the simple early duplication. Hence, the early branched character of the concept has been (and still is) further multiplied[7] by regional laws.

Law n. 205/2017, art.1 p.499 modified the previous art.13, to rule the growing types of existent districts as collected and analysed in Toccaceli (2012), established Food Districts (FDs), adding new to the previous definitions. The renewal of the law drew from the emerging new targets of the 2030 Agenda for Sustainable Development[8] (United Nations General Assembly, 2015), that had been well focused during the Milan Expo 2015 "Feeding the Planet, Energy for Life". First of all, the new law introduced a set of aims to which the FDs are committed. Also the adjective that renews the district

[5] Concertation is a policy orchestration among politicians, local institutions and social parties to implement at local scale public programmes finalised at increasing employment in the weakest areas of Italy. This political approach was largely experienced at the end of the 1990s

[6] Local production systems are the homogeneous productive contexts characterised by both a high concentration of industrial enterprises and the specialisation of business systems.

[7] On the work of Regions and analysis of the complete set of legal definitions Toccaceli (2012) rests to date the only research available.

[8] 2030 Agenda was adopted by all United Nations Member States in 2015 and provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.

qualification resonates with the central idea that food takes in the 2030 Agenda perspective. The FDs have been established "*in order to promote territorial development, cohesion and social inclusion, encourage the integration of activities characterized by territorial proximity, guarantee food safety, reduce the environmental impact of production, reduce food waste and safeguard the territory and the rural landscape through agricultural and agri-food activities*".

Territorial development, cohesion and social inclusion are placed first, echoing the early meaning of the MRD. However, the new law in force does not provide either a new definition of what an FD is, or something about its characteristics, nor a more comprehensive definition aiming at collecting the multiplication of too many types that arose over time. Rather, in respect to the regional laws in force and taken note of the plethora of existing ones, FDs pragmatically collect together any types of district already recognised by the Regions also adding: bio-districts; organic districts; the local production systems characterized by the interrelationship and integration between agricultural activities, in particular that of direct sales of agricultural products, and the proximity marketing and catering activities carried out in the same territory, of solidarity economy networks and purchasing groups supportive.

More interesting news is the provision of a common financial framework to support district projects through a national tool managed by the MASAF, the District Contract-Agreement, mostly shaped on the pre-existent and well proven Contract of Supply Chain[9]. Tuscany Region has introduced the Integrated Project of District – shaped on the model of the Integrated Project of Supply Chain – framed around the Rural Development Programme 2014-2020. These contracts support material and immaterial investments of farms and agro-industrial firms, thus aligning agricultural and rural districts in the more traditional set of sectoral policy tools.

Furthermore, the concept of governance shaped by the regional rules – and used by the majority – is derived from the one of the laws on industrial districts, which in turn came from the process of concertation[10] largely experienced in the 1990s. In the light of current approaches and scholars' thinking, it is an "archaic" form of governance[11] that shows its limitations, as argued in the following section.

[9] Already established in 2003, only after the law of 2017 the contract of district has been financed. For more detailed info and analysis see Toccaceli (2012).

[10] See footnote n. 5.

[11] Sometimes organized in overarching lobbying structure to manage the relationships with MASAF.

2.2. And reinforced by politics interpretations

During the last thirty years, opposed political approaches have governed and managed this topic both at national and regional level, shaping the concept in (too many) different ways, so that successive interpretations and misinterpretations have left their mark on the history that developed[12].

The incipit was in a progressive political context. It was opened to new relationship between private and public actors and to new forms of governance for managing public funds committed to local employment and development, especially by means of negotiated programming. On this mood, industrial districts were formed earlier and then rural and quality agri-food districts, whose central ideas are public-private governance and local development.

2006 was a year of discontinuity, when the neo-liberal vision was affirmed, radically changing the meaning of district by substituting the concept of local productive system with the one of productive district intended as a free aggregation of enterprises of any sectors. Losing the public-private partnership for district governance, the – albeit feeble – link to local development blurred and the productive and sectoral aims prevailed.

Put in place according to this political approach, the dichotomous concept was confirmed. Referring to the new national rules, some Regions have legislated and recognised several productive districts. Therefore, the multiplicity of types embraces such a wide variety that the phenomenon goes well beyond those related to the expected diversity of territorial, social and productive conditions of the places. And it goes also far beyond any scientific conceptualisation.

Over time, opposing political parties have incorporated the term district inside their own political vision, although assigning different meanings. Consequently, as an object of policy intervention, districts have had ups and downs, and according to the waves they have been both appreciated and not.

3. OLD DISTRICTS FOR NEW CHALLENGES?

3.1. Changed context, changed concepts

In 2001 rural and quality agrifood districts were facing modernization of agriculture and in 2017 food districts were to deal with the 2030 Agenda for sustainable development goals. Anyway, as argued above, new aims have been attached to food districts without verifying

[12] For a reconstructive review see Toccaceli (2012, p.21-35).

if the conceptual framework – already shaky – would be consistent with them. In this section, we try to contribute to this reflection by focusing on the main topics – without the ambition of being exhaustive – with the aim of highlighting how they could affect the development of a new conceptual framework. Given the scientific framework of the topics in broad terms, we especially pay attention to the scale of the phenomena, wondering whether places still matter in the face of the global dimension of the challenges. Besides, through a brief and not exhaustive review, we reflect on the changing meaning of some basic concepts that one might use to reframe the new district notion.

3.2. Grand Challenges and deep transitions

According to FAO (2022), we are "*off-track*" with respect to the 2030 Agenda's targets and at a crossroads between a catastrophic scenario (*to do more of the same*) and to make the agrifood systems sustainability possible. Shifting from the catastrophic to the more favourable scenario calls for accepting the long-running and more sustainable choices in hard trade-offs (*trading off for sustainability*).

As the targets are "*integrated and indivisible, global in nature and universally applicable*" (United Nations General Assembly, 2015, par. 55), the FAO needs for a complex set of socioeconomic and environmental drivers to assess four different scenarios ranging from the most catastrophic to the most desirable. To reach the targets, a *gradual and costly transition is needed,* as a long running transformative process whose nature is that of a socio-technical transition (Geels, Schot, 2007). In its ontological reflection, Geels (2010, p. 507) points out that sustainability is a *normative goal and a collective good problem* so that private sector has no incentives, whereas public agents and civil society play a crucial role in sustainable transition. Moreover, shared *deep-seated values and beliefs* are required to manage sustainable problems. In relation to the choice between alternative transition pathways (directionality) and related questions, the need for a more inclusive and participatory process emerges. Concerning the perception of the problem, as the cause-effect relation is lower, a key role rests in the action of social movements and public opinion. Socio-technological transition – which is mainly concerned with technological innovation in hard sectors e.g. energy, mobility etc. – is innovation-oriented, which entails facing multi-dimensional problems, through multi-actor processes in which technology, social networks and institutions lead a co-evolutive path whose intrinsic dynamic is to be delved into further. On this basis, the Multi-Level Perspective is the analytical framework to explain how and why the innovation process starting from niches-innovation can be affirmed only thanks to the large involvement of exogenous and endogenous actors (Geels, 2019) enabled to mediate between technologies and institutions (Fuenfschilling, Truffer, 2016). Coming from different disciplinary and ontological backgrounds, the socio-ecological and socio-institutional approaches have been developed to face sustainability transition referring to agriculture, fisheries, forestry and biodiversity the former, and health care, labour, education and finance, the latter (Loorbach *et al*., 2017; Patterson *et al*., 2017).

Having regard to food and agrifood systems, the question at stake is the digital transition (Lioutas *et al*., 2021) to be put in the perspective of ecological transition (Brunori, 2022) and to be also a just transition (Lamine *et al*., 2019). The intrinsic complexity of processes needs to be faced by complex innovation systems or an agricultural innovation ecosystems construct (Pigford *et al*., 2018) that identify innovation niches, where multi-actors can innovate, technologies, practices, institutions can co-evolve, in multi-scalar and cross-sectoral directions to value co-creation and co-innovation (Gomes *et al*., 2018).

Policy options can move the agrifood system towards sustainability by activating triggers such as institutions and governance, consumer awareness, income and wealth distribution and innovative technologies and approaches (FAO, 2022). The complexity of the innovation process affects the shaping of policy mixes, needing to rely upon appropriate governance systems and wide capability to involve many types of actors (Del Giudice, 2023) to form strong and structured networking (Van Oost, Vagnozzi, 2020), and point at a development model able to capture both endogenous and exogenous stimuli (Bock, 2016).

3.3. Places still matter for a just transition: focus on rural areas

Despite the global scale of the changes, places still matter and rural areas pose a twofold challenge.

The first one is the risk that such great and wide endeavours to attain social, technical, ecological, institutional change and boost innovation could have the outcome of jeopardized effects and put weak and strong areas on even more divergent pathways. In respect to climate and energy accelerating transitions, Skjølsvold and Coenen (2021) highlight that they may contribute to conflicts between core and peripheral sites, because transitions are affected by societal conditions, but also contribute to co-produce social order. Changing the geographical perspective, we reflect on how this is also meaning-

ful for rural areas. At the pace of 1 million people per year, 40% of the EU area (mostly predominantly rural) is affected by demographic decline for legacy or active trends. That is a persistent phenomenon studied over the 1993-2033 period that entails the loss of 30 million people from rural areas, denoting the intensity of urbanization on the central axis of the continent and the growing distance with respect to both the old-geographic peripherality and the new-functional peripheralization processes (European Committee of the Regions, 2023; Copus *et al*., 2020). Deemed as a social cost, the "non rurality" can be measured with respect to the urban-rural balance, following a set of cost and benefit categories (Ferrer *et al*., 2023, pp. 23-24). The political implications related to "non rurality" weight on tracing the map of the EU discontents (Dijkstra *et al*., 2020), that could have some feedback effects on the future policies, multilevel governance, democratization and inclusive growth scenarios.

The second aspect is that rural areas are critical for success in the social transition; hence, the subsequent question is what conditions are enabling rural areas to give a proactive contribution to sustainable transition. In a 2040 scenario study where rural demography and multilevel governance are critical variables, the availability of digital infrastructures and services is the most relevant requisite, besides civic engagement, technical and social innovation and efficient relationships between community and government (Bock, Krzysztofowicz, 2021). Following the EU long-term vision for rural areas to 2040, connectivity and accessibility are a key to success (European Commission, 2021). The OECD (2018) Edinburgh declaration stressed the role of innovation for successfully benefiting from key drivers; the following conference (2019) highlighted the need to centre on people and rural well-being; the more recent Cavan roadmap (OECD, 2022b, 2022a) emphasised the broadening of innovation to include social innovation and entrepreneurship. For people to remain at the centre and rural well-being, aging and depopulation have to be counteracted and managed to enable rural regeneration (Ahlmeyer, Volgmann, 2023).

To be fair, transitions must involve and benefit peripheral and rural areas. Policy mixes should foster any effort to leave behind rural areas as little as possible and to make them able to proactively contribute to achieve a just transition. This implies fostering their own development, albeit in the new meaning the word assumes. As centrality and peripherality are socially constructed and can be strategically governed (Skjølsvold. Coenen, 2021), polycentric networks and governance can help to lead transitions in the wished direction to avoid spatial and social disequilibrium.

Rural and regional topics turn back to meet again in the transition perspective.

3.4. Multidimensional concepts to be taken on board

Transitions are already happening and reality evolves faster than our understanding, rapidly making our paradigms obsolete and insufficient, so much so that we use them with a new semantic that tends to broaden the meaning of the keywords. In this limited review we focus on some of the most relevant to argue our standing.

As a first example, proximity is no longer just geographical and physical, as communication technology makes the distance between people zero, so that access to digital infrastructure is becoming a key driver for proximity (Bock, 2016).

Scholars with different approaches are recasting the concept of development by adding new attributes to better align it with reality and the new directions to take. After the earlier neo-endogenous approach (Lowe *et al*., 1995; Ray, 2000, 2006) – that marks the need for national or European action to support and enable the local initiatives – one can goes beyond. The "nexogenous" approach focuses on the spatial dimension aiming to reconnect urbanised and marginalised rural areas and within this perspective considers the socio-political system as an *"engine of revitalisation"* (Bock, 2016). Similarly local development – as focused only on productive structures and their ability to innovate – and governance – as based on the "*myth*" of spontaneous self organisation of local actors "*acting without organisational or structuring opinions tools*" (Torre, 2023, p. 4) – are going to embrace a broader meaning to attempt to deal with the complexity of the transitions in progress. Torre (2023) provides a new definition of *territorial development* based on a broader idea of territorial innovation that consists of organisational, social and institutional changes, besides the technological one. Territory is a space of organised relationships among local actors linked through a common project (he refers to Sack, 1986) and besides production, the territorial governance is the latter engine that moves territorial innovation in an interacting continuum. The conception of *territorial governance* is very structured and based on the utilisation of a set of tools and structures to make dialogue and cooperation possible among actors who have asymmetrical resources. Territorial governance must also produce norms and rules able to *"structure the behaviour of the actors"*. In the concept of territorial governance, land use and employment are integrated as matters on which all territorial actors must have a voice and participate in a collaborative project or definition.

Continuing with examples of some basic concepts that are expanding their meaning and among those that are needed to rebuild a framework, we regard a food system (hereafter FS) as the economic and relational space where district phenomena could happen. FS is a basic concept for the agricultural domain that is broadening its meaning. The new complexity of FS and its governance stems from positioning the traditional concept[13] to face environmental and social changes, taken as the main drivers (Ericksen, 2008). Yet, there are several definitions that rely upon different frames stressing different features. Following Hospes and Brons (2016), there are various definitions of FS that: i) take into account activities, outcomes, natural resources and institutions; ii) are multi-scale, global, national or local scale (even if Enthoven and Van den Broeck *et al*. (2021) refer to the difficulty in clarifying the concept of local FS since confusion reigns on definitions of FS at local scale); iii) encompass a dimension of interconnectedness across scales and actors, between systems and within biophysical and human environments.

The main scientific frame, beyond "old" food chain, is the social-ecological-system (SES) which refers to Ericksen conceptualization and the complex adaptive system (CAS). Both emphasize "*the complex, interactive and dynamic nature*" of an FS (Hospes, Brons, 2016, p. 21) that has also been defined as a *system of systems*" by Hipel *et al*. (2010) quoted in Hospes and Brons (2016, p. 19). In this broader FS idea, governance plays a central role. Yet, when it refers to complex FSs, governance takes adjectives each one highlighting its main function. Reflexive governance highlights the need to give voice to the less powered by providing spaces for deliberation. Adaptive governance aims at building adaptive capacity to deal with uncertainty due to external drivers and to understand ecosystem dynamics while supporting flexible institutions for multilevel governance. Transformative governance is considered a driver of change of FS based on the role of institutions for collective actions, which can be very effective, even more than policies (van Bers *et al*., 2019). It should be inclusive, adaptive, integrative and pluralist (Visseren-Hamakers *et al*., 2021) to cope with complexity and adopt a collaborative knowledge production system. It can allow socio-technical transition and resilience of ecosystems to be orchestrated by improving adaptiveness, following a conceptual framework based upon the balanced presence of diversity, connectivity, polycentricity, redundancy and directionality (Könnölä *et al*., 2021).

The theme of FS's governance is growing, also thanks to new experiences, e.g. Food systems networks, understood as *governance instruments*. As Jørgensen *et al*. (2021) put it *"Networks have to be activated to be meaningful. Interaction is embedded in local traditions and social order is produced locally"*. Researchers engage to frame and measure a concept of *governance efficacy* as an explication of why and how some peripheral location *is able to manage social challenges despite population decline*.

These examples clearly explain the need to provide a new semantic toolbox before taking the road to reconstruct a conceptual framework of the districts. More in general, we must take stock of these broadened, multidimensional concepts that push researchers to go beyond the traditional, simpler ones that have been used in the previous approaches on which the current concept of districts in agricultural and rural domain also relies. The caveat is to avoid adopting such a generic and insignificant idea of "complexity" that surrounds everything only by prefixing the old words with a "co-", because the "co-" is not enough to take into account the multiple dimensions of the changing processes and we must know the complexity we need to manage.

A new generation of district is expected to arise also in agriculture, in order to be up to the tasks currently challenging the FSs. The old districts, conceptually fragile, when faced with the complexity of the new problems seem to have the lowest odds. Yet this is the hard task we hope the scientific community will stick to.

4. LOOKING AHEAD

The conceptual weakness of districts in the agricultural and rural domain is the issue at stake that we must urgently consider in order to clear up and update the matter. This should allow us to identify districts and to distinguish them from other organisational phenomena or governance arrangements, or the banal identification with the more general food systems. Thanks to a reformulation of the concept, capable of overcoming the current dichotomy, an appropriate vocabulary and precise definitions should be obtained. The path ahead is fraught with difficulties to be overcome. We conclude with some considerations about caveat and difficulties.

First of all, one may argue that the reframing should be concerned with a new generation of districts that has not yet arisen[14], mainly for two reasons: i) policy interventions have encouraged (and still are encouraging) the sectoral and supply-chain approach, so that discouraging a possible evolution towards more complex issues concerned with sustainability; ii) the majority relies on

[13] Defined by means of its characteristic activities: producing, processing-packaging, distributing-retailing, consuming (Ericksen, 2008)

[14] We suppose it as the lack of research due to limited data availability.

sectoral structures of governance (see sect. 2.1) that are unlike to be opened to the emerging feelings of civil society, e.g. on food policies (Berti *et al*., 2024 forthcoming). As a consequence, there is no (or at least a limited) possibility of developing an inductive pathway.

A basilar one concerns the reference concept for the notion of district, that of Becattini's MID which, according to Sforzi (2015), is now acquired by economic research (Bellanca, 2023). Yet, it is not easy to handle in the agricultural and rural domain, as widely argued in sect. 1.2. This requires the definition of a robust theoretical framework capable of linking the social and productive components together and which allows us to resort to a correctly founded abstraction process, keeping in mind that the MID was instead built inductively.

In addition, a broadening concept of food systems and their governance should necessarily be used. So, a third kind of difficulty relies on the great abundance of literature and frameworks developed in the last decades on food systems and their governance to face sustainability and other topics linked to transitions, even crossing the scales (having the major critical issue in the lowest). The criteria of the choice, besides the choice *per se*, should be deeply pondered. Similar considerations apply when you come to the many kinds of transitions at stake, with related abundance of scientific knowledge produced starting from many and multidisciplinary approaches. Multidisciplinarity requires paying attention to the theoretical and epistemological coherence.

Rural areas upgrading with society and territorial development are equally required to be represented in the new framework. From a conceptual point of view, this aspect brings up the well-known problems about what (kind of) rural areas are. Although some scholars demand some new classification (e.g. Mantino, 2021), we know that if a framework is built referring to such a classification, then a plethora of subtly differentiated concepts will arise and confusion will reign.

Not least, in a regional perspective, an issue of spatial equilibrium and territorial rebalancing arose in the previous discussion. The framework for territorial development by Torre (2023) shows several stimuli to be taken into account. The request to achieve an unitarian theoretical approach grounding on the huge literature on the cognitive approach to local development (De Rosa, Turri, 2004) does not need to be avoided at all, but rests a problematic task to achieve.

The caveat is for the risk of an overly complex concept, whereas there is the need for a framework that is theoretically coherent with the topics we deal with, but also easy to handle and robust to use. In fact the new concept should be largely assessed. The complexity generates another critical issue, because any simplification must to be pondered and justified in relation to the choice about what is more and less relevant to include.

The previous considerations are meant to be a provocation to go beyond the current approach to district discourse in agriculture, so that we can better prepare to meet current challenges. We hope that the scientific community will contribute to develop and deepen the work that this note has started. Such a new generation of district could pose a challenge to policymakers from several points of view.

The gap between science and politics should be bridged, which in turn entails a coherent policy framework that allows consistent ex ante analysis and ex post evaluation of the policy impact. Not so easy to do, as such an articulated conception of the "new" district is likely to correspond to policy mixes crossing a sectoral approach, firstly matching with policy frameworks for innovation (Stam, 2015). Developing toward sustainability, the new policy framework should be coherent with the Framework Law on Sustainable Food Systems that is expected by the European Parliament. Being consequent to the Farm to Fork Strategy (European Commission, 2020), the law should allow coherence between national and European levels in order to progressively raise sustainability standards (Poppe, 2022).

The territorial perspective should be taken on board, thinking an ideal response to the request posed by Bandini for a policy tailored to the different territories. Within a somewhat different perspective is the idea of rethinking rural development as part of the CAP (Ferrer *et al*., 2023) or at least the LEADER programme to be posed in the framework of regional policy (Ahlmeyer, Volgmann, 2023), which are stimuli still present in the thinking of several scholars.

Certainly the need for a law able to outline a clear legal framework, consistent with the conceptual one, is key. Before producing a new law, the need should be considered for broader spaces of discussion and debate involving also public opinion to reflect on the direction to undertake, as the questions at stake are involving society as a whole, not just agricultural or even rural actors; yet this opening is desirable but not so obvious.

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APPENDIX

Box 1. The narrative of the seminal Maremma Rural District (MRD).

The MRD promoted by Pacciani in 1996 aimed to give concrete implementation to the new orientations of the reforming CAP and Rural development policy (RDP) that were (and still are) in the process of being developed. The MRD, which was implemented in an underdeveloped rural area, had three main features. Firstly, it aimed to achieve sustainable socio-economic development and to strengthen the economic, social and territorial cohesion of an identity area in which agriculture could have a leading role though alongside other development drivers. Secondly, those drivers were: improving public and private tangible and intangible assets; raising the quality of resources, production and processes to improve the environmental sustainability of production; relaunching the local identity and external image of the Maremma by operating within a systemic and territorial strategy to achieve a Maremma Quality System. Thirdly, the MRD was driven by a territorial governance that was already multi-level at sub-national scale and that allowed access to pluri-funds and facilitated the multiple tasks of the district projects, following principles of prioritization of objectives on which to concentrate the public funds that were to be used co-ordinately. The MRD has clearly confirmed the importance of the concept of rural territory as a relational space within which local actors can interact with each other. By virtue of this idea of governance, the MRD proposed itself as such a space, and was thereby legitimized to contribute to programming rural policies at regional and local scale. The MRD experience has affected the subsequent shaping of national and some regional laws.

Source: (Pacciani, 1997, 2002, 2003; Pacciani, Toccaceli, 2010; Belletti, Marescotti, 2010).

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The scenario of Local Food Policies. Towards place-based food policies

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Several analyses of the current Food System, from those conducted by international agencies such as FAO to the more critical perspectives of actors like IPES-Food or FIAN, despite their diversity in viewpoints, seem to converge on the idea that the global food system, and consequently the local one, requires a profound transformation. This transformation should not only address food security but also align with the sustainable development goals outlined in the 2030 Agenda. Indicators of the global food system paint a highly critical picture of its three main pillars – environmental, social and economic sustainability. Approximately 30% of greenhouse gas emissions are attributed to food systems, while food waste affects 32% of the global food supply by weight and 24% in terms of energy content (calories), resulting in an economic impact exceeding € 2 trillion annually.

Hunger continues to affect a substantial number of people, with FAO estimating that between 691 and 783 million individuals, or 9.2% of the world's population, experienced hunger in 2022. Furthermore, a significant portion cannot afford a healthy diet, contributing to various forms of malnutrition, including obesity. According to the 2021 Global Nutrition Report, over 40% of the global population, approximately 2.2 billion people, are overweight or obese, leading to health issues such as diabetes and a lack of essential nutrients.

The escalating unsustainability of the food system is encapsulated in the latest "The State of Food and Agriculture" by the FAO. It estimates the substantial "hidden costs" of food production and consumption, advocating for the true cost accounting methodology that considers health and environmental impacts. According to this study, hidden costs amount to at least $10 trillion per year, nearly 10% of the world's GDP. The report attributes 70% of these costs to unhealthy diets, particularly prevalent in wealthier countries consuming ultra-processed foods, fats and sugars. One-fifth of the total costs, globally, are related to greenhouse gas and nitrogen emissions, land-use changes and water use.

These challenges set the stage for local food policies, which, with their inherent territorial approach, can provide effective responses to the major issues impacting the global food system but on a local scale. The local con-

text allows for an adaptive response to global challenges, offering more effective solutions due to greater involvement of local actors and consideration of the specificities of local territorial systems. They are "place-based" policies that become valuable when conceived within a multi-scale governance framework, contributing to achieving the global goals outlined in the 2030 Agenda or other international strategies. However, this will only materialize if local policies, through "scaling up" processes, align with the prioritized issues for the transition of food systems.

Hence, in recent years, driven by social actors advocating for the necessary transformation of increasingly unsustainable local and global food systems, many cities worldwide have developed, or are in the process of developing, urban food policies. These policies are inherently multisectoral and multi-actor, integrating various segments of the economic, social and environmental systems, as well as engaging different actors in the food system. Cities, using food as a tool, address not only environmental sustainability challenges but also economic and social inequalities.

The expanding scientific literature has outlined the primary areas of intervention for local food policies in recent years. The six objectives of the Milan Pact (Governance, Sustainable Diets, Social and Economic Justice, Food Production, Food Distribution, Food Waste) have been gradually refined over time through specific themes such as urban agriculture, public procurement, public health and logistics. However, compared to the initial almost standardized objectives, a greater variability of interventions has emerged through an adaptive process, responding to both local and specific conditions, as well as exogenous and global factors like pandemics or geopolitical crises.

Therefore, it is crucial to analyse the narratives constructed and conveyed by local food policies, as highlighted by Mazzocchi *et al.* in their article. What do local food policies communicate? What are the diverse narratives, if any, and what constitutes the collective discourse? These questions, explored in the introductory article of this Special Issue, frame the theme and underscore how, through the configuration of an intersectoral policy, cities can potentially initiate a systemic transformation. However, for this to be effective, local contexts must engage in a dialogue with higher institutional levels of food policies (regions, the State, the EU through CAP Strategic Plans), leading to transcalar and multi-level governance.

In this regard, a fundamental consideration is the coherence of local policies within the broader framework of sectoral and other policies. Monticone *et al.* address this aspect in their article, highlighting that coherence and integration of food policies are not automatically assumed and present significant challenges. This complexity arises because food-related issues are tackled at multiple governance levels and across different policy areas.

Berti *et al.* also contribute to the governance perspective, connecting territorial governance with the wider framework of food governance. If the territorial approach is implemented through collective organization processes and networking (involving businesses, local institutions and other stakeholders), the article proposes, through a case study in Tuscany, a theoretical understanding of territorial governance in food.

The issue of food insecurity and poverty is rapidly becoming central to food policies, as highlighted by Monticone *et al.* in their bibliometric analysis. This theme has also gained prominence in local food policies. It is addressed, albeit with different approaches, in both the contributions by Bernaschi *et al.* and Allegretti *et al.*.

The first contribution focuses on affordable access to food, introducing a new indicator—the Food Affordability Index (FIA). This indicator helps represent territorial inequalities and identifies situations where families are far from an ideally healthy diet.

The second contribution, part of the Atlante del Cibo project in Metropolitan Turin, explores the phenomenon of food poverty. It emphasizes the urban context of Turin and provides policy recommendations for actors involved in counteracting policies, which, though fragmented, collectively build a form of urban food welfare.

The latest contribution by Torquati *et al.* narrows the focus to a local food policy implemented by a small municipality through Project Financing. This case study is particularly interesting as it explicitly illustrates the systemic nature of local food policies. In this case, three strategic objectives of food policy - school, employment and social assistance - are interrelated through a project addressing local school canteens.

Collectively, these works underscore the complexity of local food policies and their tremendous potential to contribute to a genuine transition. However, to be truly effective, tactical actions that merely serve as good practices are insufficient. A profound shift in public-level investment policies is imperative. Investments are needed in infrastructure, price control, distribution of the value chain, income policies and, perhaps most crucially, in education towards different models of food consumption.

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Research article

Food (di)lemmas: disentangling the Italian Local Food Policy narratives

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Abstract. Recently, food-related policy initiatives have proliferated, such as food strategies, food plans, food councils, food districts and food communities, just to name the more relevant ones. Far from being systematically defined and logically systematized, these concepts often overlap or are used as synonyms. The paper has systematically traced the current trends showing how these concepts are used in the current debate, the theoretical background on which they are grounded and the public policies they call for, following a threefold approach: (1) a literature analysis to establish the state of academic research on food systems in its multidimensionality; (2) a review of the existing national legislation to detect the utilization of food policy-related lemmas in the normative; (3) a computational linguistic analysis applied on institutional documentation to explore how cities and territories are using concepts and definitions in the grey literature. The results show that the construction of narratives around the topic of food systems planning is experiencing a momentum, with particular emphasis on principles, background premises and governance aspects. In this context, the risk of marginality for the agricultural sector in such discourses and narratives is highlighted.

Keywords: food policy, narratives, policy design, Italy.
JEL codes: Q18, E61, H70.

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HIGHLIGHTS

- The construction of narratives around food policies is experiencing a momentum in Italy, especially with regard to governance structures and principles.
- Local food policy initiatives are identified more for their best-practices than their results or effectiveness.
- Agricultural sector is the weakest element in local food policy narratives, which mostly concentrate on post-production stages.
- Local governments have acknowledged the political reach of food systems, fuelling a narrative that relies mostly on stakeholder participation and representativeness.

1. INTRODUCTION

The lemma "food" recalls a plurality of semantic values, due to the cultural and symbolic significance it evokes. Food takes on environmental, cultural, social, legal, economic, historical, geographical and symbolic meanings and values originating from territories (Monteduro, 2015; Gazzola, 2017; Greco, Nocco, 2022). In the legal system the most common qualification of "food" is in terms of nutrition as a consumable good; in other disciplines it is considered in terms of a common good aimed at the realization of basic needs for a plurality of individuals (Mattei, 2011; Lucarelli, 2013; Rodotà, 2013). Food attracts and involves different rooted knowledge and disciplines, ranging from agricultural production to anthropological aspects, from the history of gastronomic traditions to the regulation of the characteristics of its quality, from environment to consumption models and agri-food markets, encompassing the nutritional aspects and those related to personal well-being, including access to food, social and cultural values, conviviality, health, and waste reduction. What is certainly innovative is the proliferation of food policy (FP) initiatives in Italy. We refer, for example, to food strategies, food plans, food councils, food districts and food communities, just to name the more relevant ones in the current debate. Far from being systematically and rigorously defined, these concepts are often confused or even used as synonyms. Some formulations convey differently structured and formalized experiences depending on the contexts in which they are adopted or specific regulations and financing possibilities, as in the case of food districts and food communities in Italy, where food-related initiatives are spreading across the country, thanks to a relentless activity both from grassroots movements and local institutions (Dansero *et al.*, 2020). Against this backdrop, defining the concepts, the perimeters of action, the normative background, and the role of actors can contribute to providing a common framework for the development of future initiatives and, subsequently, disambiguate some expressions. In this regard, we have dug into the utilization of the lemma "food"[1] within three main fields: the scientific literature, institutional documents, and legislation, limiting our research to the expressions that revolve around the FP realm.

We followed a threefold approach: (1) a literature analysis to establish the state of academic research on food systems in its multidimensionality; (2) a review of the existing national legislation to detect the utilization of food policy-related lemmas; (3) a computational linguistic analysis applied on institutional documentation to explore how cities and territories are using concepts and definitions in the grey literature. The results show that the construction of narratives around the topic of food systems planning is under the spotlight, with particular emphasis on principles, background premises and governance aspects. Nevertheless, the risk of marginality for the agricultural sector in such discourses and narratives is highlighted.

2. THE THEORETICAL FRAMEWORK

2.1. Food policy narratives: between homologation and innovation

A key element influencing the relevance of any pathway to improve food systems (FSs) and make FPs effective is the narrative built upon them. In achieving sustainable FSs, it is increasingly relevant the way agricultural, and any other component of the supply chain, is represented in the productive, social, and environmental discourse. The impact of narratives on food systems is so powerful that Land and Heasman coined the expression "food wars" to refer to the emergence of conflicts over the global politics of food and health. These contrasts refer to emerging agendas and competing positions that seek to attract investments, public support and political legitimacy (Land, Heasman, 2015). Anderson and Rivera-Ferre talk in their work (2021) about the narrative of extractive vs. regenerative agriculture. The two systems have different practices and consequential spillovers throughout the FS, not only at the production stage, but also in markets, distribution systems, and even diets, affecting labour markets, agri-food research and policies. They focus on how different narratives can deeply affect choices and implications, and how such narratives help framing a specific issue in a specific problematization. According to the authors, some narratives have been more effective than others, such as, for example, the neo-liberal or *laissez faire* ones compared to the eco-friendly or "social well-being" ones. Mattioni *et al.* (2022) refer to the conceptual framework of sustainability transitions to mean "the long-term, multidimensional and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (p. 48). The focus is on the dominant narrative of the agri-food system, which has traditionally been dominated by large corporations as the industrial mode of production, although more recently other forces have been arising

[1] The concept of "lemma" is extended here also to some locutions such as food policy or food districts. They are all considered as specifically identifying food-related concepts and intended in contemporary research as a unique keyword (hence "lemma").

"from within" the dominant view and trying to change the narrative, bringing inside forces that can destabilize the dominant regime. These forces are mainly local governments and institutions, which are becoming the attractive poles of changes in the relationship among agricultural and rural areas, food production and consumption, supra-national and local policies governing the change processes.

What is happening today with new approaches of the transition "from within" in the production sector and local policies is very similar to what had happened before with the new rural development and agroecology. In the sphere of rural development, the changing narrative has been from an agricultural-based economy to the commoditization of the rural territory and landscape. The potential consumers of these new "goods" are both the local communities and outsiders, because of the power of the new framework built around rural areas and the narratives presented, which include the local actors and promote local development based on endogenous forces and human capital (Fløysand, Jakobsen, 2007). In Europe (Shacksmith *et al.*, 2011), as well as in developing countries (Ashley, Maxwell, 2001), narratives became so powerful and effective in re-conceptualizing rural development that telling "successful stories" about experiences and case studies has been considered heuristically enough to prove the good quality of results and their reproducibility in different contexts.

Something very similar happened a bit later with new agricultural approaches such as agroecology (Barrios *et al.*, 2020), in which it is possible to identify four main entry points upon which to build a structured process using visual narratives that help to identify socio-ecological transition trajectories: biodiversity, consumers, education and governance are identified.

A similar process is going on in the case of FPs. The diffusion of (di)lemmas turning around food policies as organized intervention systems is mostly due to a very well-constructed discourse and supportive narratives that establish a sort of inevitable abandonment of old paradigms and embracement of new theoretical frameworks; on the other hand, they encourage and support the diffusion of a new shared language, new practices and the acknowledgment of new actors that, in turn, gain momentum and create a new scale of shared values and priority in the economic, social and environmental spheres.

2.2. Local food policies urban-rural linkages

To understand the role food plays in our societies, it is necessary to consider the production and supply side, while enlarging the fields of action and investigation to the demand and places of consumption. The British urban planner Caroline Steel (2015) states that to understand cities correctly, we must observe and analyse them through the lens of food. The hypothesis underlying the present study is that food is one of the privileged areas for analysing, understanding and guiding the development paths of the territories in their complexity. Nevertheless, the lack of common definitions and clear logical frameworks and, subsequently, of coordination of mutual understanding between the actors involved, has led to ineffective outcomes with respect to the objectives (Fattibene *et al.*, 2023). This is exacerbated by a growing disconnection between food production and consumption that affects many spheres: economic, geographical, symbolic, cultural and political (Bricas *et al.*, 2017). In this context, stronger and continuous connections between rural areas and cities, as well as a systemic planning of (peri)urban agriculture, can mitigate or reverse these trends through various economic and policy levers (Vaarst *et al.*, 2017). Several studies have shown that cities and local authorities are a key component of the sustainability agenda (Steel, 2008; Fattibene *et al.*, 2019; Moragues-Faus, 2021). Urban markets can strengthen the connections between city and countryside, giving rise to innovations, both in terms of commercial opportunities and from an ecological and territorial protection standpoint; eco-systemic and social services offered by farms and especially by peri-urban agriculture can also contribute to enhance the interlinkages between rural and urban areas, at the same time reducing the dichotomy on which most of the past development models and paradigms were built. Rural areas are also increasingly involved in local development paths through the lens of food: this is an approach already used in consolidated rural policies, such as the LEADER, which has enhanced short food supply chains and re-localization of FSs as an opportunity to promote the territory (Kneafsey *et al.*, 2013). These themes are also reflected in the long-term vision for rural areas, which envisages, among the four areas of intervention identified in the Action Plan, the diversification of economic activities and the improvement of the added value of food-related activities (agrotourism, agri-food, agriculture). The Common Agricultural Policy, for the 2023-2027 programming, has adopted a broader spectrum of objectives, explicitly mentioning nutrition, diets and food (Specific Objective n. 9[2]) (EU, 2021), consistently and in compliance with the Farm to Fork strategy.

[2] "To improve the response of Union agriculture to societal demands on food and health, including high-quality, safe and nutritious food produced in a sustainable way, to reduce food waste, as well as to improve animal welfare and to combat antimicrobial resistance."

Table 1. Locutions targeted by the desk analysis in English and Italian.

English	Italian	Materials
Food Policy (local, urban)	Politiche del cibo (locali, urbane)	Scientific literature & Institutional literature
Food Council	Consiglio del cibo	Scientific literature & Institutional literature
Food Plan	Piano del cibo	Scientific literature & Institutional literature
Food District	Distretto del cibo	Normative
Food Community	Comunità del cibo	Normative
Food Movement	Movimento del cibo	Scientific literature
Food Network	Rete del cibo	Scientific literature

Experiences aimed at defining FS planning strategies are, therefore, widespread in both urban and rural areas, although the necessary integration of different territorial systems is increasingly recognized. The manifesto of the Italian Network of Local Food Policies states that the "local" nature of FPs encompasses not only cities but the relations and the urban-rural continuum in a territorialist vision of urban policies. "Local" refers to both a geographical context and a space of action (Dansero *et al.*, 2020) and is intended as a context with blurred boundaries, as an intermediate level, to be constructed and legitimated by a variety of actors (individuals, groups, local communities) and multi-scale policies (from the municipal, to the national, European and global levels). Such complexity reflects the liveliness of the Italian context (Fattibene *et al.*, 2023) when it comes to analysing the number and maturity of initiatives. However, many experiences carried out at the local level demonstrate the abundance of ideas, resources, projects, and actors involved, often capable of generating considerable ferment and excellent opportunities to activate synergies, but they also risk being ineffective if a common framework is not defined.

3. MATERIALS AND METHODS

To capture different dimensions of the food policy narratives in Italy, a content analysis of the literature and documents set using a combination of deductive and inductive coding techniques (e.g., Elo, Kyngas, 2008) has been conducted. The deductive analysis was guided by a matrix comprising lemmas – both in the English and Italian languages – associated with the topic of "food" mainly used in public debate, policy and legislation that could be shared by the various actors involved – scientists, practitioners, and policy makers (Table 1). The hypothesis underlying this methodology is that conducting an analysis on three types of sources which use different languages, would help to capture the complexity of the narratives relating to food policies in Italy.

Therefore, although regularly used, other lemmas have been excluded from the research, such as "food security", "food system", "food environments" or again "food strategy", because they could have a broader and more general meaning or could be assimilated with others already included in the list, such as "food plan" and "food policy".

Thus, with the aim of identifying similarities and differences in their use, as well as the frequency of the expressions, a desk analysis was conducted on papers and articles from the scientific literature, in the existing Italian legislation on the subject, and on documents issued by local governments and development agencies.

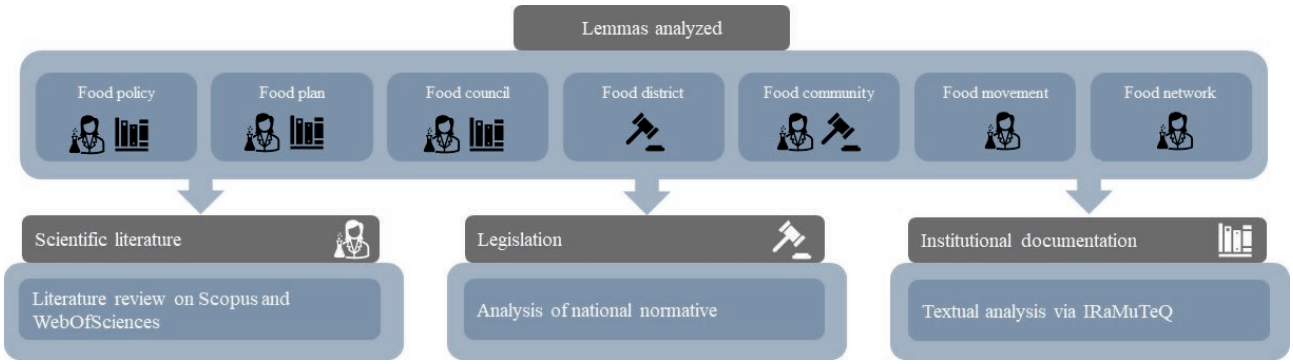
Given the nature of the analysed source materials, it has been necessary to use different methods of content analysis to capture the meaning of the selected locutions within each type of documents, as shown in Figure 1. In the case of the scientific literature and legislative set, the analysis was guided by a second matrix (Table 3) including lemmas extracted by the Milan Urban Food Policy Pact (2015). Alongside deductive coding, inductive coding was used to capture additional themes during the analysis process, such as Urban Regeneration or New Technologies and Innovation. In the case of the institutional documents, a computational linguistics software (IRaMuTeQ) was used to investigate the correlation between the terminologies used, visualizing groups of homogeneity and thematic relationship.

