

Construction of Alternative Food Networks for organic products: A case study of “Organized Groups of Supply and Demand”

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Jel codes: D12, D63, D71

1. Introduction

Agro-food systems are undergoing changes with the emergence of different patterns of production and exchange as alternatives to global supply chains organised by modern distribution channels.

An increasing number of local Alternative Food Networks (AFNs) were established to build a direct relationship between farmers and consumers (Marsden *et al.*, 2000; Goodman, 2002; Norberg-Hodge *et al.*, 2002; Renting *et al.*, 2003; Sonnino and Marsden, 2006; Goodman *et al.*, 2011; Paul and McKenzie, 2013), offering models for local development that are sustainable in economic, social and environmental terms. Such networks are part of “a critical process of reconnection” (Ilbery *et al.*, 2005), in response to a standardised supply chain, characterised by a wide gap between farmers and consumers and a food supply that is perceived as ‘placeless’ (Trubek and Bowen, 2008).

Over the last years, different types of AFNs have been established in developed market economies but also in developing countries, through farm initiatives, farmers’ organi-

Abstract

A variety of Alternative Food Networks (AFNs) has emerged to establish a direct relationship between farmers and consumers, in response to the conventional, long supply chain. This relationship defined in the literature as the “connectedness” of consumers to food production has been considered a factor to characterize different types of AFNs. The study proposes a framework for understanding the level of connectedness between consumers and producers members of the Organised Group of Supply and Demand (OGSD) in Umbria (Italy), a Solidarity Purchasing Group managed by the Italian Association for Organic Agriculture.

The work investigated the organizational model of the Group and explored consumer reasons for purchasing organic products, assessing how these relate to the characteristics they look for in farmers. The analysis shows that consumers are interested in multi-dimensional sustainability, with primary concern for the environment and less attention to the social implications of food choice. The Group represents a good practice and a potential driver for promoting sustainable organic agriculture in Mediterranean countries.

Keywords: *alternative food networks, organic food, connectedness.*

Résumé

Un certain nombre de réseaux alimentaires alternatifs (RAA) ont été mis en place pour établir une relation directe entre producteurs et consommateurs, en réaction à la chaîne d’approvisionnement longue traditionnelle. Cette relation, connue dans la littérature comme « connexité » entre les consommateurs et la production alimentaire, a été considérée comme un déterminant pour la caractérisation de différents types de RAA. Cette étude propose un cadre de référence pour appréhender le lien de connexité entre les consommateurs et les producteurs, membres d’un groupe organisé autour de l’offre et de la demande en Ombrie (Italie), à savoir un groupe d’achat solidaire géré par l’Association italienne d’agriculture biologique.

Dans ce travail, nous avons étudié le modèle d’organisation du groupe et exploré les raisons incitant les consommateurs à acheter des produits bio, en évaluant comment ceux-ci se rapportent aux caractéristiques recherchées auprès des producteurs. L’analyse montre que les consommateurs sont intéressés par la durabilité multidimensionnelle, avec un souci majeur pour l’environnement et une moindre attention aux implications sociales du choix alimentaire. Le groupe représente une bonne pratique et un levier potentiel pour la promotion de l’agriculture biologique durable dans les pays méditerranéens.

Mots-clés: réseaux alimentaires alternatifs, aliment bio, connexité

zations, movements in society, consumer associations, and public and private institutions. In Italy, among the AFNs promoted by consumers, Solidarity Purchasing Groups (hereafter SPGs) have grown the most. These expressions of responsible consumption have emerged rapidly, to correct not only the distribution mechanisms of the market, but also its social and environmental “failures.” The purchasing decisions of an SPG are guided by the value of solidarity, and so for example they support small farmers or local businesses that employ environmental-friendly processes, guarantee workers’ rights and meet standards for their safety (Canestrari, 2007).

A particular SPG is the Organized Group of Supply and Demand (hereafter OGSD), operating in Umbria (Central Italy),

organized for the purchase and sale of organic food. Originally founded by a group of parents to provide organic food for their children’s school canteen, it is now managed by the Italian Association for Organic Agriculture (hereafter IAOA, in Italian AIAB), which carries out logistical and organizational functions.

The objective of this explorative work was to propose a framework of analysis for understanding the level of connectedness between consumers and producers, measured as consumer connection with product, process and place.

In order to do that, the OGSD was chosen as case study

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because it offers a fairly successful model of sustainable production and purchasing, based on cultural and ethical choices shared by its members, both suppliers and consumers (Mariani *et al.*, 2011; Viganò *et al.*, 2012).

The hypothesis behind the study is that the level of connectedness between consumers and producers depends on the strategic choices of OGSD, and the role of the IAOA in creating and maintaining innovative producer–consumer relationships.

