Small farms' strategies between self-provision and socio-economic integration. Effects on food system capacity to provide food and nutrition security.

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Abstract. Small farms' contribution to food and nutrition security (FNS) is widely acknowledged, however the diversity of context-specific characteristics of small farms is still barely documented in terms of farm strategies and household dynamics. The paper analyzes this contribution in connection with the strategies related to the destination of the produce, with specific attention to the balance between food self-provisioning and economic integration. The analysis of self-provisioning relies on the assumptions that i) production and consumption decisions cannot be analysed separately when they are attributed to the same entity and that ii) family farm strategic choices are influenced by both business outcomes and household's welfare. The analysis of economic integration hinges on Polanyi's categories of market, reciprocity and redistribution as the three main modes of economic integration of a farm within its environment. We have collected information from a range of farmers in the Lucca province (northern Tuscany, Italy) and key stakeholders, through interviews, focus groups and field visits. The results of our analysis highlight the different ways small farms' contribution to FNS in relation to each mode of economic integration adopted by the small farms. The different forms of this contribution can be identified at two levels: i) internal to the farming household and ii) external (i.e. referred to the community and broader society). A concept of food quality encompassing local sustainability, cultural heritage and social cohesion, is crucial to valorise, through appropriate policies, the specificities of small farms' contribution to FNS.

Keywords: food and nutrition security; food chains; food systems; self-provisioning; small farms; social embeddedness.

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1. Introduction

The paper starts from the observation of the enduring presence of a large number of small farms (SFs) in contemporary world, in poor or marginalised areas as well as in richer or industrialised contexts. Their managers engage in a range of strategies in response to external changing conditions, to face difficulties and to profit from different opportunities. Through these strategies they survive and remain capable to provide products and services to the households themselves and to the community. Several voices acknowledge that small farms contribute to reducing food systems' vulnerability, to the benefit of resilience (Adger 2006; Folke et al. 2010) and food and nutrition security (FNS) issues (HLPE 2013). However, small farms are also extremely diverse and such diversity generates crucial challenges in terms of policy design focused on guaranteeing viable livelihoods and food and nutrition security for all, as well as socioeconomic development and environmental conservation (FAO 2014). The complexity and diversity of the global small farms' landscape call, therefore, for designing context-specific policies aimed at supporting family farmers (Graeub et al. 2016). Thus, to feed specific policy development, it is necessary to improve our understanding of small farms characteristics and dynamics through evidence-based analyses of the conditions in which they operate as well as through exploring their strategic behaviour in terms of farm household management.

In the European Union 90% of the workforce on farm is provided by the family itself. In Italy, according to the latest general census (ISTAT 2010), 98.9% of farms are run by family farmers, employing 80.1% of the days of their work in agriculture; more than 50% of family farms occupy less than 2 ha (INEA 2014). Building on empirical information retrieved in a case study in the Lucca area (Tuscany, Italy), the paper aims to explore small farmers' contribution to FNS in a wealthy region, and through this analysis to get insights on what

FNS may mean in this type of regions. We will focus on farmers' strategies related to the determinants and consequences of balancing food self-provisioning (FSP) and economic integration (EI). We adopt the hypothesis that these strategies signal the transition from a post-productivist era to a phase we may describe as a sort of 'post-post-productivism'. In the post-productivist perspective, attention for small-scale farming and ruralism, and the related public policy discourses, are mainly focused on multifunctional social and ecosystem services (Shucksmith 1993; Swinton et al. 2007; Almsted et al. 2014) and FNS is to a certain extent given for granted thanks to industrial agriculture and large-scale distribution. This is a substantially different perspective vis-à-vis the traditional productivist paradigm, described by Lowe et al (1993, p.221) as "*a commitment to an intensive, industrially-driven and expansionist agriculture (…) based primarily on output and increased productivity"*, and a few years later by van der Ploeg et al. (2000) in terms of a modernisation based on scale-enlargement, intensification, specialisation and industrialisation.

In the post-post-productivism the importance of producing and distributing food, even at small scale and local/regional level, finds again room in the consumers' concerns (Feldmann and Hamm 2015) and addresses the political agenda (HLPE 2013; OECD/FAO/UNCDF 2016). In this context FNS goes beyond the mere availability of enough food for all, as it extends to a generalised access to fresh, safe and nutritious food capable to meet a diversified range of health and cultural requirements without compromising the ecosystem (Brunori, Malandrin, and Rossi 2013). In the post-post-productivism, SFs are still expected to be key actors of rural development pathways and to deliver ecosystem services, but alongside these roles, their capability to enhance FNS becomes again crucial.

SF's contribution to FNS can be referred to farm households themselves, but also to the surrounding community and to the whole society, with specific attention to the capacity of the

food system to be resilient vis-à-vis challenges and risks. Thus, SFs seem to play a specific role that can be explored in relation to their strategic choices and their capability to find innovative solutions, both in economic and in social terms.

These reflections lead to the key research question this paper addresses: what is the SFs' contribution to the food system's capability to provide FNS and to be resilient, with particular regard to farms' choice between food self-provisioning and economic integration? In the SALSA project we have collected information from a range of SFs within our case study region. This information is the base to develop an analysis of SFs strategies in the light of pertinent literature capable to address the research question.