3.1. Literature analysis

An initial literature review was conducted through the SCOPUS database, using three selection criteria: i) territorial dimension (Italy); ii) temporal dimension (after 2015); iii) thematic dimension (lemmas)[3]. Each selected lemma listed in Table 2 was searched in English

[3] The selection criteria in the platforms permit the bias due to the grammatical form to be avoided, such as the use of singular or plural.

Figure 1. Lemmas considered and methodologies utilized.



and in Italian. It was also chosen to set a time range that could provide the study with material of recent publication and dissemination, setting 2015 as the starting date (ii). Expo2015 was considered a milestone for the diffusion of food-related issues in Italy: the Milan Urban Food Policy Pact remains one of the main legacies of the exposition.

The research results were then validated, eliminating contributions not considered relevant for the purpose of the analysis. In addition, articles included in more than one list were assigned to the most appropriate one, according to a careful evaluation by the research team.

The same search was also applied to the Web of Science (WoS) platform, which produced fewer results than Scopus and no additional material was added to the previous list.

3.2. Normative analysis

At the national level, the only forms of territorial governance related to food are Food Districts and Food and Biodiversity Communities of agricultural and food interest, which have been regulated by national and regional laws over the years as rural development policies have evolved.

The reconstruction of the national regulatory framework was based on "Normattiva" portal and regional regulatory databases and regional institutional websites. For "Normattiva", the locutions in Table 2 were used to identify those regulated by specific laws, i.e., "distretto del cibo" (food district) (4 hits) and "comunità del cibo" (food community) (1 hit).

As far as Food Districts are concerned, there is an official register managed by the Ministry of Agriculture (MASAF) and implemented by Regions and Autonomous Provinces that contains 185 districts. In addition to the national law (l. 205/2017), only the implementing regulations issued at the regional level (n=15) were analysed, leaving out laws issued at the regional level before the national law (n=16). In addition, "Community Charters" formalising Food Communities (n=13) and national implementing legislation (l194/2015) were also analysed.

3.3. Institutional documentation analysis

For the institutional literature, the analysis has been limited to the lemmas FP, "food council" and "food plan", as from a preliminary screen, they are the main domains in which local administrations have produced documentation, as shown by the most recent territorial analysis studies of Italian FPs (Dansero *et al.*, 2020; Dansero, 2022) and the experiences gathered by the Italian Network on Local Food Policy. The analysis was run using IRaMuTeQ (*R INTERFACE for multidimensional analysis of texts and questionnaires*) computational linguistics software. It is based on R software and python language and provides users with statistical analysis on text corpus and tables composed by individuals/words. The Similarity Analysis has been utilized, a graphical output that uses graph theory concepts to represent the co-occurrences of words in a *corpus*. The *corpus* has been constructed by extracting from each consulted documentation the parts where a definition or indications on relationships among policy instruments have been provided. Subsequently, the segments have been reorganized according to the relevant variables, i.e. the city/territory and the three terminologies considered. Given that the language of the consulted documents is Italian, the *corpus* has been constructed accordingly, in order to not distort the results, as the software is language responsive. Nevertheless, the translation of the displayed terminologies has been provided in Appendix 1.

Table 2. Databases research results and selection by locution.

Locution	Found in SCOPUS	Selected	Found in WoS	Selected	Found and selected both in Scopus and WoS	Analysed within the locutions
Food Policy	70	17	28	9	17	14
Food Plans	2	2	1	1	1	2
Food Councils	4	3	1	1	1	1
Food Districts	5	0	1	0	0	0
Food Communities	2	1	1	0	0	1
Food Movements	18	6	8	1	1	2
Food Networks	79	6	55	1	1	5
Total	**180**	**35**	**95**	**13**	**21**	**25**

4. RESULTS

4.1. Literature analysis

The research, conducted in the period September-October 2022, resulted in 25 eligible papers out of the 180 originally selected. Table 2 shows the search results categorized by lemmas. The overall number of articles selected is more numerous than those analysed, because some of them were found in more than one search by locution, therefore assigned to only one according to the title/keywords chosen by the Authors.

The first stage of the literature analysis consisted of the construction of a matrix composed of thematic areas considered relevant for their relationships with the identified lemmas by the authors of the 25 articles considered. Some of these themes were subsequently merged for similarity, resulting in a total of 18 thematic dimensions. The 18 dimensions were then aggregated into 3 thematic clusters: *Food Safety and Security*, *Territorial and Local Dimension*, *Food Supply Chain (FSC) Management* (Table 3).

FP and "food networks" cover all clusters in a significant way, whereas "food communities" and "food movements" are less present in the three clusters. *Food safety and security* is the most covered thematic cluster in the 25 papers (70 times); followed by *FSC Management* and *Territorial and Local Dimension* (45 and 40 times). Consequently, issues dealing with the *Food Safety and Security* cluster are prominently considered within four out of six lemmas, while the cluster turns out to be poorly relevant for "food communities" and "food movements".

The relevance of the relationship becomes less intense for the other two clusters, turning out to be strong only for "food policy" and to a lesser extent for "food networks"; as for the other 4 lemmas it is rather weak. *Territorial and Local Dimension* is scarcely found in "food councils" and "food movements", and it is relatively low in "food communities" and "food plans". Similarly, *FSC Management* issues have – quite surprisingly – little presence in "food plan" and "food councils", while they are relevant to "food policy" and "food networks". The definition of Urban Food Policy (UFP) is only addressed by one article related to "food policy", while the concept of "prosumerism" emerges exclusively for "food networks" related papers.

Food policy and *food networks* show a rather even distribution within the three clusters, whereas a marked polarisation on some clusters emerges for the other lemmas. *Food plans* and *food councils* in the first cluster; *food communities* in the second cluster; *food movements* in the third. However, these results could be due to the limited number of papers selected by the literature review. For this reason, a more in-depth analysis has been conducted considering only the two lemmas *food policy and food networks.* In the food policies-related literature, various papers present these initiatives as best practices or case studies developed in specific local contexts. The common trend is to explore their characteristics or compare the various experiences, rather than analysing in depth the socioeconomic and agri-food contextual background from which they stemmed.

Looking at the first thematic cluster, three themes dominate: quality, social benefits (safe and healthy food), and food loss and waste. Regarding the first one, some authors consider quality as one of the qualifying elements of food policy local experiences (Minotti *et al.*, 2022; Calori *et al.*, 2017; Mazzocchi, Marino, 2019); others use the concept referring to the composition of the menu in Public Procurement Policies (Mazzocchi, Marino, 2019). However, food quality can be interpreted in different ways, as mentioned by Andreola *et al.* (2021), by producers, standard or critical consumers, experts or other actors. Saviolidis *et al.* (2020), for example, report that quality is a possible solution identified by a stake-

Table 3. Relevance of themes and thematic clusters by locutions.

Themes	Thematic clusters	Food policy	Food plans	Food councils	Food communities	Food movements	Food networks
Food Loss and Waste	*Food safety and security*	9	2	1	0	0	5
Quality		10	1	1	0	1	3
Social benefit (safe and healthy food)		9	2	1	0	1	5
Redistribution and solidarity		8	1	1	0	0	1
Education		6	1	0	0	0	1
Territory	*Territorial and local dimension*	11	2	1	1	1	4
Landscape and cultural heritage		4	0	0	1	0	0
Resilience and Urban regeneration		5	1	0	0	0	1
Access to primary resources		2	0	0	0	0	0
Multifunctionality		2	0	0	0	0	0
Cooperation and collective forms		1	0	0	0	0	3
Sustainable agriculture	*FSC management*	8	1	1	0	0	4
SFSCs and Local markets		6	0	0	1	1	5
Distribution and logistics		3	0	1	0	0	0
GPP		6	0	0	0	0	0
UFP' process of definition		1	0	0	0	0	0
Prosumerism		0	0	0	0	0	2
New technologies and Innovation		2	0	0	0	2	1

holder as a direct regulation policy activity to improve food security and enforce high quality standards. Forno and Maurano (2016) show how the new economic circuits are pushed and supported by growing groups of consumers who consider quality and wholesomeness of food as central. The theme of social benefits is often linked to the topic of redistribution and solidarity (Minotti *et al.*, 2022; Andreola *et al.*, 2021; Arcuri *et al.*, 2022; Borrelli *et al.*, 2017; Giambartolomei *et al.*, 2021; Alberio, Moralli, 2021); while Guarascio (2022) emphasizes the role played by solidarity purchasing groups. Finally, food loss and waste is addressed as a crucial issue in relation to urban FPs by the majority of papers (Calori *et al.*, 2017; Forno, Maurano, 2016). In particular, Fassio and Minotti (2019) emphasize the topic within a circular economy sphere, while Giordano *et al.* (2022) explore the role of alternative networks in reducing the phenomenon. Several papers jointly explore the three selected themes of the first cluster: quality, social benefit (safe and healthy food) and food loss and waste (Minotti *et al.*, 2022; Andreola *et al.*, 2021; Borrelli *et al.*, 2017; Mazzocchi, Marino, 2019; Spadaro, Pettenati, 2022; Alberio, Moralli, 2021).

In the second thematic cluster, attention is mainly focused on the connection with the territory. In *food policy* related papers, some authors focus their attention on analysing specific territorial food governance policies and processes, investigating territorial relations and their weight (Minotti, Cimini *et al.*, 2022; Mazzocchi, Marino, 2020, Andreola *et al.*, 2021; Arcuri *et al.*, 2022; Fassio, Minotti, 2019; Calori *et al.*, 2017, Giambartolomei *et al.*, 2021; Spadaro, Pettenati, 2022) but also on contextual factors driving the success of local productions (Vaquero-Piñeiro, 2021). In Saviolidis *et al.* (2020) territoriality is proposed by stakeholders involved in their research as a way to promote a more locally focused approach for rural areas' needs and support the transition towards a more sustainable production. For Rossi *et al.* (2021) promotion of food and territories connections or knowledge of territorial production and consumption systems links are crucial for the creation of a new food culture.

In the *Food network* related literature, Sacchi *et al.* (2022) outline that this kind of experience allowed a deeper knowledge of local territory and the creation of a network of local actors. Other authors use the territorial approach to examine local innovation of social groups engaged in organic production and consumption (Alberio, Moralli, 2021), or territorial implications and participation behind alternative food networks for local development (Guarascio, 2022; Forno, Maurano, 2016). Finally, in the third cluster dimension, both locutions are marked by a focus on *sustainable agricultural practices* and *short food supply chain types, including local markets*. For instance, some authors include the first theme in the analysis and discussions on food policies processes, objectives and key points (Mazzocchi, Marino, 2020;

Table 4. Aims of Food district and Food Community.

Food Districts (art. 13, comma 1, D. lgs. 18 228/2001)	Food Communities (art. 13, Law 194/2015)
Food Districts are established to promote territorial development, cohesion, and social inclusion, foster the integration of activities characterised by territorial proximity, ensure food safety, reduce the environmental impact of production, reduce food waste and safeguard the territory and rural landscape through agricultural and agri-food activities.	Food communities aim to: 1) raise public awareness, implying the protection and enhancement of agricultural and food biodiversity. 2) support agricultural and food productions obtained from risk, both managed by breeders and farmers registered in the National Network as "Custodians" (art. 4 of Law 194/2015) and not registered in it. 3) promote behaviour to protect biodiversity of agricultural and food interest.

Andreola *et al.*, 2021; Arcuri *et al.*, 2022). Others talk about it in reference to the different forms of alternative food networks, able to involve civil society in actively building sustainable local development (Guarascio, 2022; Sacchi *et al.*, 2022). Short chains and local markets are also included in the debate on food policies as key areas (Minotti *et al.*, 2022) or, in relation to food networks, as a way to reorganize the production and consumption of fairer products (Guarascio, 2022).

These themes analysed above are also addressed to different extents by a group of papers recorded for the following locutions considered: *Food Plans*, *Food Communities*, *Food Movements*[4] and *Food Councils* (Vittuari *et al.*, 2017; Cretella, 2019; Renna *et al.*, 2018; Orria, Luise, 2017; Berti, Rossi, 2022).

4.2. Normative analysis

The analysis of the normative has identified two regulated headings in Italy, "Food District" and "Food Community". The lemma "district" was introduced by Law 317/1991 on "Interventions for the Innovation and Development of Small Enterprises", which dictated a formal definition of "Industrial Districts" and provided for them a detailed discipline for identifying areas and participants. The lemma "food district" was introduced by Law 205/2017, which rewrote art. 13 of Legislative Decree 228/2001 "Orientation and modernisation of the agricultural sector" and it defines four types of districts: a) rural districts; b) quality agri-food districts; c) local production systems (LPS) characterised by a high concentration of small and medium-sized enterprises (SMES); d) LPS with an interregional character, e) LPS in urban and peri-urban areas; f) LPS characterised by the integration of agricultural and other activities; g) LPS with sustainable production; h) organic districts.

The lemma "Food Community" (FC) is codified by Law 194/2015, art.13. FCs are defined as local spheres resulting from agreements between farmers; solidarity purchasing groups; schools and universities; research centres; associations for the protection of biodiversity quality; school canteens; hospitals; SMES; public bodies; catering and commercial businesses. Agreements may have as their object (art.13, paragraph 3): a) study, recovery and transmission of knowledge on genetic resources of local food interest; b) implementation of forms of short supply chain; c) study and dissemination of organic farming practices or those with a low environmental impact and aimed at saving water, reducing carbon dioxide emissions, improving soil fertility and reducing the use of packaging; d) study, recovery and transmission of traditional knowledge relating to agricultural crops, natural seed selection to cope with climate change and proper nutrition; e) creation of educational, social, urban and collective gardens.

The aims of food districts and FC are reported in Table 4.

In the analysis of the regulations, 14 of the 18 thematic areas already present in the literature analysis were used, excluding those that were not pertinent, to which a further 2 themes were added, considering the relevance for their relations with the identified lemmas. For similarity, 16 thematic dimensions were identified and grouped into the 3 thematic clusters: *Food Safety and Security, Territorial and Local Dimension, Food Supply Chain (FSC) Management* (Table 5). With regard to the lemma "district", there is a quite even distribution in the three clusters even if the third one is less relevant than the others, while as far as communities are concerned, the second thematic cluster *Territorial and Local Dimension* has more weight than the other two, while the third cluster, relating to *FSC Management*, is marginal.

In the first cluster, all regional food district regulations focus on quality and, with the exceptions of Lazio and Tuscany regions, also on food loss and food waste

[4] In relation to this locution, Holtkamp (2022) argues in particular the role of transformative innovations.

Table 5. Relevance of themes and thematic clusters within the lemmas (%).

Themes	Thematic clusters	Food Districts	Food Communities
Food Loss and Waste	*Food safety and security*	30,2	6,5
Quality		34,9	28,3
Safety Food		30,2	2,2
Education		0	28,3
Redistribution and Solidarity Economy		4,7	34,8
Territory	*Territorial and local dimension*	27,8	19,4
Urban regeneration		0	1,5
Landscape and cultural heritage		31,5	38,8
Protection of biodiversity		0	19,4
Multifunctionality		25,9	1,5
Cooperation and collective forms		14,8	19,4
Sustainable agriculture	*FSC management*	34,1	31,8
SFSCs and Local markets		34,1	40,9
Distribution and logistics		13,6	22,7
Labour		4,5	0
New technologies and Innovation		13,6	4,5

and safety. The community charters identify quality; education; redistribution and solidarity economy as key items. The cluster *Territorial and Local Dimension* is the most relevant one for the two locutions under analysis, which all focus on territory and landscape & cultural heritage. In the case of FCs, Protection of biodiversity and Cooperation and collective forms are also themes present in all the Community Charters. In the third cluster, districts concentrate above all on sustainable agriculture, short food supply chains and local markets and partially (Calabria, Campania, Piedmont, Sicily, Umbria and Veneto) on distribution and logistics as well as (Calabria, Campania, Lombardy, Tuscany, Umbria and Veneto) on new technologies and innovation; while FCs partially focus on this cluster where FSCs and local markets have a greater weight.

4.3. Institutional documentation review

The analysis of the institutional documentation has been focused on 12 cities/towns and 1 grouping of Municipalities (Madonie). The documentation taken into consideration concerns three lemmas, as they represent the domains in which local institutions have rooms for planning: "FP", "food council" and "food plan". As shown in in Table 6, some territories have only one tool, such as Aosta and Bergamo which have adopted a Food Council. Other territories have instead produced institutional documentation on several areas, thus covering more completely the areas of governance of local food policies.

The Similarity Analysis result, performed with IRaMuTeQ, offers a descriptive analysis of how the themes present in the corpus have been distributed (Figure 2). To enable the reading of results by an international audience, Appendix 1 contains translations of the lemmas contained in the graphical representation in Figure 2.

In terms of levels of governance, "food policy" is the most frequent lemma and represents an "umbrella" issue around which the implementation tools revolve. In fact, the locutions "food plan" and "FP" belong to the same area of homogeneity, which is strongly connected with the purple *leaf* – the area with greater connection homogeneity – in which the lemma "action" is the most represented. This highlights the strong operational nature that characterizes these two governance tools, especially in terms of activating institutional tools. "Food council" is instead positioned in another area of homogeneity, in which words that refer to the representativeness of cities and spaces for collective participation co-occur. The lemmas "political" and "food", despite recurring consistently in the text, belong to another area of homogeneity, even more distant than that characterized by the word "action", in which there are co-occurrences with arguments concerning integrated and coordinated territorial planning. Finally, in an even more peripheral area of homogeneity, the terms "local", "food" and "system" recur quite frequently and are strongly connected. Less frequent is the word "sustain-

Table 6. Consulted institutional documentation per city/town/territory.

City/town/area	"Food policy"	"Food council"	"Food plan"
Livorno	Integrated Food Policy – Food Strategy	Food Council	Food plan
Milano	Food Policy Steering document	Feasibility study	
Roma	Food Policy resolution	Food Council	Planned
Cremona	Preliminary notes	Planned	Planned
Lecce	Memorandum of Understanding for the Food Policy	Planned	Planned (Technical-Operational Planning Document)
Aosta		Food Policy Council	
Bergamo		Food Policy Council	
Lucca		Piana di Lucca Unified Food Council	Inter-municipal Food Plan
Messina		Sustainable Food Council	Local Action Plan
Tollo			Fod Plan
Castel del Giudice		Food Council	Food Plan
Pisa	Food Strategy	Food Alliance	Food Plan
Madonie			Food plan and dynamic land mapping

able", loosely linked to "nutrition". Indeed, the thickness of the branches represents how much the words are connected to each other. Finally, it should be noted that the words most closely linked to the production system in the strict sense, i.e. "agro" and "fish", are very distant and weakly connected.

The clusters show in a synthetic way how the documents are focused on governance and actors to be involved in the FPs issue (yellow, red and violet), while food and its production are far away, highlighting the relative marginality of this important aspect in the current discourse around the food policies.

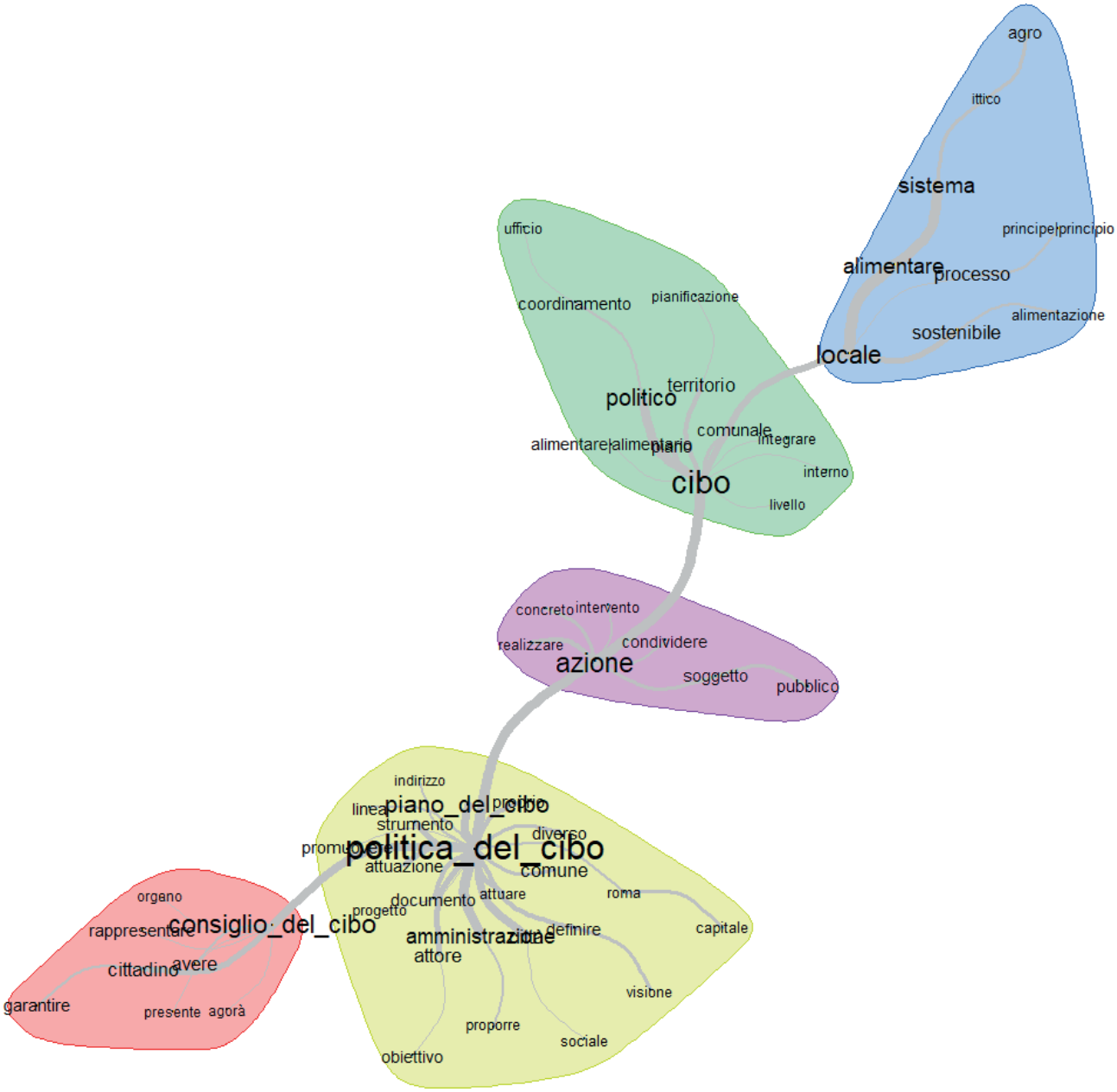
5. DISCUSSION

5.1. The power of narratives vs. real food system transformation

Discursive strategies are fundamental to the development of "attractive visions of alternative futures" (Turnheim, Geels, 2012), thereby building the cultural legitimacy of the new system (Mattioni *et al.*, 2022). The main findings of our study show that the construction of narratives around the topic of FS planning is experiencing a particular momentum. In fact, the construction of complex governance structures around food-related policies is accompanied by wide-ranging policy documents, in which the prevailing narrative focuses particularly on the principles, background premises, and the frames in which structures and policy tools should take place. In general, FP is a recurring expression, a much evoked and attractive theme for both the scientific community and policymakers. This attractiveness can be explained by its multi-disciplinary and multi-sectoral nature, capable of evoking symbolic, cultural, and political elements that have a high collective appeal. This is particularly relevant in Italy, where despite the growing contribution of solid political and social analysis, the theme of food is subject to a trivialization, which suffers also from a stereotyped use of customs, traditions and narratives (Girardelli, 2004).

However, local FP interventions and actions are identified more for their best-practice character rather than as systemic measures responding to well-defined and detailed policy conditions. The Milan Urban Food Policy Pact (MUFPP) is paradigmatic in this regard. Indeed, in addition to creating an administrative and political culture around local food policies, and particularly around monitoring systems, what is particularly stimulating is the exchange of practices and learning between signatory cities. Indeed, through Milan Pact Awards, the MUFPP encourages action, facilitating the emergence of best practices, making them evident to the community with a function of inspiring the action of other signatory cities. Still, the results, particularly evident in the analysis of scientific papers, show that most food plans import good practices and apply solutions deemed effective *a priori*, instead of acting structurally on FSs. As already happened in the case of narratives around rural development (Fløysand, Jakobsen, 2007) and, more recently, agroecology (Barrios *et al.*, 2020), also in the case of FP the programmatic documents are flattened on a "positive prejudice" bias with respect to the goals and needs of more sustainable and democratic local food systems. However, the translation of these principles into actions, resources, roles and trade-offs is

Figure 2. Analysis of similarities in the institutional documentation.



not always a straightforward and shared path, especially when it comes to coordinating different political visions and approaches expressed by local actors. This bias has threatened the capacity to rely on a proper solid literature presenting results and impacts of the construction and systematization in real contexts for long time. Only recently, a robust body of literature has been established assessing and evaluating the impacts of years of policies whose effects were considered positive "per se". However, food systems face very complex problems linked to their governance and government (McKeon, 2021). On the one hand, the plurality of actors potentially involved implies a great capacity for structuring complex and branched participatory systems; on the other, one of the main problems of food systems is the relationship between the multidisciplinary of food and the policy tools available, still calibrated on "silo" visions, i.e. sectorized and fragmented (James, Friel, 2015).

The textual analysis carried out on the institutional documentation reveals the absence of lemmas related to

the analysis and understanding of FS. This aspect calls for a re-composition and rethinking of the science-policy interfaces based on credibility, legitimacy, and diversity of knowledge (Turnhout *et al*., 2021). In this regard, the recent initiatives of Food Atlases should be mentioned, which in addition to mapping local FSs, from the urban (Dansero *et al*., 2018) to the metropolitan scale (Marino *et al*., 2022), act as tools to support policies, often promoted by researchers and scholars and endorsed by local administrations.

5.2. Agriculture in local food systems: the elephant in the room

Mapping works and studies such as Food Atlases have the merit of providing updated information on local FSs starting from the agricultural sector up to the post-consumption phases, passing through transformation, distribution, logistics and markets. This is particularly relevant since our analysis highlights the risk of marginalization of the agricultural sector within FP discourses, which instead represents the essential component underlying the functioning of local FSs based on systemic and circular approaches. Indeed, it can be stated that the ecological transition of FSs mainly passes through the redefinition of sustainable agricultural models and the reconnection between agriculture, food, and the environment (Lamine, Dawson, 2018). When speaking of "food", the downstream stages of the supply chain (see Table 3) are emphasized, with agriculture being neglected. This may be due to several reasons: on the one hand, the difficulty in identifying local planning tools capable of harmonizing with agricultural policies at any level which have direct or indirect impacts on agriculture (e.g. land use policies, direct payments, local bans on pesticides use, fiscal incentives for agriculture, etc.); on the other, a progressive interest towards alternative forms of food consumption and governance is guiding the interests of researchers and representatives of civil society. This latter aspect, despite having the advantage of systematizing and identifying the success factors of good practices, risks focusing on niche phenomena which have structural limits in growing in scaling-up, such as some forms of direct sales, Solidarity Purchasing Groups, Community-Supported Agriculture, Collective Farmer Shops, and so on. These trends risk overlooking and neglecting those structural components of FSs channelled through conventional and large-scale distribution and retailing systems. In our opinion, they must be considered, analysed and questioned for a real ecological transition. The risk is that, in the absence of shared knowledge between science and policymaking, the strongest and most decisive components of FSs are left solely in the hands of the market. This, in turn, may entail a disempowerment of policy instruments and a lesser democratization of local food systems, but also an operative risk, given the growing corporate concentration and power in the global FS (Clapp, 2021).

This problem is also found in the regulatory analysis, as far as food districts are modelled according to public-administrative systems (where the active subject is the Region or any other administration) rather than private-business ones and, for this reason, they often appear inadequate for the needs of the territories where they operate. Food districts refer to a plurality of regulation and intervention tools, sometimes non-homogeneous, characterized by the overlap between rules aimed at regulating and supporting the phenomenon and rules mainly affecting other disciplinary areas. Moreover, only in a few cases the procedure follows bottom-up processes that are consistent with the model of locally-based and self-governed district organization that should be promoted. Of the terms examined, the one that contains the most references to the agricultural sector is the Food Communities (FCs). In Italy, FCs are regulated by a specific law with the aim of promoting sustainable models of food production and distribution while respecting the environment and biodiversity. They work to spread good agriculture and good food practices, to defend and protect local traditions and culture and to enhance the area, adopting their own mission. However, FCs, although regulated by specific rules, can have very different characteristics, given the diversity of possible agreements that can be made, deriving from the different relationships that can be established between the various subjects involved.

6. FINAL CONSIDERATIONS

Our research confirmed the tendency of institutions to develop simplified, self-consistent versions of reality, as demonstrated by Rayner (2012). Furthermore, a standardization of the responses by institutions and communities to problems related to food has been detected, as already noted by Lazzarini and Mareggi (2021) when analysing Italian local food plans and strategies. The risk is that the programmatic documents end up being drawn up more on ideological positions than on scientific evidence. Such a risk would also widen the distance between scientific research and political intervention. Such prejudiced considerations risk emptying, banalizing or stereotyping the technical language, which should be more specific through policy instruments. We hypothesize that, in the face of this gap, individual practices and initiatives, well-treated and analysed in the scientific literature, could have

taken place even in the absence of those high-level planning instruments identified by the analysis of institutional documentation. However, from this point of view, a counterfactual evaluation would be necessary to identify the different shapes that local FSs could have taken even in the absence of institutional documentation. This is linked to an intrinsic limit of our study. Indeed, the survey was conducted in the presence of some kind of formal documentation, while we know that many FP-like experiences develop spontaneously and, sometimes, without the aid of official documentation or institutional endorsement.

Furthermore, the research was limited to investigating the prevailing narratives within food policies, identifying the relationships between the lemmas. However, it would be appropriate to further develop the study, delving into the individual tools and comparing them with the real application in the territories. Indeed, we assume that, although still lacking regulatory tools and levers, narratives around FP have stimulated a "politicization" of FSs and a broader awareness and political and social culture with respect to local FSs and the connections between elements and stages of supply chains that have traditionally been treated and considered as silos. That being so, the ambition of this paper has been to stimulate building a common language and a shared vocabulary of lemmas around narratives and conceptual discourses on food policy. We deem it necessary to construct a genuine, shared and truly multidisciplinary approach to the broad topic of food. This paves the way also to future developments on analysis on FPs, especially regarding the specificities compared to experiences in other European states, the ability to scale-up food policies to a national regulatory level, the possible displacement and inconsistency effects between FPs and agricultural policies, and the representativeness of the agricultural sector and farmers within these processes.

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APPENDIX

A.1. Translation of the terminologies utilized in the institutional documentation analysis

Original terminology displayed in Figure 2	English translation
Agorà	Agora
Agro	Agri
Alimentare	Food
Alimentazione	Food
Amministrazione	Administration
Attore	Actor
Attuazione	Implementation
Avere	Have
Azione	Action
Capitale	Capital
Cibo	Food
Cittadino	Citizen
Comunale	Municipal
Comune	Municipality
Concreto	Concrete
Condividere	Share
Consiglio del cibo	Food Council
Coordinamento	Coordination
Definire	Define
Diverso	Different
Documento	Document
Garantire	Ensure
Indirizzo	Direction
Integrare	Integrate
Interno	Internal
Intervento	Intervention
Ittico	Fishing
Linea	Line
Livello	Level
Locale	Local
Obiettivo	Objective
Organo	Body (authority)
Pianificazione	Planning
Piano	Plan
Piano del cibo	Food plan
Politica del cibo	Food policy
Politico	Political
Presente	Present
Principio	Principle
Processo	Process
Progetto	Project
Promuovere	Promote
Proporre	Propose
Pubblico	Public
Rappresentare	Represent
Realizzare	Implement
Roma	Rome
Sistema	System
Sociale	Social
Soggetto	Entity
Sostenibile	Sustainable
Strumento	Instrument
Territorio	Territory
Ufficio	Office
Visione	Vision

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Research article

Food Policy Coherence and Integration: a review of adopted methodologies

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Abstract. Multiple scholars in the last two decades have called for a coherent and integrated approach to food policy to address the challenges of the current food systems. Food Policy Coherence and Integration (PCI) are both challenging, as food matters are addressed at more than one level of governance and across several policy domains. Moreover, the analysis of food PCI has been carried out with different methodologies, but no reviews of such methodologies exist in the literature. Thus, the objective of the present study is to fill this gap, by reviewing which research methods were used to assess food PCI. The research adopts a bibliometric methodological approach to develop a quantitative network analysis of the identified studies and content analysis. Data collection was performed on Web of Science and Scopus including exclusively scientific articles from peer-reviewed journals. A total of 35 articles published since 2006 were included in the analysis. The main topics addressed were health and nutrition policies, followed by food security and agriculture. A variety of methods were used to assess Coherence and Integration. The first methodological phase often aimed at creating a policy inventory, followed by a second methodological phase to assess PCI. Some studies used interviews to identify the relevant policies and to comment on them. Other studies carried out PCI assessment relying on researchers' expertise. To conclude, food PCI studies choose from a variety of methodologies the one that better fits their aims.

Keywords: food policy, policy coherence, policy integration, governance, literature review.
JEL codes: Q18.

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HIGHLIGHTS

- Several methods exist to carry out the assessment of food Policy Coherence and Integration.
- Both bibliometric and content analysis reviewed which research methods were used to assess food PCI.
- The most common research method was a combination of a first phase where a policy inventory is put together from online databases, followed by a second phase to assess PCI through interviews or researchers' expertise.

1. INTRODUCTION

In the past decades, the concepts of Policy Coherence and Integration (PCI) have been of growing interest in political sciences and policymaking (Candel and Biesbroek, 2016; Nilsson *et al.*, 2018). Both practitioners and academics highlighted policy fragmentation and silo-thinking as negative practices that can undermine full policy implementation, creating unintended negative consequences. PCI is therefore considered crucial as it ensures that different governmental policies work together in a complementary and effective way, rather than working against each other (Parsons and Barling, 2022). PCI is appropriate when addressing complex phenomena as many of the issues addressed by governments are interconnected, requiring the implementation of multiple policies across different sectors. PCI helps to ensure that these policies work together effectively to achieve the desired outcomes.

The food sector is the perfect example of PCI importance. Food is a multi-faceted policy matter that encompasses a series of issues, ranging from food security and nutrition to sustainability and animal welfare. Food policymaking requires careful consideration of these various policy domains and collaboration among various stakeholders, making it challenging to reach a good degree of PCI. However, coordinating and harmonising different food policies allows to better achieve sustainable and holistic outcomes in the agrofood sector. For these reasons, multiple scholars have called for a coherent and integrated food policy to address the challenges of the current food systems (Barling *et al.*, 2002; De Schutter *et al.*, 2020; Lang *et al.*, 2009; Matthews, 2008; Parsons and Barling, 2022; Sibbing *et al.*, 2021).

However, despite its importance, PCI assessment and analysis are carried out using different methodologies, but no reviews of such methodologies exist in the literature. The present study aims to fill this gap, by reviewing which research methods were used to assess food PCI. The study includes three research questions. First, finding main authors (and their networks), sources (peer-reviewed journals) and geographic areas of the studies to contribute to a better understanding of the scientific leadership on PCI in the food sector. Second, identifying the most researched policy domains when analysing food PCI to find out what topics scientific research is mainly focusing on. Third, analysing the research methods used to assess food PCI to help the scientific community to improve its methodologies and research approaches to the matter.

2. POLICY COHERENCE AND POLICY INTEGRATION DEFINITIONS

Policy Coherence (PC) and Policy Integration (PI) are not synonyms, yet the two terms are often used interchangeably (Tosun and Lang, 2017). To overcome such confusion, several definitions have been written, allowing to reach some consensus on their distinction.

The first to provide a PI definition was Underdal (1980), who described policies as integrated if "the constituent elements are brought together and made subjects to a single unifying conception". PC, instead, gathered momentum in the 1990s, when policy coherence for (sustainable) development fostered the debate on the topic (Meijers and Stead, 2004). One of its earliest definitions is from OECD (2003), that describes PC as the "systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives".

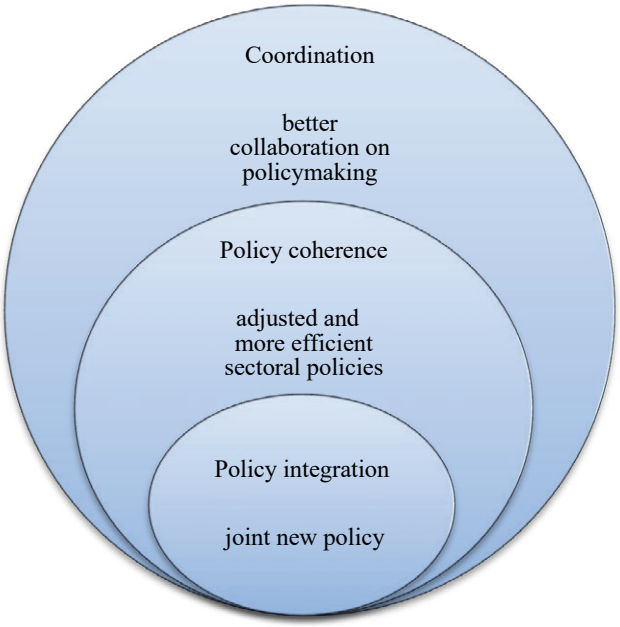
However, the differences between PC and PI remain blurred. Therefore, some scholars reviewed the literature to define PC and PI based on the analysis of how they were used.

Cejudo and Michel (2017) identified the difference between PC and PI by reviewing academic studies on both concepts. On one hand, they found that assessing PC means checking if existing policies overlap, reinforce each other, and/or share the same goal. On the other hand, PI often entails the creation of a new decision-making body and/or policy that coordinates the design and implementation of joined-up policies to achieve a common goal.

Meijers and Stead (2004) review focused on PI, by comparing it with the other terms used to identify similar concepts (e.g. policy coordination, policy consistency, joined-up policy). They also argue that while PC is more of a processual *modus operandi* aiming to adjust existing policies to make them mutually enforcing, PI's output is different. PI's aim is often to create a new joint policy encompassing the interests of various governmental bodies involved. As shown in Figure 1, both concepts of PI and PC are included in the umbrella term "coordination", which implies a concerted participation in policymaking (Meijers and Stead, 2004).

To sum up, PC is reached when the objectives of different existing policies are aligned among each other, while PI addresses the presence of food in various policy domains by coordinating them through new overarching policies or public bodies. However, while such consensus on the definitions allows the present study to clearly navigate the topics, it would be incorrect to retroactively apply such distinction to all studies on PCI, which may have interpreted the concepts differently.

Figure 1. PC and PI definitions.



2.1. PCI in food studies

Food policy studies only recently addressed PCI. The first to discuss PCI in the context of food policy were Barling *et al.* (2002), who supported a "joined-up" approach to public health policy. They argued the need for a shift from the dominant productivist paradigm having profit as a core, to an ecological public health approach focused on people and the planet. Beyond that seminal article, the food studies literature moved on to identify a set of shared challenges for food PCI (Candel and Pereira, 2017; OECD, 2021). First, PCI can be difficult to reach because policy goals can be a trade-off between two values representing equally valid societal needs, such as environmental concerns and the need for cheap food (OECD, 2021). Second, coordinating various sectors and levels of governance is costly, therefore the coordination process must be efficient (OECD, 2021). Third, also designing a consistent set of policy instruments is complex (Candel and Pereira, 2017; OECD, 2021).

Such challenges make it difficult to reach a good degree of PCI in food policymaking, where several sectors are involved. PC definition by Parsons and Hawkes (2019) reflects such challenge: "food policy coherence can be defined as the alignment of policies that affect the food system with the aim of achieving health, environmental, social and economic goals, to ensure that policies designed to improve one food system outcome do not undermine others". In the definition of PI, a focus on the different types of integration is added: "integrated food policy is the joining up of goals and policies related to food systems – horizontally across governments, vertically between government levels, or between inside and outside government actors –" (Parsons, 2019).