The article first investigates the organizational model of the OGSD then it explores consumer member reasons for purchasing organic products through the Group, including their ethical or altruistic motivations, and how these relate to the characteristics they look for in farmers. The characteristics of “connectedness” are identified by two indicators that are the combination of importance ratings given to each of five “practical reasons behind their choice” and the combination of importance ratings given to each of five “supplier members’ characteristics”, respectively. The relationships between these two indicators have been studied with Correspondence Analysis (CA) (Greenacre, 1984). Based on the results of the analysis we identify appropriate suggestions for increasing consumer connections within this particular type of AFN.

Finally, some considerations on the potential adoption of AFNs in the Mediterranean countries and possible implications for the development of organic agriculture are elaborated.

2. Relationship between consumers and producers

A complex body of theoretical studies have analysed the development of the large, heterogeneous set of initiatives that seek to shorten the long, complex and rationally organized industrial chain and to re-socialize and re-spatialize food (Marsden *et al.*, 2000). The key aspect of these AFNs is not so much the product itself, but the particular type of relationship between producers and consumers, and its role in constructing value and meaning, affecting the environmental and socio-economic sustainability of local development. This direct relationship cuts out middlemen, and thus farmers keep more of their earnings and consumers obtain lower prices, a win-win proposition that supports the survival of small and medium-sized farms, and in some cases helps the environment by reducing the negative impact of transport, storage and packaging. AFNs also encourage consumers to eat healthily, promote interactions between urban and rural areas, contribute to the preservation of local knowledge and traditions, and foster continued production of local food varieties, giving the possibility to define new development strategies of marginal agriculture (Garnett, 2000; Renting *et al.*, 2003; Watts *et al.*, 2005; Sonnino and Marsden, 2006; Venn *et al.*, 2006; Hingley *et al.*, 2010; Pascucci, 2010; Cembalo *et al.*, 2012; Cleveland *et al.*, 2015).

Large number of studies using varied analytical methods

like in-depth interviews, surveys and qualitative methodologies have examined how relationships are organized in AFNs, their defining characteristics (the aspects of ethics, sustainability and human values) and the impact on specific economic, social or environmental aspects (Selfa and Qazi, 2004; Tavella and Hjortsø, 2012).

Due to the presence of a much more complex relational system that involves different types of actors, Migliore *et al.* (2014) considered Italian SPGs as a Food Community Networks (FCNs), and used Social Network Analysis (SNA) to identify what role each participant in the network plays.

All these studies highlight the strong heterogeneity of AFNs making difficult to generalize about their characteristics. One factor that distinguishes the different types of AFNs is the relative “connectedness” of consumers to the act of food production in terms of particular ethical relationships (Holloway and Kneafsey, 2004).

Venn *et al.* (2006) note four important parameters for defining AFNs: a new economic space which re-embeds food production and consumption, a non-conventional supply/distribution channel, the adoption of principles of social-embeddedness, and quality food. On the basis of these parameters, the authors identify four categories of AFNs (producers as consumers, producer-consumer partnerships, direct sales initiatives and specialist retailers) according to the relative “connectedness” of consumers to the act of food production.

Local provision of organic food in the AFNs has become a practical tool for promoting changes in conventional production and consumption systems (Seyfang, 2007), in order to reconnect urban dwellers with nearby food production (Paul and McKenzie, 2013), to develop a greater concern for ecological and social sustainability and to promote social action (Follett, 2009).

Another element that effects the nature of AFNs is the institutional, political or cultural contexts in which AFNs develop and, related to this, the specific notion of quality that each network refers to which varies between regions (Donald, 2009). In particular, in Mediterranean countries the association between terroir, tradition and pre-industrial production practices frames the notion of quality (Parrott *et al.*, 2002; Brunori and Rossi, 2007; Pouzenc *et al.*, 2007; Sonnino, 2007; Bazzani and Canavari, 2013). Differently from other regions like USA or Northern Europe, these countries have been less affected by large scale agricultural productivity, thus maintaining a gastronomic tradition based on local food products and networks, including direct-selling, that is a widely acknowledged indicator of AFNs development.

3. The case study

The OGSD of Umbria was founded in 2005 by a group of parents in the city of Perugia (Umbria, Italy), who wanted a supply of organic food for their children’s school canteens. Over the years, the number of consumer members (with their families) has steadily risen from 61 families in

2005, living only in Perugia, to 210 families in 2015, throughout Umbria region. Consequently, new collection points have been set up in the region in recent years and the sales have increased significantly, exceeding € 250,000 in 2015.