The Lucca territory provides an insightful field for this research. In fact, consistently with the European mainstream development model that characterised the second half of last century, the region has experienced a significant economic growth led particularly by a strong industrialisation of the valleys (e.g. paper industry), a flourishing touristic business in the coast and historic towns, and intense cropping systems in the coast and in the plain (e.g. horticulture and nursery). Concurrently, many rural areas, and the remote ones in particular, remained somehow excluded and protected from such strongly homogenised production models and were then allowed to keep a preserved natural and cultural landscape. Thus, farmers who remained in the remote areas, and those who decided to move there, developed their activities on traditional production, diversified systems and multi-functionality, taking advantage of a preserved landscape and the consequent increase of rural tourism. Within this particular framework, we observe how small farms adapted and developed both self-provisioning and market integration strategies building on a niche model that shifted from intense production trends towards small-scale and quality oriented schemes, designing a new

narrative and reshaping flows and relationships between producers and actors within the local food chain.

2. Economic integration and food self-provision: a literature review

Economic integration and food self-provision

Economic integration expands the concept of market integration, if we assume that market integration coincides with 'commercialization' (Wharton 1969). Farm products may be sold to processing firms, for retail sale or for consumption directly to the final consumer, either individually or collectively (e.g. through cooperatives, producer organizations, consortia, etc.). We adopt a broader definition, according to which farm's 'market integration' refers to the wide range of ways in which farmers connect their enterprises to the buyers through the markets. Forms of market integration range from the more industrialised and large-scale ones to the more socially embedded (Hinrichs 2000; Watts, Ilbery, and Maye 2005) or "nested" (van der Ploeg, Jingzhong, and Schneider 2012), which are explicitly rooted in social movements, local initiatives and policy programmes "out of which they emerge" (ibid., 140).

Beyond market integration other aspects of economic integration can be considered relevant to frame farm household's access to socio-economic resources needed for a decent living, within the economic system. Meert et al. (2005) re-propose the conceptualization by Polanyi (1944), according to whom economic integration includes (1) the 'market exchange' mode, which entails all remunerated activities using money as the exchange tool, (2) 'redistribution', which involves compensation (by state or society) of inequalities generated through market exchange (e.g. charities, welfare state, agricultural policy, agro-environmental measures), (3)

96 ‘reciprocity’, which implies that each participant has the capacity to produce some resources,
97 and assumes a social network with symmetric linkages between members (i.e. mutual trust
98 between the members of a network, and lasting bonds between members and the network
99 itself).

100 The three modes of economic integration can take place within agricultural activities. For
101 example, market integration takes place by introducing a new form of marketing for the
102 products: redistribution through public support for farming and general welfare; reciprocity
103 when farmers cooperate during harvest. Outside agriculture, the three modes of economic
104 integration can take place either on-farm or off-farm activities (e.g. agro-tourism as an on-
105 farm activity or off-farm employment for market integration).

106 In our conceptualisation the redistribution form of integration is more an element of the
107 context than a matter of strategic choice. Reciprocity relations form is part of the community,
108 within which even hybrid relations among farmers and between farmers, consumers, public
109 entities, take place.

110 There are hybrid forms (ideally all of them are) between market and reciprocity. For example
111 sales and other transactions can take place without a formalized written contract, implying a
112 personal trust base which is more referable to reciprocity relations.

113 Based on these modes of EI of farm household (i.e. market exchange, redistribution,
114 reciprocity) we can analyse the strategies characterizing the degree of economic integration of
115 small farms in the regional food system in parallel with the consideration of FSP strategies,
116 whose observation requires a specific contextualisation.

117 From a historical perspective, FSP has been seen ‘the starting point of agriculture, the poverty
118 line’, while 'commercial’ farming based on the sale of surpluses was a development reserved

for larger and richer farms (Hobbs Pruitt 1984). More recently, literature on FSP in the European context tends to concentrate on family practices ascribable to home gardening and hobby farming, on the one side and on strategies to cope with poverty and subsistence (Davidova, Lakso, and S. Bailey 2009) on the other. In both cases access to reliable fresh food is central (Galhena, Russell Freed, and Maredia 2013; Kortright and Wakefield 2011), but other motivations diverge in the two cases.

The first group of analyses regards FSP as a reflexive practice of localism (Fonte 2013) with elements of food sovereignty (Larder, Kristen Lyons, and Woolcock 2014) often carried out in conscious opposition to the mainstream market forces (van der Ploeg 2009). The extensive review offered by Vávra et al. (2017) emphasizes the role of family networks and social inclusion (Jehlička and Smith 2011); Larder et al. 2014). In recent years, the social bases of home gardening have been extensively analysed in North America (Lyson 2007), with attention to their effects on food security, community development and multi-scale resilience (Taylor and Taylor Lovell 2014).

The second strand of reflections regards the role of FSP for disadvantaged groups, mainly in Eastern Europe (Pallott and Nefedova 2007; Jehlička and Smith 2011; Smith and Jehlička 2013) but also in western regions (Domene and Saurì 2007). Church et al. (2015) argue that, despite some evidence in favour of a gentrification of FSP, growing food for family consumption is often driven by economic reasons and meant to reduce household expenditure whilst ensuring a supply of fresh food, with higher safety and quality (van der Berg et al. 2010). The role of elderly and retired people in keeping food self-provisioning practices alive is important, also to preserve familiar traditions and to involve grandchildren in the activity (Balint 2015; Vávra et al. 2017). A different but not opposed perspective is suggested by Yotova (2017), who emphasizes the role that self-provisioning and social sharing of

143 homemade food through informal networks play in the survival or development of democratic
144 and socially inclusive forms of food access.