3. MATERIALS AND METHODS

The first step of the present systematic literature review on food PCI was data collection and it consisted of the creation of an inventory of peer-reviewed articles.

The following research string was used in two databases (Scopus and Web of Science): "policy coherence" OR "policy integration" AND Food. No time limit was indicated.

The search on Scopus and Web of Science yielded 163 and 194 results, respectively. After the elimination of duplicates, they were screened based on title, abstract and journal of publication. The resulting 79 papers were read in full and 44 were eliminated as out of scope for this study. Articles were excluded if they lacked focus on the food sector, or if they did not carry out a PCI assessment but only recommended to improve it. The final body of literature consisted of 35 studies.

Regarding data analysis, this paper applies a bibliometric and content analysis approach to PCI (Table 1).

The authors read the 35 selected articles in full and classified them according to the following descriptive and thematic categories. The former includes: Authors (co-authorship networks), Year, Journal title, Policy Integration (PI) or Policy Coherence (PC), Location. The latter consists of: Aim of the paper/Research question, Topic/policy domains (grouped in clusters), Governance level (Urban, National, International), Theoretical framework, Methods (data collection), Methods (data analysis), Stage of policy analysis (content, context, instruments, outcomes, process).

The software VOSviewer (version 1.6.18) allowed for bibliometric analysis, creating and visualising bibliometric networks. The text mining functionality of VOSviewer was used to analyse co-authorships and co-occurrence networks of the articles' keywords. The software NVivo (version 12) allowed for content analysis, generating codes to identify the most common themes.

4. RESULTS

The current section presents the results of the analysis. Answers to the three research questions are provided separately.

Table 1. Research questions, and respective elements and methods of analysis.

	Research Question	Elements of analysis	Method of analysis
RQ1 *WHO*	Which *authors, journals, and geographic areas* lead the literature on food PCI?	Researcher's descriptive classification based on: · Authors (co-authorship networks) · Year · Journal title · Policy Integration (PI) or Policy Coherence (PC) · Location	Bibliometric analysis on co-authorship carried out with VOSviewer.
RQ2 *WHAT*	What are the main *topics* researched in the literature on food PCI?	Researcher's thematic classification based on: · Aim of the paper/Research question · Topic/policy domains (grouped in clusters) · Governance level (Urban, National, International) · Stage of policy analysis (content, context, instruments, outcomes, process)	Bibliometric analysis on keywords co-occurrences and strengths. Content analysis on most frequent themes was carried out with NVivo.
RQ3 *HOW*	What are the main *research methods* used to assess food PCI?	Researcher's thematic classification based on: · Theoretical framework · Methods (data collection) · Methods (data analysis)	Thematic classification

Figure 2. Network visualisation of co-authorships.

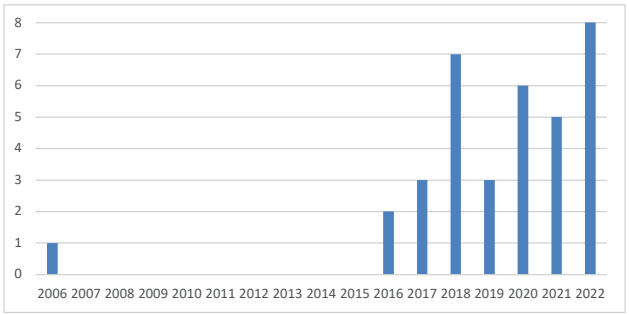
4.1. Which authors, journals, and geographic areas lead the literature on food PCI? (RQ1)

The bibliometric analysis allowed for the identification of two clusters of main co-authors (Figure 2). Two was set as the minimum number of documents of an author, so only 12 of the 105 authors met the threshold and were represented in Figure 2.

Anne Marie Thow and Jeroen Candel authored the highest number of documents (6 and 5, respectively), but are not linked between each other. In bibliometric analysis, a link is a connection or a relation between two items – in this case co-authorship. They both have the highest Total Link Strength (TLS) in their respective clusters[1]. The left cluster in Figure 2 includes authors researching on the topics of health and trade policies. They are based in various Higher Education Institutions in Australia and they study PCI mainly in their country. The cluster on the right side of Figure 2 is centred around Jeroen Candel, who is based in Europe and aims

[1] TLS indicates the total strength of the co-authorship links of a given researcher with other researchers, i.e. the number of publications two researchers have co-authored.

Figure 3. Time distribution of the selected articles.



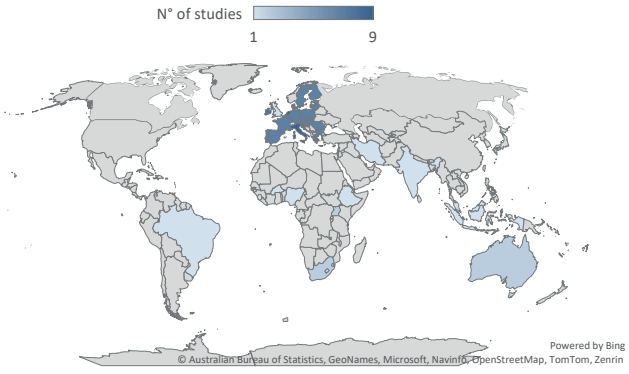
to systematise PCI analysis to provide a comprehensive theoretical approach. Bianca Minotti appears outside of the cluster as their co-authors did not pass the threshold of the two papers.

As shown in Figure 3, the body of literature on PCI has steadily grown in recent years, especially from 2016 onwards. 2022 was the year with the highest number of studies (8), while the lowest was 2006 with 1 article.

Food Policy and *Food Security* were the most recurrent journals, with 3 articles each. The other studies were published either in public policy journals, such as *Journal of European Public Policy* and *Environmental Science and Policy*, or in public health journals, such as *Public Health Nutrition*.

Most studies focus on European countries (16), but also African (6), Asian (4) and Oceanian (4) scholars have addressed PC and PI issues, while the remaining five studies had a global scope (Figure 4). Of the European articles, almost half addressed European-wide policies, while the other focused on single countries national policies. This suggests that PCI is more challenging in the context of a supra-national governance such as the European one. Topics also differ in different geographic areas, as for example African scholars are more focused on food security and nutrition while European ones on environmental issues.

Figure 4. Map of the countries where the selected studies are located.



4.2. What are the main topics researched in the literature on food PCI? (RQ2)

Keyword networks visualisation

The researchers' analysis of article texts showed that most studies (23 out of 35) addressed PI, while only 12 PC. This is because PI analysis has a longer history, and it emerged linked to environmental studies, that are neighbouring food studies.

The national governance level was the most studied (17), followed by the supra-national one (13). Urban policymaking, which is receiving increasing attention in food studies, was less investigated as only 5 articles addressed it. All urban food policies studies focused on European cities, covering Italy, Germany, the Netherlands and Switzerland. Two articles focused on one single case study (Arcuri *et al.*, 2022; Moschitz, 2018), while the other three articles focused on more than one case study. Baldy *et al.* (2022) compared two German cities to determine how practice in policymaking improves PI at the local level. Minotti *et al.* (2022) investigated the governance of three food policy processes in Rome, all aimed to improve sustainability in the city. Sibbing *et al.* (2021) assessed 31 Dutch municipalities to understand how they integrated food-related topics in the city governance.

Both bibliometric analysis with VOSviewer and content analysis with NVivo were carried out to understand which topics are the most studied in the literature.

The bibliometric analysis allowed for the identification of number of Occurrences (OC), links and Total Link Strenght (TLS) of articles keywords. 2 was the minimum number of OC of a keyword to be selected for this list, and 14 of the 98 total keywords met the threshold (Table 2)[2].

Bibliometric analysis confirms the results of the researchers' analysis, as *Policy integration* as a keyword was present 14 times, while *Policy coherence* only 8. *Policy integration* is also stronger than *Policy coherence* in terms of number of links (10 and 8, respectively), but especially in terms of TLS. When analysing keywords co-occurrence, TLS is the number of publications in which two keywords occur together, and for *Policy integration* is 27 while it is 11 for *Policy coherence*.

As shown in Figure 5, the more strongly linked are *Policy integration* and *Food policy*, and *Policy integration*

[2] A VOSviewer thesaurus file was applied to create a vocabulary that merged synonyms.

Table 2. Occurrences (how many times a keyword is present), links (number of relationships with other keywords) and TLS (number of publications where keywords occur together) of documents keywords.

Keyword	OC	Links	TLS
Policy integration	14	10	27
Food policy	8	9	17
Climate and environmental policy	7	9	10
Policy coherence	8	8	11
Governance	7	7	16
Food security	4	7	8
Health and nutrition policy	6	6	13
Food systems	4	6	8
European Union	2	4	4
Sustainability	2	4	4
Urban food policy	2	3	4
SDGs	2	3	3
Trade policy	2	2	3
Common Agricultural Policy	2	2	2

and *Governance* (6 in both cases), showing the centrality of the PI discourse in the literature on food public policy. *Food policy* also has a high TLS as it is the overarching subject underlying the discourse on PCI analysis in the food sector. *Climate and environmental policy* has high numbers in terms of OC, links and TLS (7, 9, 10, respectively), and it is the most common policy domain emerging from the bibliometric analysis. In terms of policy domains, it is followed by *Food security* and *Health and nutrition policy*, showing a strong focus on the consumption side.

Figure 6 shows that *Policy coherence*, *Trade policy* and *Common Agricultural Policy* were linked and more common in the literature about five years ago (2018), when the discourse on policy coherence for development was still happening and trade agreements were a crucial aspect of it. *Food systems* thinking, *Sustainability* and *SDGs* are more recent keywords (2022 and beyond) as a holistic approach to food systems only developed recently, often linked to ecological concerns.

To sum up, PI at national level is the most studied topic and the two main clusters that link environmental and agricultural policy as well as trade and health policy emerged.

Keyword grouping in clusters

The bibliometric analysis also allowed for the grouping of keywords in four clusters (Table 3). In VOSviewer, clusters are a non-overlapping set of items grouped in a map.

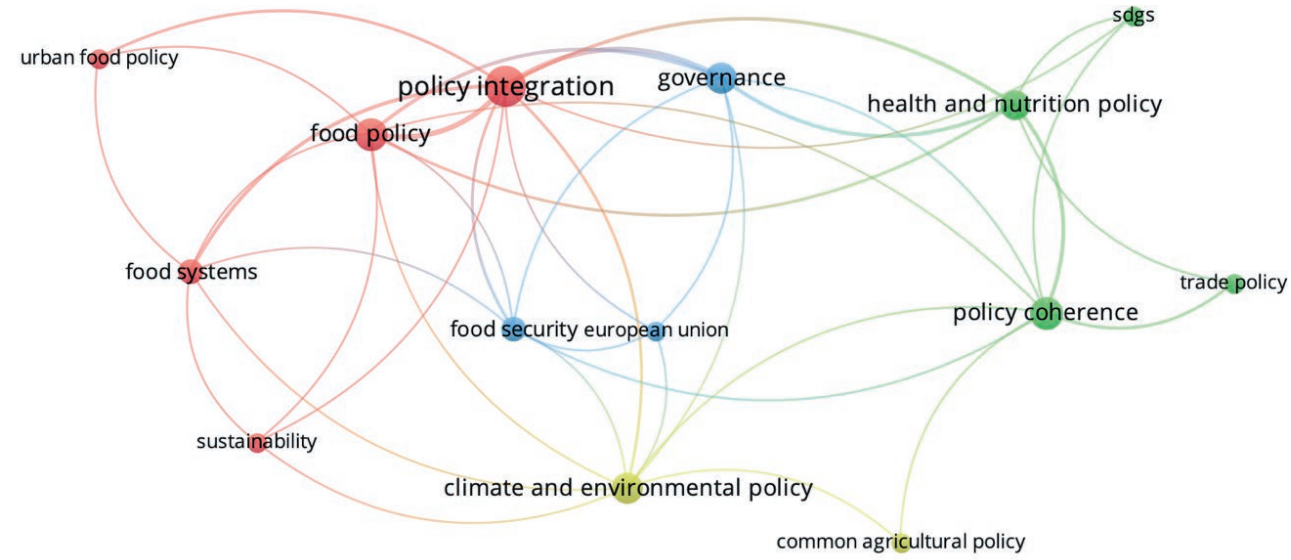
The first one includes *Food policy*, *Food systems*, *Policy integration*, *Sustainability*, *Urban food policy*, interconnected concepts that play a significant role in shaping the way we produce, distribute, and consume food. Given that two of these keywords were part of the selection string, this cluster encompasses all of the articles selected in the present study.

Health and nutrition policy and *Trade policy* are in the second cluster, as the impacts of trade agreements on nutritional behaviour have been widely studied in the literature (Baker *et al.*, 2019; Battams and Townsend, 2018; Friel *et al.*, 2019; Garton *et al.*, 2022; Ruckert *et al.*, 2017; Thow *et al.*, 2016, 2018). The need to study PCI between trade and nutrition policies emerged from the urgence to analyse the effects of Western countries policies on developing countries populations' health. Unfair Trading Practices can have repercussions on both a country's economy and the spread of Non-Communicable Diseases (NCDs). In the selected literature, PCI between trade and nutrition policies has been addressed in different contexts. Baker *et al.* (2019) addressed it on a theoretical basis, as they analysed how nutrition is interpreted by stakeholders and how such framing influences PC between trade and nutrition policies. Ruckert *et al.* (2017) carried out a Health Impact Assessment (HIA) to define how regional trade agreements at global level can hinder the implementation of health and nutrition-related SDGs. Similarly, the other studies focused on the interplay between trade and nutrition policies in specific case studies, often finding inconsistencies (Battams and Townsend, 2018; Friel *et al.*, 2019; Garton *et al.*, 2022; Ruckert *et al.*, 2017; Thow *et al.*, 2016, 2018).

The third cluster includes *European Union*, *Food security* and *Governance*. The EU plays a crucial role in ensuring food security within its member states, coordinating efforts to address food safety, quality, and affordability. Several studies focused on EU governance as the supra-national level that is crucial for vertical integration (Alons, 2017; Candel and Biesbroek, 2018; De Roeck *et al.*, 2018; De Schutter *et al.*, 2020; Matthews, 2008; Muscat *et al.*, 2021; Ugland and Veggeland, 2006).

Climate and environmental policy and *Common Agricultural Policy* create the fourth cluster. These topics are closely related because agriculture is a significant contributor to climate change. The Common Agricultural Policy (CAP) has often been criticised for its negative impacts on the environment, but the 2023 CAP reform provides financial incentives for farmers to adopt practices that reduce greenhouse gas emissions, promotes biodiversity, and protects natural resources. The relationship between environmental and agricultural policies – not necessarily the CAP – was addressed by

Figure 5. Co-keyword network visualisation based on occurrences.



a good amount of studies in different contexts (Alons, 2017; Biesbroek and Candel, 2020; De Roeck *et al.*, 2018; Harahap *et al.*, 2017; Medina Hidalgo *et al.*, 2021; Mosnier *et al.*, 2023; Schmidt, 2020; Šumrada *et al.*, 2020; Zembe *et al.*, 2022). Šumrada *et al.* (2020), for example, used the policy cycle framework to assess what level of priority is given to biodiversity conservation compared to other agricultural policy objectives in Slovenia. Medina Hidalgo *et al.* (2022) assessed national policies in the Pacific Island of Fiji and Vanuatu to determine how they support integrative approaches to climate change adaptation, agriculture, and health.

Content analysis of full article texts

Content analysis of the full articles texts supported the bibliometric analysis results. NVivo coding allowed to identify the most common themes in the 35 selected articles. Two main codes emerged: *Food* and *Policy*, terms that were part of the research string. Such codes were both present in all of the studies, but *Policy* had a much higher number of references (563) than *Food* (379). *Food policy*, *Food safety* and *Food security* were the three main sub-codes of the code *Food*, confirming the trend showed in the keywords analysis. For the code *Policy*, the highest number of references was reached by sub-goals linked to policy development and analysis, such as *Policy goals*, *Policy instruments* and *Policy process*.

The researcher analysis also identified which stage of policy analysis (content, context, instruments, outcomes, process) the study was focusing on. The three most common were: Content, Context and Process. Content refers to the document analysis, while Context and Process to the frame of reference where policymaking happens. Fewer studies focused on policy Instruments and Outcomes, as assessing them is quite complex, as it requires scope and resources for monitoring.

4.3. What are the main research methods used to assess food PCI? (RQ3)

The adopted research methods are closely linked to the articles' aims. The most common objective was to assess PCI in different domains (horizontal) or at dif-

Figure 6. Co-keyword overlay visualisation based on the occurrences and average publication per year scores. Source: authors.

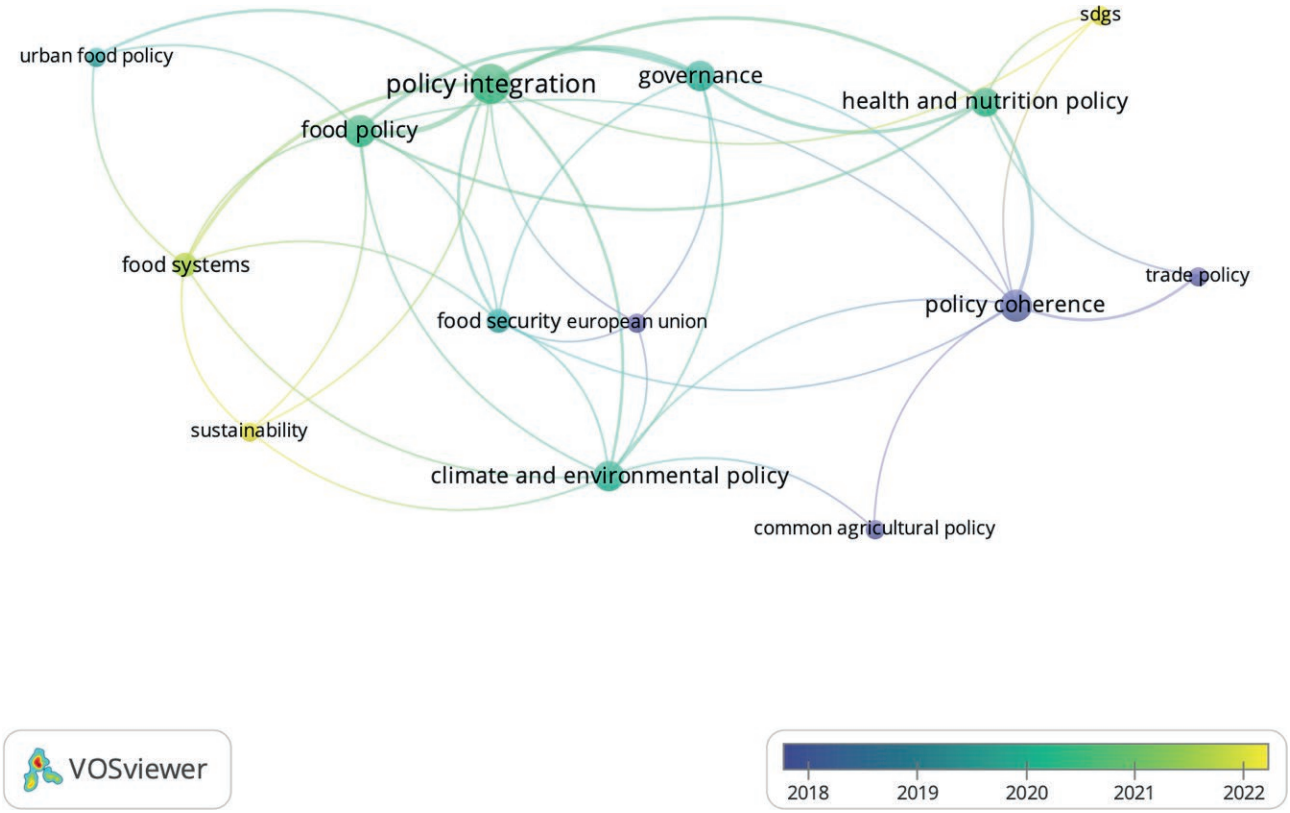


Table 3. Clusters of articles keywords.

Cluster 1	Food policy, Food systems, Policy integration, Sustainability, Urban Food Policy
Cluster 2	Health and nutrition policy, Policy coherence, SDGs, Trade policy
Cluster 3	European Union, Food security, Governance
Cluster 4	Climate and environmental policy, Common Agricultural Policy

ferent levels of governance (vertical). It was mainly the external PCI to be addressed, which is the analysis of a certain policy coherence/integration with another one or with a framework, e.g. the Sustainable Development Goals. The internal PCI, i.e. the coherence/integration of policy goals with their own implementation plans, has not been addressed in the selected articles. The identification of enabling factors and obstacles to PCI often was a related research question. Determining stakeholders' interpretation of PCI was a focus in some articles.

Theoretical frameworks

In terms of theoretical frameworks, the most widely used was Candel and Biesbroek's (2016) multi-dimensional framework that theorises four dimensions to guide PI analysis: policy frame, subsystem (i.e. subdomain) involvement, policy goals, and policy instruments (Arcuri *et al.*, 2022; Milani-Bonab *et al.*, 2022; Minotti *et al.*, 2022; Namugumya *et al.*, 2020b). Such four dimensions were applied in different contexts. Arcuri *et al.* (2022) studied the process leading to the first Intermunicipal Food Policy in Italy, including five municipalities within the same Tuscan province. The multidimensional framework allowed to analyse qualitative data to outline the enabling factors and obstacles to PI. Similarly, Minotti *et al.* (2022) interpreted qualitative data from nine interviews and participatory observation through Candel and Biesbroek's framework, to describe three food policy processes in Rome. On the contrary,

Milani-Bonab *et al.* (2022) and Namugumya *et al.* (2020) focused on the national governance level, in Iran and Uganda, respectively. They both used Candel and Biesbroek's framework to guide the qualitative content analysis they carried out through coding with the software Atlas.ti and MaxQDA (Milani-Bonab *et al.*, 2022; Namugumya *et al.*, 2020b).

A study on Ugandan nutrition policy combined process-tracing methodology with policy mechanisms approach (Namugumya *et al.*, 2020a). Researchers analysed 34 interviews with experts engaged in nutrition policy in various ministries (Health, Agriculture, community development) and a workshop with 15 participants from academia, government and international agencies to identify mechanisms that support or hinder PI. They found that supporting mechanisms were: international policy promotion, issue promotion by international actors, issue promotion by domestic policy entrepreneurs, and instrumental policy learning. On the contrary, leadership contestation and "turf wars" were identified as counteracting mechanisms. Similarly, Biesbroek and Candel (2020) adopted one application of the policy mechanisms approach, the CMO (Context-Mechanism-Outcome) model. Such model claims that, within the Context of the policy process, observed patterns of Outcomes may be interpreted by identifying a set of Mechanisms that caused them (Pawson and Tilley, 1997). In the case of food and climate adaptation policies in the Netherlands, a common mechanism hindering PI are "turf wars" between ministries, competing for legislative powers. This is counteracted by the scientific community highlighting the cross-cutting nature of these issues, and therefore the importance of PI (Biesbroek and Candel, 2020).

Sabatier's Advocacy Coalition Framework (Sabatier and Jenkins-Smith, 1999) was borrowed from political sciences and applied to food studies in two articles in this review: Battams and Townsend, 2018 and Thow *et al.*, 2018. The former assessed PC of nutrition and trade policies in Australia and Malaysia, and the latter analysed how PC could be improved in relation to food security and nutrition in South Africa. Data collected with semi-structured interviews were coded for actors, ideas and power relationships, drawing from Sabatier's framework. Both studies found that the prevalence of the "Economic Growth" coalition in the public policy discourse is framing nutrition issues in a way that does not prioritises people's health.

Another multidimensional framework used in the literature encompasses the three indicators used in the measurement of Environmental Policy Integration (EPI): policy process, output and outcome. Alons (2017) applied them to the assessment of environmental sustainability integration in the CAP.

Two frameworks borrowed from political sciences also allowed for a process-focused analysis of PCI: the Policy Pathways approach and Policy Space analysis (Friel *et al.*, 2019; Garton *et al.*, 2022; Thow *et al.*, 2016). The Policy Pathways approach applied by Friel *et al.* (2019) identified the pathways from trade to diet-related disease risks, leading to various degrees of policy (in) coherence. Plus, the theoretical framework was the basis for codes development to analyse the 19 semi-structured interviews with key experts. They found that formal and informal mechanisms exist in the governance of trade for nutrition goals, but that in both cases the key element is the issue of power imbalance that leads to the prioritisation of trade goals over nutrition ones (Friel *et al.*, 2019). Garton *et al.* (2022) focused on the nutrition Policy Space (i.e. scope), examining how Trade and Investment Agreements (TIAs) could hinder the implementation of better nutrition policies. Thow *et al.* (2016) explored the Indian food supply policy space to identify strategies strengthening public health nutrition policy against the double burden of malnutrition. Threats to higher PC are policy inertia and competing priorities between nutrition and the economic sector.

To sum up, several thereotical frameworks were borrowed from political sciences and adapted to food studies to allow a comprehensive analysis of complex phenomema.

Data collection methods

Several data collection methods were adopted in the literature.

Four articles adopted a case study approach to collect data (Arcuri *et al.*, 2022; Kelleher *et al.*, 2019; Moschitz, 2018; Ugland and Veggeland, 2006). Case studies were at different governance level, as Ugland and Veggeland (2006) focused on EU level polices, Kelleher *et al.* (2019) on Irish national policies, Moschitz (2018) on urban policies of the city of Basel and Arcuri *et al.* (2022) on inter municipal governance. The case study approach allows researchers to delve into one place's specific features, and gain more insights about it.

In most studies, the first step of data collection was creating an inventory of relevant policy documents (Alons, 2017; Biesbroek and Candel, 2020; Candel and Biesbroek, 2018; De Roeck *et al.*, 2018b; Farmery *et al.*, 2020; Garton *et al.*, 2022; Harahap *et al.*, 2017; Kelleher *et al.*, 2019; Medina Hidalgo *et al.*, 2022b; Milani-Bonab *et al.*, 2022; Moschitz, 2018; Muscat *et al.*, 2021; Namugumya *et al.*, 2020b; Parsons *et al.*, 2018; Schmidt,

2020; Sibbing *et al.*, 2021b; Thow *et al.*, 2016, 2018; Werlang Girardi, 2018; Zembe *et al.*, 2022). Sources used to collect policy documents were a variety of databases, including government websites and Google search engine. Kelleher *et al.* (2019) created a policy inventory from the Irish state's Department of Agriculture, Food and the Marine, while Moschitz (2018) retrieved them from the Swiss online archive of laws, directives, and regulations. Non-institutional databases were also used: Schmidt (2020) retrieved policy documents from the Climate Change Laws of the World database and Namugumya *et al.* (2020b) from the global database on the Implementation of Nutrition Action (GINA).

While the inventory aimed to create a picture of policy characteristics on paper, it was often combined with interviews, focus groups and/or participant observation to provide a more real-life practice view to the research. Semi-structured interviews with a number of stakeholders ranging from a minimum of 6 to a maximum of 177 (Arcuri *et al.*, 2022 and Jiren *et al.*, 2021, respectively) were carried out. Around 20/30 was the most common number of interviews per article. The semi-structured format was generally preferred as it allows the researcher a certain degree of freedom, while still following a set list of questions. Interviewees were mostly key stakeholders, being either policy experts or civil servants at various levels of governance.

In some cases, focus groups were the research tool adopted (Jiren *et al.*, 2021; Muscat *et al.*, 2021), always in combination with interviews. Muscat *et al.* (2021), assessing the PC between bioeconomy and agro-food policies in the EU, collected expert opinions through an online survey, and later proceeded to delve into the single policy domain with focus groups, allowing for an exchange among stakeholders. Jiren *et al.* (2021) used focus groups to integrate expert opinions with people's experiences. After completing almost 200 semi-structured interviews, they carried out 24 focus group discussions with local people to collect lived experiences on the challenges to achieve food security while conserving biodiversity in Ethiopia.

Similarly, participant observation allowed to gather data on the field (Arcuri *et al.*, 2022; Baldy *et al.*, 2022; Battams and Townsend, 2018). Baldy *et al.* (2022) applied a practice-theoretical perspective to analyse how the three dimensions of practice that they identified (doings, sayings and things) can influence PI. They found that practice dimensions play an important role in policymaking dynamics that increase or decrease the level of PI.

To sum up, interviews, focus groups and participant observation were crucial complements to the inventories, as they provide a practical-theoretical perspective on PCI.

Table 4. Summary of data collection research methods used in the literature.

Methods	Sources
Inventory of policy documents	Alons, 2017 Biesbroek and Candel, 2020 Billings *et al.*, 2021 Candel and Biesbroek, 2018 De Roeck *et al.*, 2018 Farmery *et al.*, 2020 Garton *et al.*, 2022 Harahap *et al.*, 2017 Kelleher *et al.*, 2019 Medina Hidalgo *et al.*, 2022 Milani-Bonab *et al.*, 2022 Moschitz, 2018 Muscat *et al.*, 2021 Namugumya *et al.*, 2020b Parsons *et al.*, 2018 Schmidt, 2020 Sibbing *et al.*, 2021 Thow *et al.*, 2016, 2018 Werlang Girardi, 2018 Zembe *et al.*, 2022
Semi-structured interviews	Alons, 2017 Arcuri *et al.*, 2022 Baker *et al.*, 2019 Baldy *et al.*, 2022 Battams and Townsend, 2018 Biesbroek and Candel, 2020 Candel and Biesbroek, 2018 Farmery *et al.*, 2020 Friel *et al.*, 2019 Garton *et al.*, 2022 Minotti *et al.*, 2022 Namugumya *et al.*, 2020b, 2020a Parsons *et al.*, 2018 Jiren *et al.*, 2021 Schmidt, 2020 Thow *et al.*, 2016a, 2018 Zembe *et al.*, 2022
Focus groups / workshops	Jiren *et al.*, 2021 Muscat *et al.*, 2021 Namugumya *et al.*, 2020a Šumrada *et al.*, 2020
Participant observation	Arcuri *et al.*, 2022 Baldy *et al.*, 2022 Battams and Townsend, 2018
Survey with close-ended questions	Muscat *et al.*, 2021

Data analysis methods

Several data analysis methods were adopted in the selected literature.

Qualitative and quantitative content analysis assessed both policy documents gathered in the data collection

phase and interviews, focus groups and participant observations transcripts. The most used software for such analysis were NVivo, MaxQDA and Atlas.it, that support codes and subcodes creation. Most studies drew coding structures from the theoretical frameworks presented above. Some studies combined qualitative and quantitative content and thematic analysis. For example, Candel and Biesbroek (2018) studied whether better integrated food security policies were created in the EU after the 2008 food prices crisis. In doing so, they complemented a quantitative content analysis of policy documents with a qualitative analysis of interviews. In one study, interviews were interpreted through the lenses of the Social Network Analysis (SNA) methodology (Farmery *et al.*, 2020). They examined PI of fisheries policy within the food sector, finding a good degree of integration of food security into fisheries policies, but a lack of integration of fish matters into food policies. SNA showed how a good level of collaboration between sectors can increase PI (Farmery *et al.*, 2020).

Another mixed methods approach was used by Muscat *et al.* (2021) in their assessment of PC between bioeconomy and EU agro-food policies. They adopted a Policy Coherence Matrix (PCM), which is a table where the horizontal axis consists of policies that the study aims to compare and the vertical axis the reference policies with which they are to be compared. The resulting table cells contain the coherence score of each intersection. To populate the PCM, they distributed an online survey to experts, who scored the effect of one policy domain of their expertise (waste, bio-based industry, environment, renewable energy) on agro-food policy goals. Other than the coherence score, they also filled a confidence score, according to their level of confidence in assessing coherence. Following the survey, focus groups were also carried out, where 3 or 4 experts commented on the results of the survey.

The FABLE approach was the only fully quantitative method used in the literature. Mosnier *et al.* (2023) presented a collaborative approach developed together with the Food, Agriculture, Biodiversity, Land, and Energy (FABLE) Consortium. Such approach consists of an Excel-based tool that aims to better integrate food policies with environmental sustainability standards. Using country-specific data, it constructs a baseline model that can be tweaked to increase PI.

To sum up, the most common and complete methodology involved making an inventory of relevant policies at one or more governance level and coding them following the themes emerging from a theoretical framework. After such detailed analysis of contents, interviews or focus groups then allowed to build a more comprehensive picture of the real-life experience of PCI.

Table 5. Summary of data analysis research methods used in the literature. Source: authors.

Methods	Sources
Content analysis	Alons, 2017 Baker *et al.*, 2019 Baldy *et al.*, 2022 Battams and Townsend, 2018 Billings *et al.*, 2021 Candel and Biesbroek, 2018 Farmery *et al.*, 2020 Friel *et al.*, 2019 Kelleher *et al.*, 2019 Medina Hidalgo *et al.*, 2022 Milani-Bonab *et al.*, 2022 Moschitz, 2018 Namugumya *et al.*, 2020a, 2020b Ruckert *et al.*, 2017 Schmidt, 2020 Sibbing *et al.*, 2021 Thow *et al.*, 2016, 2018 Werlang Girardi, 2018 Zembe *et al.*, 2022
Social Network Analysis (SNA)	Farmery *et al.*, 2020
Policy Coherence Matrix (PCM)	Muscat *et al.*, 2021
FABLE approach	Mosnier *et al.*, 2022

5. DISCUSSION AND CONCLUSIONS

The aim of this study was to assess the research methods used to analyse food PCI. To achieve this objective, a comprehensive literature review was conducted, which included articles published in peer-reviewed journals, as well as book chapters. Three main points emerge from the results.

First, the study results suggest that there are several methods used to analyse food PCI, including both quantitative and qualitative methods, as well as mixed methods. Quantitative methods such as scoring matrices and quantitative content analysis are commonly used to assess the relationship between different policy domains and to determine the degree of PCI. However, these methods may present limitations as they may not capture the complexity of policy processes and the context-specific nature of policy outcomes. Qualitative methods, such as qualitative content analysis of stakeholder interviews, can provide a more nuanced understanding of the policy context and the factors that influence PCI. These methods, allowing a deeper understanding of policy contexts and processes, can help to identify gaps and inconsistencies in policy goals and instruments, as well as to develop recommendations for improving

policy outcomes. The combination of content analysis of policy documents and stakeholder interviews is the most common research method used to analyse PCI in food studies. Such mixed methods allow the identification of factors that facilitate or hinder PCI. Interviews can also provide a real-life practice view and practitioners insights into the power dynamics and relationships among different policy actors, which can help to identify potential areas for collaboration and cooperation to improve PCI in the long term. Case studies are also commonly used to analyse food PCI, as they involve in-depth analysis of a specific policy context and can provide place-specific insights. Case studies can also be used to identify best practices and lessons learned, which can inform policy development and outcomes in similar contexts. Mixed-methods are therefore the preferred combination, albeit an effective systematisation of methodological approaches is not necessarily an auspicable outcome. The choice of methods should be guided by the research question and the specific objectives of the study, rather than a one-size-fits-all fixed approach. Therefore, the variety of methods can be considered a richness rather than a limitation, albeit fragmentation could hinder the development of the research field.

Second, the results of RQ1, assessing which authors, journals, and geographic areas lead the literature on PCI in the food sector, identified a strong geographic prevalence of Europe in studies on PCI. Such results show a consistent bias towards the Western world, which is commonly found in the academic literature on public policy studies. In this case, such bias is exacerbated by a strong tradition of analysis of PC for development, that opened the stream of research on these matters. PC for development was particularly focused on the implications of Western policymaking on developing countries and therefore introduced the bias. For Western world scholars it was easier to follow such stream of research, albeit adapting it to the food policy domain. Moreover, the results of RQ2 also showed a prominent role of the supranational and national level, which reflects the layered governance of those levels, where many stakeholders and their interests are involved. However, the local level would benefit from a better PCI, especially as far as food policies are concerned. Future studies could address PCI at urban or regional level, which could prove easier as less stakeholders are involved but more difficult as more personal relationships are in place (Monticone *et al.*, 2023).

Third, the present study confirmed that the most researched policy domains when analysing PCI in the food sector were the following two dyads: nutrition policies and trade agreements; agricultural policies and environmental ones. This reflects the reports of some governmental bodies researching on these topics, showing a rare parallel between the academic and practitioner world (Alliance Environnement, 2018; Hawkes, 2016). Environmental and agricultural polices are increasingly important as the number of policies issued on these topics is growing in recent years, because of the negative environmental impact of the agrifood sector. However, such growing attention for sustainability in the agrifood sector has boomed in recent years, therefore not allowing enough time for adjustments. The two sectors seem to move at a different pace: while environmental policies set high sustainability standards, the agricultural sector is not being thoughtfully guided in the transition, making the two sectors progress uneven and therefore PCI difficult to reach. Similarly, trade and nutrition policies have different paces, as well as different interests behind. Both policy dyads confirm the relevance of PCI in the food sector, as the complexity of domains involved makes PCI more relevant.

Finally, given the urgency of PCI in food policymaking, through the analysis of PCI research methodologies, the present study developed three main suggestions. First, to give PCI priority from the first stages of policymaking. Second, to assess PCI adopting mixed methods, which allow for better evaluation and more complete impact assessment. Mixed methods, being both quantitative and qualitative, are more suitable to better coordinate and harmonise different food policies with the aim of achieving sustainable and holistic outcomes. Third, to systematise the methods adopted for PCI evaluation, as methods fragmentation can enrich academic studies but has to be limited among practitioners. Also, systematisation leads to an improved methods adaptation to the real context of policymaking, which is often carachterised by difficult coordination and missing communications among various departments. To conclude, a combination of analytical methods is needed to provide a comprehensive understanding of the policy content, instruments, tools and processes affecting PCI, and therefore improve it.

The present study has two main limitations. First, as it is typical of literature reviews, the language searched was only English. This excludes articles published in other languages, limiting the scope of the research and the geographical areas covered. Second, only two databases, namely Scopus and Web of Science were adopted as sources.

To conclude, the results of this study suggest that a combination of methods is necessary to provide a comprehensive understanding of the policy contents, contexts, instruments, outcomes and processes influencing

PCI. Moreover, the choice of method should be guided by the research question and the specific objectives of the study.

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Research article

Territorial food governance in the making: towards the Food Roundtable of Tuscany Region

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Abstract. Transition towards sustainable food systems demands a change to integrated or territorial policy approaches and boundary-spanning governance arrangements. Territorial approaches provide an effective framework to address food systems transformation at a scale where it can be tackled with the active participation of all stakeholders. The paper brings the territorial governance approach to the food governance debate and introduces the concept of participatory multi-stakeholder food platforms as arrangements to implement territorial food governance. The paper investigates the implementation of territorial food governance in Tuscany (Italy) at local level and explores the emerging attempt to scaling-up local food governance by developing a regional participatory multi-stakeholder food platform: the Regional Food Roundtable of Tuscany.

Keywords: territorial food governance, multistakeholder food platforms, local food policies, urban food policies, food policy councils, food communities, food districts.
JEL codes: Q18.

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HIGHLIGHTS

- Transition towards sustainable food systems demands a change to integrated or territorial policy approaches and boundary-spanning governance arrangements.
- Territorial food governance has the advantage of being place-based, people-centred, multi-actor and multi-sectoral.
- Territorial food governance requires participatory multi-stakeholder arrangements capable of engaging the various food systems actors in policy and decision making.

1. INTRODUCTION

Since today's global industrial food systems are generating negative outcomes along the environmental, social and economic dimensions of sustainability, there is growing recognition that re-scaling at territorial level is required to enable more sustainable and just food systems (Stein and Santini, 2021). As stressed by Lamine *et al*. (2019), territorial approaches to tackle food systems transitions have increasingly been experimented by local actors in many contexts, favoured by academics and promoted by major national and international institutions. Furthermore, many observers regard the local level as the appropriate sphere for political and planning action, to tackle the problems or dysfunctions of the modern globalized food system (Doenberg *et al*., 2019).

In addition, food systems are recognised as complex socio-ecological systems (Galli *et al*., 2020; De Schutter, 2020). Approaching food governance from a system perspective makes clear that traditional government mechanisms built around different fragmented and sectorial policies and organisational structures are inadequate, suggesting the need for new approaches. In fact, it is more and more evident that better engagement with the various food systems actors is needed to work more effectively across sectors, administrative jurisdictions, public and private domains and diverse normative frameworks (Herens *et al.,* 2022; Breeman *et al*., 2015; Termeer *et al*., 2018). Transition towards sustainable food systems demands a change to integrated or territorial policy approaches and boundary-spanning governance arrangements.