Compared with most Italian SPGs and many types of AFNs reported in the literature, the governance structure of the OGSD is quite unusual. Founded as a producer-consumer partnership for direct purchasing (like other SPGs), it has become a specialist retailer where producers can sell directly to consumers through the mediation of the IAOA, which acts as an intermediary to facilitate and manage the exchange of products and information among these subjects.

In particular, the IAOA purchases and sells food products, provides the “collection points” where the exchange takes place, as well as the staff responsible for updating/sending the purchase order (a list with products and prices), collecting and distributing orders and, more generically, managing logistics.

Everyone can become member of the Group by signing up on the OGSD of Umbria web site and paying an annual fee. Only members have the right to shop at the Group point of sale, and acquire the right to take part in the governance of the Group. This entails: 1. select products; 2. choose suppliers for membership (farmers and/or processing industries); 3. define production and consumer prices; 4. transmit information concerning products; and 5. build relationships between producers and consumers.

The IAOA encourages consumer participation in the association by organizing information campaigns on organic farming and healthy eating, and it reports to consumer members on the outcome of the “Quality Assessment Group” (hereafter QAG), the entity formed by consumers members and IAOA exponents to assess products’ quality standards and prices.

However, while consumers often demand that initiatives be organized, they do not participate in the very initiatives they requested. For example, data on past initiatives show that less than 5% of consumer members propose new products/farmers or are available to help organize events. There are higher rates of participation (between 8 and 16%) in initiatives organized by the IAOA but even these are still rather low. Regarding the assessment of producers and their products, approximately 25% of consumers request ad hoc procedures, but only 6% participate in the periodic meetings with the QAG, whereas 8% use different sources to obtain information for formulating their opinions.

The growth of the Group is due to the active role of IAOA who has involved a growing number of organic farms, especially local small farms and food industries, in order to satisfy the increasing demand for products. The number of regular suppliers has been growing steadily since 2005.

They even include social farms and Fair Trade cooperatives, which provide colonial products (such as tea, cocoa, bananas) and detergents (Viganò *et al.*, 2012). Local products have become increasingly important over the years, and accounted for up to 80% of the total turnover. This has many environmental¹ and socio-economic implications, including strengthening the regional organic production system, even including some sectors, which have historically provided very small percentage of organic products, such as fruit and vegetables.

Secondly, IAOA has implemented a marketing strategy to satisfy consumer members’ requests. This strategy, which does not entail a true marketing plan per se, consists of actions ranging from extending the variety of products offered (up to 650 products, of which 67 non-food) to defining product prices in relation to quality standards. Furthermore, the frequency of deliveries increased from two or three times a month to weekly, especially in Perugia.

Finally, looking at the marketing mix, it is interesting to focus on the Group’s prices and how the earnings are distributed. Consumers who shop through the OGSD pay about 20% less than what they would have spent at supermarkets (Mariani *et al.*, 2011).

The final price is established through two procedures. For fruit and vegetables, the OGSD management organizes two annual negotiation meetings, during which the prices proposed by the individual suppliers (derived by individual analysis of production costs) are compared to reach a single reference price that will remain in effect for the entire season. For the other products, the individual suppliers generally propose the same sale price as that of direct sales. In both cases, OGSD applies a 20% mark up to cover operating expenses (18%) and point of sale equipment (2%).

4. Research Design, Data Collection and Questionnaire Structure

To identify the level of connectedness of food consumers to the act of food production we surveyed consumer members about their level of involvement when they purchase food through the OGSD, focusing on consumer connections with product, process and place.

Before the survey, a focus group was held with four OGSD founders and four members of QAG to gain insight into the best way to formulate the questionnaire (O’ Brien and Morgan, 1993; Krueger, 1994). The focus group, conducted for about 90 minutes by a moderator and an assistant moderator, was structured around a set of questions aimed at investigating the main reasons behind organic food purchase and farmers’ characteristics consumers take into consideration when buying foods. The moderator introduced participants to and made them comfortable with the topic of discussion, while the assistant took note of the free-flowing discussion. The focus group findings suggested how to build the questions and the optimum amount of information to be included in the questionnaire.

The questionnaire was given to 120 consumer members

¹ For example, in reducing CO₂ emissions related to the transport of purchased food (Mariani *et al.*, 2011).

and their families who were up to date with their registration fee and bought organic foods at the OGSD, at least once a month² at the point of sale of Perugia (historic OGSD headquarters).

The questionnaire has been sent by email in December 2012. In January and February 2013, the questionnaire was controlled and, if necessary, completed by the respondents with the help of the interviewer at the OGSD's point of sale on the day when the ordered foods were delivered. Therefore, we collected 84 complete questionnaires, with a response rate of 72%.