145 Some of the above reflections can be referred also to professional family farming. In a context
146 of changing farms' business conditions and households' consumption expectations, family
147 farms have to find the right balance to survive, matching the need for income with the
148 concerns on accessibility to healthy fresh food. FSP can be particularly relevant in small
149 farms, namely for family farms, where both household's and farms' priorities, sometimes
150 difficult to separate, influence and shape the decision-making process. This, with regard to
151 both strategic choices and more practical solutions.

152 Indeed, in small farms the household is both a production and a consumption unit, as
153 suggested by the Agricultural-Household Model (Singh and Subramanian 1986; Taylor and
154 Adelman 2003). The AHM builds on the assumption that production and consumption
155 decisions cannot be seen separately when they are attributed to the same entity and that family
156 farm strategic choices (like the choice between self-production and market purchase, or
157 between in-farm and off-farm employment) are influenced by both business outcomes and
158 household's welfare. Thus, if we look at the farm as a production unit, we deal with objectives
159 like profit maximisation, financial stability, market integration. Conversely, if we look at the
160 household as a consumption unit, the focus shifts first on the extent to household's diets
161 quality, comfortable working conditions, working vs leisure time, control over the farm as a
162 familiar asset. These potentially competing objectives influence the decisions and thus the
163 extent of FSP. Market conditions are crucial in this context to decide whether factors of
164 production should be better allocated to household consumption or to business.

165 The way in which the degree of FSP responds to market signals is mediated by the importance
166 that the farmer assigns to food self-sufficiency, seen as the capability to meet the household's

167 food needs with own consumption[1]. Thus, the demand for self-consumption can be more or
168 less elastic in relation to market prices for foods (Kostov and Lingard 2002). Basically, the
169 higher the specialisation of farm's productions, the lower the possibility to meet household
170 member's consumption.

171 Orienting the choice towards FSP can have effects on family life also beyond food
172 consumption. McIntyre and Rondeau (2011) analyse the choice of FSP in a gender
173 perspective focusing on the role of farmwomen in food acquisition strategies for the
174 household and arguing how a shift in food acquisition practices towards home-produced foods
175 may require significant additional work by the women of the family. Women's role in rural
176 households in relation to livelihood strategies and self-provisioning has been explored also by
177 Roseman (2008) in the Spanish region of Galicia, and by McMurry (2017) in the Amish
178 community in the USA.

179

180 The choice between FSP and EI in their various forms is strictly related to the autonomy of a
181 farm household (van der Ploeg 2011). The concept of autonomy can help us to consider the
182 quality of FSP and EI impact on farm/household conditions. Autonomy has to be intended as
183 the farmer's possibility to make choices with a high degree of control on the decision-making
184 process. Relations between socio-economic integration and autonomy can be ambiguous. A
185 farm can be flexibly integrated in the market with a range of potential channels, but also
186 constrained by disadvantageous dependency conditions. Similarly, it can be well integrated in

[1] Self-provisioning links to how much of the farm output is consumed by the household, while self-sufficiency relates to the extent farm production is sufficient to cover the household food and nutrition needs. A family farm in condition of self-sufficiency can have a high or low self-provisioning, according to the modalities through which the family provides its food. Conversely a family with a self-provisioning of 100% could be in self-sufficiency (meaning that self-production is capable to meet food and nutrition needs), but also much below that condition, with a largely insufficient or unbalanced diet.

187 the community but totally dependent on and restrained by such social organisation (e.g.
188 belonging to a cooperative that imposes specific strategies or to a community that stigmatises
189 not traditional practices).

190

191 **3. Methods**

192 The analysis is based on a food system approach that analyses how self-provision and
193 economic integration are shaped in relation to actors and activities of the food system
194 (Ericksen 2008; Ingram 2011). We started by carrying out ten exploratory interviews with key
195 informants of the Lucca province (Tuscany, Italy) working in agriculture, food business and
196 environmental issues[2]. We developed a participatory exercise, aimed at obtaining an overview
197 of the regional food system, and at pinpointing relevant farmers and small business operators
198 across the province. Key informants were asked to describe the regional food system and to
199 identify key actors and flows, and to give a preliminary list of all major food staples produced
200 and consumed in the region.

201 Subsequently we have conducted semi-structured interviews with 40 small farmers selected
202 on the basis of the key informants' suggestions. The average UAA of the farms was about 5
203 ha. The survey lasted four months, from April to June 2017