In this paper, we bring the territorial governance approach to the food governance debate. The territorial approach consists of applying processes of networked, collective organisation where multi-level coordination takes place at territorial level among enterprises, local institutions and other stakeholders (Torres-Salcido and Sanz-Cañada, 2018). As stressed during the Food System Summit 2021[1], "territorial approaches provide an effective framework to address the different aspects of food systems transformation at a scale where its social, environmental, economic, and health-related dimensions can be tackled with the active participation of all stakeholders. […]. Territorial governance has the advantage of being place-based, people-centred, multi-actor and multi-sectoral".

The implementation of the territorial food governance approach requires collaborative arrangements, namely participatory multistakeholder food platforms, capable of integrating all food system actors in food systems governance (Herens *et al.,* 2022) and promoting food democracy (De Schutter *et al*., 2020).

The paper aims at contributing to the academic debate on food governance by focusing on the role of multistakeholder food platforms as participatory arrangements for implementing territorial food governance. The paper emphasises the need for further theoretical exploration on the scaling-up of local food governance and highlights the relevance of the regional level. It then investigates the implementation of territorial food governance in Tuscany (Italy). The paper firstly explores local experiences as urban food policies and food policy councils, food and agrobiodiversity communities and food districts. Secondly, it investigates the new emerging attempt to scaling-up local food governance by developing a regional participatory multi-stakeholder food platform: the Regional Food Roundtable of Tuscany. Relying on the results emerging from both the theoretical and the empirical explorations the paper finally develops policy recommendations.

2. CONCEPTUAL FRAMEWORK

2.1. Territorial food governance

Territorial governance is defined as "an organisational mode of territorial collective action, based on openness and transparency of the process itself, on cooperation/coordination among actors (horizontally and vertically), and in a framework of a more or less explicit subsidiarity" (Davoudi *et al.,* 2008: 35). It implies horizontal coordination among actors at the same level, but also multi-level and multi-actor processes of interaction and coordination taking place among stakeholders, enterprises and institutions operating at different territorial scales and participatory mechanisms (Van Well and Schmitt, 2016; Van Well *et al*., 2018; Torres-Salcido Sanz-Cañada, 2018; Davoudi *et al.,* 2008).

The term "territorial food governance" is hereby referred to as the combination of the concepts of territorial governance and food governance. The latter refers to the processes and actor constellations that shape decision-making and activities related to the production, distribution, and consumption of food (van Bers *et al*., 2019). Territorial food governance can be then defined as both formal and informal processes, actors, institutions, rules, and norms that shape decision-making and activities affecting food systems (van Bers *et al*., 2016; Herens *et al*., 2022). Such processes are oriented towards:

[1] Solution Cluster 4.3.1 Promoting Integrated Food Systems Policies, Planning, and Governance, available at: https://www.un.org/en/food-systems-summit/news/potential-solutions-local-regional-and-global-action-deliver-sdgs

- Coordinating the actions of actors and institutions (vertical and horizontal coordination);
- Integrating policy sectors;
- Mobilising stakeholder participation;
- Adapting to changing contexts;
- Defining the appropriate territory for effective territorial governance (Esparcia and Abbasi, 2020; Van Well and Schmitt, 2016; Van Well *et al.,* 2018; Davoudi and Cowie, 2016; Davoudi *et al.,* 2008).

Vertical coordination implies the division of responsibilities and rights between jurisdictional levels (from supranational to local), and the formal and informal relationships among them, including institutional, financial, and informational aspects (Tefft *et al.*, 2020). From a territorial perspective, vertical governance can be seen as the political translation of the subsidiarity principle, which ensures that decisions are made at the territorial level which is as close to citizens as strategically and practically possible (Davoudi and Cowie, 2016). Horizontal governance refers to the coordination of different actors at the same level, including interactions amongst different departments with different responsibilities (e.g., agriculture, food distribution and distribution, public canteens), between governments at the same level (e.g., regions, municipalities). It also encompasses the interactions between public government bodies and all food systems' stakeholders. In mobilising stakeholder participation, Davoudi *et al.* (2008) distinguish between a form of participation that narrowly involve organised interests (entrepreneurial associations, firms, trade unions, etc.), and a wider form of participation, including also citizens, movements and all other forms of organised and unorganised civil society. The former is oriented towards the development of public/private partnerships, while the latter the construction of participatory and deliberative democracy arenas and building forms of active citizenship. Territorial governance also focuses on policy sector integration, which can occur through policy packaging and cross-sector synergy (Van Well and Schmitt, 2016).

Furthermore, a territorial approach to food governance requires both the adaptability to changing contexts and the identification of an appropriate territory for effective governance, in accordance with Lever *et al.*'s (2019: 104) argument that "there is no one path to better food system governance and reform" and Prové *et al.* (2019: 172), who suggest there are "numerous contingent contextual factors (e.g., historical events, social, political, and economic conditions, or particularly influential stakeholders) that strongly influence the governance process".

2.2. Participatory multistakeholder food platforms as arrangements for implementing territorial food governance

Territorial food governance requires collaborative (Siddiki, 2015; Clark, 2019), networked (Lever *et al.*, 2019; Ovaska *et al.*, 2021), or multistakeholder governance arrangements (Haarich, 2018; Alliance of Bioversity *et al.*, 2021) capable of engaging with the various food systems actors in policy- and decision-making.

Multistakeholder engagement can be broadly defined as an approach of building synergies and partnerships with key actors, such as civil society organisations (CSOs), governments, private sector, and the broader community, all crucial to addressing food system problems. Its potential in food policy-making and food systems governance has been explored in different domains of food system literature (Herens *et al.*, 2022) at global (Breeman *et al.*, 2015), national, and local level (Owili *et al.*, 2021; Alliance of Bioversity *et al.*, 2021; Medina-García *et al.*, 2022; Sonnino, 2023; Coulson and Sonnino, 2019).

Multistakeholder engagement entails both the form that the coalition might take (e.g., alliance, partnership, initiative, platforms, roundtable, forum), and the process by which stakeholders are involved in policy-making and, more broadly, in food governance. Multistakeholder engagement involves fostering active collaboration among stakeholders to co-create new knowledge, connect values, and collectively learn their way to new practices. Despite the different words used to describe multistakeholder engagement, a common feature of all these processes is that they bring stakeholders together to share perspectives on food systems challenges, develop innovative solutions, and influence food-related policy and planning (Halliday *et al.*, 2019).

Since there is no single accepted definition of multistakeholder mechanisms, in this paper we rely on the Alliance of Bioversity (2021) to introduce "participatory multistakeholder food platforms" as an overarching concept, defining more or less formal governance arrangements. These are meant to bring together a wide range of food system actors, with different food-related agendas and values, to work across traditional sectors and scales to integrate cross-cutting themes and find a common approach towards sustainable food systems. Through dialogue and knowledge sharing, actors with diverse expertise and interests learn together about the nature of the problems, potential solutions, and the context whereby these solutions are to be implemented, to define strategies and take actions (Thorpe *et al.,* 2022; Herens *et al.*, 2022; Breeman *et al.*, 2015).

Multistakeholder food platforms are advocated in this paper as participatory, to stress the relevance of two

key dimensions: pluralism and inclusiveness. Pluralism refers to the recognition of multiple legitimate ways of knowing, defining, valuing, and representing food and the food systems (Visseren-Hamakers *et al.,* 2021). Inclusiveness refers to "enabling a wide range of right holders, knowledge holders, and stakeholders to participate in decision-making to capture diverse values, enhance capacity, and promote accountability, legitimacy, and just outcomes" (Visseren-Hamakers *et al*., 2021: 22).

Aware of the risk of hyper-multistakolderism (Wilkes, 2022) or apolitical tendencies (Moragues-Faus, 2019) grounded in the neoliberal approach to multistakeholder engagement – where process dynamics tend to be defined by conflict and competition, in settings characterised by power imbalances among participants and exclusion or underrepresentation of vulnerable groups (Andrée *et al*., 2019; Cheyns and Riisgaard, 2014; Huttunen and Kaljonen, 2022) – we call for pluralist and inclusive multistakeholder mechanisms oriented to achieve a just governance empowering local communities and leading to social justice (Huttunen and Kaljonen, 2022).

2.3. Scaling-up local food governance

In the absence of adequate integrated food policies and food governance arrangements at supranational, national and regional (subnational, NUTS2 in EU classification) level, local governments have recently become prominent actors in food system governance (FAO *et al*., 2023; Tefft *et al*., 2020; Bornemann and Weiland, 2019; Coulson and Sonnino, 2019; Sibbing *et al*., 2021). Especially urban areas have witnessed processes of institutional innovation and cities have developed new governance arrangements creating "spaces of deliberation" that bring together civil society, private actors and local governments in food policy making (Moragues-Faus, 2019). Urban food strategies/policies and food policy councils are the two main local governance instruments used in implementing change in rescaling food governance at the local level (Sonnino and Spayde, 2014).

In parallel to an abundant body of work dedicated to urban food governance, in rural studies the literature on localised agri-food systems (LAFS or SYAL in French literature) (Sanz-Cañada and Muchnik, 2016; Sanz-Cañada, Sánchez-Hernández and López-García, 2023), rural, agricultural and food districts (Rossi and Brunori, 2006; Toccaceli, 2012, 2015; Toccaceli and Pacciani, 2024) and on the EU LEADER (Bock, 2019; Esparcia and Abbasi, 2020), has stressed the relevance of territorial food governance as a driver for the development of localised/territorial food systems.

Notwithstanding, the literature on local food governance presents some shortcomings. First, it is dominated by urban governance research that is inclined to "cityism", by prioritising strategies, policies and initiatives enacted by specific cities over and above a more comprehensive and systemic rural-urban perspective (Sonnino, 2023). Furthermore, in food governance literature, rural and urban governance are considered separately, as if they constituted independent systems (Ovaska *et al*., 2021). An upscaled regional perspective might help to overcome the shortcomings of food governance citysm and urban vs rural food governance dichotomy at local level.

Furthermore, regional food system framework is achieving recognition among food advocates, planners, supply chain players, and policymakers (FAO *et al*., 2023; Lever *et al*., 2022; Ruhf, 2015; Hinrichs, 2013; Kneafsey, 2010; Donkers, 2013). As stressed by FAO *et al.* (2023) "a regional perspective of agrifood systems governance can become an opportunity for initiating the process of establishing multilevel agrifood systems governance mechanisms" (p. 139). Very recently regional governments are developing integrated food policy as: the Strategic Food Plan for Catalonia and the Catalan Food Council in Spain, and in Belgium the food strategies of the Regions Flanders and Wallonia Food Strategy. Notwithstanding, the academic debate on food governance is focused on the global/national vs local polarisation with a lack of literature on the regional level. We thus underly the need of further theoretical exploration on the scaling-up of local food governance.

3. METHODOLOGY

Our empirical investigation of territorial food governance is based on the Tuscany case. In Italy, the State has delegated many powers to regional administrations in the fields of agriculture, rural development, and health. Tuscany region, in Central Italy, represents an interesting case, being one of the most innovative regions in these domains. For instance, a system of delegation of responsibilities to the provinces and municipalities' unions is in place in the region, leading to the development of a complex vertical governance model. At the same time, the regional government has been experimenting with innovative models of horizontal and territorial governance, regulated through regional laws that have often anticipated national laws. This is the case, for example, of the Rural Districts and the Food and Agrobiodiversity Communities, which will be discussed in more detail in the following sections.

The paper analyses the results of the project "Food Roundtable of Tuscany Region" (hereafter FRTR project), run from September until May 2022, which was co-financed by the Tuscany Regional Law on Public Participation.

The paper adopts a mixed methodology, based on a comparative systematic analysis of the forms of local territorial food governance present in Tuscany and the participant observation of participatory process leading to the setting the Food Roundtable of Tuscany Region. The methodology adopted has allowed a triangulation between the results emerged from the analysis of the authors direct experiences (collective auto-ethnography) and the documents produced during the process.

The analysis of the local experiences is based on the mapping of local initiatives conducted during the FRTR project by developing an *ad hoc* template filled in by the participants, and just in very few cases followed up by very short interviews focused only on specific aspects of the template aiming at gathering missing information. We collected a dataset of 15 cases/experiences. The analysis of local food governance (experiences) is also based on existing academic and grey literature, and on the authors' longstanding experience in participatory-action-research for supporting the development of these initiatives in Tuscany. The analysis is also based on the results emerging from the first dialogue meeting of the FRTR project, that aimed at involving local stakeholders to identify the strengths and weaknesses of local food governance in Tuscany. To investigate the local experiences we have identified a set of conceptual categories, as illustrated in Table 1: initiators of the process which led to set up the local food governance arrangement; geographic scale; institutional-political scale (municipal or higher institutional level); geographic typology (rural, peri-urban, rural); type of actors involved in the governance system; areas of intervention (e.g., school meals, food production, protection of biodiversity, food poverty); functions performed (e.g., coordination animation, policy making); institutional competencies; organisational structure and financial resources. The same criteria guided the selection of the three case studies presented in sections 4.1-4.3.

The analysis of the setting-up of the regional Roundtable is inspired to collective auto-ethnography (Ellingson and Ellis, 2008), a qualitative research method based on observant participation, in which the researchers study a social reality not only through observation, but also by participating in its activities (Rossi and Berti, 2022). While auto-ethnography involves individual self-reflection, collective auto-ethnography is based on the collaboration between two or more researchers, involving the inter-subjective analysis of experiences (Levkoe and Sheedy, 2019). Critics argue that autoethnography can be highly subjective, as it relies heavily on the researcher's personal experiences and direct participation to the events that are analysed. This subjectivity may introduce bias into the analysis, making it challenging to generalise findings or establish minimum degrees of objectivity. The analytical work developed in collective auto-ethnography generated by the collaboration between researchers might help to minimise the risk of excessive subjectivity and bias that is always present in autoethnography. As auto-ethnography is grounded on observant participation, the analysis of the process of setting-up a regional multistakeholder food platform is based on the work we carried out as members of the Scientific Committee of the Roundtable of Local Food Policies lead by ANCI-Toscana[2], and as coordinator (main author) and facilitators (other authors) of the participatory project "Food Roundtable of Tuscany Region" (FRTR project). The qualitative dataset adopted for the analysis resulted from the activities consisting of: direct experiences of the authors during participatory meetings, notes and reports drafted at the end of each meeting (which were recorded) and the final report of the project.

4. EXPERIENCES OF LOCAL FOOD GOVERNANCE IN TUSCANY

In Tuscany, a mosaic of different typologies of local food governance mechanisms is in place. These address many different issues related to agriculture, rural development, and the urban food environment, as attempts to better manage food systems at local scale. This mosaic results from a stratification of initiatives differently shaped at local level, developed over time to respond to different needs, areas of interest or policy goals. Such diverse governance mechanisms – in some cases informal arrangements, in others institutionalised through regional or national laws – can be grouped under three main typologies: (i) Urban food strategies/policies and food policy councils; (ii) Food communities; and (iii) Food districts.

Each of the three forms of local governance presents different characteristics in terms of the conceptual categories highlighted in Table 1.

[2] ANCI (Associazione Nazionale dei Comuni Italiani) is the national confederation of local authorities (i.e., municipalities).

Table 1. Local territorial food governance case studies in Tuscany.

	Intermunicipal Food Policy of "Piana del Cibo"	Garfagnana Food and Agrobiodiversity Community	Rural and organic district of Val di Cecina
Initiator	Municipalities of Capannori, Lucca and Province of Lucca, with the signature of the MUFPP in 2018, but with a high level of involvement of civil society organizations and citizens	Initiative developed thanks to a pilot project implemented by the Union of Municipalities of Garfagnana, financed by the Region of Tuscany on the Rural Development Plan, with the involvement of a group of small local farmers.	The Farmers' Confederation and the Volterra Savings Bank were among the promoters of the rural districts, together with the Municipalities of Volterra and Cecina. The rural district itself promoted the organic district together with association of the Tuscan coordination of organic producers.
Geographic scale	Five municipalities across urban and rural areas, within the Plain of Lucca	Some municipalities in Garfagnana, an historic mountainous area in the Province of Lucca.	Fifteen municipalities covering the area of the Cecina valley.
Institutional-political scale	Municipal and inter-municipal	Municipal and the Mountain Union of Municipalities (higher institutional level)	Municipal and the Upper Cecina Valley Mountain Union of municipalities (higher institutional level)
Geographic typology	Urban-rural	Rural (hills and mountains)	Rural
Type of actors involved	Besides representatives from the five City Boards: civil society organisations (of different nature); teachers and school canteens' representatives; farmers and farmers' organisations; NGOs; research institutions; citizens; other public authorities.	More than fifty participants, including custodian farmers (committed to the protection of agrobiodiversity) and agritourism, local cultural associations, consumers, local purchasing groups, restaurants, cooperatives and processors, and local municipalities.	More than thirty participants, including organisations of farmers and firms (mostly representing tourism and handcraft activities), the Chamber of commerce of Pisa, the most relevant cooperative of farmers in the area and the association of organic farmers.
Areas of intervention	Access to food; (local) sustainable food production and consumption; food waste; education and food habits.	Biodiversity and environmental sustainability, promoting economic sustainability through the development of short food chains and strengthening links with local tourism.	Local sustainable development and promoting of organic production and consumption.
Functions	Coordination and sharing of food policy functions (on the institutional side); advocacy, communication, coordination, consultation, engagement (the participatory side). [See below: organisational structure].	Animation, promotion, coordination among local actors, both producers, public institutions, citizens and local associations.	Animation, promotion, coordination among local actors also to design the territorial economic project and achieve national and regional financial funds.
Institutional competences	Competences of municipalities	None	None.
Organizational Structure	The governance of the IFP is organised, on one side, as a 'gestione associata' (lit. joint management) of food policy functions shared among the five municipalities which have ratified a joint management convention, on one side; on the other, as ad hoc participatory governance model encompassing different entities (Agorà, Food Policy Council, Food policy office).	The Community is constituted as a Social Promotion Association. The governance structure comprises the following bodies: Assembly; Board of Directors; President.	The rural-organic district of Cecina has identified its Reference subject in the Val di Cecina Rural District Association Val di Cecina Rural District Association based at the Volterra Savings Bank Foundation in Volterra. The bodies of the association are those established by general law on association: assembly of the associated, Board of Directors and the President who is the legal representative.
Financial resources	Funding from the Regional Authority for Participation in the starting phase of the initiative (CIRCULARIFOOD participatory project). First budget (2019-2023): 20.000 EUR + human resources allocated to the food policy office at the Municipality of Capannori.	There are no regular funding lines; the Tuscany Region issued in 2021 a call for contributions for setting up and supporting activities, max EUR 12,000 per Community. The Community finances its activities by participating in calls and projects.	No specific financial line is provided. The district does not respond to the call of the Tuscany Region for supporting integrated regional project. Val di Cecina district aims to respond to the next national call "contract of district" having collected projects of investment for more than 25 million euros of investment.

4.1. Urban food strategies and food policy councils (FPCs)

Over the past two decades, an emphasis on the local (urban) scale has prompted numerous cities and towns to take action by implementing food policies, programs, and collaborative governance arrangements around food issues. Urban food strategies are official plans or road maps that help local governments to integrate a full spectrum of urban food system issues within a single policy framework (Mansfield and Mendes, 2013). They have emerged for engaging different stakeholders in the reorganisation of local food governance (Lever *et al.*, 2019). These strategies can be used to address specific food-related issues, e.g., obesity, food waste, food poverty, among others (Moragues-Faus and Battersby, 2021), or to design governance arrangements that span the entire food system (Halliday and Barling, 2018). More specifically, Food Policy Councils (FPCs) are cross-sector strategic alliances that serve as arenas for collaboration across sectors and community groups. They operate for identifying issues, coordinating programmes and evaluating, influencing and engaging with government policy and programmes (Calancie *et al.*, 2017).

In Italy, the Milan Urban Food Policy Pact (MUFPP) has created momentum around urban food policies and led to a spread of such initiatives. Among these, it is worth mentioning the cases, both developed in Tuscany, of the Intermunicipal Food Policy of Lucca, of the Livorno Food Strategy and the Food Agenda of Camaiore.

The Intermunicipal Food Policy (IFP) of the *Piana del Cibo* is a governance arrangement through which five municipalities decided to reach out and share their responsibilities on food-related issues (Arcuri *et al.*, 2022). The process which led to the establishment of the food policy started with the MUFPP signature by the Mayors of Capannori and Lucca and the following participatory project called CIRCULARIFOOD, which involved the neighbouring municipalities of Altopascio, Porcari and Villa Basilica. The governance of this food policy encompasses two main components: one is the participatory structure designed *ad hoc*, which ensures a strong community base, as many initiatives and projects on food have been undertaken in the last decades in the Plain of Lucca, by a wide variety of actors. This structure encompasses a set of new entities: the *Agorà* is the open assembly organised in five thematic tables (or as a plenary) and is meant to provide a public arena for raising everyone's voice on food-related issues. Needs, ideas, and proposals coming from this participatory entity would then be mediated by the Food Policy Council, made up of representatives from the *Agorà* and experts designated by each municipality. The Food Policy Office has been compared to "a sort of transmission belt" (Arcuri *et al.*, 2022: 293), operating in between participatory and decision-making entities, to elaborate proposals and solutions for local needs. The Assembly of Mayors, on the other side, represents the political entity. The IFP has also an institutional component, or "institutional home" (Halliday and Barling, 2018), epitomised in the Joint Management Convention (*convenzione per la gestione associata*) ratified by the five municipalities to share food policy functions, signalling a strong commitment and political will (Arcuri *et al.*, 2022). Throughout the whole process, a crucial role has been recognised to the informal steering committee made up of a group of dedicated individuals, from different sectors, which performed important functions, such as "framing problems and solutions, building networks and trust, gaining political support, and aligning available resources and goals" (Arcuri *et al.*, 2022: 295). These roles of facilitation and coordination passed on to the Food Policy Office based at the Municipality of Capannori, that included members of the steering committee.

The functions envisaged for the IFP are consistent with those identified by Harper (2009) in her analysis of FPCs, namely: (i) serving as forums for discussion on food-related issues; (ii) promoting coordination between sectors, adopting a food system approach; (iii) informing and influencing policy-making, through research, advice and advocacy; and (iv) implementing or supporting programs and services in response to local needs. However, the extent to which each of these functions were enacted depended on the specific goals pursued, needs identified, and contextual factors, not least the pandemic outbreak in early 2020, which has deeply influenced the first years of activity of the IFP. After a slowdown in the activities, the Piana del Cibo is undergoing a sort of restructuring of the governance structure and reorganising participation around key objectives[3].

4.2. Food communities

The concept of food community refers to a "group of small-scale producers and others united by the production of a particular food and closely linked to a geographic area" (Amo, 2023). It has been promoted by Slow Food through a specific international network, launched in 2004 during the first global "Terra Madre" meeting.

[3] Comune di Capannori, comunicato stampa 8 ottobre 2023, available at: https://www.comune.capannori.lu.it/news/dettaglio/domenica-8-ottobre-il-1-festival-del-cibo-ad-artemisia-apre-la-manifestazione-aspettando-slow-beans/

The main objectives of food communities are both to raise citizens' awareness, by promoting short food supply chains and information and communication initiatives, and to support farmers and breeders operating as "guardians" of genetic resources, especially those threatened with extinction. For instance, the Slow Food Chestnut Community of Alta Versilia was established in March 2022 in Seravezza, a very small village in the Province of Lucca, to promote the local production of chestnut flour, value and preserve the mountain landscape, and raise awareness on this matter through cultural projects and events for schools and grown-ups (Arcuri and Tomasi, 2022).

In 2015, a national law[4] has defined "Food and Biodiversity Communities of Agricultural and Food Interest" as territorial realities, established to promote the protection of native biodiversity and agricultural traditions, to raise awareness, support agricultural and food production and promote behaviours to protect agricultural and food biodiversity by signing local agreements. They are conceived as local spaces resulting from agreements between local farmers, custodian farmers and livestock farmers, solidarity purchasing groups, school and university institutes, research centres, associations for the protection of the quality of biodiversity of agricultural and food interest, school canteens, hospitals, catering establishments, commercial establishments, small and medium-sized agricultural and food processing businesses and public bodies (art. 13, authors' own translation).

However, despite being assigned complex functions, no predefined institutional forms are foreseen for food communities, nor specific funding lines. Conceived as free agreements between actors, and promoted by regional authorities, food communities' geographical and institutional scale is not predefined, nor is the type of actors they must encompass. According to the Law, the agreement underpinning a food community may have different objects, in particular: (a) the study, recovery and transmission of knowledge on genetic resources; (b) the setting up of short supply chain; (c) the study and transmission of organic farming practices and other low environmental impact farming systems (d) the study, recovery and transmission of traditional knowledge; (e) the creation of didactic, social, urban and collective gardens, the redevelopment of abandoned or degraded areas and unused farmland.

At the beginning of 2023, also thanks to a dedicated funding scheme by the Tuscany Region, nine food communities were established. These are very diverse in terms of size (in one case, several provinces are involved, in others just a few small municipalities), type of territory (peri-urban areas vs. marginal mountain territories), initiators and promoters (public vs. private vs. civil society), the number and type of actors involved, the scope and typology of activities implemented.

It is worth highlighting the case of the Agrobiodiversity Community of Garfagnana[5], established in 2017, which holds importance as first of its kind in Tuscany and the second in all of Italy. In terms of governance arrangement, the Garfagnana Food and Agro-biodiversity Community is a social promotion association (A.P.S.) As reported in the association's website the Agrobiodiversity Community of Garfagnana involves 54 local actors at the time of writing, 31 of which are "Custodian Farmers". Overall, 46% of the members are farmers, 9% are CSOs and 44% are on the consumption side, namely: solidarity purchasing groups, restaurants and grocery shops. Its main goal is the recovery, conservation and enhancement of agrobiodiversity, while improving the territorial sustainability and its people's wellbeing. Local agro-biodiversity is considered by the food community as the material and intangible heritage of agricultural breeds and varieties, uses and traditions, knowledge and flavours owned by the territory and the people of Garfagnana. Central to biodiversity conservation is the local Germplasm Bank, where genetic resources are protected *ex situ,* and stored for conservation *in situ* by the Custodian Farmers. A crucial feature of the food community relates to the ethical and cultural movement meant to improve the quality of life in the area, to encourage a solidarity economy, and advocate for respect for the ecosystems and nature, the history and the vocation of the place.

The food community adopted a set of strategic and operational tools. The Community Chart regulates the organizational structure and defines principles and rules that the members should follow. The Pact for Food and Agrobiodiversity and the Strategic Plan were also created, supporting the identification and implementation of the community actions and available financial resources. Among the initiatives carried out, it is worth mentioning activities for landrace qualification and market remuneration, the enhancement of local supply chains, focusing on public food procurement and restaurants, and communication activities for promoting the territory.

[4] L. 194/2015 "Disposizioni per la tutela e la valorizzazione della biodiversità di interesse agricolo e alimentare".

[5] Garfagnana is a mountainous area located in North of Tuscany, in the province of Lucca. More detail on this area and the *Comunità del Cibo e dell'Agrobiodiversità* there established available at: https://comunitadelcibo.it/

4.3. Food districts

The concept of "rural district" emerged in rural development and governance debates, carrying the idea that a better territorial governance in rural areas is the way to enhance development strategies grounded on local resources and cross-sectoral activities. The "rural district" originated from the seminal experience of the rural district of Maremma in 1996, in turn influenced by the principles stated in the first Cork Declaration. Since then, the scientific debate and the legislative framework have evolved (Toccaceli, 2012, 2015), and many experiences of rural districts have been developed in Tuscany.

In Italy, in 2001, a national law[6] defined rural districts as "local production systems characterised by a homogeneous historical and territorial identity due to the integration among agriculture and other local activities and to the production of very specific goods and services, coherent with natural and territorial traditions and vocations". The updated national law 205/2017 reframed rural districts within the "food districts" perspective, expanding their scope to promote territorial development, cohesion, and social inclusion, encourage the integration of activities characterised by territorial proximity, ensure food safety, reduce the environmental impact of agriculture and food waste, and safeguard the territory and the rural landscape through agricultural and agribusiness activities. The law introduced different types of food districts, including those placed in urban and peri-urban areas, short food supply chains, organic districts and bio-districts. The Italian Ministry of Agriculture established a National Register of Food Districts, including, as of March 2023, ten rural districts and five organic districts located in Tuscany.

Tuscany regional law 17/2017 on rural districts set the rules for developing an effective territorial governance, including the adoption of a specific organisational model. The rural district must be established through an agreement between public and private actors operating in an integrated way in the local production system. A specific case concerns the organic district, regulated by regional law 51/2019, requiring that at least three organic farm and one third of the municipalities in the district area sign a formal agreement. The partnership can involve different types of local stakeholders, with municipalities always required in the governance of the district, even without explicit roles assigned by the law. The organisational structure of a district is divided into two bodies: the referent subject, with an organisational role, and the assembly, involving all the partners adhering to the district, with a decision-making and control role. Private and public partners identify the referent subject, who is legally in charge of the district and has the responsibility of developing and implementing the territorial economic plan of the district.

The main activity of the rural district is to foster and strengthen the dialogue between public and private actors and put in place development strategies coherent with regional and national rural and agri-food policies. The organic district makes a step further in the direction of sustainable agriculture and management of natural resources. In addition, while rural districts are mainly focused on the production side of the food system, organic districts are focused on food consumption and involve local consumers' organisations (Passaro and Randelli, 2022). Since creating and implementing a shared project in a participative way is the main object of the districts, animation, promotion, and coordination among local actors are functional activities. In Tuscany a specific financial support has been provided through the Regional Development Plan 2014-2022, the funding scheme for integrated district projects.

A significant example of rural districts is the one established in Val di Cecina in 2019, with the aim of strengthening territorial identity and promoting a new sustainable development strategy through a renewed territorial governance with many municipalities playing a crucial role. Considering that 33% of the Utilised Agricultural Area (UAA) is organic with an additional 21% of UAA in conversion (as per legal requirement), the rural district became a 'rural and organic' district. The district areas of intervention include sustainable agriculture, food education, short food supply-chains, food policies, climate change and territorial governance. Among the main projects there are: strengthening the short local supply chains and developing direct and online marketing; the promotion of consumption of local food products in the schools of the Municipality of Cecina; the support to the consortium of the "Pomarancino lamb" to overcome the problem of lack of slaughterhouses; and an innovative project on high quality and healthy bread.

5. THE FOOD ROUNDTABLE OF TUSCANY REGION

The setting-up of the Food Roundtable of Tuscany Region (hereafter Roundtable) is an ongoing process that can be divided into three phases: a preparatory phase (2019-2021) a design phase (September 2021 - May 2022), followed up by the post-design phase (June 2022 - ongoing).

In 2017-2019 in Tuscany there was a flourishing of urban food strategies and FPCs initiatives (namely:

[6] D. Lgs. 228/2001, art.13.

Livorno Food Strategy, IFP of the *Piana del Cibo* and Food Agenda in Camaiore). These attracted the attention of other cities in Tuscany (and beyond), showing interest in urban food governance innovations. In parallel, in November 2017, the Food and Agrobiodiversity Community of Garfagnana was established, generating great interest by other local governments. ANCI-Toscana captured the general interest and necessity of learning about these institutional innovations and providing support in policymaking and, in late 2019, eventually established the Roundtable of Local Food Policies within its organisation. The main scope of the Roundtable was to support the development of a regional network of local food governance initiatives. Furthermore, championing the idea of a Regional Food Plan, ANCI-Toscana started a dialogue with, and gained the support of, Tuscany Region's Vice-President and Alderman of Agriculture. In the following period, the Vice-President committed to the support of the Roundtable and engaged the administrative body of the Region, namely the Department of Agriculture and an administration manager was delegated to represent the Region in the Roundtable. In addition, a Scientific Committee was created involving Universities and research centres. The Scientific Committee developed a Position Paper which served as a preliminary document for the development of the Food Plan of Tuscany.

The initial enthusiasm generated by taking on board Regional authorities and the growing interest around the Roundtable from cities and other food system stakeholders led to the FRTR project, run from September until May 2022. The project was promoted by ANCI-Toscana and led by the Sant'Anna School of Advanced Studies, in collaboration with the other universities in the Scientific Committee.

The FRTR project, co-financed by the Tuscany Regional Law on Public Participation, aimed at involving local governments, food system stakeholders, food movements, CSOs, citizens, farmers' organisations, representatives of food districts and food communities, to move forward the Roundtable of Local Food Policies created within ANCI-Toscana. The necessary progress required:

- consolidating and expanding the network, connecting local food governance actors among them and with Tuscany Region;
- designing the governance model of the Food Roundtable, by identifying objectives, functions, composition and mode of working;
- mapping, investigating and promoting a discussion around food governance mechanisms at local level;
- further developing the Position Paper through the involvement of local actors, discussing relevant themes around which local food policies could be developed.

The expected outcome of the project was to set up the Roundtable as an independent organisation (external to ANCI-Toscana), involving stakeholders and local communities. ANCI-Toscana led the first phase of the project of social mobilisation, which was oriented to outreach to local actors and get them involved in the project. All the municipalities in the Region were invited to participate, along with all other potential stakeholders, from CSOs, farmers and other agriculture organisations, to citizens, researchers, food movements (e.g., Slow Food, GAS/CSAs), and school representatives[7].

The project's implementation worked along two main directions: on the one side, four participatory dialogues were held online, due to Covid-19 restrictions; on the other, existing experiences of local food governance were mapped.

The main objective of the first dialogue meeting was to identify the strengths and weaknesses of local food governance in Tuscany. The second meeting focused on discussing key intervention areas around which food governance developed. The aim was to contribute to advancing the Position Paper and identify the action areas for the Roundtable. The design of the Roundtable was the focus of the third meeting. On that occasion, participants were divided in three groups and defined areas of intervention, functions, composition, and mode of working of the Roundtable. The FRTR project ended with the fourth meeting, whereby the results were presented with all participants. These results were included in the Final Report by the coordination group, and shared via email with all the participants to the FRTR project.

6. DISCUSSION

6.1. Challenges and opportunities of local territorial food governance

Local experiences of food governance – urban food policies and food policy councils, food and agrobiodiversity communities and food districts – are all anchored to the development of participatory multistakeholder food platforms, formalised through either voluntary agreements and private legal instruments, or institutionalised by regional and local government tools as public deliberations, resolutions or others. These local platforms are capable of integrating different food system stake-

[7] Invitation procedures entailed "snowball sampling" in order to reach as wide participation as possible.

holders, confirming that one main feature of territorial food governance is actor mobilisation and participation (Davoudi *et al.,* 2008). In terms of their differences, food communities and FPCs aim to involve citizens and represent an inclusive or participatory form of multistakeholder engagement, while food districts, especially rural districts, are platforms built around organised economic interests and local institutions. The bio-districts are generally more inclusive, involving solidarity purchasing groups and citizens (Passaro and Randelli, 2022). In local territorial governance, multistakeholder integration entails participatory food democracy processes, as in the cases of the three urban food strategies developed in Tuscany. All the three were indeed supported through funding by the Regional Authority for Participation (Arcuri *et al*., 2022; Berti and Rossi, 2022).

Another relevant difference is the geographical location, that has a great impact on the area of interests and policy intervention. All the platforms observed try to promote policy integration but, on the one hand, urban food strategies are usually "food citizen-demand driven", focusing mainly on intervention areas such as school meals, diets and nutrition, social justice, access to food and food waste. The fact that urban food strategies are promoted by municipalities has a role in the definition of the areas of intervention, which tend to align with their institutional responsibilities. On the other side, food communities and food districts are "rural and farmers-agricultural driven" forms of local territorial food governance, focused on food production, management of natural resources, rural tourism, and territorial development of rural economies and communities. Furthermore, urban food strategies involve institutional competencies and direct policy making, while local food communities and food districts are forms of governance exerting only indirect influence on policy making. The latter are involved in coordinating local actors to develop shared values and visions that can potentially influence the policy framing (Candel and Biesbroek, 2016).

The forms of territorial food governance observed share a common objective: coordinating the efforts of actors and institutions through horizontal coordination. This primarily occurs with the establishment of local participatory multistakeholder food platforms that generate space for collective action and collaboration, coordination and integration among the private, public and societal spheres. Secondly, as highlighted by the case of the IFP *Piana del Cibo*, they have the potential to promote horizontal cooperation amongst governmental entities. This same case is an example of adoption of one of the different forms of inter-municipal cooperation available in the Italian institutional setting, namely the "joint management of services and (administrative) functions", based on formal agreements among local authorities (Puntillo, 2017). In the *Piana del Cibo*, it was adopted to institutionalise shared political will and effort towards an inter-municipal food plan. In terms of vertical coordination, while food communities and food district are ruled by national laws that devolves their recognition to the Regions, urban food governance is neither regulated by the law nor provided with funding.

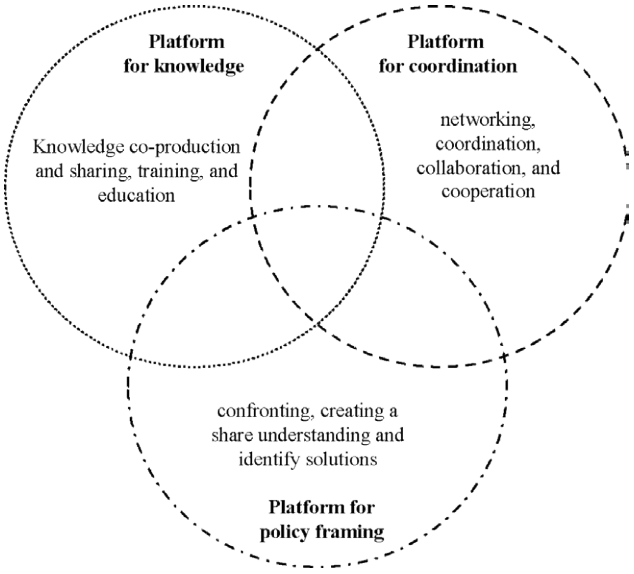
One major challenge of local food governance in Tuscany is fragmentation. Existing local food governance mechanisms highlight the polycentric nature and the multilevel nature of territorial food governance. However, while the multilevel nature of territorial governance refers to both vertical and horizontal coordination, its polycentric nature signifies the existence of multiple centres of decision making, each operating with some degrees of autonomy (Carlisleand and Gruby, 2019). Taking a broader perspective, territorial food governance appears as a polycentric mosaic of independent local governance centres, operating without any form of collaboration and raising concerns about coherence and coordination. Therefore, the challenge facing local territorial food governance in Tuscany lies in creating new integrative approaches to overcome fragmentation and inconsistency.

6.2. Scaling-up local food governance: identifying the characteristic of a participatory multistakeholder food platform at Regional level

In this section we reflect on the results of the participatory multistakeholder engagement process promoted by the FRTR project. The scope of the analysis is to ideally identify the characteristics and functions of a participatory multistakeholder food platform at Regional level. The analysis results from information gathered from direct participation of the authors to the process and from all the documents produced during the project. The analysis especially relies on the Final Report of the FRTR project, which describes the design of the Roundtable in terms of who should be involved, what are the functions and what is the organisational architecture to implement the Roundtable activities.

The Roundtable has been conceptualised in the design process by the participants to the FTRT project, as a participatory platform involving three different types of actors of the food system: (i) political actors, including public institutions, but also CSOs, farmers and other sectors organisations, businesses and citizens; (ii) scientific actors, represented by researchers from various disciplines, affiliated to the three Tuscan universities

Figure 1. The functions of the Food Roundtable of Tuscany Region.



and other research institutions; (iii) public administration actors, including public officers working in different departments of local and regional administrations.

As shown in Figure 1, participants have identified three main functions for the Roundtable: (i) knowledge sharing, training, and education; (ii) promoting coordination and cooperation among actors at different scales and from different sectors; and (iii) facilitating a dialogue among stakeholders, political bodies and administrative authorities oriented to policy framing.

According to the participants, the Roundtable should serve as a platform of knowledge to promote learning and capacity building, co-creation of knowledge and to foster communication, in order to facilitate a better understanding of how the Tuscany food system works and how it can be strengthened and to make it more sustainable. The participants stressed the potential role of the Roundtable in developing shared language, meaning for the key concepts, including food, and a vision for sustainable development. The Roundtable should also serve as a best practice-sharing platform, to help food system actors identify the practices that work best for them and spread across the network. A more direct involvement of universities was called for, both in food system transformation and in supporting food policy making and governance. Another area of intervention for the Roundtable is education and training which, in the participants' view, should involve all the actors of the Tuscan food system, from farm to fork. Much attention went to the importance of food-related education, which lies in the opportunity to empower people so they make better informed food choices, and includes the knowledge, skills, and behaviour to plan, manage, select, prepare, and eat a sustainable, healthy, and just diet. An additional remark made on education and training related to policy makers and local administrators. Finally, communication and dissemination were identified as central functions in the process of knowledge co-creation and implementation.