For the purpose of the survey, the questionnaire² focused on two aspects. The first, aimed to investigate the connection between consumer and food, was "the practical reasons behind their choice" to become members of the OGSD for regular purchase of organic food. The second aspect, aimed to investigate the connection between consumer, process and place, was 'the importance they assigned to the spatial-socio-economic characteristics of supplier members'.

In most AFNs, consumer members often prefer organic foods to conventional foods not only for practical reasons of personal well-being, such as taste, product safety and the satisfaction of doing one's part for environmental conservation supporting local products, but also for broader ethical and social reasons, concerning environmental sustainability, animal welfare, social environmental and ethical ramifications, social justice, support to small farmers, supporting farms located in disadvantaged areas and local economy (Canestrari, 2007; Pearson *et al.*, 2011; Schifani and Migliore, 2011; Cleveland *et al.*, 2015; Si *et al.*, 2015).

Some authors identify different categories of AFNs according to the relative connectedness of consumers to the act of food production (Holloway and Kneafsey, 2004; Venn *et al.*, 2006) suggesting to deepen the role consumer play in creating and maintaining innovative producer-consumer relationship. Murdoch and Miele (2004) emphasize how the activities of the civil society organizations that regulate AFNs achieve reflexive consumers by making choic-

es that involve their critical judgement seeking to convey distinctive forms of "connectedness" with producers and spaces of production. Even though the concept of connectedness is often used in AFN's literature, according to our knowledge, indicators to calculate it were not identified.

In order to measure the characteristics of "connectedness" in the OGSD, two indicators were identified. The first, called "Consumer-Organic Food Connectedness (C-OFC)," corresponds to the combination of ratings given to each Practical reasons behind their choice, identified in five items partly selected from literature and confirmed during the focus group (environmental conservation, purchase of safe products, purchase of local products, support of regional agriculture), and partly emerged only during the focus group (purchase of low-priced products) (table 1). The second one, called Consumer-Farmers Connectedness (C-FC), corresponds to the combination of ratings given to each Supplier members' characteristics, identified in other five items selected from the literature and confirmed during the focus group (table 1).

The first indicator, C-OFC, expresses the relative strength assigned to each motivation for joining the OGSD, and it shows the degree to which consumers are connected with organic food. The second indicator, C-FC, shows the importance that consumer members assign to various characteristics of supplier members, in relation to the production process and place, and thus the degree to which consumers feel a connection with farmers. Both indicators imply a phenomenon in which consumers show a change in how much they care about the social implications of what kind of food they buy, and from whom they buy it.

Respondents were asked to measure the importance they attached to their reasons for buying organic food through the OGSD using a 4-point Likert scale. We used an unbalanced 4 point Likert scale, excluding the possibility of "not important" responses because, during the focus group, it was suggested that respondents would always say the items were important.

² The database of purchases made at the OGSD during the period of April-September 2012 indicated that 230 consumer members had made purchases in this period, 120 of whom were in compliance with the registration fee and bought organic foods at the OGSD at least once a month. These 120 consumer members were taken as the universe of respondents for the survey.

³ In addition to consumer connectedness, the questionnaire investigated the social and demographic characteristics of the interviewees and their families, their buying habits regarding organic products in general and those supplied by the OGSD in particular their relationship with the OGSD, their evaluation of the OGSD organizational procedures, the level of satisfaction with the relationship and, lastly, their opinions about the OGSD and their requests.

Table 1 - Indicators of "connectedness" of OGSD consumers.

Variables	4-point Likert scale	Indicators
<i>Practical reasons behind their choice</i>		
1. Environmental conservation 2. Purchase of safe products 3. Purchase of local products (i.e. km 0 products) 4. Support of regional agriculture 5. Purchase of low-priced products		<i>Consumer-Organic Food Connectedness (C-OFC)</i>
<i>Supplier members' characteristics</i>		
1. Use of techniques with low environmental impact and respect for animal welfare 2. Transparency in contract terms 3. Respect for social standards and involvement in social projects 4. Regional location 5. Small size and location of farms in disadvantaged areas	1=less important 2=quite important 3=important 4=very important	<i>Consumer-Farmers Connectedness (C-FC)</i>

Table 2 – Different levels of the consumer-organic food connectedness and consumer-farmers connectedness based on the responses of consumer members.