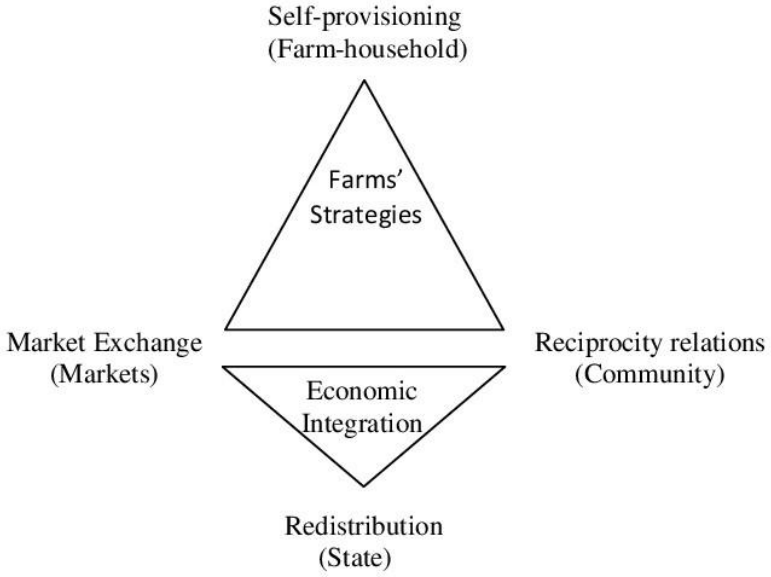
204

[2] The Province of Lucca is situated in the north-western coastal Italy (Tuscany region). It has an area of 1,773 square kilometres, a total population of about 390,000. From the coast a short range of hills and foothills fits between mountains and plains. The inner areas are characterized, first, by a vast landscape of flat land and then by a river valley surrounded by mountain landscape. The agricultural landscape ranges from coastal and residual rural areas mostly shaped by vegetable gardens, small olive groves and orchards, to production of vegetables and flower crops, wine and oil in the plain. The valley is characterised by intense cereal and crop production, while the upper lands are characterised by small productions of vegetables, fruit, freshwater aquaculture as well as sheep farming and use of forest resources. The farms' landscape is pretty fragmented: overall the average farm size is 3,72 ha; out of 6447 farms, 87% do not exceed 5 ha of UAA.

4. Results

The double triangle kite-like scheme, shown in Figure 1, relates Polanyi's economic integration's forms (market, reciprocity, redistribution) with the “FSP vs EI” polarisation to model farms' strategies with regard to the utilisation of their products (and services). This scheme provides a frame to analyse the three modes in which the farm-household connects food production and food consumption (on the upper triangle), in relation to the various sources income and benefits (lower triangle). In the figure the vertex within brackets refers to the environment or spaces within which the related activities (without brackets) take place.

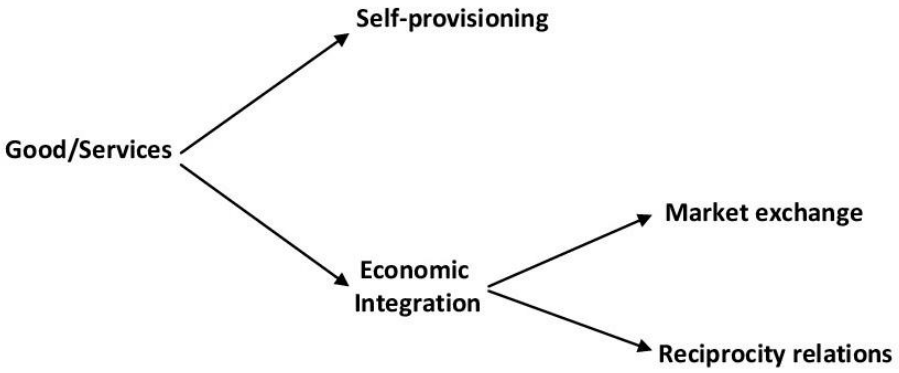
Figure 1 - A kite-like representation of farm's strategies in relation to Polanyi's categories.



Elaborated by the authors

The upper triangle has been designed according to the research findings. The tree scheme in Figure 2 refers to the three vertex of that triangle, providing the articulation within which we will discuss the results of our research.

Figure 2 - Destination of SF's produce



Elaborated by the authors

4.1 Analysis of small farms' behaviours

In this paragraph we analyze small farms' behaviours with regards to the use of their products and resources. We articulate our results in three sections and we represent them in the final triangle-scheme showed in paragraph 4.3 (fig. 3).

The analysis highlights forms and determinants of small farms' choices with regard to FSP and EI and relate them to intra-household, extended familiar and social linkages, as well as to the need to get adequate income and, thus, to be somehow integrated in the market. Consequences in terms of food system's contribution to FNS emerge from the observation of these experiences and are discussed.

Indeed, choosing between FSP and EI can be particularly relevant in small farms, namely for family farms, where both household's and farm's needs, sometimes difficult to separate, influence the decision making process.

Self-provisioning: the farm-household perspective

The farm-household is a merged production-consumption unit, with resulting synergies and trade-offs. Some farmers, like farmer 1, consider their activity more as a source of FNS for the extended household in terms of access to healthy, varied and nutritious food. "*What I produce has mainly a high-quality and health value. As a farmer, I believe to contribute to my family nutrition first of all, secondarily to my family income". (farmer1)*

Farmer 7 runs a family organic farmhouse and horse centre, producing products such as homemade pasta, oil, wine, honey, potatoes, vegetables, jam, spelt, beef, chestnut, eggs, flour and corn. The diversified production allows the household to be 70% self-sufficient. Similarly, farmer 8 produce (vegetables, meat, spelled, olive oil, chestnut, fruits, small fruits and berries) allows the family to largely meet its consumption needs and to shop downtown only once a month. Besides diary production, farmer 9 practices home gardening for vegetables production, produces cereals and meat, exclusively for self-consumption, with 80% of self-sufficiency.