It was raised that the Roundtable should serve as a platform for horizontal and vertical coordination through networking, collaboration, and cooperation between different actors, sectors and levels of the food systems. This remark is consistent with the need to address a fragmented landscape of territorial food governance, also raised in the literature (Herens *et al.,* 2022; Lever *et al.*, 2019), with the Roundtable providing an ideal 'space' for horizontal coordination. For instance, the platform could provide a space for dialogue on issues concerning food among different actors, who could connect and develop new or strengthened collaborations for sustainable food systems. Integration and aggregation emerged as key concepts on more than one occasion during the participatory project. The former was meant to connect different actors of the food system and favour the development of integrated supply chain projects. It should also address the integration of (sectorial) policy makers and civil servants. Aggregation concerns the capacity of developing inter-municipal forms of collaboration and cooperation. The same was foreseen for vertical coordination, to which the Roundtable could contribute by creating a space for interaction among public institutions at different scales and the different forms of local food governance and Regional authorities.

Finally, the Roundtable was envisaged as an open forum where all actors of the food system of Tuscany come together to exchange on food issues, to create a shared understanding and to identify solutions to be translated into policy recommendations. More specifically, the Roundtable has been thought as a space to engage local institutions, stakeholders and citizens in a dialogue among them and with the Region for supporting local food governance and for the development of a Regional Food Plan.

The overall emphasis on overcoming fragmentation, creating opportunities for coordination and networking among different kinds of actors – in terms of roles, power, geography and levels of governance – raises awareness on, and necessity of, preventing the risk of "multistakeholderism" raised by Wilkes (2022). The participatory definition of the Roundtable has rather pointed towards setting up a pluralist and inclusive multistakeholder mechanism to empower local communities (Hut-

tunen and Kaljonen, 2022), especially considering the varied and unique experiences characterising the Tuscany landscape of local food governance (Brunori and Rossi, 2007). Furthermore, as an overarching governance mechanism connecting and integrating actors and experiences from both urban and rural areas, the Roundtable experience shows potential in terms of overcoming a focus on either the urban or rural dimension, and thereby promoting a more holistic approach (FAO *et al*., 2023)

As stressed in the conceptual framework, the multistakeholder engagement entails both the form that the platform might take and the process by which stakeholders are involved in food governance. After the end of the FRTR project, the process of setting-up the regional Roundtable has considerably slowed down. Scaling-up multistakeholder platforms from the local to the regional scale can present several challenges due to its inherent complexity. Among the many difficulties that can be encountered in the scaling-up process, two issues emerge. The first is resource constraints. Establishing and sustaining a multistakeholder platform on a regional scale in the long run requires significant resources in terms of time, money, and human capital. For this reason setting-up participatory forms of food governance requires both political and financial commitment from public institutions. Another difficulty is continuity. Sustaining stakeholder engagement over the long term poses a challenge. Scaling-up multistakeholder platforms requires continuous commitment from both stakeholders and authorities. Maintaining momentum in stakeholder engagement might be difficult when the effort of participation is not paid off with results in terms of political outcomes.

7. CONCLUSIONS

The implementation of a territorial food governance approach requires a shift from a government do-it-alone mode, based on hierarchical and monocentric command and control strategies, in "siloed" sectoral policies and administrative systems, towards a participatory and integrated approach, connecting across discrete policy domains, scales, and actors. Participatory multistakeholder food platforms involving various actors in collective food governance are emerging as innovative mechanisms implementing territorial food governance approaches.

In this paper, we explored territorial food governance both at local and at regional level. We analysed three different types of local territorial food governance mechanisms: food communities, urban food policies, and food districts. We investigate also the process to the Food Roundtable of Tuscany Region, strictly entangled with advocacy for a Regional Food Plan by several actors involved in such process.

Two main points emerge from the analysis that are relevant for delivering policy recommendations. First, the current landscape of local food governance shows high fragmentation, disconnection and signs of the traditional urban vs rural dichotomy. The relevance and foreseen functions of a regional Roundtable lie in the potential capacity to foster effective interaction among urban-, agricultural- and rural-centred initiatives. Such capacity could help overcome the limitations of massive spread and fragmentation of initiatives of local territorial food governance. Indeed, small-scale and bottom-up, inclusive and local grassroot initiatives might enable effective participation of various types of actors and dialogue with and between local authorities, but such initiatives often lack the knowledge, skills and resources to operate effectively and achieve tangible results. An upscaled regional engagement in food governance might help overcome these shortcomings. A regional participatory multistakeholder food platform might work as a mechanism of meta-governance, a space for cross-fertilisation, knowledge exchange, mutual learning, and coordination among different local governance arrangements. In this regard, the Regional Tuscan Food Roundtable envisaged in the design phase of the participatory FRTR project performed such functions at a more appropriate scale. We therefore identify possible avenues of theoretical and empirical research to explore the mechanisms of meta-governance of food systems.

Second, food communities and food districts are embedded in a vertical multilevel mechanism; on the contrary, urban food policies and FPCs lack a well-defined institutional home. The issue at stake is therefore the need for a national framework law for the establishment and recognition of urban food policies and FPCs, which could be also delegated to the Regions, by virtue of the subsidiarity principle. Such a framework law could be a tool for promoting and engaging cities in territorial food governance at urban/municipal level. A further step towards a multilevel territorial food governance is the development of a National Food Policy, grounded on an inter-ministerial platform, and replicated at regional level. Indeed, the regional level is particularly important in Italy due to the major decentralising reforms passed between 1996 and 2001, which devolved responsibilities on agriculture, health, urban planning to the Regions. Currently, very few examples exist of national food systems strategies or policies that are holistic and work as multistakeholder platforms (FAO *et al*., 2023;

Tefft *et al*., 2020), even less at regional level. Such considerations make the initiative and process towards the Food Roundtable of Tuscany Region even more important, not just for Tuscany itself, but also because, as it has happened many times, the initiative by one Regional government could stimulate others to do the same and eventually lead to a National Food Policy. Currently existing advocacy activities to develop a Regional Food Plan go in the same direction. Indeed, as stressed by FAO *et al*. (2023), the few institutional innovations occurring at regional level represent nascent interjurisdictional governance entry points that provide insights for the development of a conducive policy framework for territorial (multilevel) governance. Such political interest is not yet reflected in research, which focuses attention on the national/global vs local polarisation.

This paper contributes to the academic debate around territorial food governance at regional level and highlights the need for scaling-up local food governance by developing regional participatory multi-stakeholder food platforms. However, the results of this research can be consolidated through future research, in order to contribute more to the understanding of the opportunities and hindering factors for the development of a participatory multistakeholder platform at regional level – e.g. the food regional Roundtable in the Tuscany case, and also from theoretical point of view. Future research should follow two directions. Firstly, to investigate through in-depth interviews and other partecipatory tools how the different stakeholders in the Tuscan case understand the functioning of a Regional platform and what are its potentialities and the factors that could hinder its practical implementation. Secondly, to start a comparative analysis with other experiences in Italy and in other European countries, also characterised by different systems of vertical distribution of powers and institutional governance.

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Research article

Socio-spatial analysis of food poverty: the case of Turin

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Abstract. This contribution investigates the phenomenon of food poverty, focusing on the dimensions, forms and dynamics that this condition takes on in the urban context of the city of Turin. The general objective is to provide a theoretical advance in the scientific debate and to better contextualise the phenomenon at the local level to propose policy indications for the actors involved in forms of assistance/counteraction. In the last three years, mainly due to the socio-economic crisis triggered by the pandemic and the increase in the prices of necessities, the incidence and intensity of food poverty have changed, exacerbating the conditions of those who were already experiencing it and eroding the ability of a large segment of the population to protect themselves from material deprivation. Corresponding to this operational complexity there is a semantic polysemic – both in the scientific debate and in public discourse – due to a plurality of theoretical-disciplinary approaches that fragment the definitional framework with consequences on understanding and treatment of the phenomenon. In this framework, the contribution delves into this complexity, providing an operational and contextualised definition of the Italian case through the analysis of the results of the sample survey conducted at the end of 2021 on a group of 205 food assistance recipients in Turin.

Keywords: food poverty, material dimension, social dimension, psycho-social dimension, Turin, Italy.
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HIGHLIGHTS

- Over the past three years the incidence and intensity of food poverty have changed its face, exacerbating the conditions of those already experiencing it and eroding the ability of a large segment of the population to protect themselves from material deprivation.
- The findings reveal that most respondents are women, on average 40 years old, coming from non-EU countries, 20% of the respondents have a university degree and employment.
- The severe deterioration of the living conditions of the beneficiaries, as well as the increase in new vulnerability profiles and the socio-spatial implications produced, calls for actions within both a welfare domain and food policies.

1. INTRODUCTION

The research, carried out within the food assistance project "Atlante del Cibo di Torino Metropolitana"[1], is part of a knowledge process that, for several years, has been investigating food poverty and the assistance system in Turin. In particular, this study questions the phenomenon from the voices of the people who experience food poverty to bring out specific dimensions, forms and dynamics. This kind of knowledge is helpful to contribute to the theoretical debate and, at the same time, fundamental to building place-based policies.

As the data show, the last three years – marked by the pandemic crisis – have exacerbated the incidence and intensity of food poverty, aggravating, on the one hand, the conditions of those who were already experiencing its burden and involving – on the other – many and often new subjects, whose capacity to protect themselves from deprivation has been weakened by the increase in unemployment, as well as by that of the prices of basic goods. In Europe, for the first time, since the Food Insecurity Experience Scale – FIES[2] data collection began (2014), the incidence of food insecurity has increased (FAO *et al.,* 2022). In Southern Europe, 9.2% of the population experiences moderate to severe food insecurity, while 2.3% are severely food insecure (ibid.). In Italy, according to EUROSTAT data (2021), 7.9% of households say they do not have the possibility of consuming a protein meal (of animal or vegetable origin) every other day. ISTAT (2022) estimates that in the North-West distribution, in 2021, about 6.7% of Italian households and 8% of individuals live in absolute poverty. In Piedmont, the incidence of individuals is 8.9%, equivalent to about 380,000 people (ISTAT, 2020). According to Marchetti and Secondi (2022), the number of people at risk of food poverty in Italy is estimated in about 11.5 million, while the Metropolitan City of Turin is in an intermediate position, with a lower incidence than other large cities such as Milan. By contrast, data at local and urban scales are practically non-existent. This implied, for our research, the absence of a statistically reliable dimensioning of people experiencing food poverty in Turin.

The main intent of our work is, then, not to quantify the phenomenon, but prevalently to qualify it. In this perspective, we have chosen to bring two different approaches into dialogue: the better-known FAO approach to food security, with its four pillars (availability, accessibility, utilisation and stability) and that of the British sociological tradition, which has developed – from 2000 onwards – a strand of reflection and analysis on food poverty, in particular through Dowler's definition (2003) and the empirical translations of O'Connell and Brannen (2021). This perspective has allowed us to hold together causes and symptoms, material and immaterial aspects, and – more generally – the complex and multifaceted expressions this condition takes on.

With this in mind, in the following section, we will focus on the definition of food poverty and its dimensions; in the third one we will introduce the territorial context and the methodology of the research. In the fourth section, we will present the main results in terms of (i) socio-demographic profiles of food welfare users and (ii) dimensions of food poverty. These results will then be discussed in the conclusions, relating food poverty studies to the concept of food policy and food welfare (Allegretti, Bruno and Toldo, 2023; Toldo e*t al.,* 2023).

2. DEFINING FOOD POVERTY

As is well documented, the debate on food access – globally and locally, both in the North and South – is largely built around the concept of food security, defined by the FAO in the 1996 World Food Summit as the condition that: "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". Although almost thirty years have passed, this important conceptualisation remains relevant, especially since it is one of the first to consider the multidimensionality of individual experiences. Food appropriate and healthy – must be available and accessible in sufficient quantity and quality for all, through the use of adequate resources, necessary to achieve a state of nutritional well-being permanently (i.e. guaranteeing stability to the food security condition). Furthermore, the so-called four-pillar approach (availability, accessibility, utilisation, and stability) makes it possible to capture spatially and temporally specific dynamics: for example, the pandemic and the conflict in Ukraine had implications in terms of food availability (Jagtap *et al.,* 2022) in areas of the world, such as Italy, where the issue of food security had long been predominantly a matter of economic access.

In our research and this paper, however, we have chosen to adopt a different theoretical (and not only semantic) entry, borrowing the concept of food poverty from the debate – particularly the sociological debate

[1] https://atlantedelcibo.it/ (last access 13th July 2023).

[2] The FIES Survey Module (FIES-SM) consists of eight questions refer to the experiences of the individual respondent or of the respondent's household concerning self-reported food-related behaviors and experiences associated with increasing difficulties in accessing food due to resource constraints (cfr. https://www.fao.org/in-action/voices-of-the-hungry/fies/en/).

of British origin. Although in the literature, food poverty and security are often used as synonyms (Pinstrup-Andersen, 2009; Dowler and O'Connor, 2012; Toldo *et al*., 2023), the two terms are not interchangeable and imply different approaches.

Compared to other concepts, food poverty allows us to better intercept the relationship with other forms of deprivation (housing, education, social exclusion), focusing not only on the possibility of access to food, but also and above all, on the role that the food system and policies play in producing and reproducing inequalities (Caraher, 2022). Moreover, according to some, the reference to food poverty in place of other terms, mainly related to the idea of security, incorporates a political sense of urgency and, more importantly, a greater focus on causes rather than symptoms (Caraher and Furey, 2018).

In our research, we used one of the most well-known and internationally adopted conceptualisations – that of Dowler (2003) – which captures food's inherent social, relational, and psychological nature, along with the more obvious lack of material resources, already emphasised by many other definitions. In her work, she describes food poverty as one of the most severe and comprehensive manifestations of material deprivation. She defines it as "the inability to acquire or consume food of adequate quality or in sufficient quantity and in a socially acceptable manner, or the uncertainty of being able to do so in the future" (p. 12).

A further and more recent conceptualisation is that of Rebecca O'Connell and Julia Brannen (2021), who operationalise food poverty from Townsend's (1979) relative poverty by breaking it down into three main dimensions. The first, the material dimension, includes the qualitative/quantitative adequacy of food and the economic and physical accessibility of the food resource. It is strongly associated, first and foremost, with the role of nutritional components in keeping the individual healthy and is mainly related to public health studies. As widely discussed, food poverty in many countries of the Global North leads to a lack of physical and economic access to what is widely recognised as healthy food. Furthermore, this dimension is linked to how food is managed by individuals, especially when they live in families, focusing on the so-called foodwork, which includes the procurement and preparation of food, as well as the distribution among members, due to different priorities in accessing family resources. The second dimension, the social one, concerns the socio-cultural appropriateness of food and the marginalisation from the widespread practices of conviviality and commensality, which provokes processes of isolation and disaffiliation. Exclusion from consumption in socially acceptable ways concerns not only the impossibility of being able to afford an adequate diet but also manifests itself in the reduction of individual agency: in modern societies based on consumption, the exercise of choice in the market, linked to the possibility of buying and consuming food according to one's preferences, is one of the places where individuals express their agency. Exclusion from choice, on the other hand, "means having to rely on foods or ways of obtaining food that is not considered socially acceptable" (ibid., p. 38). This theme has a broad tradition of study: several authors have critically discussed consumerist societies and the role of individuals in opulent post-modern contexts (among others, Ritzer, 1998; Bauman, 2001), while others have addressed the issue of consumption as a practice through which the individual expresses and shapes his or her identity, cultural traits and social position (Sassatelli 2007, 2019). Finally, the psycho-social dimension focuses on the experiences of stigma, stress and psychological malaise that often accompany the experience of food poverty, especially in people who benefit from forms of assistance (e.g. through soup kitchens or the distribution of parcels). Psychological distress is usually associated with being a welfare recipient since receiving food aid results from (and implies awareness of) the impossibility of providing food for oneself and one's family in socially acceptable ways.

3. CONTEXT AND RESEARCH METHODOLOGY

In the Italian North-West, Turin (almost 848.000 inhabitants in 2022) is one of the Italian cities most affected by the 2008 economic crisis. Well before the Covid-19 pandemic, Turin's crisis already had a food dimension, for which a food welfare system based mainly on the secular or religious social private sector was trying to compensate amid the progressive reduction of public policies. The social and economic impacts of the pandemic have imposed a reorganisation of assistance on the part of the Municipal Council. Alongside a system of small and large associations (Toldo, 2018) that have been involved in food assistance for years, a city-wide network, called Torino Solidale, has been developed to support people in economic vulnerability, isolation, social exclusion and food poverty.

Our research, carried out between October and December 2021, is based on a survey developed with an action-research perspective that involved 20 of the leading Turin food solidarity/assistance associations, collecting 205 interviews with people receiving food aid in the city area. The survey was co-designed with one of the prominent associations in food solidarity – Eufemia

Aps[3] – active locally in the recovery and redistribution of food surpluses and nationally in the development of a network of organizations, called Food Pride[4], aimed at reflecting upon which forms food poverty assumes and how to contrast them with innovative initiatives. Co-constructing the survey was fundamental for integrating the different positions and building a scientifically effective and potentially helpful tool for associations involved in the fight against food poverty (McIntrye, 2007).

Working with marginalised populations often does not allow for probabilistic sampling, as an exhaustive list of all individuals receiving food assistance does not exist (or is not available). For privacy reasons, it is also challenging to access individual association lists. To partly remedy this problem, which places numerous limits on the generalisation of the research results, we mapped the food assistance organisations. We offered them participation in the research as facilitating subjects. All major associations (47) in the area were contacted by email, and 20 organisations (29 distribution sites) participated in the survey. Within each organisation, staff proposed participation to all the beneficiaries present in the distribution activities, with varying daily response rates (between organisations and on different days). Therefore, it is a sampling carried out through non-probabilistic and non-random techniques, so it is not possible to extend the results to the entire target population.

After identifying the relevant dimensions and their research objectives supported by the relevant literature, we operationalised the key concepts. Following an "a priori" factor analysis of the topics and the pilot study, we identified the dimensions of interest based on the FAO definition of food security (1996) and the work above of O'Connell and Brannen (2021). In this logic, the 92 questions in the questionnaire are structured around five themes: (i) eating habits; (ii) spending, food use and eating practices; (iii) health; (iv) socio-relational aspects and (v) stress and psycho-emotional aspects.

The study has potential limitations. In addition to the impossibility of statistically generalising the outcomes (Agresti and Finlay, 2008), due to a sample constructed using non-probabilistic strategies, the response rate was affected by the health crisis and the significant changes taking place in the third sector, which occurred at the same time as the survey. The sample, consequently, suffered from a clear self-selection bias because only users from organisations with sufficient resources and energy to promote the research could answer the questionnaire in the first instance. Despite this, the work represents an initial pilot experiment in monitoring the phenomenon of food poverty, which – in the presence of adequate resources and the collaboration of the various actors involved (public administration and the third sector) – could hopefully be carried out periodically, and not only in the city of Turin.

4. MAIN RESULTS

4.1. Socio-demographic profiles of food welfare users in Turin

The first outcome concerns user profiling based on the demographic section's analysis. Considering age, the mean and median value is 44 years old. At the same time, participants are equally distributed between the two lowest age groups, 18-40 and 41-60 years old, comprising about 40% of the total. People over 61 represent 15% of the sample, and the oldest person is 83 years old. Comparing these results with the age composition of Turin, on average, welfare users are younger than the total average of residents by about three years.

Considering the gender composition, as in other studies (see ActionAid, 2021), a clear over-representation of female users emerges (about 60% of the total, compared to 38% of men). This result highlights women's extensive involvement in family care activities, including foodwork, even and especially in conditions of socio-economic fragility (Parker and Brady, 2019). In fact, women are more likely to be in charge of collecting food parcels and other forms of aid. Although the sample is particularly young compared to the population of Turin, these results still mark the traditional gender division of production and care work.

Regarding origin, 44% of the people interviewed are non-Italian and come mainly from Africa and Eastern Europe. Since foreigners make up about 15% of those living in Turin, these data reveal their dramatic over-representation in terms of food deprivation in line with the literature and national statistics. It is well known that people with a migration background are more likely to fall into poverty than native individuals and families (Brandolini and Saraceno, 2007; Carannante *et al.,* 2017; Ambrosini, 2020). According to ISTAT (2022), in 2021, 26.3% of foreign households were in absolute poverty, compared to 5.7% of households with only Italian nationals. Considering food poverty, in 2021, 23% of FEAD beneficiaries in Italy had foreign citizenship (FEAD Annual Implementation Report 2022), almost 690,000 people, or 13% of the total number of foreigners in Italy.

Concerning family situations, most people interviewed live alone (34%) or in cohabitation, while 20%

[3] https://eufemia.eu/ (last access July 20th 2023).

[4] For more details see the network website at http://www.foodpride.eu/rete-food-pride/ (last access January 8th 2024).

are large families with five or more members. In particular, 35% of the households include minors, 12% are non-self-sufficient older people, and 17% are non-self-sufficient disabled people who need assistance. In 65% of the cases, this assistance falls on the same person in charge of foodwork and access to welfare programmes. Among the 65 people who answered the specific question on care, 50 were women: as with food-related activities, caring for the most vulnerable is predominantly a female responsibility within the family.

Demonstrating the gradual weakening of traditional protective factors against vulnerability (education and work), 19% of the sample – in line with national surveys on the entire population – have a university degree and above, and one-third have attained an upper secondary school diploma. Despite the high rate of people with a university degree, those having a high school diploma are half of the Italian mean value (Istat, 2022), while respondents who have achieved at least compulsory education or having none or only elementary education are 47% of the sample, while in the total population the value is around 17%. In some Italian studies (Franzini, 2013; Carrieri, 2012; Sarti, 2018), there is already evidence that the educational attainment is only partly protective from poverty, and it could depend more extensively on other factors, such as social class of origin, in a country in which social mobility is barely static, the type of job contract, whether it is fixed or permanent, and the age class of each individual, where younger graduates are disadvantaged in the labour market and are more likely to be at risk of poverty than older people with the same educational level.

A similar discourse can be made about employment: almost a third of those surveyed have a job (while 50% are unemployed and 22% inactive). The issue of being employed and below the poverty threshold has been widely studied in Italy and internationally (Saraceno, 2015; Ruggieri, Quarta and Mancarella 2018; Lohmann and Marx, 2018), as it is widely known the so-called phenomenon of in-work poverty, which characterises about 15% of those in work in Italy (one of the highest rates in Europe, Eurostat, 2022). Compared to education, having a job is still one of the most effective elements of protection from poverty; however, the extreme precariousness of careers, the spread of atypical contracts and the simultaneous downsizing of welfare measures in support of vulnerable workers have reduced the link between employment and absence of poverty, especially for manual and low-skilled jobs and for young people entering the labour market for the first time. In the case of women and people with a migrant background, this is more often the case even in the presence of a good level of education and/or a high qualification.

Regarding economic resources, the average value of the income received by the people interviewed at the household level is around € 797. However, a substantial number declare that they live without an income. In particular, 80% of the sample can count on less than €1,000 per month, summing income from work and social transfers. In comparison, 35 per cent live on less than €500, well below the Italian relative poverty threshold[5], even for one-person households. Finally, within the sample, 60% of households with two or more members live on less than € 1000 per month.

Concerning access to economic welfare measures at times of writing (Reddito di Cittadinanza[6], retirement/disability pension, aid from the municipality, unemployment benefits/supplementary allowance), half of the sample declares to be beneficiaries of social transfers: in particular, 60% of the people interviewed receive the Reddito di Cittadinanza, the leading Italian welfare measure to fight poverty, which – according to INPS data of 2022 – reached almost 3 million individuals and 1 million households. The importance of this measure in protecting against extreme vulnerability is widely acknowledged, as are its limitations, especially considering its strict inclusion rules and its inability to reintroduce beneficiaries effectively and stably into the labour market. Despite the perfectibility of the policy measure, there is no question of its role, especially during and after the Covid-19 emergency, when poverty rates have not been so high for decades. Considering other forms of monetary transfer, 15% of the respondents receive an invalidity or retirement pension, 9% access municipal aid (such as income support or the so-called Assegno Sociale[7]), 6% report not having a job and receiving a subsidy or being under-employed, paid through the redundancy programme[8]. Moreover, 10% rely on their family and friendship network to receive monetary aid.

The most frequent housing condition among the respondents is that of renters, while only 14% state that they own their own homes. These percentages are diametrically opposed to national values (where, according to ISTAT data for 2022, 70% of Italian households are homeowners, while 20% live in rented accommodation). Even though the sample is made up only of people with high levels of vulnerability and economic difficulties, only 13% live in a council house, where rent is partially covered by the municipality and social security contributions also moderate bills; on the contrary, very precarious

[5] In 2021, the ISTAT reference value for a single person lying under the poverty threshold is EUR 629,9.
[6] Citizenship Income.
[7] Social Allowance.
[8] Cassa integrazione.

housing conditions are highly represented in the sample: 12% live in co-housing buildings and 12% are homeless and live on the streets or in dormitories. The responses thus reveal the residual role of the public actor in protecting people from extreme housing poverty, as the average rent is € 338 per month, coming from an average income of € 796 for the average 3-person household.

4.2. The dimensions of food poverty

The second outcome regards the possibility of qualifying the phenomenon of local food poverty starting from the analysis of the three dimensions identified by O'Connell and Brannen (2021). This allows us to go into detail about this condition and give policy recommendations to local actors.

The first dimension is the material one. Considering the composition of diets as the main indicator, together with the variables linked to income and economic resources described above, Table 1 shows the percentage of daily consumption of the principal foodstuffs, as identified by ISTAT in the Survey on the Consumption of Italian Households.

Traditionally, the literature on food consumption links poverty with less attention to the healthiness and quality of the food consumed, partly caused by a lack of resources and partly by a supposed lack of knowledge and cultural tools (Lallukka *et al.,* 2006; Giskes *et al.,* 2011; Oude Groeniger *et al.,* 2019; Daniel, 2020). This research, as well as other evidence in the literature, refutes these positions, showing that (Table 1) in addition to water and hot drinks, the foods most consumed daily are precisely those associated with a healthy diet: 75% of the sample uses olive oil instead of butter and other oils, while almost 70% consume vegetables and cereals at least once a day, mainly considered the basis of a healthy diet. In addition, 60% eat fruit daily, and almost half consume dairy products frequently. It is also interesting to note which products are rarely or never consumed: butter, alcoholic beverages, fizzy drinks, cold cuts, and processed foods. Products often related to unhealthy lifestyles are the foods least mentioned by the sample. These results align with those for the general population in Italy and contrast to some extent with the representations of the diets of those in poverty. Despite this, those receiving food aid still have limited access to specific products, especially meat and fish, which are also the most expensive and rarely included in donated packages: 12% and 23%, respectively, of the people surveyed never eat these products, a percentage that only partly corresponds to those who say they follow a vegetarian or vegan lifestyle. When asked what they give up most due to poverty, most people refer to meat, fish, and nuts.

Table 1. Frequency of daily consumption (% values).

Frequency of consumption of food products	Everyday	Never
Water	*98*	*0*
Coffee or tea	*83*	*5*
Olive oil	*75*	*6*
Vegetables	*71*	*1*
Pasta, rice and other cereals	*69*	*3*
Fruit	*61*	*2*
Dairy products and milk	*45*	*19*
Sweets	*36*	*7*
Other oils	*34*	*23*
Legumes	*20*	*8*
Butter	*20*	*32*
Eggs	*17*	*5*
Cheese	*16*	*10*
Meat	*15*	*12*
Alcoholic beverages	*11*	*68*
Carbonated beverages	*8*	*52*
Fish	*6*	*23*
Cold cuts	*5*	*42*
Processed foods	*4*	*47*

The second dimension is the social one. Eating with others is essential for individuals in maintaining social relations (Fischler, 1988; Sobal and Nelson, 2013) for every social group (Dyen and Sirieix, 2016; Branen and O'Connell, 2021), both in every day and exceptional, festive forms of commensality (Grignon, 2001). While it may not strictly indicate food poverty, dining out serves as an excellent example of how a lack of resources can contribute to social exclusion. Not being able to afford to share a meal out with other people often means renouncing commensality and sociability through food. This, especially for younger people, can play a fundamental role in the deterioration or loosening of relationships, potentially leading to isolation and marginalization, particularly when combined with other factors.

In the context of our research, it emerged that more than half of the sample (58%) cannot afford such activity, and about 16% eat out less than they would like (Table 2). It is also interesting to note that, even among people in severe need, 26% still manage to eat out with relatives and friends when a special occasion arises: the sociability of food functions as a tool for inclusion and relationality, which many people feel as an incompressible necessity regardless of income level.

Table 2. Answers to the question "Can you celebrate special occasions by eating out?".

Periods	Absolute frequency	Percentage (%)	Valid (%)
Yes	48	*24*	*26*
Yes, but less than I would like	31	*15*	*16*
No	109	*53*	*58*
Total	188	*92*	*100*
Missing	17	*8*	
Total	205	*100*	

In this logic, it is not surprising that half of the people interviewed (Table 3) are not able to invite relatives and friends to their homes because of their condition of food poverty; as in many other manifestations of vulnerability, money is the main barrier for only a quarter of the respondents, while 17% have very precarious housing conditions or are homeless and 18% have no one to invite, declaring almost total social isolation. Loneliness and marginalisation, understood as dimensions of poverty (including food poverty), are often concretely transformed into the impossibility of sharing moments of socialisation through food, leading in cascade to forms of social exclusion, especially for those who experience very intense poverty (homeless people, the elderly or those living alone). Homeless people, in particular, have few opportunities to share meals with others because of the lack of material resources and the thinning, even total absence of parental and friendship networks.

Finally, our questionnaire investigated the third dimension of food poverty, the psycho-social one, concerning the relationship between poverty and social stigma, an element that has also been widely explored in multidisciplinary literature. Research on the association between the condition of poverty and social stigma has been widely deepened in the sociological literature, and not only (Goffman, 1963; Soss, Fording and Schram, 2011; Garthwaite, 2016; Romano, 2018; Anselmo, Morlicchio and Pugliese, 2020). Stigma and negative stereotypes can lead to social exclusion, marginalisation, and increasingly rarefied social ties, having severe implications for the psychological and emotional well-being of those experiencing this condition. As shown in Table 4, almost a third of the valid responses report that beneficiaries feel often or permanently – a sense of stress or sadness because of the experience of food poverty. In contrast, 50% of half of the sample do not report feeling these emotions: some may have adopted coping strategies by processing and accepting their condition and putting aside 'emotional involvement'.

Table 3. Answers to the question "Do you invite relatives and friends to eat at your house?".

Do you invite relatives and friends to eat at your house?	Absolute frequency	Percentage (%)
Yes	58	*31*
Yes, but less than I would like	29	*16*
No	97	*53*
Total	184	*100*

Table 4. Sense of stress or sadness associated with the experience of food poverty. Absolute frequency and percentage values.

Frequency of stress and sadness	Absolute frequency	Percentage (%)	Valid (%)
Never	67	*33*	*35*
Almost never	28	*14*	*15*
Sometimes	36	*16*	*19*
Often	25	*12*	*13*
Almost always/always	34	*17*	*18*
Total	190	*92*	*100*
Missing	15	*8*	
Total	205	*100*	

Table 5. Answers to the question "How much do you think you sacrifice your food-related happiness because of your poverty status?". Absolute frequency and percentage values.

How much do you think you sacrifice your food-related happiness?	Absolute frequency	Percentage (%)	Valid (%)
Never	87	*42*	*46*
Sometimes	57	*28*	*30*
Often	31	*15*	*16*
Always	15	*7*	*8*
Total	190	*93*	*100*
Missing	15	*7*	
Total	205	*100*	

The inability to enjoy food events due to food poverty is another widespread feeling which, in our sample, involves 24% of the persons interviewed (Table 5), mainly when this entails giving up – due to lack of economic resources – desired foodstuffs or an invitation to a 'gastronomic event', as discussed in more detail in the previous section. Happiness, like stress or sadness, is also linked to the ability to have satisfying social experiences or not due to the close connection between social and psycho-social dimensions, which cannot be considered as isolated aspects of the experience of food poverty (O'Connell and Brannen, 2021).

Table 6. Respondents hiding their welfare status from family and friends. Absolute frequency and percentage values.

Do you hide your condition from your family and friends?	Absolute frequency	Percentage (%)	Valid (%)
No	149	*73*	*80*
Yes	37	*18*	*20*
Total	186	*91*	*100*
Missing	19	*9*	
Total	205	*100*	

Table 7. Sense of shame in being a welfare user. Absolute frequency and percentage values.

Sense of shame	Absolute frequency	Percentage (%)	Valid (%)
No	146	*71*	*78*
Yes	42	*21*	*22*
Total	188	*92*	*100*
Missing	17	*8*	
Total	205	*100*	

Shame is undoubtedly the feeling most associated with the experience of poverty, as is stigma, which is generally associated with negative stereotypes, categorisation, loss of status and discrimination, social exclusion and progressive marginalisation, resulting in psychological distress. Considering the survey results, about one-fifth of the respondents hide their condition of need even from friends and family (Table 6) or are ashamed of being a welfare recipient (Table 7).

5. CONCLUSIONS AND DISCUSSION

The study briefly presented has allowed us to qualify more precisely the condition of food poverty that involves a growing number of Turin residents. The results of the questionnaire, administered to beneficiaries of food assistance projects, reveal that most respondents are women (about 60%). At the same time, the average age of the sample is 44 years, and half of them come from non-EU countries. Some elements of interest reported here concern the sample's composition by educational qualification, considering that as many as 20% have a university degree and the employment situation, whereby one-third have a job but still cannot meet all the expenses essential for survival. The average income, including income from work and transfers from public authorities, is 800€ for a sample whose average household size is about three persons and among whom 25% are homeless. Regarding spending and eating habits, respondents say they spend about 45€ per week on food purchases, 180€ per month, about half the average monthly expenditure of a three-person household (ISTAT 2020). The foodstuffs most consumed are related to the main cultural and geographical origins of the sample (Italy, North Africa, Sub-Saharan Africa, Eastern Europe): tea, coffee, olive oil, vegetables, pasta or rice and fruit are the basis of the daily diet for more than half of the respondents. In terms of practices and utilisation, the majority state that they have daily access to a fully equipped kitchen and have enough time to prepare and consume an adequate meal, although those who are homeless, a form of poverty that is highly connected to the food sphere, are excluded from this majority. For most of those suffering from physical illness, it is difficult to follow an adequate diet due to the limited resources (economic, housing, food from assistance) on which they can rely. The questionnaire also reconstructs the worries, stress, sense of shame and sacrifice experienced daily by many who declare that they find a moment of satisfaction and tranquillity when they eat their meals. Finally, the FIES questions – administered at the end of the survey – reconstruct the intensity of poverty, ranging from moderate to severe in almost all cases.

These results show the different profiles involved in food solidarity practices and the multiple strategies of daily survival acted by food welfare users. In this logic, the project reconstructs the extremely precarious conditions of those who are beneficiaries of food assistance, not only in the material sphere but also in the social, relational and psychological ones, contributing both to a theoretical advancement on the theme of food poverty and to a contextualised knowledge of it in the area analysed, from which to start to provide policy indications both to institutions and to third sector associations. The severe deterioration of the living conditions of the beneficiaries, as well as the increase in new vulnerability profiles and the socio-spatial implications produced, call not only for the implementation of policies to combat food fragility but need to be read and addressed within a dual domain of policies. On the one hand, policies should counteract the causes of economic deprivation which, in turn, leads to food deprivation. On the other hand, food policies should be framed in a systematic and structured framework at the local and national level, guaranteeing the availability of healthy and sustainable food, physical access through the fight against food deserts, affordable prices in a logic of food justice, as well as the strengthening and the reconstruction of community social ties also through food.

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Research article

Measuring food insecurity: Food Affordability Index as a measure of territorial inequalities

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Abstract. The devastating economic and social impact of COVID-19 and the war in Ukraine has exacerbated poverty and food insecurity, making it harder for people to access food. Based on a multidimensional understanding of food insecurity, this study focuses on one of the most challenging dimensions for affluent societies, namely, the economic access to food. Therefore, the research aims to develop an innovative Food Affordability Index (FIA) that captures the inter-territorial inequalities and critical problems created by the economic disruptions in the local food system that prevent people from eating healthy. The index is based on a survey of the prices of products suitable for healthy eating in thirty shops in Rome, Italy. A distinction was made both by the type of distribution channel (e.g. discount and supermarket) and by the area in which the survey was conducted, i.e., the 15 municipalities of Rome. This study sheds light on the problem of food insecurity and highlights areas where households are far from an ideal healthy diet. Understanding the spatial distribution of economic inequalities in access to healthy food seems crucial for the implementation of targeted policies and programmes to address this problem, which is increasingly structural in affluent societies.

Keywords: food insecurity, food affordability index, economic access, healthy diet, territorial inequalities.
JEL codes: I32, Q18, Z13.

HIGHLIGHTS

- Poverty and food insecurity are increasing dramatically even in affluent societies.
- People in economic hardship limit their spending on food in terms of quantity and quality.
- The food affordability index provides information on how far people are from a healthy diet.
- The territorial distribution of economic inequalities in access to healthy food is crucial for the implementation of targeted interventions.

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INTRODUCTION: POVERTY AND FOOD INSECURITY IN AFFLUENT SOCIETIES

In Minima Moralia (1951: 54), Theodor Adorno questions the end of emancipated society, suggesting that "*It would be advisable to think of progress in the crudest most basic terms: that no one should go hungry anymore*". Unfortunately, while we live in a world characterized by unprecedented abundance, i.e., overproduction and plenty of food availability (Stringer, 2016), we also live in a world characterized by deprivation, hunger, poverty, and overcoming these problems is an essential part of the development process (Sen, 2001).

As Campiglio and Rovati (2019) note, we therefore live in what they call as the "paradox of the scarcity in the abundance", in other words, the overlapping economic crises (2007 and 2013), rising unemployment, social retrenchment, the devastating economic and social impact of the Covid 19 pandemic and the recent war in Ukraine (CGIAR, 2022) have combined to produce high rates of poverty, social exclusion, and food insecurity even in affluent societies.

According to recent surveys (FAO, 2021, 2022; Eurostat, 2022; UNICEF, WHO and World Bank Group, 2021; Carrillo-Alvarez *et al.*, 2021; Gundersen *et al.*, 2021), food insecurity has increased significantly in recent years, affecting about 8% (in some areas as much as 10.5% of the population) of the European and North American populations experiencing severe to moderate food insecurity (FAO *et al.*, 2022). Several research works (HLPE, 2023; Lambie-Mumford and Silvasti, 2020; Swinburn *et al.*, 2019; Loopstra, 2016; Maino *et al.*, 2016) clearly indicate that people, who are in economic hardship and therefore have insufficient sources of income (i.e. working poor) or suddenly lose them (a circumstance that can be exacerbated by the absence or scarcity of public income support mechanisms), tend to reduce their spending on food. Indeed, food expenditure proves to be more elastic than other expenditures such as rents, mortgages, and utility bills, as it can be reduced not only quantitatively (i.e., by reducing the number of meals eaten per day) but also, and more importantly, qualitatively[1], with a significant impact on people's health (Goudie, 2023; Cattaneo *et al.*, 2023; Marino *et al.*, 2022).

When these strategies prove insufficient to curb food deprivation, families are forced to rely on the support of family social networks (O'Connell and Brannen, 2021; Cabot, 2018; Papadopoulos and Roumpakis, 2013) or, in the case of a "severe emergency", to apply for food aid (i.e., food vouchers, food parcels or meals from soup kitchens), which is considered the first rough measure of poverty and food insecurity (O'Brien, 2014; Poppendieck, 2014; Purdam *et al.*, 2016; Riches, 2002).

On the one hand, this research is in line with the literature that analyses food insecurity as one of the multiple symptoms of poverty and thus as a lack of capabilities (Sen, 2001), i.e., a lack of security, dignity and materialized inequality that deprives citizens of their rights (Appadurai, 2014). According to the recent HLPE report (2023) *Reducing inequalities for food security and nutrition* (which confirms the thesis of Smith *et al.*, 2017), the factors associated with an increased likelihood of food insecurity are indeed: low levels of education, weak social ties, lower social capital, and low household income.

On the other hand, it is consistent with studies that aim to go beyond the number of food aid recipients, and instead, examine food insecurity to identify not only the most vulnerable social categories, but also the geographical areas and neighbourhoods characterized by critical access to food resources available on the market[2]. This results in recommendations for active social policies to address the root causes of a problem that is increasingly structural in nature.