Levels of Consumer-Organic Food Connectedness (C-OFC)/variables	Environmental conservation	Purchase of safe products	Purchase of local products (i.e. km 0 products)	Support of regional agriculture	Purchase of low-priced products
Maximum C-OFC	3 or 4				
Maximum C-OFC-less convenience	3 or 4				1 or 2
Maximum C-OFC-less local product	3 or 4	1 or 2	3 or 4		
Predominant C-OFC with environmental	3 or 4	1 or 2			
Predominant C-OFC with safe products	1 or 2	3 or 4	1 or 2		
Levels of Consumer-Farmers Connectedness (C-FC)/Variables	Use of techniques with low environmental impact and respect for animal welfare	Transparency in contract term	Respect for social standards and involvement in social projects	Regional location	Small size and location of farms in disadvantaged areas
Maximum C-FC	3 or 4				
Maximum C-FC-less regional location	3 or 4		1 or 2	3 or 4	
Maximum C-FC-less transparency	3 or 4	1 or 2	3 or 4		
Maximum C-FC-less disadvantaged area and small size	3 or 4			1 or 2	
Predominant C-FC-with environmental impact	3 or 4	1 or 2			
Predominant C-FC-with social value	1 or 2		3 or 4	1 or 2	

Examining the responses of consumer members and combining the assigned value (according to the Likert scale above reported), different levels of connectedness were identified for each indicator, as indicated in table 2. The criterion adopted was to assign a) the maximum level when all variables have a score of 3 or 4 points; b) the maximum level excluding a variable when all variables have a score of 3 or 4 points except that variable; c) the predominant level for a variable when only that variable has a score of 3 or 4 points while all others a score of 1 or 2 points.

The data for the two indicators were analysed through Correspondence Analysis (CA), an instrument designed to describe simple contingency tables in order to relate the profiles of apportionment of the modalities of a characteristic according to the modalities of another characteristic (Delvecchio, 1991).

The CA was conducted on all 84 observations with SPSS version 18.0.

5. Results and discussion

Regarding the socio-economic profile, the sample is composed mainly of households with children living in city residential suburbs. The average age of interviewees is 45 years old, while both education and household income was remarkably high. The sample interviewed is widely represented by strong organic consumers who spend on average 50% of food expenditure for buying organic products, going to OGSD or other point of sale (such as Large-scale distribution Channels and specialized organic shops). OGSD consumers are satisfied with the relationship established with the Group, especially in

terms of the communication’s modality as well as in internal organization of the exchange (delivery frequency and times). In contrast, the most critical aspects of the relationship are the match between orders and deliveries as well as the participation of consumers into the Group’s activities. The majority of respondents (60%) have been members for more than 2 years (senior), 30% are founding members (historical) and another 10% members for less than 2 years (new). Lastly, regarding opinions and requests, 72% of families agree with the current allocation (between suppliers and OGSD) of the price paid by the families themselves; 40% require the introduction of new products.

The results achieved, about the level of “connectedness” of OGSD consumers with food and farmers, suggest that OGSD consumer members are strongly motivated to choose organic food and care quite a lot about the characteristics of supplier members. In fact, no variable has scored

less than 2.4 and as many as 7 out of 10 variables obtained an average score higher than 3 (Table 3).

More precisely, OGSD consumers are deeply worried about the environmental impact of agriculture, and their main reason for joining the Group was to do their part for environmental conservation. In line with their reasons for being members of the Group, consumers require suppliers to preserve the environment by practising organic agriculture and complying with animal welfare regulations.

According to the values of variables, OGSD consumers are interested in multi-dimensional sustainability that primarily concerns the environment but also deems other aspects significant.

We explored this result further by measuring the level of connectedness that resulted from the combination of the single variables.

The first indicator, C-OFC, shows five different degrees

Table 3 - Average value of variables in the sample (N=84).	
Variables	Average value
<i>Importance assigned to reasons for buying organic food</i>	
Environmental conservation	3,52
Purchase of safe products	3,46
Purchase of local products (i.e. km 0 products)	3,03
Support of regional agriculture	2,93
Purchase of low-priced products	2,89
<i>Importance assigned to supplier-members' characteristics</i>	
Use of techniques with low environmental impact and respect for animal welfare	3,42
Transparency in contract terms	3,27
Respect for social standards and involvement in social projects	3,14
Regional location	3,08
Small size and location of farms in disadvantaged areas	2,47

Table 4 - Contingency table based on the “connectedness” of OGSD consumers with farmers and organic food (N=84).

C-OFC/ C-FC	Maximum C-FC	Maximum C-FC-less regional location	Maximum C-FC-less transparency	Maximum C-FC-less disadvantaged area and small size	Predominant C-FC-with environmental impact	Predominant C-FC-with social value	Total
Maximum C-OFC	13	0	0	13	3	2	31
Maximum C-OFC-less convenience	6	1	3	4	3	1	18
Maximum C-OFC-less local product	1	1	0	4	1	2	9
Predominant C-OFC with environmental	0	3	2	0	1	3	9
Predominant C-OFC with safe products	2	1	2	3	2	7	17
Total	22	6	7	24	10	15	84

Table 5 - Correspondence Analysis (N=84).