Various farms (farmer 3, farmer 4), although focusing their commercial production on few commodities (wine, olive oil), keep a home garden to provide fresh fruits and vegetables to the family members. *"Producing high-quality varieties of vegetables is a huge advantage for my family in terms of access to a healthy, varied and nutritious diet". (farmer 3)*

The importance of the farm-household interaction is also visible when the farm is considered as a way to increase savings (farmer 2) or as an asset for the future generations. "*I decided to*

invest for my personal satisfaction and for my children, to give an opportunity to new generations and above all not to disperse a culture and a magically preserved territory". (farmer 6)

Economic integration through the market

For many farmers market is the prevailing destination of the produce, if not the unique. Farmer 5, for instance, produces niche vegetables and autochthonous varieties of fruits which allows him to stand out within the local market. He declares that if he had the possibility to sell all his production, he would prefer to sell rather than keeping his products for self-consumption. *"My family often complains for my choice to sell, depriving ourselves of our own products"*[3].

Farmer 2 firstly started her production for self-consumption purposes, however, she produces enough to sell her products and, therefore, to enter the market.

Some SFs' contributions to FNS are based on the food chains' diversification (e.g. farmers' markets, solidarity purchasing groups, on farm shops) which has become a way to valorise the produce, reduce risks and increase resilience. After the 2006-2008 food crises, many farms tried to reinvent themselves to be more competitive in the market and some preferred to give up on quantity and turn to quality, offering a more diversified production. Many farmers renounced the ease of a cooperative and the benefit of a brand to move towards farmers' markets and direct sale, avoiding intermediaries and handovers. A less positive experience is

[3] This could imply that, at least in some cases, self-provision can be considered as an indicator of the wealth of a farm (or a household: a family with enough off-farm income that can increase self-consumption of fresh healthy food), whereas market integration is a need related to earn an income.

witnessed with regard to a lack of connection between farmers and local restaurants, especially in Garfagnana (a marginal mountain area of the Lucca Province), where various interviewed farmers are located.

Farmer 10 previously delivered to a local cooperative (*L'Unitaria*) but over time found that selling individually was far more advantageous. Thus, now this farm directly sells all its productions through local weekly farmers' markets (60%) or through an on-farm shop (10%); since 2011 they also directly sell 30% of the production to a local supermarket.

Diversification goes beyond food varieties and market channels, to embrace multi-functionality. The latter is also likely to contribute, although indirectly, to FNS. In a multifunctional perspective food can be delivered through alternative channels, like for example in the case of farms' kindergartens. In marginal areas farm-based kindergartens can represent an additional income source for the farm as well as a FNS factor for the local community, since they offer children the opportunity to cultivate plants and socialize with animals while learning the principles and the practices of a healthy diet (Torquati et al. 2015).

Farmer 11 cuts almost entirely transaction costs by centring the on-farm production for self-consumption and for the meals of the children. This allows them to have no costs on accessing market and relying on the main source of income not centred on agriculture. *"It is important to take care of the on-farm shop, because tourists always buy some of my products. I believe that small farms' future is determined according to non-agricultural related activities". (farmer 4)*

Diversification and multi-functionality are based on a growing consumers' sensitivity to a broader concept of food quality, involving characteristics external to individual utility, such as public health, environment, quality of life and social justice (Brunori, Malandrin, and Rossi 2013). In response to this debate and to a conflicting messages (also marked by scams and

frauds) and information overload, consumers tend to be increasingly interested in local, fresh and seasonal food. SFs are often in condition to meet this specific demand, and thus to contribute to FNS, if those ethical and social issues are considered part of the concept.

"A kind of social farming brand should be invented in order to distinguish products on the market and to inform consumers: these products should be carriers of a meaningful message, born from a solidarity project". (farmer 13)

"Our principle has always been to offer products produced in this land, in my land. I don't just want to be a farmer: my purpose is to give people the possibility to understand what we eat". (farmer 8)

Economic integration through the community and hybrid forms

The development of reciprocity relations (e.g. exchange of machineries and know-how) helps to create a social fabric enhancing resilience, influencing the destination of small farms' produce and the way in which they contribute to FNS. "*My neighbour and I created a sort of synergy: sometimes I give him 1 ha of my land to cultivate corn, while he gives me 1 ha of his land to grow potatoes. In this way we both gain in terms of rotation and fertility of the land, also avoiding diseases".* (farmer 14)

Another example of valorisation of social relations is given by custodian farmers (like farmer 3) who, by disseminating agricultural biodiversity and related knowledge, daily contribute to enhance FNS and its resilience, as well as to develop and spread reciprocity relations (exchange of seeds and safeguarding of local tradition).

Beyond the relations specifically referable to reciprocity, hybrid practices between market and reciprocity emerge as important elements in the strategies. This is the case for instance of

informal contracts and cooperation, and of barter relations. Informal arrangements are examples of hybrid relations if we take into consideration that they rely upon two different conventions: market relations, on the one side, and mutual trust on the other. Establishing informal arrangements in a small context can be easier compared to a larger one, especially when reneging an agreement means compromising name and reputation. Thus, it can be supposed that a cohesive community favors and fosters reciprocity relations.