This article explores the conceptual and measurable aspect of food security through a local case study, using Rome as a pilot case. The main objective is to develop an index of healthy food affordability that captures the inter-territorial inequalities and critical problems created by the economic disruptions in the local food system that prevent people from eating healthy. More specifically, this study aims to identify not only the cost of healthy eating, but more importantly, how far families are from an ideal healthy diet. It proves to be a crucial study for the implementation of targeted policies and allows science and policy to meet and share knowledge.

The relevance of this study lies in its locally focused approach. Most official surveys on poverty and food insecurity take place at the national or regional level (e.g., the Eurostat indicator on the number of protein meals or the ISTAT[3] indicator on household food insecurity). On the contrary, in our research, the local and territorial dimension is considered relevant to the study (Felici *et al.*, 2022; Borrelli and Corti, 2019; Daconto, 2017; Sganzetta and Tricarico, 2018; Geurden *et al.*, 2022). This provides insight into the socio-economic characteristics of each context and the spatial distri-

[1] A quality diet is a healthy, balanced, diversified, and nutritious diet (FAO, 2020; CREA, 2018; Willett *et al.*, 2019).

[2] In a previous study, we coined the term *blacked-out food area* (Bernaschi *et al.*, 2023), which are defined as areas where people are socially excluded and therefore cannot enjoy the same substantial food freedoms as people in other areas. These are, therefore, areas where there is a simultaneous lack of food outlets, affordability is compromised and there are no solidarity networks that distribute free food.

[3] The Italian National Institute of Statistics.

bution of inequalities and provides information and knowledge for designing tailored interventions. In this perspective of analysis, "place" becomes, as Sonnino *et al.* (2016) note, an "active mediator" that dynamically holds together different physical, social, and cultural elements (Sonnino and Milbourne, 2022: 917; Casey, 1996).

The article is divided into three main sections: the first looks at the defining aspect and challenge of measuring food insecurity issues; the second describes the methodology of a pilot healthy food affordability index. Finally, the third section tests the index using the case study of Rome and shows how food insecurity varies at the territorial level and over time. It highlights the most critical and vulnerable areas where households are far from ideal healthy diets.

1. THEORETICAL FRAMEWORK: USE OF THE CONCEPT OF FOOD INSECURITY AND MEASUREMENT

1.1. The challenge of definition

Food insecurity is a problem that cannot be solved with simple measures. It must be addressed in innovative ways and therefore requires, as Mazzuccato (2021) would put it, "strategic missions" capable of inspiring and stimulating the imagination. To do this, it is first necessary to focus on the definition of the problem and how it affects the subsequent measurement and resulting actions to solve it (Stiglitz *et al.*, 2009; Hamilton *et al.*, 2006).

In terms of definition and problematization, the debate on poverty and food insecurity in Italy began mainly in the 1950s, in the midst of the post-war reconstruction period, when the country was characterized by a backward economy (especially in agriculture) and by unemployment and poverty (especially in the South).

The most important social surveys of this period were two: *the Parliamentary Inquiry on Poverty and the Means to Combat It* in 1951[4] and *the Nutrition Survey of the National Institute of Nutrition of the National Research Council* (CNR) in 1954. The latter promoted, in particular, a broad study of the relationship between food consumption and the state of health of the population in small towns in central and southern Italy.

The study took a multidimensional approach to food insecurity and placed it within a broader approach to poverty as a lack of capabilities (Sen, 2005). In fact, it consisted of four main phases: Food Consumption Monitoring, Household Economic Conditions, Housing Conditions and finally Household Health Surveys.

The survey showed the negative impact of poor nutrition on household health and child growth. The isolation (lack of infrastructure and transport) of the small communities condemned the population to poor nutrition and uniform consumption (the population lived only on local food). The fight against poverty and food insecurity was seen in terms of activation and empowerment. In fact, the survey aimed not only to promote measures to increase food consumption, but also to identify the initiatives that could be useful for the population to obtain new employment opportunities and thus improve their living conditions.

Although the "food problem" is deeply rooted in history, it was only in 2009 that a state of food deprivation began to be defined as "food poverty", at the very time when the number of food banks and their beneficiaries increased after the economic crisis of 2007-2008, when the rise in poverty and unemployment was accompanied by social cuts (Rovati and Campiglio, 2009; Pesenti, 2009; Lunghi, 2009). This led to a definition of food poverty based on the Anglo-Saxon definition of Dowler *et al.* (2001), which is conceptually similar to the definition of food insecurity used in the US literature (Loopstra and Lambie-Mumford, 2022), such as in the early studies of women and children experiencing food insecurity (Radimer *et al.*, 1990, 1992; Radimer, 2002; Caraher and Conveney, 2004). Dowler *et al.* (2001:12), for example, define food poverty as "*the inability to acquire or consume an adequate quality or quantity of food in a socially acceptable manner, or the uncertainty that one will be able to do so*". It turns out that food poverty is not a supply-side problem, but rather a failure of food access entitlement (Sen, 1981; Marsden *et al.*, 2014) and of nutritional capabilities (Drèze and Sen, 1989).

The concept of food security, a much debated and changing term (Dowler and O'Connor, 2012: 4), allows us to specify the dimension of access and broadly describes a multi-layered situation in which "*all people at all times have physical, economic and social access to sufficient, safe and nutritious food that meets their dietary needs and preferences for an active and healthy life*" (Riches, 2002: 92).

This concept, on which this study is based, allows us to highlight a representation of food that is more than just a means of sustenance, but a medium for personal choices, symbolic, emotional, and cultural meanings linked to the history and traditions of each community (Materia, 2023). Lack of food becomes a loss of social ties, it becomes loneliness that requires forms of material

[4] It is part of a well-established tradition of parliamentary enquiries, the first in 1906 "Faina Inquiry" on the conditions of peasants in the southern provinces.

help that can restore social ties (Campiglio and Rovati, 2009; Loopstra and Lambie-Mumford, 2022).

The socially destructive and disruptive nature of food insecurity thus presents itself like a three-headed Cerberus:

i. The *nutrition dimension*: poverty is a major cause of food insecurity and makes low- and middle-income households more likely to consume unhealthy foods (Goudie, 2023; Cattaneo *et al.*, 2023; Marino *et al.*, 2022; FAO *et al.*, 2022). As a result, food insecurity and poverty not only contribute to the rise in undernutrition, but can also increase the prevalence of obesity, leading to a real paradox where people with limited access to food are also obese (Carvajal-Aldaz *et al.*, 2022; Narayan *et al.*, 2022; Nettle *et al.*, 2017). Children's health status becomes a litmus test for the manifestation of this paradox. Indeed, childhood obesity and overweight are confirmed as one of the most important public health problems (WHO, 2021). Greece, Italy, Portugal, Spain and Slovenia are among the countries with the highest percentages of overweight and obesity in Europe (in Italy, 39% of 8-year-olds are overweight, of which 17% are obese[5]), showing a strong correlation with economic and educational poverty in the household.
ii. The *intangible dimension:* people feed "*not only on protein, fat, carbohydrates, but also on symbols, myths, fantasies*" (Fischler, 1980: 937). Food is not only a means of survival, but also a medium for relationships and social networks that contribute to the cultural identification of people and places (Loda *et al.*, 2020; Hyde, 2014). Social and cultural needs are strongly linked to the specific socio-cultural context (O'Connel and Branner, 2021; Bernaschi, 2020). An example of this, are eating habits and the relational, sociable, and convivial aspect (Illich, 1972) associated with eating food that fails in a state of food deprivation. In a perspective of social exclusion, the lack of food becomes a loss of social ties.
iii. The *psycho-emotional dimension*: food insecurity is more than a state of neediness, it is much more than an empty fridge and pantry. Food insecurity is a sign of a life deprived of capabilities, threatened by social exclusion. Food insecurity leads to a lack of control, autonomy and freedom over one's diet and becomes an explosive source of social exclusion, causing anxiety, frustration, shame and social stigmatisation (Horst *et al.*, 2014; Baraniuk, 2019). Shame becomes one of the key emotional features of poverty and food insecurity. The stigma associated with a socially vulnerable condition and the feeling of inferiority that arises, for example, from dependence on external help, underlie the deep feelings of humiliation and shame (Bernaschi and Leonardi, 2022; Lynn-Ee Ho, 2009).

Conversely, a state of food security (especially in affluent societies) means that "*people have enough money to buy the food they want to eat to meet both social and health and nutritional norms; that this money is not absorbed by other expenses (rent, fuel, debt repayment, etc.); that people can access shops or markets that carry suitable food at affordable prices, or that they can grow or otherwise obtain food in a way that is humane and meets social norms*" (Dowler and O'Connor, 2012:4).

1.2. The measurement challenge: from the number of food aid recipients to a more systemic measurement

Although the right to food, as a strategic and enabling right for the enjoyment of all other rights, is deeply rooted in the historical tradition of the United Nations, which also emphasizes the obligation of states to directly fulfil (provide) this right (CESCR, 1999), countries rarely fulfil this obligation and do so systematically (Dowler and O' Connor, 2012: 16). Indeed, under the influence of neoliberal policies, a process of individualization of social risks prevails (Beck, 2009; Giddens, 1999; Bauman, 2001), transforming them into self-care problems (Lemke, 2002, Glaze and Richardon, 2017). This leads, as pointed out by Lang (2009), mainly to a process of delegation of the state to solidarity initiatives to feed those who do not have food or sufficient means to access food (Riches, 2002), mainly through the redistribution of food surpluses. This makes food security a right that depends on charity (Paget, 2015) and increases the number of recipients of food parcels, soup kitchens and FEAD[6] assistance for the needy, thus providing an initial measure of the food insecurity phenomenon as a whole. However, they represent only the tip of the iceberg of a multi-layered phenomenon.

The multidimensionality of food security leads to significant measurement challenges. Food insecurity studies take place at global, national, and household levels. In terms of measurement tools, following the research of Grimaccia and Naccarato (2018), we can distinguish three different generations of indicators. The first includes indicators that mainly reflect different trends in actual food availability at the national level,

[5] The situation is more critical in the South and Islands, presenting a greater increase in metropolitan areas and suburbs.

[6] Fund for European Aid to the Most Deprived.

e.g., the number of undernourished people -NoU- and the percentage of undernourished people -PoU- (FAO *et al.*, 2018, 2022).

The second generation focuses on measuring access to food and seems more in line with Goal 2 of the 2030 Agenda, which aims to monitor the actual state of food insecurity of the population. Within this generation, studies using indicators linked to income and food consumption are reported (Borrelli and Corti, 2019; Marchetti and Secondi, 2022; Accolla, 2015; Marino *et al.*, 2022; Pauw *et al.*, 2023; Bernaschi *et al.*, 2023).

Finally, there is a third generation of indicators that attempt to capture the subjective dimension of food insecurity (Frongillo, 2013), such as the Food Insecurity Experience Scale (FIES) developed by FAO (FAO, 2016; Cafiero *et al.*, 2018), which aims to give a direct voice to those suffering from food shortages, by addressing food accessibility also in terms of fear and anxiety about one's food.

Given the multidimensionality of food security, this study aims to focus on one of the most difficult and complex dimensions for affluent societies, namely, the access to food. An analysis of the conditions that enable or hinder access to food, also appears as a heuristic key to subsequently gain insight (through further research) into the other nutritional, intangible, and psycho-emotional dimensions of food insecurity.

As Marchetti and Secondi (2022: 999) note, the literature dealing with food access can be divided into two macro domains: one aims to examine average consumption of micronutrients and dietary diversity (quality) (Smith and Subandoro, 2007); the other examines economic access by looking at the different sources of food supply, the Engels ratio (the share of food consumption in total income or consumption expenditure), income inequality and the impact of all these factors on nutrition.

Here (as described in section 2.), the research overlaps with the two macro domains and aims to analyse household food insecurity by assessing affordability (based on income, food consumption and propensity to save) for a healthy diet over time and at the local level. While official research focuses on food insecurity analysis at the national level, such as Eurostat (2022) which measures food insecurity through the ability of households to afford a meal with meat, fish or a vegetarian equivalent every two days as part of the AROPE indicator (people at risk of poverty or social exclusion), or like ISTAT (2022) which analyses, at the level of geographical areas, the percentage of households that report not having enough money to buy food during certain periods of the year and not being able to afford a protein meal every other day.

This research follows literature that seeks to emphasize the role of the local dimension, i.e., how food insecurity manifests itself at the local level. This can be seen, for example, in studies that analyse the relationship between poverty and food insecurity at the city level, as in the case of Corti and Borrelli (2019) and Daconte (2017) in Milan, or that analyse places and means of access to food, as in Sganzetta and Tricarico (2018), or that examine differential access to food in suburbs, as in Geurden *et al.* (2022) in Antwerp (Belgium). The local dimension thus seems to play a key role in problematizing and measuring the state of food insecurity.

The local dimension is important in two fundamental aspects. One is the rights, entitlements and provisions that contribute to define a state of food insecurity, as Sonnino *et al.* (2016) point out, "*essentially (vertically and horizontally) embedded place-based constructions, and that they imply a spatially reorganised set of relationalities and politics associated with food access, consumption and production*" (p. 484). On the other hand, the local perspective allows for an analysis of the inter-territorial inequalities and weaknesses created by economic disruptions to the local food system that prevent people from eating healthily, but also for the identification of the most vulnerable social groups and geographical areas – neighbourhoods characterized by critical access to food (for more details, see Bernaschi *et al.*, 2023, where the concept of blacked-out food areas is coined).

2. METHODOLOGY

In this paper, a new affordability index – the Food Affordability Index (FAI) – has been developed to address the economic access to healthy diets at the territorial level[7].

The construction of the index is based on a "healthy diet" model taken from the "Healthy Diet Guidelines" published by CREA in 2018[8]. The diet was calculated based on a monthly diet for a family of four (two adults and two children). The next step was the translation of the nutritional amounts into commercial references. Then, a survey of the prices of the products included in the diet was carried out in thirty stores in Rome, distinguishing both by type of distribution channel (discount

[7] Early versions of this index can be found in Marino *et al.* (2022) and Felici *et al.* (2022). However, the index formula has been modified and further surveys have been carried out.

[8] The healthy diet model goes beyond identifying sufficient calories but focuses on the nutritional aspects, as for example, the consumption of fruits, vegetables, grains, legumes, eggs, and milk and dairy products, and limits the consumption of alcohol, sugar, red meat, frozen foods, and processed meats. The model refers to the Mediterranean Diet model.

and supermarket[9]) and on a territorial basis, distributing the survey among the 15 municipalities of Rome.

Once the cost of a healthy diet has been determined, the formulation of the affordability index consists of calculating the monthly share of spending on a healthy diet out of the total consumption of households in the area. This factor is compared with the national average household expenditure on food out of total consumption, as determined by ISTAT. Thus, the index aims to measure the gap between the actual expenditure on a healthy diet and the average Italian food expenditure. The greater the gap between these two values, the more difficult it will be to access a healthy and sustainable diet.

An index with a value of 1 indicates that to eat healthy, the household does not need to change its consumption basket. On the other hand, if the index is greater than 1, the family should reduce its consumption expenditures in the other areas (energy, housing, transportation, etc.) – compared to the average. Or, if it wanted to maintain non-food consumption, it would have to reduce spending on food, probably by changing its diet and avoiding the main products of a healthy diet (fruit, fish, etc.). On the other hand, with an index of less than 1, the family has the option of giving up neither the foods necessary for a healthy diet nor the other types of non-food products.

The index formula is as follows:

$$Food\ Affordability\ Index = \frac{(A)food\ expenditure\ for\ a\ healthy\ diet}{(B)total\ consumption} \Big/ \frac{(C)average\ food\ expenditure}{(D)average\ total\ consumption}$$

It is important to keep in mind that the index has a territorial meaning, since the cost of a healthy diet (Factor A) and total household consumption (Factor B) are calculated on a territorial basis, while Factor C and D are national values.

Factor A of the equation is calculated using surveys of product prices in outlets on a territorial basis (two surveys per municipality – supermarket or discount store).

Factor B uses income data at the municipal and sub-municipal level provided by the Italian Ministry of Economy and Finance, adjusted for the savings rate to obtain consumption, and considered on a household basis. Income data were selected at the local level because it has been demonstrated that significant income differences can occur at the territorial level (Faggian *et al.*, 2013), thus affecting affordability in addition to the value of prices.

Factors C and D are provided by the Italian Institute of Statistics, which reports the average monthly food expenditure for an Italian family of four. The national average is recalibrated with correction coefficients – calculated on an annual basis – to make it more specific according to territorial characteristics (urban context and central Italy).

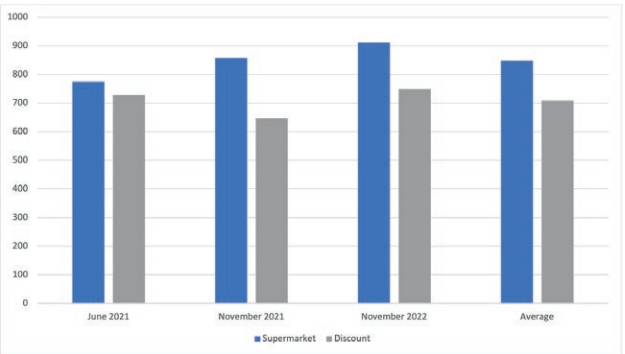
In the specific case of this study, three measurements were conducted over time: June 2021, November 2021, and November 2022.

3. RESULTS

The first result to be highlighted concerns factor A of the equation, namely the cost of a healthy diet that emerges from price surveys on supermarkets and discount stores (Figure 1). Data show that the cost of a healthy diet stands at 707,68 euros on average in discount stores and 847,87 euros in supermarkets (higher by 20%). The higher cost of supermarket spending makes it unaffordable for part of the population and forces people to reduce the quantity, but above all the quality, of food.

Another phenomenon to note is price change and inflationary dynamics. Due to the economic crisis in the aftermath of Covid-19 and the Russian-Ukrainian war, food prices varied greatly during the years 2021-2022. In both types of outlets, product prices have increased. In discount stores, despite an apparent improvement in November 2021, the price increase was 3%. In supermarkets, on the other hand, the price increase between 2021 and 2022 was 18%.

Figure 1. The cost of a healthy diet (in euros) by time of survey and type of stores.



[9] The sample of stores was chosen randomly using territorial stratification, specifically one discount store and one supermarket was chosen for each municipality in the city.

The application of the affordability index formula produced the following results (Figure 2 and 3). The accessibility at discount stores appears to be 16% higher than at supermarkets, as the average at discount stores stands at 0.89 compared to 1.06 at supermarkets (remember that values greater than 1 show undermined food affordability). This is mainly due to the difference in the cost of a healthy diet between the two types of stores.

When looking at the change in affordability during the three surveys in June 2021, November 2021 and December 2022, it is clear that the index is an effective tool for monitoring the affordability of healthy foods over time. According to the variation in food prices and the change in household incomes, affordability appears to have improved for discount stores, particularly from June to November 2021 (affordability changed from a value of 0.96 to 0.81 – an improvement of 16%). Despite the affordability worsened from November 2021 to November 2022 by 9%, it still represents an improvement from June 2021.

On the other hand, regarding supermarkets, accessibility seems to have worsened, as the values varied from 1.01 in June 2021 to 1.09 in November 2021 and 2022 (a decrease of 7%). This factor makes supermarkets even more unaffordable over time than discount stores, driving people to cheap, nutritionally deficient diets with strong environmental impacts.

Considering the different values between city municipalities (averaged over time), we find that in five areas accessibility is insufficient (*low* or *very low*) even if we consider discount stores (Figure 4). In supermarkets, accessibility is compromised in 9 municipalities, with the presence of three critical areas in the eastern part of the city (Figure 5).

Figure 2. The values of the affordability index at discount stores over time.

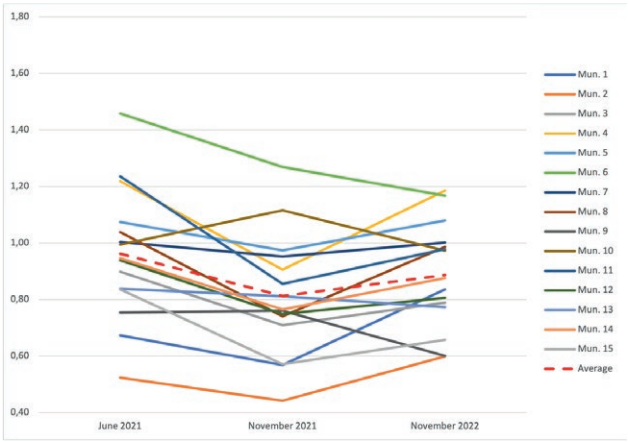


Figure 3. The values of the affordability index at supermarkets over time.

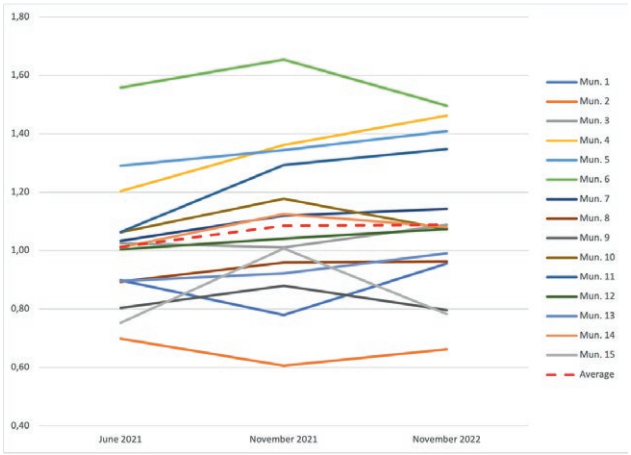
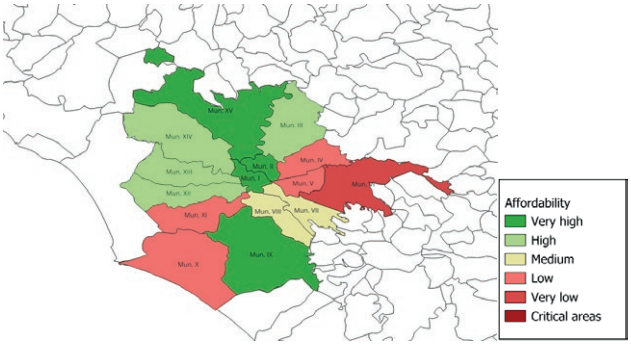


Figure 4. The territorial affordability at discount stores.



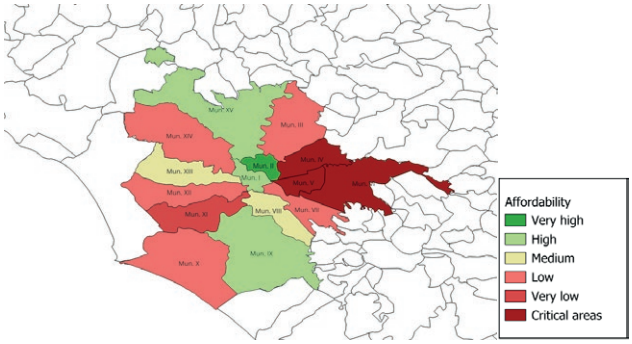
This shows how the phenomenon of affordability to healthy food has a strong territorial component, even in a single city composed of different municipalities. The lack of access to food is a spatial phenomenon that can lead to inequality.

We now examine the differences in affordability between the municipalities of the city of Rome. Figures 6 and 7 show a Cartesian plane in which we have on the x-axis the value of the index of each municipality for supermarkets and discounters from November 2022; while the y-axis shows the change in the index over time from June 2021 to November 2022. These charts give us an overview of the level of affordability in the municipalities: the current level and whether there has been a deterioration or improvement.

It should be noted that the index value has been normalized to an average value of 0 – not 1 as it appears in previous graphs – for a better understanding.

In the upper right quadrant (marked in red), we find the municipalities that are in a worse situation: impaired

Figure 5. The territorial affordability at supermarkets.



affordability index, which has deteriorated from the past. In the upper left (marked in light red) quadrant we find municipalities with a compromised index but still experienced an improvement over the past. In the lower right quadrant (marked in yellow) we find municipalities with a sufficient index, but whose accessibility has deteriorated compared to the past. In the lower left quadrant (marked in green) we find the most favourable condition: a sufficient index and an improvement in accessibility compared to the past.

If we look at the situation with the discounters, we see that most of the municipalities are in a favourable state. Municipality V is in the worst situation. However, other municipalities with a poor accessibility index have improved in the past (e.g. municipalities IV, VI). Two municipalities (respectively I and II), which have a favourable accessibility index, have experienced a deterioration in accessibility. This means that, apart from the municipalities in the yellow zone, all others are highly motivated to shop at discounters due to their high accessibility and a further improvement in this accessibility.

However, if we look at the situation in supermarkets, we see the opposite. Most municipalities are in the worst condition. This drives them even more to buy from the discounters. Some municipalities (I, VIII, XIII, XV) are in the condition of having a sufficient accessibility index but worsening accessibility over time. The accessibility of supermarkets has only improved in three municipali-

Figure 6. Index value in relation to the variation of this for each municipality (values at discount stores).

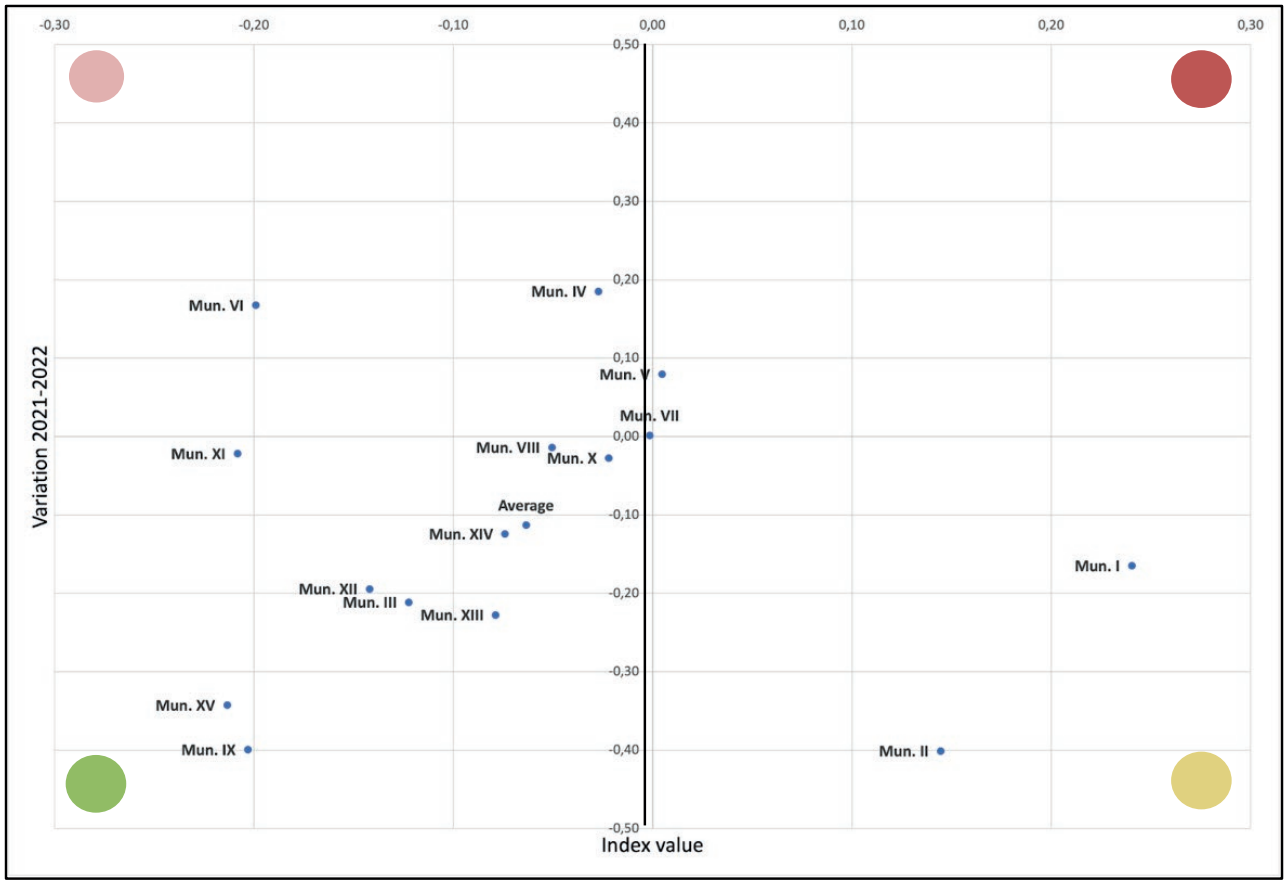
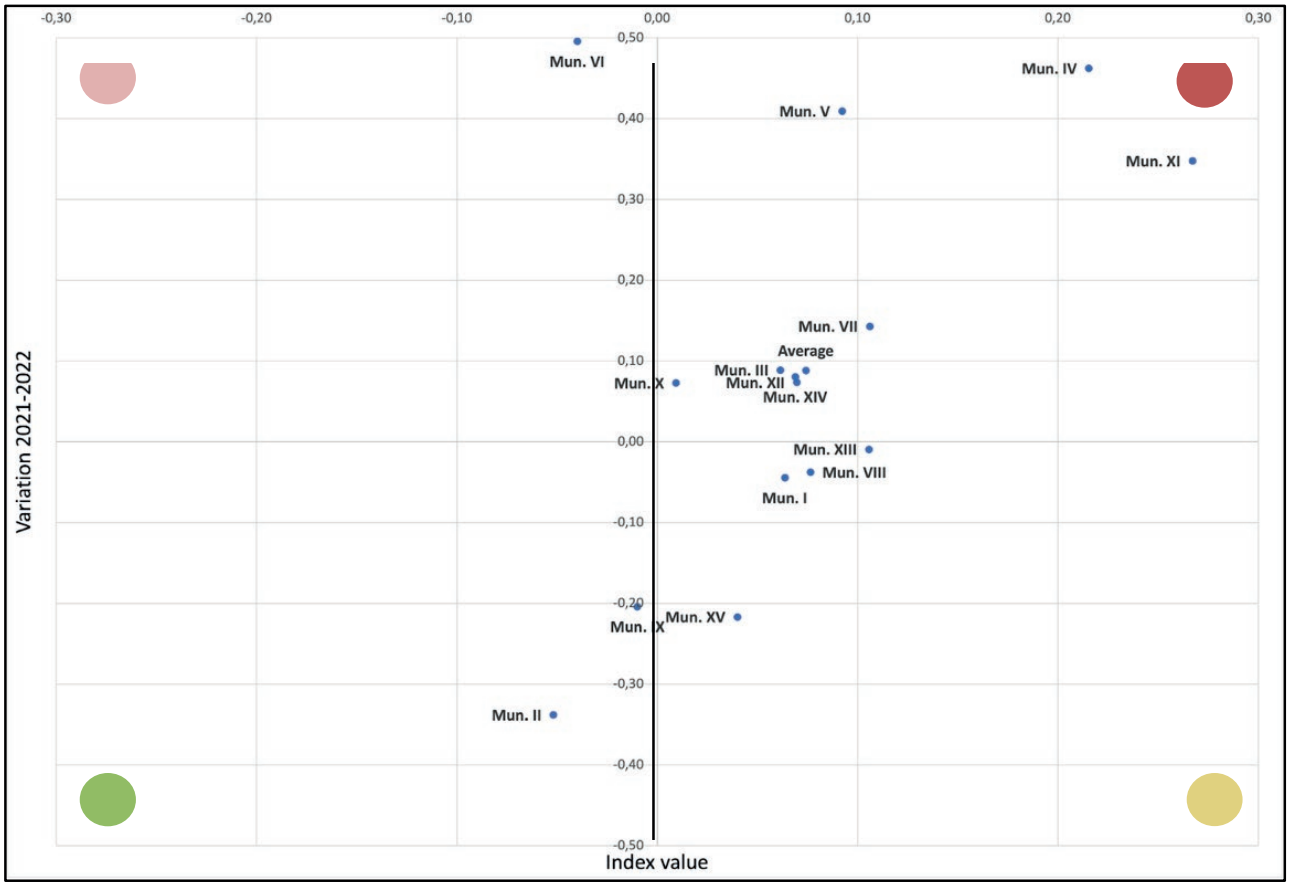


Figure 7. Index value in relation to the variation of this for each municipality (values at supermarkets).



ties (II, VI, IX). Comparing this graph with the previous one, only municipality II is really motivated to shop in supermarkets.

It is worth noting that many municipalities are close to the average for supermarkets. This means that there is less dispersion in the graph. Considering their position, we can observe a general trend of worsening affordability to healthy food.

4. CONCLUDING REMARKS

The problem of food insecurity is a growing global and local challenge, not least in the most developed countries (FAO *et al.*, 2022). Therefore, the need to measure it and understand how it occurs territorially is crucial for the implementation of targeted policies and programmes to address it. In addressing poverty and food insecurity, it is therefore essential to focus and work on new estimates and new measurements of food insecurity, as a lack of access to food proves to be a bellwether of a broader state of poverty (Rinella and Okoronko, 2015). Food becomes a thermometer of people's actual living conditions, which can reveal possible situations of social inequality (Marino *et al.*, 2022).

Our work aims to develop a new affordability index that can measure food access on a territorial basis. The index was applied to Rome and critical areas were identified where access to food is problematic. The territorial approach of this methodology allows for the implementation of specific "place-based" interventions to improve food access.

The index is not limited to the analysis of the economic dimension of food security, but also and above all, to the qualitative dimension of access, focusing on the nutritional aspect. In addition, it takes into account the variation of the data according to the type of outlet (supermarkets and discount stores) and by different areas. The basic assumption of the index is that food prices and household income significantly affect the affordability of a healthy diet. Inflationary phenomena as well as income-related inequalities at the territorial level can

affect food affordability. Therefore, understanding the spatial distribution of inequalities in economic access to a healthy diet, is an important step in implementing targeted policies and programmes to address this issue.

Overall, the index results show that affordability is significantly better in discount stores. This is due not only to the lower cost of food and generally better affordability in all municipalities surveyed, but also to the fact that affordability at discount stores has increased over time. This is not the case for supermarkets, where affordability is affected in many municipalities and only three municipalities (II, VI, IX) showed an improvement in affordability over time. Thus, it appears that households in each municipality are more motivated to shop at discount stores, both because of better accessibility and because of improvements in accessibility over time. Only the municipality II is motivated to shop at supermarkets because of the deterioration of accessibility to discount stores and the improvement of accessibility to supermarkets.

In summary, this food affordability research has shed light on the problem of food deprivation, by identifying the areas where families do not have access to an ideal healthy diet. The present work aimed at methodological and analytical objectives. Through an innovative and easy-to-calculate indicator, the attempt was pursued to provide useful information to stakeholders, in particular to the public decision-makers. At the same time, the research shows some limitations that can be overcome in future work. First, the healthy diet model presents average values and may not be appropriate for the whole population. Further research can apply the index with different healthy diet models, taking into account physiological and nutritional differences between different groups. In addition, future work may increase the number of stores (both discount and supermarket) considered in the survey, improving representativeness of the sample. Other distribution channels may also be considered.

Finally, the social challenges have prompted our research to develop further. In line with a multidimensional view of food security, the next steps in research are to deepen the nutritional, intangible and psycho-emotional dimensions. Thus, in addition to establishing an Observatory on Poverty and Food Insecurity in Rome as an experimental project for a permanent monitoring operation in the region, in-depth research on Roman families' food consumption, socio-cultural and economic status, and individuals' perceptions of food insecurity using the FAO Food Insecurity Experience Scale (FIES), has been conducted and is ongoing.

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School Food Policy through a Project Financing

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Abstract. In recent years, the scientific community has focused more on urban food policies adopted by big cities and less on the local food policies adopted by small municipalities. Furthermore, the empirical evidence on school food policy initiatives is quite fragmented, and the management of the canteen service is not directly addressed by the studies carried out. In this work, the school food policy implemented in a small municipality (Corciano in the province of Perugia, Centre Italy) of about 22,000 inhabitants, through the application of project financing with the participation of local social cooperatives is presented and discussed. This paper aims to reflect on the capability of the alternative food networks developed through the project financing mechanism to identify and implement the uses of the resources concerning the local food policy objectives and the project capacity of the network. The analysis is conducted using a methodological approach based on agricultural economics and anthropology. Results from economic data analysis, collective interviews, and participant observation show that: the financial balance of the project financing is positive but quite precarious and very sensitive to market variations, both regarding the overall demand for canteen meals, and the procurement of raw materials and workforce; the project's organizational model through a local network not only can combine the environmental, social, and health dimensions of food, but it can also reshape the local concept of community, as well as new opportunities for the circulation of food products.

Keywords: school canteen, small municipality, alternative food networks, collective project, sustainable public procurement, social cooperative.
JEL codes: Q18, O22.

HIGHLIGHTS

- Local governments can play a fundamental role in food governance by promoting new links and new relations between different stages and actors of the food chain.
- School menus could be considered a driver for the local integration between the city and the countryside.
- Public food procurement provides the opportunity to drive local and regional food economies towards a more sustainable food system.
- Project financing has proven to be a viable tool for realizing a sustainable network collective project.

1. INTRODUCTION

In recent years, the scientific community has focused extensively on urban food policies, and the challenge of food planning faced by many cities across the world (Maxwell and Slater, 2003; Blay-Palmer, 2009; Fresco, 2009; Marino and Cavallo, 2014; Dansero *et al.*, 2014; Dezio and Marino, 2016; Berti and Mulligan, 2016). Meanwhile, it focused less on the local food policies adopted by small municipalities, where the link with the local agri-food economy is stronger because of the close relationship between the city and the countryside. The local food policy is an important supporting instrument for local governments, as is found in all aspects that are directly and indirectly linked to the food cycle of the municipal area. Some authors have highlighted how the citizens' change in lifestyle, along with new possibilities for multifunctional rural development, open up innovative spaces for the integration of urban and rural settings (Duvernoy *et al.*, 2005; Torquati and Giacchè, 2010).

Rural and urban spaces are looking for a new balance, necessarily rooted in new urban policies and their ability to restructure rural products and services in response to changing demand for food and urban services. Urban and territorial food strategy can play a key role in improving agri-food systems at the local level especially when local and regional governments, together with civil society groups, define concrete plans of action by creating demand for local and sustainable food (Morgan and Sonnino, 2008).

The adoption of Directive 2014/24/EU on public procurement marked a significant step towards the enablement of school food policies supporting the creation of alternative food networks (AFNs). Both Green Public Procurement (GPP) and Sustainable Public Procurement (SPP) are powerful policy instruments for a transition to sustainable food systems. From the point of view of food procurement, GPP, drives the inclusion of an organic food supply in the catering for public canteens, while, SPP facilitates the development of short supply chains or local/regional food production systems (ECR, 2018).

National procurement laws reflect the transposition of Directive 2014/24/EU and may include additional binding rules for public procurement. In Italy, the Minimum Environmental Criteria (CAM in the Italian language) for catering and food supply were introduced in 2011 (Ministerial Decree 220/2011) and updated in 2020 (Ministerial Decree 65/2020). The mandatory application of CAM promotes the reduction of environmental impacts and more sustainable production and consumption patterns, including, in particular, organic and local food. But, introducing sustainable food into public canteens is not a simple process. The changes needed are both cultural and structural and it is why it is a political commitment that drives virtually every experiment.

In Italy, local municipalities are responsible for public school meals, which are usually provided through the services of catering companies. In this work, the school food policy implemented in Corciano (Perugia) a small municipality of about 22,000 inhabitants, through the application of project financing (PF) is presented and discussed. To systematize three strategic objectives (schools, employment, and social assistance), in 2015 the administration of Corciano launched a 12-year initiative that will be referred to here as the collective project (Dufeu *et al.*, 2020; Le Velly, 2019). The subjects involved in the design and implementation of the PF aim at reappropriating healthy food and distributing resources through a network of social relationships and actions that start with food offered in schools, and continue generating a series of virtuous processes. In particular, food becomes the cornerstone of an integrated social sustainability project that aims to change the culture of food consumption through a series of good practices that change the way to access food: from school menus to the creation of a community pantry[1] to social farming in allotments, and across the local food supply, food education programs and the reduction of food waste. This paper analyses the organizational model designed to accomplish the designed tasks in an integrated manner, as well as the economic and social achievements in the first years of the project.

The paper is organized as follows. Section 2 reviews the literature on school food policy, project financing, and community engagement according to an anthropological approach. Section 3 describes the case study project and how the qualitative data has been collected, whereas section 4 presents the results in terms of structural and economic assessment of the organizational model. Finally, section 5 provides the discussion, and section 6 contains the concluding remarks and perspectives for future research.