Dimension	Single value	Inertia	Chi-Square	Sig.	Proportion of inertia (%)		Confidence of the single value	
					Explained	Cumulative	Standard Deviation	Correlation
1	0.611	0.373			72.7	72.7	0.068	0.001
2	0.293	0.086			16.8	89.5	0.109	
3	0.216	0.046			9.1	98.5		
4	0.087	0.008			1.5	100		
Total		0.513	43.101	0.002 ^a	100	100		

a. 20 degrees of freedom.

to which consumers are connected with organic food, according to the criteria proposed for the calculation of indicators (Table 2), as reported in the rows of Table 4. It is interesting to note that there have been no cases of absence of connectedness because never all variables have, at the same time, a score of 1 or 2 points. Columns of Table 4 indicate the second indicator, C-FC, which shows six different degrees to which consumers feel a connection with farmers. Also for this indicator, the level of absence of connection

Table 6 - Coordinates and contributions of the modalities of the first profile (row points^a).

Consumer-organic food connectedness (C-OFC)	Mass	Contribution								
		Score of dimension (coordinates)			Inertia	of the point of inertia of the dimension		of the dimension of the inertia of the point		Total
		1	2	%		1	2	1	2	
Maximum C-OFC	.369	-.778	.055	28	.144	.375	.004	.975	.002	.977
Maximum C-OFC-less convenience	.214	-.091	-.805	9	.048	.003	.474	.023	.847	.870
Maximum C-OFC-less local product	.107	.044	.692	6	.031	.000	.175	.004	.482	.486
Predominant C-OFC with environmental	.107	1.677	-.456	39	.201	.494	.076	.917	.033	.950
Predominant C-OFC with safe products	.202	.622	.627	17	.089	.128	.272	.534	.261	.795
Total actives	1.000			100	.513	1.000	1.000			

a. Symmetrical normalization.

has not been registered.

Associating the two indicators, 30 different combinations of “connectedness” with organic food and supplier members are obtained.

Analysing the value percentages by line one notes that regarding the individual levels of connection with organic food, the consumers with the highest level of connectedness with food are more numerous among those who have the greatest connectedness with farmers for all variables (42%) or for all except for those regarding the size of

farms and their location in disadvantaged areas (also in this case, 42%).

Instead, analysing the percentages by column, one notes that concerning the individual levels of connection with farmers, there is a greater percentage of consumers with predominant connection with low environmental impact and respect for animal welfare among those who have the greatest connection with organic food for all variables (59%) or for all variables except price (27%). Thus, it seems evident that the two indicators C-OFC and C-FC are not independent.

The structure of this dependence was evidenced by CA carried out on the 84 observations. It indicated no anomalous data and the results are reported in Table 5.

The values of inertia, which indicate the geometric dispersion of the profiles compared to the barycentre, provide information about the number of axes that can be characterized. The total inertia was 0.513, and was decomposed along 4 factorial axes (dimensions), each of which corresponds to a row of table 6, with inertia values ordered on the basis of decreasing values.

When the inertia is made equivalent to 100 compared to the barycentre, 66% of this is attributable to a situation of indifference among the profiles, and 54% is attributable to real associations that should be made clear by characterizing the factorial axes.

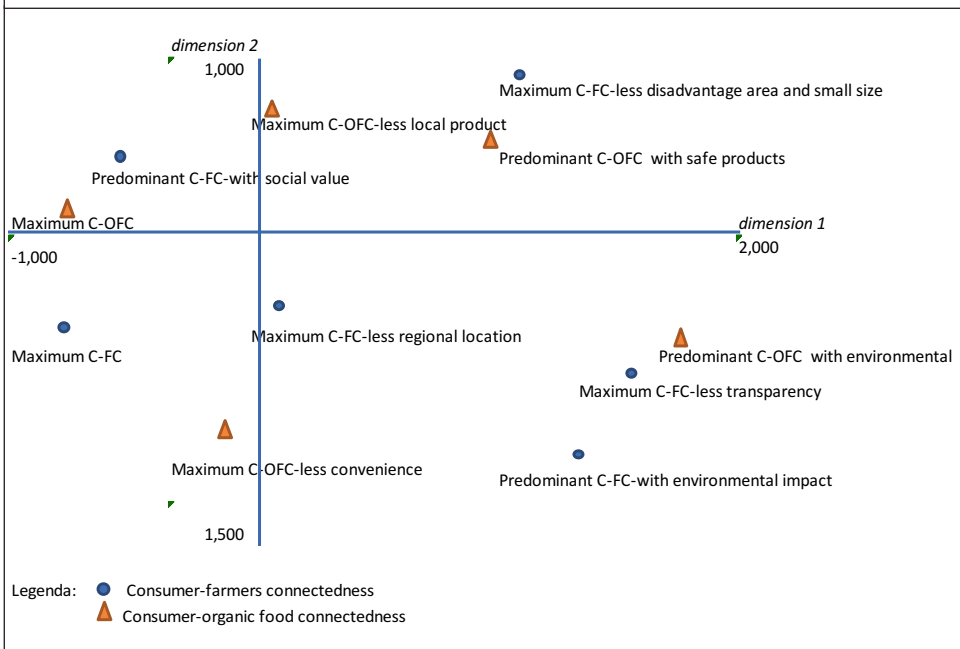
In this case, the inertia of the first axis is 72.7% of the inertia compared to the barycentre, while that of the second axis is 16.8%. This means that the percentage of inertia for the plane identified by the first two factorial axes accounts for 89.5% of the total.