Interesting practices are mentioned by farmers 4 and 14. In the first case, the farmer asked a landowner to produce wine from her vineyard in exchange of providing her with a little quantity of the wine produced. The same farmer describes this relationship as a kind of barter, although this is not the most appropriate definition[4]: *"The farm owner died in 2008 and his wife wanted to abandon everything. I offered to work on it in exchange for corresponding her a little quantity of the wine produced, creating a sort of barter". (farmer 4)*

The second case is particularly interesting as it involves a large industrialized retailer: farmer 14 delivers his produce to a nearby supermarket every morning, but only when he actually has enough products, without formal contracts: the farmer is free to confer quantities that vary according to their availability by not stipulating the typical sales contracts imposed by the large retail organization, which are usually difficult to meet for small producers.

Bartering with neighbours can improve FNS by diversifying diets. Barter cannot be considered as a mere form of market, as it is not a classical trading based on money or another intermediate mean of payment. It can be deemed both as a legacy of tradition and as a re-emerging hybrid practice. It often involves a degree of mutual trust, as the terms of trade are not always clearly identifiable, and the two goods or services are not exchanged

[4] In case of a written or oral contract for a country estate's rent, the Italian law 203/1982 states that the rent can be paid by the farmer also through a share of the produce.

362 simultaneously. Farmer 4 implemented a form of barter with a nearby breeding farm: in
363 exchange for olive oil and wine he/she receives meat, which accounts for about 90% of the
364 household's meat consumption.

365 Farmers' markets are other examples of hybrid configurations, mainly market-oriented but
366 also relying on mutual trust and shared vision among participants. They enhance SF's degree
367 of autonomy and resilience and contribute to FNS by providing an alternative source of fresh
368 food for local consumers who trust the sellers. Farmers' markets are a form of interaction
369 between market and community. They can stem from a social cohesion (it presupposes the
370 existence of a community, of a collective action entity) and being, in the meantime, source of
371 it, as a reality able to keep the community alive and to strengthen social embeddedness.

372 Another element that accounts for the SFs' influence on FNS relates to their capacity to adapt
373 to specific local contexts and to reach people (e.g. other farm households, local communities,
374 etc.) that may find it difficult to access fresh and nutritious food in a context dominated by
375 large players and industrial food chains. The fact that small farming often takes place in
376 remote areas (Davidova, Lakso, and S. Bailey 2009) strengthens this consideration. In some
377 contexts, where environmental and social conditions are not advantageous, farming also
378 assumes a social importance, working as social catalyst, preserving quality of life and keeping
379 people locally, for example when a farm offers to a community products and services
380 otherwise not accessible. Farmer 6's shop, for instance, assumes a social importance, as the
381 farm provided the village with an offer of products and services that were inexistent before.

382

383 ***4.2 Elements influencing the balance between economic integration and FSP and***
384 ***subsequent effects on FNS***

385 The analysis also allowed to identify the set of conditions and differences influencing SFs'
386 choices between market, reciprocity and self-provisioning.

387 *Off-farm incomes*

388 In our study we also took into account the relevance of off-farm activities and external
389 incomes to the farm-household. Two young farmers (farmer 18) - who both left a reliable job
390 to start farming together with a very ambitious and risky project - provide an interesting
391 example in this regard. Their mountain-based organic and biodynamic farm survives thanks to
392 their family members' stable off-farm activities: external incomes allow them to be more
393 patient with their investments, without being strictly dependent upon the fluctuations of the
394 market or risking in terms of self-sufficiency for their household and children. As farmer 2
395 witnesses*: "The proportion of household's income that comes from my farm is quite petty, not*
396 *more than a 5% of total income. All the household income comes from my husband and my*
397 *off-farm activities. But undoubtedly, my farming represents a source of savings".*

398 Without external incomes, agriculture's uncertainties can make it difficult to a family with
399 children to make ends meets. This is the case of two young parents who lost their jobs after
400 the economic crisis, and decided to recover an abandoned land and start farming in order to
401 make their living. "*From an economic point of view, the main difficulties that my family and I*
402 *are dealing with is to make ends meet, to get to the end of the month without drowning over"*
403 (farmer 21).

404 As explained above, in our conceptualisation, based on the forms of utilisation of goods and
405 services, redistribution (in favour of the farm, i.e. policy support, as well as in favour of the
406 household, i.e. social welfare) is more an element of the context than a matter of strategic
407 choice; however in some cases it represents a great monetary support to the household, even
408 contributing to the enhancement of the farm-household resilience, as farmer 19 witnesses: "*If*

we did not have our mill, we would have to find another job, because the agricultural activity is our only business, thus necessary to us, we live and eat thanks to it. Fortunately, I have my parents' pensions that help a bit at the end of the month". In the case of a retired farmer, who lives together with his elderly wife only on agriculture, farming hardly makes a living: "*Agriculture does not help: what we produce is more for self-consumption than anything else; our pensions are used to pay the mortgage and rent"* (farmer 20). As witnessed by some farmers, elderly people at home often represent a source of income and knowledge.

Location

A farm placed in the mountains could be inclined to use its own production for self-consumption, because entering the market would be time-consuming and expensive; differently, a farm located on a hilly or flat land, could be more market oriented, considering a major accessibility to the market. The little village where farmer 6 is placed, for instance, boasts the reputation of "the most perched and hidden village in Tuscany" and the nearest food retailer is about 5 km far. For this reason she decided to consume her own horticultural products rather than entering the market.