2. CONCEPTUAL FRAMEWORK

The results of research on school food and nutrition programs in middle-and high-income countries demonstrated the positive impact that school feeding can have on health, education, and agricultural improvement (WHO, 2021; Cohen *et al.*, 2021; Molin *et al.*, 2021; Morgan and Sonnino, 2013; Jaime and Lock, 2009). Accord-

[1] In Italian, *dispensa solidale*, which implies a community food pantry project based on solidarity and mutual support.

ing to Nelson and Breda, the achievement of these positive results requires an appropriate and framed policy, robust monitoring and evaluation, and all stakeholders are adequately engaged in the process (Nelson and Breda, 2013). In Ashe and Sonnino's view "School food policy is an excellent context to examine the scope for coalescing the alternative food movement" and it is also able to create new generations of knowledgeable consumers (Ashe and Sonnino, 2013; Sonnino *et al.*, 2014). The literature identifies a wide range of benefits associated with school food reforms and, in most cases, the studies concern the school food revolution of big cities like Zurich, Rome, Copenhagen, New York, Vienna and Malmo (Schleiffer *et al.*, 2022; Smith *et al.*, 2016; Ashe and Sonnino, 2012; Sonnino, 2009).

The empirical evidence on the developmental impacts of school food policy initiatives is quite fragmented, and the management of the canteen service is not directly addressed by the studies carried out. Therefore, it is not always clear the economic sustainability of the different management strategies of the canteen service. In our knowledge, no empirical work has taken into account the entrustment of the management of the public school canteen, in a small municipality, to a third party through project financing (PF). Therefore, the objective of this work is to enrich the existing knowledge on public procurement of food by discussing and evaluating the school food policy implemented by a small municipality using a consortium of local social cooperatives and entrusting PF for 12 years. The analysis is conducted using a methodological approach based on agricultural economics and anthropology. The first discipline is useful in regards to the alternative food network involved in the process that brings food from farm to fork, and the economic aspects of PF; the second one is useful in regards to the school food as "a kind of intersection, a meeting place, of skilled and motivated change agents with a whole host of worthwhile agendas" (Poppendieck 2010, in Ashe and Sonnino, 2012).

Moreover, it has to be taken into account that the food policy initiatives are essentially sustained by the networks of stakeholders (parents, civic associations, groups of producers, etc). Specific forms of the network then emerge which enrich the landscape of food networks and their modalities of action (Renting *et al.*, 2012; Dedeurwaeredere *et al.*, 2017). This study aims to suggest that, concerning urban food policy, the role of alternative food networks can be developed on two main bases: a) the capability of the network to identify and implement the uses of the resources (Martino *et al.*, 2016) concerning to the policy objectives; and b) the project capacity of the network. Alternative food networks could contribute to food provision and urban food policy of intervention (Matacena, 2016; Badi *et al.*, 2019) characterizing the mobilization of resources concerning the territory (Lamine *et al.*, 2019; Renting *et al.*, 2012; Marsden and Sonnino, 2006) and the governance patterns adopted (Duncan and Pascucci, 2017). This line of reflection explicitly relates to the investigation of the control and management of food systems by civil society actors. However, as part of the transition of the food systems, networks also engage in designing new perspectives and patterns of behavior. The project is how the collective action can then be implemented and substantiated (Le Velly, 2019; Dufeu *et al.*, 2020). Accordingly, the urban food policy design is expected to embed a project dimension able to account for the necessity of making coherent the perspectives depicted and the coordination issues, the motivations and the ends as well as the possible modes of action (Le Velly, 2019).

In this context, project financing (PF) is considered a suitable tool to generate investments and is increasingly used by public institutions that subcontract constructions and the management of public works and services to private firms (Tinsley, 2022). The PF funds public works or services through a specific agreement, in which the public body does not make a direct investment, but the intervention is mainly funded by cash flows coming from the operation and management of the new facility; the management is granted for a time that allows to recover costs and achieve the operative profit margin. As a result, the private body recovers the cost of investment through multiannual management, at the end of which the public work/service goes back to the public body (Fava and Baldassarre, 2002).

The PF presupposes a convergence of interests between the public body, whose objective is to carry out the work/service while minimizing the costs of realization, and the private body, interested in the economic returns related to the realization of the work/service. The concession takes place through the establishment of a Special Purpose Vehicle or Project Company, whose exclusive purpose is the realization and/or management of the project itself. The separation of economic and legal aspects is allowed by its constitution (ring fence), and a complex network of contracts connects designers, financiers, builders, and service managers to grant the concession. Studying the operation of PF applied to the management of a public canteen, with the participation of local social cooperatives, involves: i) economic aspects such as investments, balance sheet, income statement, and cash flows; ii) socio-economic aspects such as creating value for the business and community, maintaining employment, employing disadvantaged individuals, and

assisting disadvantaged families and, iii) cultural aspects such as whole school approach, creation of sustainable food chains, and creative public procurement (Conevska *et al.*, 2019).

When studying or implementing cooperative strategies, it is extremely crucial to consider community involvement and actions that include institutions and citizenship. The literature on what is usually defined as "community engagement" shows how this concept includes a wide range of strategies implemented by numerous social actors. Many actions are characterized by their community engagement and involvement, from co-planning to public space engagement, the practices of activists, and local cooperative projects. Social research, and anthropology in particular, is based on a "social use" of the ethnographic practice, aimed at analysing the problems of society (Seppilli, 2008: 113) which makes it crucial to work directly with communities, and in close contact with social actors.

In such a framework, the actions of the social actors involved – institutions, companies, and local communities – are part of behaviour that could be defined as a "political involvement and global responsibility-taking" (Micheletti, 2003: 2). Micheletti explores the phenomena of participation and community involvement, and defines consumption patterns as political actions within which social actors aim to change institutional and market practices based on "attitudes and values regarding issues of justice, fairness, or non-economic issues that concern personal and family well-being and ethical or political assessment of favourable and unfavourable business and government practice" (Micheletti, 2003: 2). In a collective perspective, such choices fall within the scope of this work, as they relate to the institutions as promoters and mediators of such practices.

In this framework of the project application, it may be worth specifying that communities are not to be considered as the places and people from a specific geographical area, but as historical and social phenomena within which shared collective practices are reproduced and developed by the same members (Skinner *et al.*, 2001). In this way it is possible to rethink the link between community and engagement, shifting the focus from the individual to the community, thus connecting two realities that discuss the same theme and are united by an interest in the conscious consumption of local food products, grown to respect the environment and human health.

Starting from these assumptions, an anthropological approach becomes fundamental in our study to build a relationship with the social actors/informants involved in the phenomenon, to detect the individual and collective, dialogic and conflictual trajectories of food production and consumption, observable only in an ethnographic perspective through fieldwork research (Palumbo, 2009). This is often understood as a journey towards and through "otherness" which allows meeting people and learning about their stories.

The journey, like that of the anthropologist, allows one to reflect on one's interpretative limits and to redefine them through experience and insights:

> The ethnographic techniques of participant observation, developed above all by cultural anthropologists starting from the 1920s, are more suitable than purely quantitative methodologies to document the lives of those who live on the margins of a hostile society. Only after having established long-lasting and trusting relationships can you start asking provocative questions and expecting serious and reasoned answers. Ethnographers typically live in the communities they study and build long-lasting, organic relationships with the people they write about. In other words, to collect "reliable data" ethnographers violate the positivist canons of research: we experience an intimate involvement with the people we study (Bourgois, 2005: 41).

In such an operational framework, the work of an anthropologist is to restore the multivocality of the fieldwork through an ethnography understood as "practice", in the Bourdiean sense, and inscribed in "fields" of sociological, scientific, political, dynamic, procedural, and, therefore, conflictual (Palumbo, 1991).

3. MATERIALS AND METHODS

3.1. Case Study

The school food policy of Corciano, a small municipality in Central Italy, was designed to meet specific local needs perceived as priorities, towards which a series of actions were planned by the public body with the involvement and support of private bodies. The project focuses on one central need, which is the promotion of healthy eating for young students, able to generate well-being and psychophysical growth and, at the same time, to trigger cultural change towards food.

Together with healthy eating for young students, the municipality has identified other priorities concerning various socio-economic needs. These include preserving hot food facilities in school canteens to ensure a high-quality level of service; improving production and the local quality food chains to strengthen the link between rural areas and urban areas; providing high-quality food assistance to the most vulnerable families; building a community from the centrality of the canteen commit-

tees; and reducing food waste with a view to the redistributing of resources.

The target population is composed of children (approximately 750) and teenagers (approximately 550) who attend school canteens from nursery up to middle secondary schools, and their families. In addition, the target includes vulnerable families (about 370) registered at the local authority service and the agri-food companies within the municipal and neighboring areas.

The organizational model is based on the allocation of a concession for a range of services under PF. The municipality has invited the consortium of cooperatives "ABN-social network" to a negotiated procedure according to Art. 30 of Legislative Decree 163/2006 for the award of a concession through PF (according to Art. 153 paragraph 9 of Legislative Decree 163/2006), to identify the provider of the municipality school catering service between 1st of September 2015 – 30th June 2027. After declaring the PF presented by the ABN Consortium to be of public interest, the municipality identified in the same consortium the economic operator that would provide the services. The legal side of the agreement was drawn up by the lawyer of the National Association of Italian Municipalities (ANCI), chosen as an external consultant who assumed the role of independent third party and guarantor for the municipal administration.

The service has been divided into three axes of intervention: 1) food service, consisting of the creation and management of canteen services, the management of civil registry, and the collection of school fees; 2) social farming, focus on zero-km platform and local production, dedicated services for food and agriculture aimed at developing and strengthening a production system inspired by short chain principles; 3) the recovery of surplus food, thus restoring the value of food products excluded from the traditional market that are still edible, by redistributing them in favour of disadvantaged social groups (Figure 1).

The consortium has allocated various tasks between three of the cooperatives. More specifically, the whole of axis n. 1, part of axis n. 2, and the coordination of axis n. 3 have been assigned to the social cooperative company "La Torre"; the portion of axis n. 2 that deals with the creation of community farming initiative to provide the school meals' vegetables, in a plot of land rented from the municipality has been assigned to the agricultural cooperative "Umbria Verde"; the services included in axis n. 3, that is the collection and distribution of surplus food to people in need, as reported by the social services of the municipality have been assigned to the social cooperative "Babele".

The consortium's self-assigned responsibilities consist of drawing up the annual social statement of the activities carried out, as well as monitoring the quality of the project. For the realization of the PF, a vehicle entity was created to ensure the continuity of the project in case of problems related to individual partners, which took the legal shape of a consortium company with limited liability, called "Corciano a Mensa". To do this, all the companies that actively operate in the services of the concession have paid a share of the capital which is proportional to their contribution in the service provision.

Investments were planned for the first and second axis of intervention, and were made from the first to the

Figure 1. Structure of project financing.

Project axes	Axis I School catering (food strategy)	Axis II Community garden; Zero-km platform (commercial activity)	Axsis III Surplus food collection; families in need (food strategy)
Complementary actions	*Canteen staff training* *Food training for family*	*Enhancement of local resources and products*	*Distribution of needy families*
Investment, euros	117.000	330.000	
Executive cooperatives	"La Torre" Social Cooperative Society (91.93% of share capital)	"Umbria Verde" Agricultural Cooperatives (2.7% of share capital) "La Torre" Social Cooperative Society	"Babele" Social Cooperative (2.37% of share capital) "La Torre" Social Cooperative Society
General contractor	Consortium of cooperatives ABN- Social Network (3% of share capital)		
Vehicle company	Corciano a Mensa - Consortium company a.r.l. [article 134 of Legislative Decree 50/2016] (Special Purpose Vehicle - SPV)		

eighth year of the project, for a total of 450,000 euros, with more substantial outlays between 2016 and 2018. The major investments, totalling 184,000 euros have been earmarked for social farming and in particular for the purchase of machinery, and the realization of 4 tunnel greenhouses with irrigation systems. This is followed by investments to create the zero-km platform, for a total of 149,000 euros, which includes adjustments to properties that will be used to host the platform, and the purchase of a refrigerated truck for the transport of raw materials. The investments in school catering, corresponding to 117,000 euros, are mainly destined for the restructuring and adaptation of the premises, the purchase of a vehicle to transport the meals, the development of software for the management, collection, and billing of meals, and the purchase of work equipment to improve performances.

The duration of the project has been established based on two elements. The first concerns the investment and its coverage, given that the recovery of capital invested in catering services takes at least 10 years. The second element concerns the coverage of school cycles: the proposed 12 years of canteen service would cover two generations of students, that is two full school cycles starting from kindergarten up to the three years of lower secondary school.

The complexity and criticality of the services provided required a synergy between different professionals, capable of creating a fruitful interaction between the organizational-managerial level of the service, and the strictly operational level. To this aim, a control center has been set up which is responsible for coordinating all the activities of the PF, and all those involved in carrying out these activities.

The operational management of the services required the definition of roles and responsibilities, which have been identified through a specific organization chart within the cooperative La Torre, which was involved in all three project axes.

The employment dimension was estimated as follows: 45 working units for collective catering, estimated based on the management of 6 cooking centers that cater for 1,295 enrolled students; 2 working units for the management of the community garden and the zero-km platform; 1 working unit for the recovery of surplus food. The PF has also provided for the employment of disadvantaged people through a network established with the local services and social structures to address all aspects of the employment process and the complexity of the needs of the disadvantaged. Concerning the management of school canteens, the PF calls for precise product specifications which provide the basis to select suppliers and establish the minimum conditions of acceptance. In terms of preference about the origin of the products, the following categories have been defined: 1) zero-km and/or short chain – such are considered those products that are transported over short distances before arriving at cooking facilities (zero-km), or are purchased directly from the producer (short chain); 2) organic products with organic certification, even if they are not local, as they guarantee the use of production techniques that respect the environment; 3) self-grown vegetables, vegetables produced on allotments made available by the local administration, to fulfill up to 50% of the school canteens' vegetable needs.

3.2. Qualitative data collection

For an effective qualitative survey, as already introduced in the second paragraph *Conceptual framework*, a progressive research action was conceived with the function of simultaneously studying the literature on the concept of community, semi-structured interviews, and group meetings.

The research was imagined as a tool for building a network of relationships to be activated about the project. For this reason, we opted for a qualitative research methodology and, specifically, for the ethnographic methodology from a socio-anthropological perspective. Schematically, the following are general characteristics of this methodological approach: travel (in the field/home contrast) (Marcus, 2007; Seppilli, 2003), prolonged stay in a well-defined place, the organization of discussion groups, participant observation and recording of everything observable and listenable through variable methods and techniques (structured and semi-structured interviews, field diary, audiovisual recordings) (Bayre *et al.*, 2016; Causey, 2016; Pink, 2011).

Ethnography is a research practice that is based on immersive attendance in contexts of interest, the so-called "field" (Palumbo, 1991; Ravenda, 2011), and is therefore located as close to people's experience and the concrete dimension of phenomena: «the ethnographic paradigm is grounded in systematic attention to context as a means of accounting for variation» (Csordad, 1992: 397).

Field research, in addition to producing data, information, and analysis ideas, generates relationships which, based on the choices of the various social actors – including the researcher – can branch far beyond the phases and objectives of the research. Long-term ethnography gives the possibility of producing knowledge (co-constructed with the social actors present in the field) and of identifying, through experience, new research paths that constantly manifest themselves with-

in the field's own relationships (Loce-Mandes, 2020). Following this line, anthropological research not only merges with the very life of the researcher, but it is possible that he/her can be "caught" within the same political dynamics of the "field": «The actions of social actors, through art related to a social use of anthropological research, problematises representations of disability and the political debates between social movements and institutions about the D/deaf body» (Loce-Mandes, 2020: 113). Specifically, ethnographies that concern issues related to community engagement and communities that deal with the awareness of environmental sustainability and health can not only be used by activists and social actors to spark debates in public space (Ravenda, 2016 and 2018), but at the same time transforming research actions into unexpected forms: «I engaged in ethnographic fieldwork, not only as a description and uncovering of social movements but also as an applied form of activist practice» (Loce-Mandes, 2020: 115).

The anthropological study presupposes a period of ethnographic observation, of the actions to be studied, and semi-structured interviews in depth with the social actors to analyze the construction process of the case study. In this case, the main creators of the project were involved, such as the municipality of Corciano and the cooperative that manages the school canteens. Specifically, group meetings were organized with the social actors, to reconstruct the genealogy of the project writing, subsequently, individual interviews were carried out to understand the motivations and the complex management strategies implemented. During the fieldwork research, collective interviews were carried out regarding the municipality of Corciano, observing the updating meetings of the organization of the food policy implemented by the ABN-social network for food service, community garden, and the recovery of surplus food, described in detail in the following paragraph.

The consortium started managing cooking facilities in school canteens in 2010 on behalf of the municipality, which was not able to fulfill the task. The project coordinator and, at the same time, the president of La Torre reported:

> They contacted us in 2010 to fill the gaps in the provision of this service; they were short of staff because of illnesses, and we performed better than the temporary staff agencies. We, as the social cooperative La Torre, won the tender together with a consortium of partners (from fieldwork diary, July 2020).

As described the work of the consortium was necessary to fill a "gap" in public administration; the public management of the school canteen had been going on for 5 years, and this allowed the managers to get to know the local dynamics, understand the needs of the area, and above all the needs of the school and the public administration, which consist in policies aimed at children in school canteens. Not being able to observe the canteens and their organization from the inside, several interviews were carried out in 2020 with the president, in particular on the definition of the menus, which are normally carried out through the availability of seasonal products and following the directives of the Ministry of Health and local health authorities.

The president of La Torre reported:

> 1) For the school menu, we also thought of adding detailed recipes to achieve the right balance of nutrients, such as exact quantities of vegetables, detailed use of spices, and creating a diet that resembled a scientific study. 2) The project is not all about food ... with the vegetable garden, every year we try to develop a different educational project for the children, with a nutrition-based theme. We had in mind an educational place, where children came to see cultivated crops. Not just a tomato seedling, but rows of crops to see. 3) Then, the management of the community food pantry that feeds many people every year; an average of 30 to 40 meals are distributed daily, and brought to people in need as indicated by the local authority (from field diary, July 2020).

What transpires from the organizational model of the consortium, and from what was reported by the president who developed the project analyzed here, is the close relationship with the territory, the community, and its wellbeing. During our investigation, we were often reminded that the project aimed not only at addressing economic questions but also at developing an impact over a long-term period of twelve years. This allowed them to work continuously on the children's nutrition from the beginning to the end of compulsory school, and at the same time, to involve young minds in a process of awareness of environmental sustainability and health through educational projects, such as the community garden. In particular, this step was fundamental to raising awareness in parents, who consequently got involved in the community engagement process.

Furthermore, participant observation of the meetings organized with the schools and the children's parents was carried out.

> Upon my arrival in September 2020, the beginning of the school year, I found many people inside the garden space, approximately fifty people of different ages. After a presentation of the day's activities and the cooperative's objectives concerning the space, we took a tour of the different crops. I stop to observe two separate spaces intended

> for horticulture: on one side I see families with children taking care of the plants and arranging the land, others taking vegetables ready to be harvested, and on the other side I see plants that no one touches. The coordinator explained to me that these are crops for food production and that they are the responsibility of the members of the cooperative (from fieldwork diary September 2020).

From the various activities of the community garden emerges the desire of the social actors to work on the awareness-raising paths of civil society through food re-education projects, food seasonality, and social well-being. These are all elements that fall within the framework of qualitative education for the involvement of communities in environmental sustainability and intergenerational relationships.

4. RESULTS

4.1. The organizational model

The cornerstone of the organizational model is the school menu which has been developed taking into account the following principles: 1) supplying proteins and carbohydrates not only through pasta and bread but also other foods such as legumes, cereals, rice, potatoes, fish, and eggs; 2) increasing the fiber intake with both cooked and raw herbs and vegetables, with a preference for raw; 3) promoting, where applicable, breakfast and/or snack time; 4) promoting knowledge of local traditions and its excellences; 5) opening towards other intercultural dimensions given the multi-ethnic nature of society.

To promote a healthier food culture and increase knowledge of productive food traditions in Umbria, several food items were identified not only because they meet the established criteria of origin, but also because of their strong link with the area and its traditions. These include organic wholemeal pasta and flours, cold-pressed Umbrian extra virgin olive oil, fresh and local eggs, cheese and dairy products produced in Umbria, Umbrian milk, short-chain organic yogurt, cured meats, and legumes grown in the region. For the same purpose, foods with the following characteristics were categorically excluded: food from GMO farming, rare-cooked meat, industrial frying, and breading items, flavourings containing glutamate, any type of preservative or chemical additive, semi-processed and/or pre-cooked products.

Instead, to raise citizens' awareness of the consumption of some products that could both come from local productions as well as from other countries, it was decided to occasionally introduce the following: lake fish, local legumes, and products from the fair trade.

To carry out what aims to be a food and cultural revolution, the project focused on the involvement of the children's families through nutritional education activities aimed at children and parents, and the suggestion of menus for the family evening meal. In addition, a training plan has been included, which is structured around the needs of the staff involved in the processes of production and distribution of meals, involving also the issue of the reduction of waste and surplus recovery for distribution to needy families. This plan has been conceived in a modular way, to ensure the participation of all staff gradually, and over the course of several years (Figure 2).

To ensure that the school menu constitutes a driver for the local integration between city and countryside – one in which the latter regains its productive and cultural functions – an agri-food supply was designed based on a local and zero-km platform, for the purchase of food and the self-growth of at least 50% of the school's vegetables and fruit needs, through the valorization of uncultivated land allotments owned by the municipality; the platform can also be accessed by all residents within the municipality (Figure 2).

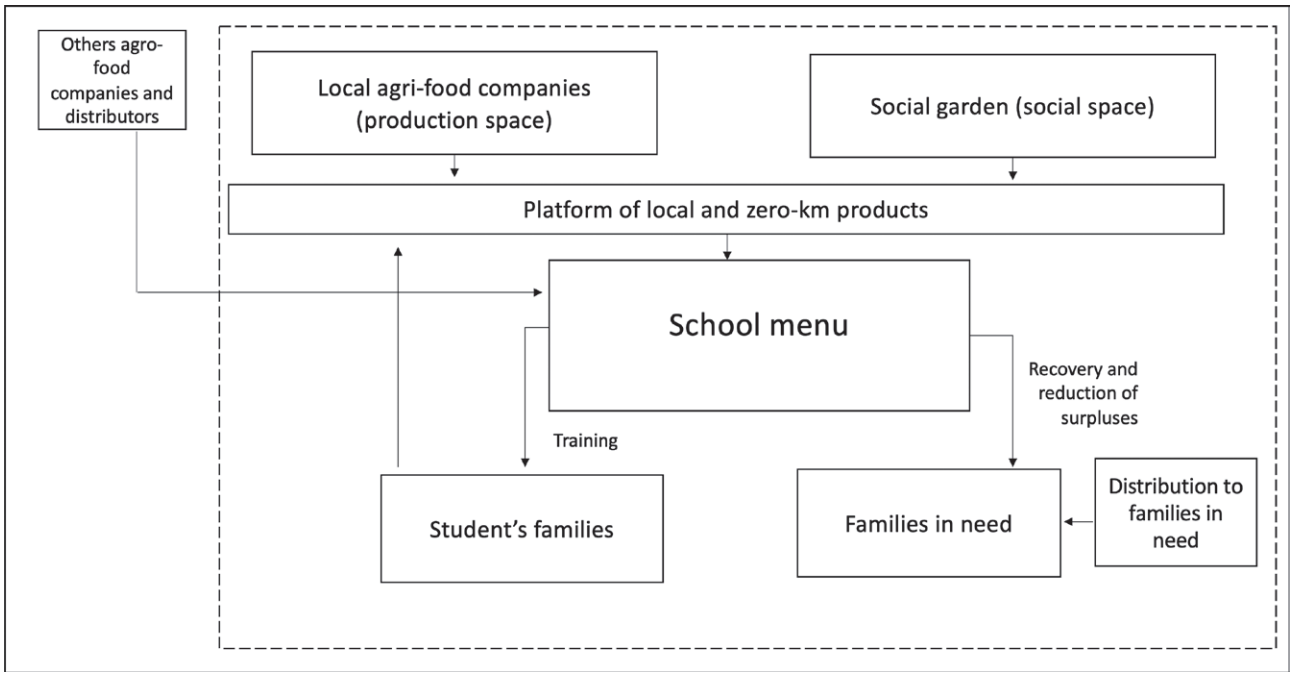
As can be seen from Figure 2, the school menu is at the very center of the organizational model, and this does not only refer to the importance of food quality in schools but also to the duration of the healthy eating program for young students. The project had planned 12 years of activity because this duration would bring positive change in food consumption over an adequate number of generations:

> There are two full cycles, one for the children aged six months and up, and one up to middle school. The project spans from the beginning to the end of the school cycle and starts at least a new cycle. The project will function as a trailblazer, then when we're done, someone else will manage it. Our goal is to accompany a child from the first day of school to the end of middle school. This project will span across 12 generations, only one of which, however, will see it from start to finish (from fieldwork diary, August 2020).

Engagement is a fundamental factor to trigger a close relationship between those who produce food and those who consume them, to bring two categories that belong to the same area, but which have been separated and distanced by globalization. Engagement is crucial to actively involve the local community in the construction of a space for awareness and connections, such as the school canteen, the community garden, and the community pantry:

> In the early years, we clashed with those children who brought to school snacks such as hot dogs, cream donuts,

Figure 2. Organizational food model around the school menu.



and maritozzo con la panna[2], trying to explain to the parents that they could not give these snacks because they completely upset the food balance we wanted to maintain. Then we tried to promote the playful and cultural dimension of food through seasonality, colorful sweets with seasonal strawberries, or sweets for the holidays (from fieldwork diary, July 2020).

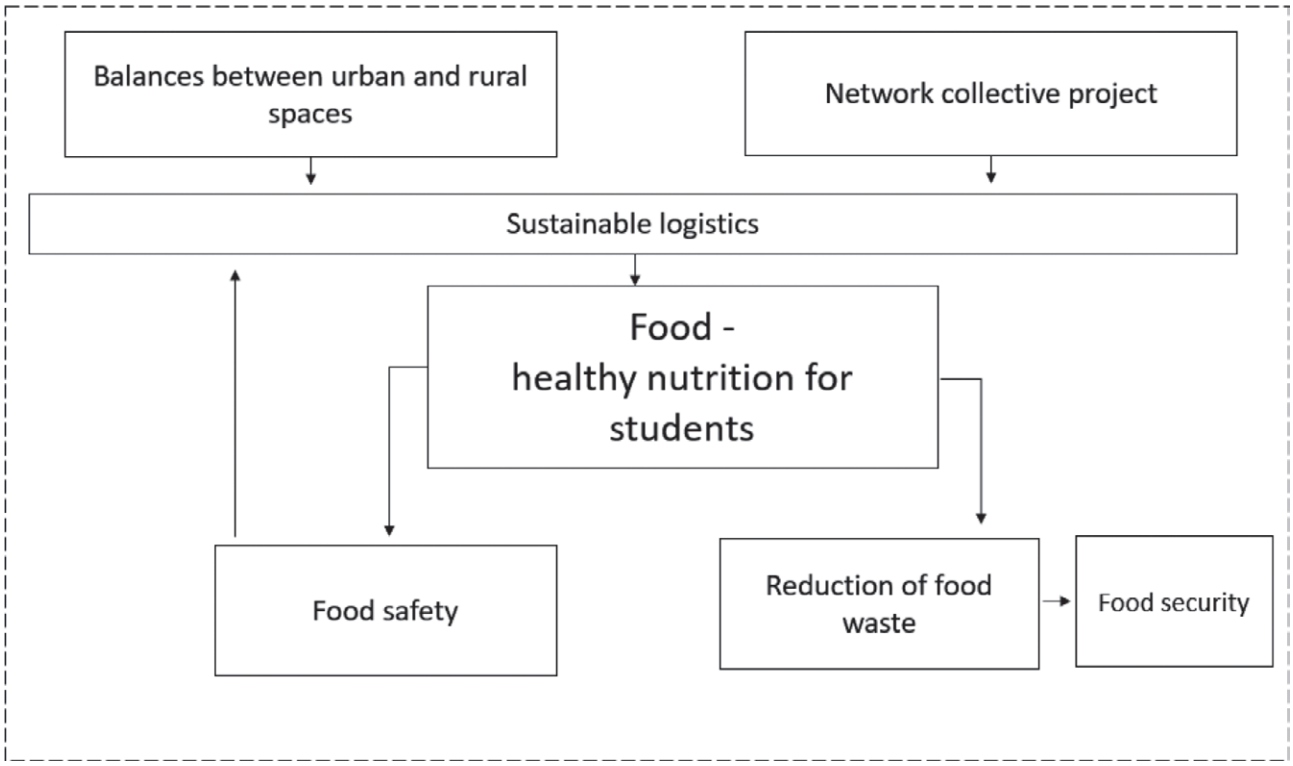
The organizational model described in Figure 2 can be translated into a conceptual model of a very refined local food policy, in which the collective project raises the provision of food allowing to reach three different kinds of objectives: food safety, healthy food availability, and food security, from the centrality of food and community engagement to the functional relationship between city and countryside (Figure 3).

Given the connection between local areas, production areas, and social spaces used for community engagement, which is connected to the consortium activities of the school canteen, it is necessary to analyse how certain practices of reappropriation and remodeling of such spaces are implemented by social actors, to address issues that concern the community's welfare. A recent analysis on the reuse and remodeling of space proposed by Low distinguishes two different ways of using and building social space: "The term social production was useful in defining the historical emergence and political-economic formation of urban space. The term social construction was reserved for the phenomenological and symbolic experience of space as mediated by social processes such as exchange, conflict, and control […] Both processes are social in the sense that the production and construction of space are mediated by social processes, especially because they are contested and fought over for economic and ideological reasons" (Low, 2011: 392). From these assumptions, it can be said that the project's connection with community engagement starts from community management, aimed at raising awareness of the community gardens, the community pantry, and the school canteens which focus on healthy eating. These spaces, aiming at the personal and social health of the community, are intended as a series of political actions to raise the citizens' awareness around environmental and economic-social toxins. The products that are sold and processed, the processes of education and knowledge exchange become therefore the result of actions that represent the "community", who tries to work on local networks and spaces for their global wellbeing.

Ultimately, the project's organizational model through processes of community engagement not only can combine the environmental, social, and health dimensions of food, but it can also reshape the local concept of community, triggering processes of intergenerational awareness, as well as new opportunities for the circulation of food products.

[2] A sweet bun with whipped cream, typical of Central Italy.

Figure 3. Local food policy around the food-healthy nutrition for students.



4.2. Economic assessment of the organizational model

To evaluate the results obtained from implementation of the PF the pre-Covid period in which all the planned actions had been activated was taken into consideration (years 2018 and 2019).

The number of meals served has averaged 221,000 per year, of which 59% concerned children of nursery schools, 40% concerned pupils in primary schools, and 1% concerned pupils of lower secondary schools. The price of a single meal was set at 6.11 euros, higher than the average price of a canteen meal in the province of Perugia which in the same period was 4.70 euros, but in any case, lower than the price paid in other municipalities in the province (which, in some cases, exceeded 8 euros per meal). This price fluctuation is partly attributable to the different methods to manage the Umbrian school catering service, which can be traced back to four main categories: 1) direct management, where the municipality manages the service provision (12% of the Umbrian municipalities); 2) indirect or outsourced management, where all phases of the service are entrusted to an external company (68%); 3) mixed management, in which the so-called canteen committee carries out some of the phases while entrusting others to external providers (18%); 4) assignment in PF of a service concession, as in our case study (2%). Among these, reliance on PF is certainly the most complex and rooted in social the local economic issues – factors that can amply justify a canteen meal price that is 30% higher than the average price.

The municipality of Corciano contributes to the cost of the consumed canteen meals by integrating the fees paid by the families who, in turn, contribute according to their financial situation, and to the number of children who use the service. The service generated an average revenue of 1,350,000 euros in the years 2018 and 2019, 39% of which was covered by the municipality and 61% by families.

The analysis of income statements allows to evaluate the economic and financial sustainability of the PF. Table 1 provides an overview of the average values of the income statement for the two years 2018 and 2019. The higher costs are related to the use of operational staff (43%), which added to the costs for staff in administration, control, and coordination (6%). The 30% of the cost of raw materials is represented by the cost of procuring food and 5% for the costs incurred in farming fruit and vegetables. Expenditures for total wear and tear factors are represented by those costs addressing utilities (3%),

safety (2%), and maintenance (2%). The costs for depreciation relate to investments made from 2015 (3%) and were estimated by applying a depreciation rate of 8.4%. A further 3% is represented by the cost of bank charges relating to the opening of a mortgage to cover investments. The costs for the activities linked to the canteen service add up to 4% of the total annual costs, and in particular, 2% is represented by solidarity activities linked to the distribution of surplus food to about 370 needy families, and the other 2% is represented by training courses for operational staff and pupils' families, and for the organization of meetings aimed at building an aware, open and supportive community.

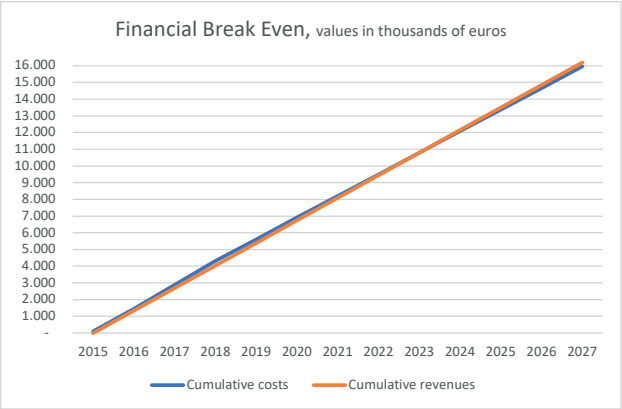
Against the revenues and costs examined, the net income for the year is positive and represents 1.5% of revenues. Estimating such a result for all 12 years of the PF, and considering the financial outlays needed for the investments, the result is a positive economic and financial assessment based on an estimated net present value of 195,000 euros, an internal rate of return of 11% and a financial break-even reached in 2023, 9 years after the start of activities (see Graph 1). It should be noted that the cumulative revenue line is always very close to that of the cumulative costs, a situation that underlines how the economic/financial balance of the PF is quite precarious and very sensitive to market variations, both regarding the overall demand for canteen meals, and the procurement of raw materials and workforce.

Table 1. Income statement of ABN-social network, average values for the years 2018 and 2019.

Income statement items	Value in Euros	%
TOTAL REVENUES	1,350,000	
TOTAL COSTS	1,329,750	*100*
of which:		
Operating staff	567,000	*43*
Administrative, control, and coordination Staff	81,000	*6*
Food supply	405,000	*30*
Production of vegetables and fruit	67,500	*5*
Food security	20,250	*2*
Utilities	40,500	*3*
Maintenance	27,000	*2*
Depreciation	37,800	*3*
Training courses	13,500	*1*
Solidarity activities	29,700	*2*
Community engagement meetings	6,759	*1*
Bank charges	33,750	*3*
NET INCOME	20,250	

Source: Our elaborations on the date of the ABN-social network.

Graph 1. Financial break-even of the Project Financing.



During the period of COVID-19, the organizational model of school canteens in Corciano has proved flexible in responding to new needs related to the reduction of users and new more restrictive rules in the distribution of meals. Instead, the inflationary pressure created by the international situation following the occupation of Ukraine has proven to be more problematic. Recognizing the inflationary adjustment required by law for the private body is proving to be difficult for the small municipality.

5. DISCUSSION

In most cases, the management of school canteens in Italy takes place through the allocation of the service to an external company, while the assignment in PF is less common, due to its complexity which requires greater planning efforts by the public body, and a strong propensity for investment by private body. Both planning and investment propensity have a common matrix, as they are rooted in society and the local economy. The case study can be considered a clear example of how it is possible to work together to develop a food system that uses and enhances the resources of the territory from production to consumption, thus contributing to the three components of food security (food availability, food access, food utilization) and the three components of social welfare (income, employment, social capital). It represents an integrated food governance approach that stresses the multifaceted and interrelated nature of food challenges and addresses them in a concerted manner (Mendes, 2007).

In the model examined, 80% of available food comes from self-supply on a local scale, and from a distribution system based on a logistic platform of local and zero-km

products. The determining factors for such availability can be found in supply agreements with 4 organic farms in the area, commercial agreements with 10 regional agri-food companies, the production of fruit and vegetables on municipality allotments, the control of production, transport, management of storage facilities, and the compliance with safety standards.

Food access is guaranteed by the fact that all families can afford the canteen service, thanks to the pricing policy adopted by the municipality which takes into account the income of families, and the number of children who use the canteen service. The fact that families can buy local and zero-km platform products for home consumption amplifies the accessibility to local food and the possibility for families to express their buying preferences for the products of their territory. In addition, the recovery of surplus food and its distribution to needy families widens accessibility to a greater number of families by introducing principles of solidarity.

The food utilization is linked to three determining factors, strongly related to food education that consumers receive in terms of nutritional value, social value, and healthiness of food. From the perspective of the collective project, therefore, one can point out that in the case study, an effective coherence between motivations and ends is achieved, based on the degree of freedom guaranteed by the network and the municipality. The educational project aimed at cultural change in food consumption and, therefore, included an educational project based on food and healthy lifestyles with the involvement of both individuals (students, families, operators of canteens) and the community (municipal administration, school head office). The activities offered to students and families are of different types, from cooking workshops to improve knowledge of food, to the collection of experiences with parents on economic practices related to grocery shopping; from environmental education to understand the seasonality of foods and the importance of organic and zero-km productions, to the relationship between health and prevention through physical activity and conscious consumption.

From the point of view of social welfare, the case study demonstrates great potential for the production of income, employment, and social capital. The production of income concerns both the food supply companies, which can count on stable supply contracts and territorial competition for quality and artisanal products, and the consortium company responsible for the project management, which obtained dividends during the first years of activity. Occupation levels, concerning the direct management of the canteen service by the municipality before the granting of project finance, were not only maintained but increased with the hiring of 2 working units for the management of the community garden and the zero-km platform, and 1 working unit for the recovery of surplus food. In addition, the work placement of 3 disadvantaged people was carried out in collaboration with the local services and social structures. During the COVID-19 pandemic, due to the stricter rules on the portioning and distributing of meals, the canteen service required the temporary hiring of 4 other working units that were contracted by the municipality. Social capital, understood as a network of social relationships, norms, values, and shared knowledge that facilitate cooperation within different groups (OECD, 2011) was certainly a pre-existing element to the formulation of the PF which, with the implementation of the project, has expanded the business structure involved. The stakeholders of the catering service currently range from users (pupils, families, teachers) to municipal managers, from workers to the management bodies of the consortium company, from suppliers to third sector associations, from regulatory bodies (ASL[3], certification bodies) to companies that donate and distribute their surplus food (including Brunello Cucinelli SpA and the non-profit Banco Alimentare).

The local resources are often used to encourage relations with the territory, while food education courses allow the maintenance of relationships centered on the canteen, between the workers assigned to the meal production, the teachers, and the parents.

From a social point of view, the recovery of surplus food in connection with the community pantry is one of the strengths of the entire project. The idea of a community pantry, focused on recovering surplus food and distributing meals and raw materials produced in the area, saw the involvement of local companies that share the vision of lowering food waste and disseminating the principles of solidarity amongst citizens. These actions of great ethical and moral value also aim at raising awareness among the new generations about the requirements of those most in need, as well as reducing food waste: it is not only a question of avoiding waste, but also of redistributing for those in need. It is apparent that a community pantry activated within a school food policy does not solve the problem of poverty per se and then other appropriate welfare-support measures are necessary. There are a lot of critiques on local redistribution systems that are not backed up by more structural measures (Psarikidou *et al.*, 2019; Galli *et al.*, 2019; Rob and Cattaneo, 2021; Papargyropoulou *et al.*, 2022)

[3] ASL (Azienda Sanitaria Locale) indicates the body for national health service.

The case study highlights the economic and social sustainability of the organizational model of PF realized in a small municipality. However, the great variety of school food situations does not make a good practice easily replicable everywhere, although PF is increasingly being used by public bodies. To apply the model in other contexts, the following basic conditions should be met: i) the local public body has to identify the priority objectives to be achieved and ii) the private bodies have to be of the third sector because they naturally have a social and inclusive approach. It should be borne in mind that long-term projects can suffer negative repercussions due to crises outside the local system, as in the case of COVID-19 and the invasion of Ukraine. Due to superficial union disputes or shortsighted political disputes, some objectives may only be partially achieved. In these cases, it is only the intelligence of individuals that makes the difference.