Table 7 - Coordinates and contributions of the modalities of the second profile (column points^a).

Consumer-farmers connectedness (C-FC)	Mass	Score of dimension (coordinates)		Inertia	Contribution					
		1	2		of the point of inertia of the dimension		of the dimension of inertia of the point		Total	
					1	2	1	2		
Maximum C-FC	.262	-.707	-.336	18	.093	.214	.101	.864	.094	.958
Maximum C-FC-less regional location	.119	.054	-.259	1	.006	.001	.027	.037	.409	.445
Maximum C-FC-less transparency	.071	1.53	-.485	26	.133	.274	.057	.769	.037	.806
Maximum C-FC-less disadvantaged area and small size	.179	.852	.844	24	.122	.212	.434	.648	.305	.953
Predominant C-FC-with environmental impact	.083	1.01	-1.01	17	.085	.140	.290	.611	.292	.904
Predominant C-FC-with social value	.286	-.584	.305	15	.075	.160	.090	.798	.104	.903
Total actives	1.000			100	.513	1.000	1.000			

a. Symmetrical normalization.

Graph 1 - Dispersion of the profiles related to the two dimensions.



Given that the inertias measure the dispersion compared to the origin of the projections of the profiles on the axes, the presence of two clearly separate inertias indicates that the first two axes translate particular oppositions between the profiles, which should be examined with attention.

For the characterization of the axes, or in other words, to attribute a specific meaning to them on the basis of the oppositions and the associations that the projections of the profiles establish on them, it is necessary to analyse the coordinates and the contributions of the modalities of the first and second indicator/profile (tables 6 and 7).

The first dimension is characterized by the following two modalities: “Predominant C-OFC with environmental conservation” (0.950), “Maximum C-OFC” (0.977). In fact, these made the greatest contribution to the inertia, that is, to orienting the axis.

The second dimension is characterized by the following four modalities: “Maximum C-FC” (0.958), “Maximum C-FC less for small size and location of farms in disadvantaged areas” (0.953), “Predominant C-FC with environmental impact” (0.904) and “Predominant C-FC with social value” (0.903).

Since the origin of the axes represents the barycentre of the distribution of the points (average of the profiles), the points closest to them most resemble the average profile.

Examining the relative contributions, it can be said that the first axis (dimension 1) explains almost entirely the variability of all the profiles of the C-FC, but only partially the variability of all the profiles of the C-OFC.

The results of the Correspondence Analysis indicate a complex situation characterized by the presence of four groups of consumers (Graph 1 and table 8).

Despite the diversity of the four groups, the results point out a high collective social consciousness, as reflected in Groups 1 and 3 with a special concern to social and environmental dimension of farming, respectively. Some weak points in the connectedness emerged with regards to local origin of organic food, farm size and location in disadvantaged rural areas and transparency in contract terms. For local origin the results could be explained considering the recent increase in local procurement that the Group have achieved in the last years.

6. Conclusions

The results of this study allow us to make an initial assessment of the organizational model of a particular type of PSG, the Organised Group of Supply and Demand, managed by the IAOPA in Umbria.

The involvement of the IAOPA in this AFN makes it a spurious form between the category of ‘producer-consumer partnerships’ and that of ‘Specialist retailers’ identified by Venn *et al.* (2006); therefore, we could define it as a fifth category of AFNs.