Technology and structures

As observed in previous studies by Davidova, Lakso, and S. Bailey (2009) reliance on manual techniques reduce the household's degree of integration in agricultural markets. For example, farmer 14 used to sell dried beans to a local cooperative, which was profitable but required too much manual work. Thus, the farmer abandoned the drying practice to produce only fresh beans as it is less time consuming.

Innovation can help on diversifying the farm. Farmer 15 decided to engage in multifunctional farming, by investing her personal savings to implement modern technology to dry, preserve and package her productions of fruits and vegetables.

Conversely, availability of public or private storage facilities facilitates farms' EI. Those producers who have the possibility to store their crops can have greater possibility of placing their products as they prefer, with more profitable prices and according to market needs. Farmer 14 argues that large producers for example have the capacity to store their crops, while small farmers, "*if they do not want to lose their harvesting, have to be satisfied with the price they succeed to tick, because they do not have much chance to play*". Farmer 5 underlines the importance of the possibility to storage farm's production into municipal's cold rooms: "*we are lucky that Lucca municipality has large refrigerators to be hired, so we bring there our products and we get them back when we need*".

Regulation adapted to small farmers and short circuits

An example illustrates the importance of this factor. Raw milk's characteristics are incompatible for selling to the commercial sector due to product safety regulation: hygienic sanitary standards make it impossible to sell bottled milk to restaurants. Farmer 9 overcame the obstacle by selling bottled raw milks via their on-farm vending machines[5]. The diffusion of these mechanical instruments allows a greater efficiency in the distribution of goods and services, a considerable saving of time and energy for consumers and a considerable increase in consumption opportunities, therefore an increase in sales without the corresponding proportional increase distribution costs.

[5] According to the Italian legislation, buying from the vending machines the consumer assumes a part of responsibility to the extent that before consuming the purchased raw milk it should be boiled.

Links with global markets

Small farmers are often restricted in access to global markets, but multi-functionality can help overcoming these limits. For farmer 1, tourist services allow establishing relations with foreign tourists that, after tasting a given product, continue ordering from home through courier services. "*25% of my olive oil is sold abroad, thanks to a Japanese tourist that passed through the agro-tourism by chance: she tasted my product and she proposed an annually delivery"*. Obviously, this is not the only way to access distant markets: "*The olive oil sold to Eataly goes to some large supermarkets of Milan, Rome, Turin. It represents only 5% of my overall sells but it is a very good showcase, as well as the Slow Food brand for my extra virgin olive oil"*.

Social networks, cooperation and grassroots initiatives

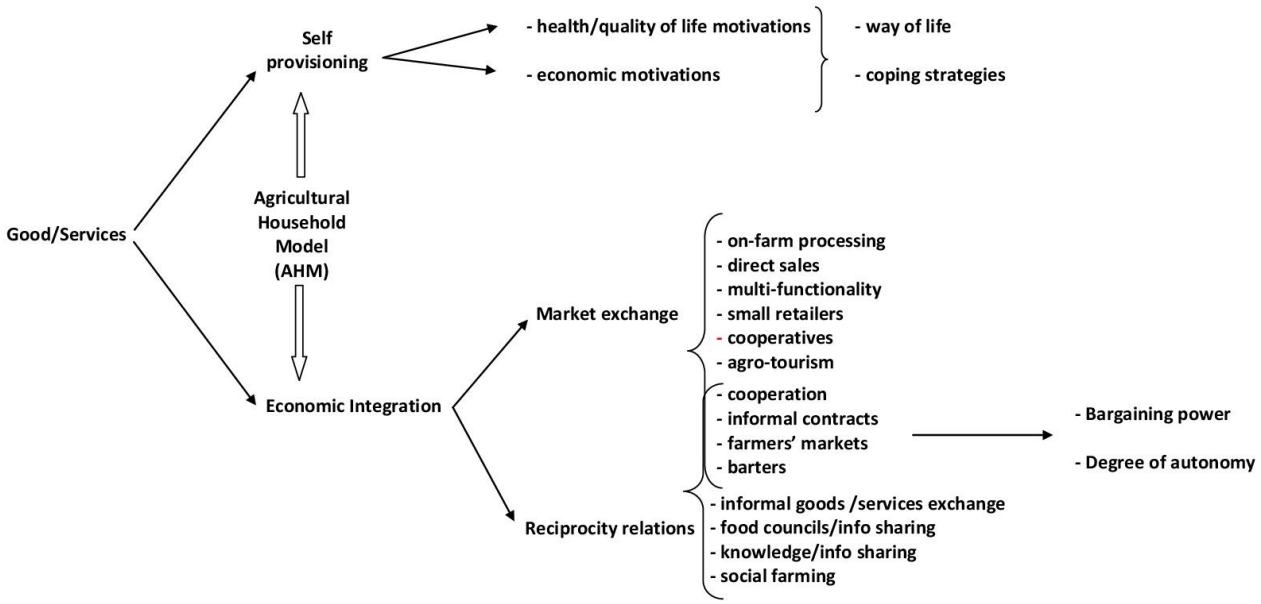
Social networks, based on attitudes to cooperation, trust, knowledge sharing, etc. can positively influence not only the social and cultural resources available to farmers but also their economic integration.