The urban food policy analyzed provides an example of constitutive processes undertaken by civil society to intervene in local food systems and to innovate its governance pattern (Martino *et al.* 2016; Duncan e Pascucci, 2017; Dedeurwaerdere *et al.*, 2019). This governance innovation locally articulates the processes of food democracy (Lang, 2005; Hassenein, 2003; Stella *et al.*, 2022; Borsellino *et al.*, 2023). Moreover, the case also illustrates that food networks can contribute to the provision of public goods, by health co-production and environment protection (Martino *et al.*, 2016). From the perspective of the collective project (Dufeu *et al.*, 2020; Le Velly, 2019), one can point out that in the case study, an effective coherence between motivations and ends is achieved, based on the degree of freedom guaranteed by the network and the municipality.

Two main contributions can be drawn from the emerging picture. First, food networks seem to be effectively able to sustain the transformation of the local food supply becoming an actor of local food policy. Second, food networks also appear to be able to include public entities (schools, municipality), while they in turn become actor of the transition.

Finally, we considered what might occur once the project is finished in 2027. The local municipality, if will still be responsible for public school meals, would like to repeat the experience of PF or to consider the possibility of transforming the consortium of cooperatives "ABN-social network" or the vehicle entity "Corciano mensa" into a public utility company. The consortium of cooperatives is receptive to both possibilities and also contemplates transforming into a service catering company.

6. CONCLUSION

Some interesting reflections emerge from this work. First, local municipalities can play a fundamental role in local food governance by promoting "new links and new relations between different stages and actors of the food chain" (Sonnino, 2009: 429). Although the integration of food policy at the local government level is a relatively new concept (Candel and Pereira, 2017), empirical studies (Cretella and Buenger, 2016; Hawkes and Halliday, 2017) such as this one highlight that interesting socio-economic results can be achieved using innovative tools.

Second, more research is necessary to compare the characteristics of different local integrations of food policy in different geographical areas, and in different economic contexts, as recently done by Sibbing and his collaborators (Sibbing *et al.*, 2017). This will allow us to better understand the results of food policy integration at a local level, and to build a database of typologies of food system interactions which could be useful for different management or analytical purposes (Ericksen, 2008). Furthermore, actions should be monitored and evaluated according to the objectives proposed by the policy itself.

Third, in highlighting its virtuous actions but also the reasons and the steps behind its design, this contribution emphasizes the project's need for in-depth knowledge, or better still ethnographic knowledge, to structure projects aimed at the development of community welfare (Loce-Mandes and Ravenda, 2021).

From these assumptions, it can be stated that the connection between community engagement and multifunctionality starts precisely from the community management of green areas, urban gardens, social farms, and school canteens focused on healthy eating – spaces for the personal and social health of the community – understood as a series of political actions to raise awareness among citizens about environmental and economic-social toxins. The products sold and processed, the educational and knowledge exchange processes become the result of actions that represent "collectivity" and try to work on local networks and spaces for global well-being. Thus, agriculture in a multifunctional key through the community engagement process manages not only to combine the environmental, social, and health aspects connected to food but also to reshape the more personal aspects of food production, job placement, relationships between city and environment, of intergenerational encounters and on environmental protection with feedback on human health, triggering new possibilities and imagined and practical designs for a sustainable future.

Only through this knowledge, it was possible to structure community actions for public health through

a community engagement process that included school, family, agri-food sector, and citizenship – thus without the institution, in this case, the municipality of Corciano, acting with laws and decrees from above to improve the health of their citizens, like a "nurse-state" (Vineis, 2020). The case reported shows a virtuous line of action, "a unitary line on community welfare, made up of actions and strategies to activate regenerative processes above all through stakeholder activities and community engagement" (Loce-Mandes and Ravenda 2021: 216).

Fourth, to make local municipal food policy integrations stronger and more impactful, it would be desirable to resort to a food sovereignty plan at the local level by applying a decision support system (DSS) (Stella *et al.*, 2019), whose outputs can be used to coordinate the stakeholders involved in the food supply, to build a food production system capable of increasing the resilience of the territory and experimenting with paths of "food sovereignty".

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Short communication

Cereals market: a focus on Italian import and price volatility in a war period

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Abstract. The conflict between Ukraine and Russia raises several questions and uncertainty about the cereal supply chain and market trends. This international crisis and other factors influencing the market, such as the environmental and climate ones, have placed greater attention on Italy's dependence on foreign countries for some important products for our agri-food industry, including cereals and feed for the livestock sector. The Italian pasta industry, as well as bakery products, need a constant and large supply of wheat, which often comes from foreign markets. This also applies to the livestock sector, with relevant imports of raw materials from abroad for the feed sector. International events also affected Italian cereal imports, although Italy does not strongly depend on the Black Sea for these products. This article provides an analysis of the Italian import of cereals in the recent period when market instability linked to the conflict and other factors emerged. The study also focuses on the forecast for the future and on the role of price dynamics.

Keywords: cereal prices, cereal products, Italian imports, forecasting, Black Sea Grain Initiative.
JEL codes: F01, F51, Q11.

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HIGHLIGHTS

- The international crisis has further highlighted Italy's dependence on foreign countries for cereals.
- International events also affected cereals' Italian imports, especially on the price side, although Italy does not strongly depend on the Black Sea.
- International cooperation between countries is becoming increasingly important to face current and future challenges.
- Caution must be employed in forecasting cereals production and prices because different events cause uncertainty.

1. INTRODUCTION

The COVID-19 pandemic and the war in Ukraine created significant challenges such as price volatility, sudden price hikes and supply chain disruptions, including food staples both for developed and developing countries.

Russia and Ukraine are key suppliers of wheat globally with a share of 28% in 2021 (FAO, 2022). The conflict drastically reduced the supply of wheat exports from these regions until the signing of the Black Sea Grain Initiative[1] (Mottaleb *et al.*, 2022).

The negative impacts of the conflict, specifically on energy, fertilizer and feed prices, and the consequence of food price inflation affecting consumer decisions, with purchasing power decreasing globally due to the economic slowdown is well-known (Benhassi, El Haiba, 2022; Fang, Shao, 2022). In 2021 Russia was the world's top natural gas exporter, second-largest oil exporter, and third-largest coal exporter (IEA, 2023). Russia is also the world's top exporter of nitrogen fertilizers and a leading supplier of potassic and phosphorous fertilizers (FAO, 2022) with a share of more than 15% of global fertilizer exports in 2020 (UNCTAD, 2022). Many European countries import a significant share of their energy from Russia, such as natural gas (35%), crude oil (20%) and coal (40%) (World Bank, 2022). Inputs-costs are continuing to be above average, although energy and fertilizer prices have started to slow down. Russia's aggression against Ukraine with the actions taken in response to the aggression have significant implications both on the supply and demand side given the role of these economies in the global agricultural and input markets. Reduced cereals and oilseeds export availability from Ukraine hiked up international food and feed prices, and global energy and fertilizer prices.

The agri-food sector is strictly related to energy and fertilizer prices which, as stressed, have an impact on the contribution to food price increases. However, several actions such as the suspension of import duties and quotas on Ukrainian exports to the European Union (EU), as well as the Solidarity Lanes and the Black Sea Grain Initiative have eased trade by alleviating economic pressure (EC, 2023). As pointed out in the World Bank Outlook (2022), prices changed for key food and non-food commodities. Since April 2022, the world crude oil price increased by almost half, palm oil and wheat prices rose by two-thirds and natural gas and fertilizer prices have more than doubled. Whilst maize and rice prices were less affected by the crisis, with world rice prices declining over the year. Prices increased after the conflict, even though the fertilizer price increase happened before the start of the war because of the export ban imposed by China (Hebebrand, Laborde, 2022).

Global agriculture also is facing another important challenge in terms of capacity for resistance and adaptability to the impacts caused by several phenomena of climate change. The "La Niña" climatic pattern in the Pacific Ocean has affected most of the EU regions and winter droughts have deteriorated water availability in areas where water recorded new low flow levels. Extreme weather events are becoming more frequent, increasing uncertainty in agriculture. The causes of grain yield variations and prices around the world are a research topic of primary interest also considering recent market shocks. Scholars are more often investigating the extent to which grain prices were affected by climate variability or mediated through climate-influencing factors (Steen *et al.*, 2023; Kumar, 2022; Ljungqvist *et al.*, 2022).

The international crisis and other factors – such as the environmental ones – influencing the market, have placed greater attention on Italy's dependence on foreign countries for some productions that are important for the Italian agri-food industry, including cereals, vegetable oils and animal feed. International events also affected Italian cereal imports, although Italy does not strongly depend on the Black Sea for these products.

Italy is particularly interested in global market cereals trends, given its foreign dependence on raw materials for relevant industries such as pasta and cereal derivatives. The total export of cereal derivatives exceeded six billion euros in 2022, more than 13% of all Italian agri-food exports. Pasta is a "Made in Italy" product that is constantly growing on international markets. Italy is the first pasta-producing country with 3.5 million tons per year and more than 100 mills dedicated exclusively to milling durum wheat of the over 300 that process wheat. Added to these, there are 120 pasta-producing companies, many with centuries-old traditions, which employ over 10,000 people. In 2022, the Italian export of pasta reached a record value of 2.8 billion euros, equal to about two million tons. Exports to EU countries are about half of the total, and other important markets are North America and Asia. Germany, the United Kingdom, the United States of America (USA) and France are the main destination markets, accounting for over 50% of Italian exports.

Concerning the effect of the energy crisis, Arzeni *et al.* (2022), using Italian FADN (Farm Accountancy Data Network) data, identified and quantified the different components of production costs. From the analysis an increase in the durum wheat production costs, energy and fertilizers ones clearly emerged. The authors also observed the effects on the Italian farms' economic performance in the first months of the conflict. These costs surged, showing a percentage increase in current costs between 76% and 80%.

Within this perspective, the aim of this short communication is twofold: a) providing an overview of the

[1] The Black Sea Grain Initiative was a deal brokered between Russia and Ukraine by the United Nations and Turkey, signed in Istanbul on 22 July to safely export grain from certain ports of Ukraine.

major cereals' prices and trade evolution, at both international and national level; b) offering an analysis of the effects of the international crisis on cereal imports by Italy. The manuscript is organized in the following sections. Section 2 focuses on the international cereals markets; section 3 shows data on the Italian import of cereal products; section 4 gives an overview of international prices, and the final section includes discussions and some lessons learned.

2. INTERNATIONAL CEREALS MARKET OVERVIEW

According to data from the International Grains Council (IGC), world cereals production amounted to 2,270 million tons in the year 2021/2022, a value that has increased over the last few years (Table 1). Maize is the main cereal by production volume, amounting to more than 1,180 million tons in the reference year. Much of the maize produced is used in animal feed, rather than for human consumption or industrial use. Over a third of cereal production is wheat, with over 780 million tons in 2021/2022. Unlike maize, most of the wheat produced is intended for human consumption. Maize and wheat represent most cereals produced worldwide (86.7%), followed by barley, with more than 180 million tons produced in 2021/2022, used mainly as animal feed.

According to the OECD/FAO Outlook (2022), over the next decade cereal production is expected to increase by 343 million tons (+12%). Almost half of this increase will come from maize, while wheat and rice account for about 20% each, and 10% is other coarse grains. More than half of the increase in wheat will originate in India, Russia and Canada. The USA, China and Brazil account for more than half of the increase in maize production.

The majority of world cereal production in 2021/2022 was concentrated in three areas: the USA, with around 440 million tons, China with 419 million and the EU, where cereal production was just over 291 million tons (OECD/FAO, 2022). Overall, about half of the world's cereal production and consumption (food, industry and seeds) flow from these three areas. Other areas playing a notable role in the production and export of cereal products are India, with over 160 million tons produced, and Russia with 114 million tons.

Globally, about 18% of cereal production is traded internationally, ranging from less than 3% for rye to 24% for wheat (IGC, 2023). Trade in cereals presently accounts for about 18% of global consumption and is projected to marginally increase by 2031. It is an important source of food and feed for importing countries. The share of traded cereals production is projected to marginally increase by 2031, largely due to wheat and rice. In volume terms, net cereal surpluses and deficits show a clear regional pattern (OECD-FAO, 2022). Traditionally, the Americas and Europe supply cereals to Asia and Africa, where rising food demand from growing populations and higher feed demand from expanding livestock sectors means that demand will expand faster than domestic production (OECD-FAO, 2022). Russia was the main wheat exporter in 2021/2022, with almost 36 million tons exported (Table 2).

Over the past five years, Russia and Ukraine accounted on average for 10% and 3% of world wheat production respectively (OECD, 2022). These two countries are the first and fifth exporters of grain with a share amounting to 20% for Russia and 10% for Ukraine. The role of these countries as grain suppliers to global markets is well established, especially in developing countries. Most of the smaller emerging econo-

Table 1. World supply and demand of grains, 2021/2022 (million tons)

Product	Opening stocks	Production	Total supply	Use				Exports	Closing stocks
				Food	Feed	Industrial	Total a)		
Wheat	292.1	782.2	1,074.3	538.1	145.6	23.3	769.4	183.1	304.9
Maize	274.6	1,184.8	1,459.4	133.0	705.9	314.8	1,195.5	186.6	263.8
Barley	31.7	151.3	183.0	7.3	104.0	30.6	153.0	29.5	30.0
Sorghum	5.8	62.9	68.7	31.5	5.6	24.0	63.0	7.8	5.8
Oats	3.8	25.7	29.6	5.6	17.0	0.1	25.3	2.5	4.3
Rye	1.5	13.7	15.2	6.5	5.0	1.5	13.7	0.4	1.5
Other Grains	6.4	48.5	54.9	23.1	19.4	1.2	48.2	0.3	6.7
Total Grains	615.9	2,269.1	2,885.0	745.0	1,002.5	395.5	2,268.1	410.1	616.9

a) Including seed and waste.
Source: IGC, 2023.

Table 2. Wheat and maize world trade (million tons).

Wheat			
Exports		Imports	
	2021/2022		2021/2022
Russia	35.7	Far East Asia	57.9
EU	28.0	of which Pacific Asia	46.2
USA	26.0	Africa	55.1
Canada	25.0	Near East Asia	25.8
Ukraine	18.0	S America	15.5
Australia	16.3	N & C America	12.5
Argentina	14.2	Europe	8.2
Kazakhstan	6.8	CIS	7.4
Eight major exporters	170.0	Oceania	1.1
Others	13.1	Others	2.0
World Total	183.1	World Total	183.1
Maize			
Exports		Imports	
	2021/2022		2021/2022
USA	63.2	Far East Asia	68.8
Brazil	38.1	N & C America	28.8
Argentina	32.6	Africa	25.1
Ukraine	31.1	Near East Asia	23.3
Four major exporters	165.0	Europe	22.7
EU	2.9	S America	16.6
Canada	1.5	Cis	0.4
Others	17.1	Others	0.9
World Total	186.6	World Total	186.6

Source: own elaboration from IGC (2023).

mies and developing ones depend heavily on Russian and Ukrainian supplies. African countries, developing Europe, and the Middle East import wheat from Russia and Ukraine. Developed countries mainly the USA, Australia, Canada, and the EU, are not reliant on Russia and Ukraine products, being themselves major suppliers of grains and oilseeds (World Bank, 2022).

3. ITALIAN IMPORT OF CEREALS PRODUCTS IN A WAR PERIOD

The international crisis has further highlighted Italy's dependence on foreign countries for some important products for our agri-food industry, including cereals and feed for the livestock sector. The Italian pasta industry, as well as bakery products, need a constant and large supply of wheat, which often comes from foreign markets. This also applies to the livestock sector, with relevant imports of raw materials from abroad for feed. Russia and Ukraine are among the world's leading exporters of cereals and products for the feed industry, and the current crisis is inevitably having consequences on the availability and prices of these raw materials.

The degree of self-sufficiency is computed as a percentage share of domestic production compared to estimated domestic consumption. This index is particularly low for common wheat and maize, around 35-40%. For maize, due to a sharp increase in imports in recent years, there is a further erosion of the level of self-sufficiency. For durum wheat this index is higher and improving (70%); however, it is still far from self-sufficiency and the recent domestic price decline could worsen this situation due to possible fewer plantings and available production. For all these products, Italian exports are marginal.

In 2022 Italy imported over 14 million tons of cereals, for a value of 4.9 billion euros. These are mainly maize and wheat, which together represent over 93% of foreign cereal purchases. Due to the increase in international prices, in 2022 the value of Italy's cereal imports rose by over 50% while imported volumes by only 12%. Driving this trend are maize imports which, after the decline in the last two years, are rising by over 80% in value and 30% in volume compared to 2021 (Table 3). Also, for other cereals, there is a strong misalignment between the trend in value, clearly growing, and quantity, essentially stable compared to 2022 (slow down for durum wheat). Two issues are emerging: on the one hand, the aforementioned increase in import prices drives the dynamics of trade value in the last year, on the other, we observe how, even in a year characterized by conflict and market instability, the cereal supply to Italy does not seem to be affected[2]. The monthly analysis of the Italian cereal imports also confirms this trend (Figure 1). Indeed, after a supply contraction in the first months since the start of the conflict, as early as July, in conjunction with the signature of the Black Sea agreement and the market tensions easing, the supply trend is back in line with 2021. Therefore, both the agreement and other initiatives put in place to limit the effects of the conflict on commodities have generated some beneficial effects. In particular, the EU has become a key

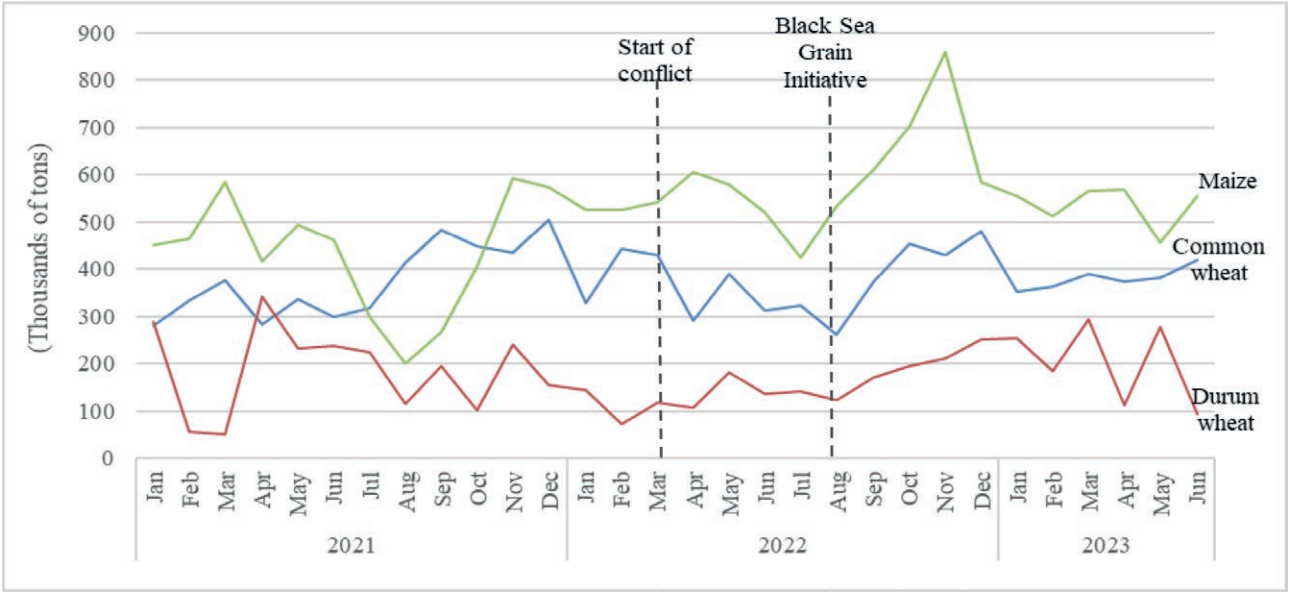
[2] The only drop in quantity, linked to various factors, is that of durum wheat imports, for which the role of supplier worldwide and for Italy is marginal.

Table 3. Italy's import of cereals (excluding sowing), 2019-2022.

	Values (Million Euros)				Quantity (Thousands of tons)			
Product	2019	2020	2021	2022	2019	2020	2021	2022
Durum wheat	618.5	798.4	721.3	912.5	2,413.8	3,025.5	2,239.3	1,848.0
Common wheat	925.9	864.6	1,097.4	1,556.3	4,573.2	4,355.4	4,506.1	4,512.5
Rye, barley, and oats	95.9	86.1	140.3	199.8	517.3	505.6	670.9	753.2
Maize	1,042.6	977.9	1,119.8	2,116.1	6,297.5	5,975.3	5,209.3	7,012.1
Paddy rice	17.6	8.9	18.6	26.2	49.2	19.1	48.6	41.3
Other cereals	43.9	52.9	48.3	89.8	143.4	176.1	113.0	189.9
Total cereals (excl. sowing)	2,744.4	2,788.7	3,145.7	4,900.6	13,994.3	14,056.9	12,787.1	14,356.9
Weight % on Agri-food imports	*6.2%*	*6.6%*	*6.5%*	*7.9%*				

Source: own elaboration on ISTAT, Commercio estero.

Figure 1. Italian import trends of common wheat, durum wheat and maiz.



Source: own elaboration on ISTAT, Commercio estero.

importer and transhipment point for Ukrainian grains under the Solidarity Lanes initiative and the zeroing of import duties on these products from Ukraine (USDA, 2023). However, these initiatives also produced political tensions in Eastern Europe. The high quantities of Ukrainian cereals arriving in neighbouring countries, such as Poland and Hungary, and the resulting damage to local farmers, have led to the application of import restrictions from Ukraine.

A further interesting aspect emerges from the analysis of the cereal sector's weight on the total value of agri-food imports. This value has been 6-6.5% in recent years while in 2022 it reached 7.9%. Although the inflationary dynamics in 2022 concerned the entire agri-food sector, both the cereal sector and seed oil were markedly affected by the increase in prices, given the global role of Russia and Ukraine as producers and suppliers. Added to this is the joint effect of other factors, such as the environmental and speculative ones as previously stressed.

The structure of Italy's main cereal suppliers did not undergo major changes after the start of the conflict. In 2022 for common wheat, Hungary, France, Austria, and Slovenia continue to concentrate more than half of imports (Table 4). Unexpectedly, the role of Ukraine is strengthened, thanks to the incentive measures put in place by the EU. This trend is also confirmed by the data

Table 4. Italy's main suppliers of durum and common wheat and maize (excluding sowing), percentage shares.

Durum wheat			Common wheat			Maize		
Countries	2021	2022	Countries	2021	2022	Countries	2021	2022
Canada	*45.8%*	*32.9%*	Hungary	*22.6%*	*18.4%*	Ukraine	*15.1%*	*17.6%*
France	*6.8%*	*18.4%*	France	*15.7%*	*16.5%*	Hungary	*29.4%*	*17.5%*
Greece	*8.1%*	*14.7%*	Austria	*12.0%*	*9.4%*	Brazil	*2.4%*	*12.3%*
Australia	*17.5%*	*7.4%*	Slovenia	*8.0%*	*8.2%*	Croatia	*10.3%*	*12.2%*
United States	*6.8%*	*6.9%*	Ukraine	*2.7%*	*7.9%*	Slovenia	*11.3%*	*9.2%*
Kazakhstan	*3.4%*	*5.5%*	Croatia	*5.7%*	*7.7%*	Romania	*7.0%*	*8.1%*
Austria	*1.2%*	*2.6%*	Romania	*5.5%*	*6.5%*	Austria	*9.1%*	*6.1%*
Turkey	*1.7%*	*2.5%*	Canada	*4.4%*	*4.7%*	France	*3.8%*	*5.6%*
Russia	*2.6%*	*2.2%*	Germany	*5.2%*	*4.2%*	South Africa	*3.2%*	*3.0%*
Slovakia	*0.3%*	*1.8%*	Kazakhstan	*1.1%*	*3.7%*	Republic of Moldova	*0.7%*	*2.0%*

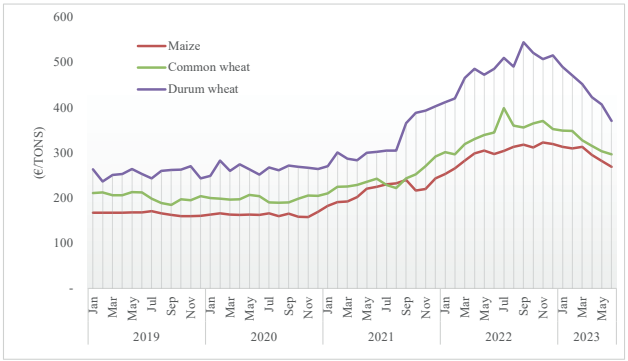
Percentage shares are calculated on quantities.
Source: own elaboration on ISTAT, Commercio estero.

for the first months of 2023, with a further increase in the percentage weight of Ukraine.

Canada remains Italy's reference market for the supply of durum wheat, although the volume share decreased significantly in 2022, going from 46% in 2021 to 33% in 2022. The weight of France as a supplier to Italy is growing sharply (18% in 2022), offsetting the lower flows from Canada, as already happened in 2019 (Figure 2). In 2022 France and Canada together supply more than half of our imports. Australia's role is downsizing, after the peak reached last year. The changes in the weight of durum wheat suppliers are mainly linked to aspects other than those generated by the conflict, primarily, the production trend in Canada. The excellent Canadian production of the last year is determining a further increase in Canada's weight as an Italian supplier in the first months of 2023; consequently, France and Australia reduce their role.

Ukraine, in addition to being among the main world exporters, is also a key actor as a supplier of maize to Italy. Ukraine in 2022 became Italy's top supplier of maize (excluding sowing), with 1.23 million tons, up sharply from 785,000 tons in 2021. This translates into a more than doubled value of imports, with a sharp increase in the average unit import value. In the first months of 2023, as already seen for common wheat, Ukraine's role as a supplier to Italy rises for maize. In 2022, also the role of Brazil as a supplier of maize to Italy has grown, reaching 12% equal to over 860 thousand tons. Brazil, offsetting the collapse of production in Argentina linked to drought, is also climbing positions worldwide among producers and exporters of cereal products, gaining from the scenario strongly conditioned by geopolitical tensions and climatic adversities.

Figure 2. Trend of the average unit value of Italian imports (€/Tons).



Source: own elaboration on ISTAT, Commercio estero.

The reduction of tensions in the international cereal markets since mid-2022 affected the average unit import values of these products, which after a first stabilization at the beginning of 2023 started to decrease. Despite this reduction, the values remain higher compared to the former period. Figure 2 shows a similar trend for all products. Although the conflict has worsened inflation dynamics, these were already underway since mid-2021, with several factors such as the bans imposed by China, post-COVID effects and speculations.

4. THE ROLE OF PRICES

Understanding the cereal prices dynamic is worthwhile for many actors. For the agricultural sector, cereals' sale is a source of revenue; for industries, they are input

Figure 3. Price trends of grains and oilseed from January 2022.

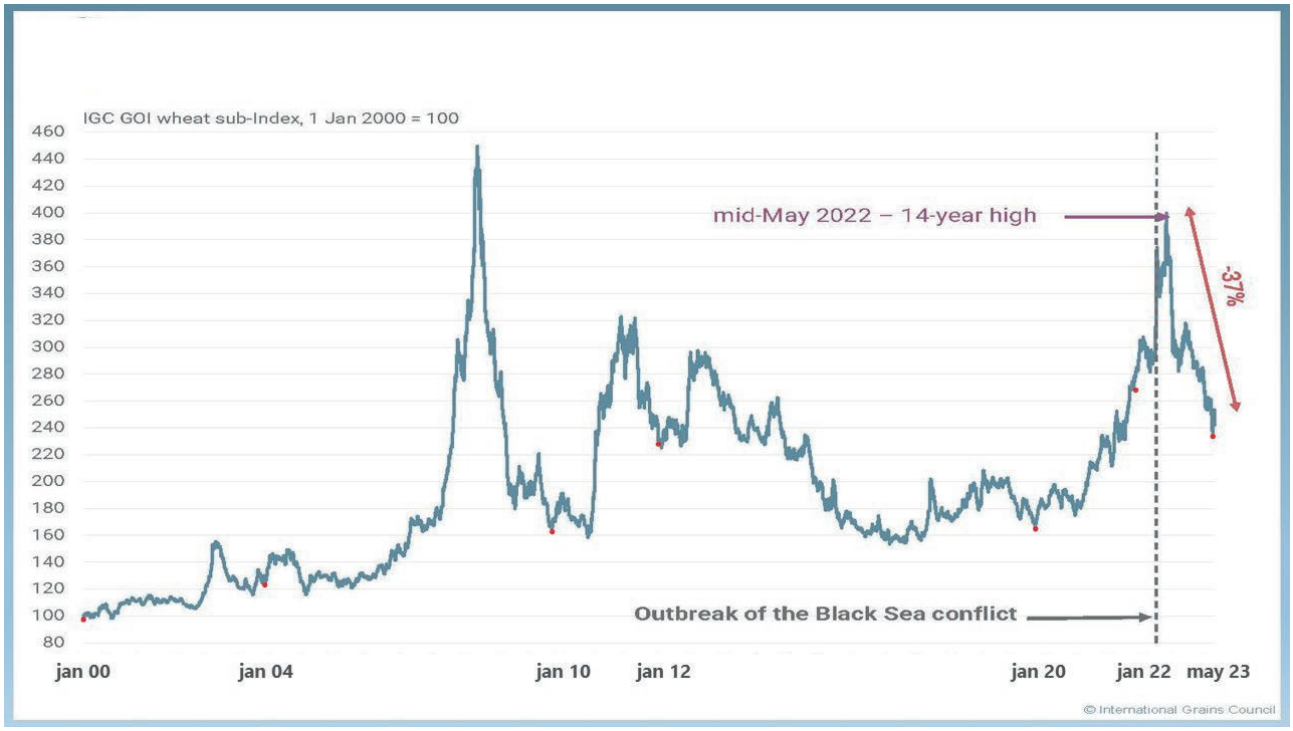
Source: IGC (2023).

in the production processes; for countries where cereals are a huge export portion, their prices impact key macroeconomic variables, such as the current account balance in terms of trade and exchange rates (Kwas *et al.*, 2022). Santeramo *et al.* (2018) proposed a critical and exhaustive review by supplying a different classification of grain price volatility drivers. By distinguishing between endogenous and exogenous causes the authors emphasized the contribution of endogenous factors in affecting price volatility. As the literature pointed out, seasonality impacts on barley and wheat real prices (Jumah, Kunst, 2008), as well as the link between food and energy prices or the fertilizer role and transportation costs particularly on the wheat market (Baffes, Haniotis, 2010). The interesting work of Haile *et al.* (2015) emphasized that reducing agriculture commodities' price volatility may positively affect food supply around the world, specifically in developing countries. Furthermore, they show how the linkage between energy and the financial market is related to volatility and this link can somehow undermine agricultural prices. Karali *et al.* (2020), show how fundamental supply and market news plays a relevant role in explaining cereal futures price movements.

A fall in international prices has been observed starting from July 2022; until this date, a daily increase was seen mainly due to the Black Sea conflict. From July to March 2023, the market prices fell because of the Northern Hemisphere supply pressure, the currency movements, and the Black Sea Grain Initiative (Figures 3, 4 and 5).

Looking at the commodities level, we can observe that the wheat price index reported a downtrend (-38%) mainly due to weather worries in Argentina, Canada, the EU and the USA (Figure 5). If we go further at the disaggregated level, just two markets, Thailand for rice and Argentina for soybean meal, buck the trends. Generally, concerning maize, the IGC price index marked a decline (-28%), with a downside even in this case linked to seasonal weakness in South American markets (IGC, 2023). Cereal prices, such as wheat and maize, have fallen by a quarter from their record highs of a year ago. Wheat prices dropped by 3.5% in May. The cereal price index decline was mainly driven by a sharp reduction in maize prices which dropped by 21% (World Bank, 2023). Similarly, wheat prices with a 3% reduction, while rice prices increased by 1%. In comparison to last year, both maize and wheat prices slowed down by 19%, contrary to the rice prices which are 16% higher. The World Bank reports a comparison in prices with those of January 2021; from this perspective, maize prices

Figure 4. Wheat price historical index trend.



Source: IGC, 2023.

are 4% lower, and wheat and rice prices are 1% and 3% higher, respectively.

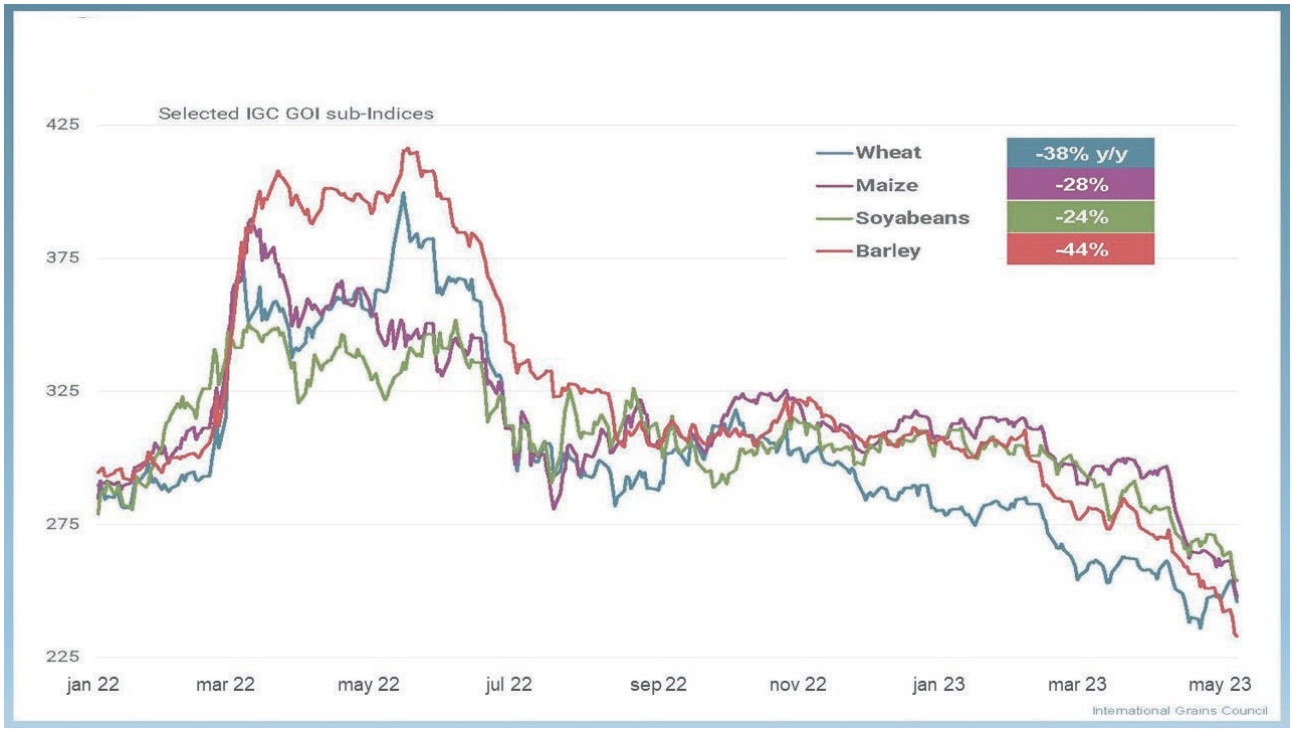
The IGC wheat index in Figure 4 shows the wheat prices' trend. A rebound is clear in January 2022 followed by a strong contraction in the months after. However, from a historical perspective, prices were generally high in the last two years.

Several factors and financial market pressures affect prices, above all cereal prices. Since September 2022, the US dollar has generally experienced a decline even if an upturn is reported recently. The depreciation in Argentina, Egypt, Pakistan, and Russia affected too, as well as the price of crude oil falling by 40% starting from March 2022. The world economy faced a sharp rise in the inflation rate in 2022 in both developed and developing countries. Recovering demand after the COVID-19 crisis and the conflict constrained supply and triggered higher commodity prices globally, particularly food and energy items (due to the Russian position in the energy market). The appreciation of the US dollar and the devaluations of the national currencies against the US dollar aggravated inflation in many developing countries (IMF, 2022; World Bank, 2023). Supply policy facts have a role in combatting inflation. Table 5 reports the commodity prices index. After touching a near two-year low in late May 2023, the wheat price index rebounded at the beginning of June; this change is due to the weather conditions in some key countries (Argentina, Canada, EU, and USA). The maize index instead is low, even if there is some uncertainty because of possible drought conditions in the future projections (AMIS, 2023).

Prices in Italy reached peaks in the summer of 2022 and started a decline in autumn. The price of soft wheat was also supported by the tensions that occurred in the maize supply balance. In 2022, the difference between durum wheat and soft wheat and maize rose, linked to the further tensions affecting durum wheat. In the first months of 2023 the maize price has dropped due to the positive news from Brazil and North American sowing; the price of common wheat, related to corn, has dropped. Durum wheat greatly reduced the spread given an improving offer.

What we would probably have expected is a different scenario to what we are experiencing today, with a return to worldwide conditions like those of 2019. But everything is changed, and we will have to pay attention to international facts that may strongly affect expectations by changing the current view. The main forces that condition the forecast are dry settings and damaged

Figure 5. Main cereals prices trend – price index.



Source: IGC, 2023.

Table 5. Commodity Price Index.

	June 2023 average*	Change	
		June/May 2023	June 2023/ June 2022
Grains and oilseeds (GOI) index	264.2	*+0.1%*	*-23.1%*
Wheat	241.3	*-1.1%*	*-31.8%*
Maize	251.6	*-2.6%*	*-25.0%*
Rice	204.9	*-0.1%*	*+15.8%*
Soybeans	266.3	*+2.5%*	*-20.3%*

* *Jan 2000*=100, derived from daily export quotations.
Source: AMIS, 2023.

crops in the USA and China, along with the real geopolitical uncertainty in the Black Sea region, grain and oilseed futures markets are likely to maintain a risk premium, by keeping prices high.

Since June 2023, the prices of wheat, maize and soybean have again risen and the market the most affected by this are North African countries that are large importers from Russia and Ukraine. The Black Sea Grain Initiative has allowed the exportation of more than 32 million metric tons of food commodities from three Ukrainian Black Sea ports, mitigating price fluctuations. However, wheat prices after a decline observed in past months, rebounded in June 2023 driven by the dry weather conditions in the USA and Canada and by the new escalation of international tensions which led to the non-renewal of the Black Sea Grain Initiative in July (figure 6). Therefore, it will be necessary to continue monitoring the market to understand what will happen at a global level, given the existing uncertainty at the international level.

Figure 6. Wheat volatility from July 2022 to June 2023, standard deviation in percentage terms of daily price movements.

Source: AMIS, 2023.

5. CONCLUSION

The invasion of Ukraine by Russia has extremely altered the world on the economic side through products and energy markets, trade, financial markets, and food prices. While countries have recovered from the COVID-19 consequences, the conflict has intensified troubles in the global food supply chain. The Black Sea Grain Initiative reached on July 22, 2022, between Ukraine and Russia, allowed exports of grain and other agricultural products. The deal has been crucial in keeping the food flow from Ukraine to the rest of the world. But something broke and in recent months Russia negated the agreement arguing that the sanctions applied by the Western Countries have greatly damaged its food and fertilizer exports. Even though sanctions include exemptions for food and fertilizer, Russia is arguing that sanctions directed to its people and the state-owned agricultural bank are not facilitating the exports for three years by contravening the deal agreed. This determines a revision of the forecasts, by increasing the uncertainty about future trends, with the need to continue monitoring the changes in the geopolitical, climatic, and financial situation, and their effects on the cereal market.

The consequences of what happened confirm that the market will remain volatile, although the northern hemisphere production grants a large supply. Some lessons can be drawn from what happened. First, the analysis of the Italian trade data emphasizes the resilience, once again, of the agrifood sector and the capacity of the cereals sector, raw and processed, to react to international crises. The data analysis draws attention to the limited impact of conflict on Italy's supply of cereals. This is linked on the one hand to low Italian dependence on the Black Sea area and, on the other, to the ability to react, moving towards other suppliers. Such crises highlight the importance of diversifying supply sources of basic commodities to reduce the risks associated with overreliance on confined sources group countries.

Nevertheless, the conflict also affected Italian cereal imports, particularly on the price path. The crude oil price surge, linked to the international crisis, has contributed to the rapid rise in fertilizer prices by nearly 76% compared to 2021. The increase in fertilizer prices has relevant consequences also on cereal prices and crop production, particularly for wheat, along the entire value chain. However, cereal prices increased before 2022 and the Russian invasion has only exacerbated the trend already present on the market. Such events have led some countries to adopt protectionist measures of internal markets with the implementation of export bans on wheat and other grains. This further worsened the global market, pushing up cereal prices.

International cooperation between countries is becoming increasingly important to guarantee trade in goods and prevent countries from adopting restrictive measures, especially in times of crisis and uncertainty. Improving cooperation among countries using trade agreements offers ways to face current and future challenges. Due to the still existing market uncertainty, it will be necessary to continue monitoring trends to understand the possible effects on prices and supply.

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