The importance of social linkages emerges for example in the case of the farmer's market in Lucca, a private initiative of local producers who collectively rented a municipal car park. Farmer 2 argues that "*The most effective tool for my sales and for obtaining customers has been the word of mouth. There is a relationship of trust. Consumers know what they buy, they know that my family consume what I produce"*. Willingness to cooperate is witnessed by some farmers, in particular farmer 1 states: *"Producing biodynamic is very hard and time consuming. I had started to study it a few years ago but then I gave up because producing biodynamic required so much work. Last year I met a serious biodynamic farmer who suggested me to try, so I started again, and I am enjoying it"*.

4.3 An overall representation of findings

The analysis of the various elements that we harvested through the interviews and that influence the SFs' choices with regard to the market exchange, reciprocity and FSP strategies, and the outcomes of these choices, is displayed with the tree scheme in Figure 3, which expands the structure in Figure 1. The scheme also highlights elements of hybrid realities/figures and interaction among and between farmers, as well as existing interactions between community, state and private actors.

Figure 3 - Destination of SF's produce according to the research findings



Elaborated by the authors

5. Discussion and conclusions

There are various ways in which SFs contribute to FNS, related to each form of economic integration (or detachment from the market) followed by the SF. The various forms of this

contribution can be identified at two levels: internal to the (extended) farming household and external.

The 'internal' contribution emerges more clearly in relation to SFs that focus on FSP. In this case the positive effects on FNS regard the access to fresh reliable food for the family and it is often declared as one of the main objectives of the farming activity itself. Quite interestingly, even SFs specialised in specific productions (like wine or olive oil) dedicate part of their land and their work to a home garden just in order to have a secure supply of fruits and vegetables for the household.

The 'external' contribution emerges in relation to the market and reciprocity-based relations of the farm with its environment. Again, the contribution can be often identified in terms of easier access by extended families and local consumers to fresh reliable food produced by local SFs and brought from farm to fork through the various channels that market and reciprocity offer: from direct selling to supermarkets, from kindergarten refectories to barter with neighbours, to informal food sharing with the extended household. In this context, the SFs' contribution to FNS seems to be focused on the complementarity with other food sources and on the nutrition dimension (variety of nutrients, freshness, home processing) more than on the general availability of food.

Self-provisioning, market exchange and community-based relations are interconnected strategies regarding the destination of the produce, combined by each SF in relation to a set of circumstances and opportunities, internal and external to the farm-household.

The combination of these three pathways selected by the SF influences and is influenced by the degree of autonomy of each farm and its resilience vis-à-vis external factors. Resilience is enhanced when a SF can rely upon a certain level of self-provisioning, upon a cohesive and

519 vibrant local community and upon a diversified set of market relations. This is a pre-condition
520 for SFs to keep contributing to FNS in the forms that have been described in section 4.

521 Market exchanges and reciprocity relations have also effects on the household' FNS, as the
522 income provided by the farming activity is sometimes a key addition to the familiar income, if
523 not its only source. In other cases, off-farm incomes are dominant and the farm's contribution
524 to the household's FNS is more "internal" and confined to the self-provision of fresh reliable
525 food items.

526 In these terms, a broad concept of food quality is crucial to identify and valorise the
527 specificities of SF's contributions to FNS, even in a post-post-productivist perspective.
528 Indeed, our research confirms that quality, defined in terms of mass-production product-
529 intrinsic standards (homogeneous size, shape and colour, constant availability), is less capable
530 to valorise the whole range of benefits that SFs bring to FNS than a concept of quality that
531 encompasses nutritional content and diversity, freshness and knowledgeability, local
532 sustainability (in ecological and social terms) and cultural heritage preservation.

533 This concept of quality does not imply that food availability is not anymore relevant for FNS,
534 following a strict post-productivist perspective.

535 Indeed, since the 2006-2008 food crisis, '*Italians have discovered the poverty in their*
536 *country'* (Brunori, Malandrin, and Rossi 2013, 24) and a new perception of looking at food
537 security arose, where food availability, affordability and sustainability have become as
538 relevant as the dimension of food quality and safety. At the same time food security policies
539 '*cannot avoiding taking into consideration consumer's expectations and concerns about how*
540 *food is produced and processed, where it comes from and its impact on the environment and*
541 *on society'* (ibid., 19). This is the base upon which Brunori, Malandrin, and Rossi (2013) suggest
542 the term "new food consensus" to indicate a post-post productivist frame matching the need of

543 feeding population in time of crisis with "artisanal quality", localness and environmental
544 sustainability.

545 What argued leads to highlight some forms of supports that could enhance SF's capacity to
546 contribute to FNS through a balanced combination of economic integration and self-
547 provisioning. In particular (i) the promotion of forms of community building and cooperation
548 among small scale actors, (ii) regulation and premises more tailored on the specificities of SFs
549 engaging in short chains on one side and with mass retailers in the other and (iii) a broader
550 understanding of the concept of quality (and related tailored branding), capable to valorise
551 SFs contribution to FNS in terms of nutrition, diversity, sustainability and cultural values.
552

553 **Disclosure statement**

554 Authors do not have financial interests or arising from the direct applications of this research.
555

556 **Figure captions**

557 **Fig. 1** A kite-like representation of farm's strategies in relation to Polanyi's categories

558 **Fig. 2** Destination of SF's produce

559 **Fig. 3** Destination of SF's produce according to the research findings
560

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