As in the case of ‘producer-consumer partnerships,’ the OGSD can be considered a good practice for AFNs built using a bottom-up approach, even though the risks and rewards of farming are not shared because there are no sub-

Groups	Consumers characteristics
1	<ul style="list-style-type: none"> • strong connectedness with food and farmers; • strong connectedness with food and average connectedness with farmers, related prevalently to the respect for social standards and involvement in social projects.
2	<ul style="list-style-type: none"> • strong connectedness with food, but no interest in the opportunity to purchase organic products at good prices.
3	<ul style="list-style-type: none"> • average connectedness with food and farmers, bound in both cases to strong attention to environmental issues; • strong connectedness with farmers, but no attention to transparency in contract terms.
4	<ul style="list-style-type: none"> • strong connectedness with food and farmers, but little concern about the local origin of the products or the problems related to the location of farms in disadvantaged areas; • average connectedness with organic food, but not concerned about the local origin of the products; • average connectedness with organic food, linked prevalently to attention to safe products.

scription or share arrangements. As in the case of Specialist retailers, it offers a consolidated point of sale with excellent organization of logistics, sales, and management of orders, and has been able to provide more reasonable prices than those set by conventional channels because of IA OA's efficient procurement directly from farmers. In doing so, it has also maximized the share of the final price going to producers. Also consumers can have more information about products, thus reducing the information asymmetry existing in global supply chains organised by modern distribution channels (Torjusen *et al.*, 2004).

The survey has highlighted as the OGSD consumer members, who regularly buy organic foods at the OGSD, are strong organic consumers, mainly households with children who live in city residential suburbs, with levels of education and income remarkably high.

The proposed explorative method for identifying the level of connectedness of the OGSD consumers and the descriptors we have used to classify the consumer members, have proven useful for understanding one fairly successful example in the growing phenomenon of AFNs. The analysis conducted confirms that, despite the diversity of the four groups, consumers have a strong connection with food and farmers, articulated in its different dimensions; in fact, they are interested in multi-dimensional sustainability, with primary concern for the environment, but they also hold such ethical aspects as the respect for social standards, involvement in social projects, respect for animal welfare to be very important. For such a reason the OGSD can be considered a strong AFN, as defined by Follet (2009).

In addition, the results of correspondence analysis show that the consumer-organic food connectedness and the consumer-farmers connectedness are not independent from each other. These results indicate how the OGSD' constant consciousness-raising amongst its own associates, generates a process through which food becomes a means to develop a more general social consciousness and, consequently, more effective social actions. Obviously, this process takes on different nuances and generates a complex situation characterized by different levels of connection with organic food and farmers, in which the weakest bond is with the local origin of the products, problems related to the size and location of agricultural firms in disadvantaged

rural areas, and transparency in contract terms. This probably depends on the lack of what Hess (2004) called "societal embeddedness," which he defines as a kind of genetic code that influences individual and collective actions in a given area by building relationships. In this regard the Group needs to adopt strategies to increase the

level of connectedness of consumer members, developing a relational structure among the OGSD members, typical of a Food Community Network (Migliore *et al.*, 2014). This could be done by fostering participation in Group activities and fulfilling the desire of those members who asked to participate more actively in the Group, in order to create substantial social change in the relationship between supply and demand, where consumers make much more conscious decisions with respect to social implications of their food choice and farmers derive financial benefit by dealing directly with this kind of AFN.

This aspect might influence the potential of OGSD to become a best practice replicable in other Italian Regions where the IA OA operates or in Mediterranean countries, including developed and developing contexts. The diffusion of such networks implies additional constraints that can limit their spread. As the involvement of IA OA in the management of the initiative has demonstrated, the increasing complexity of marketing and logistics as well as the additional financial resources needed to invest in buildings, human resources and communication (Galli and Brunori, 2013) can affect the capacity of these networks to grow and access new markets.

The growing institutional interest in promoting short food supply chains can facilitate the access to these markets while consumer interest in food origins, animal welfare, environmental sustainability and health generates increasing demand to satisfy (Kneafsey *et al.*, 2013).

For Mediterranean countries, best practices like the OGSD of Umbria also represent a potential driver for fostering a sustainable and efficient development of organic agriculture. The variety of food cultural traditions, and consumers characterized by a great attention to local food but also historically open to incorporating novel external and internal influences (Pugliese *et al.*, 2013) are all elements that can be recovered and promoted through strategies of territorial rural development.

Acknowledgements

The research on which this paper is based was undertaken as part of a SAFE BIO (Food Habits and sustainability in organic food chains) research project. We acknowledge both MIPAF (The Italian Ministry of Agriculture) and INEA

(National Institute of Agricultural Economics) for their sponsorship of this research. We would like to thank Sheila Beatty for her editing of the English usage in the manuscript.

References

- Bazzani C. and Canavari M., 2013. Alternative agri-food networks and short food supply chains: a review of the literature. *Economia agro-alimentare*, 15(2): 11-34.
- Brunori G. and Rossi A., 2007. Differentiating countryside: Social representations and governance patterns in rural areas with high social density: The case of Chianti, Italy. *Journal of Rural Studies*, 23(2): 183-205.
- Canestrari P., 2007. Le nuove forme di consumo: i GAS – Gruppi di Acquisto Solidali – un’alternativa ai consumi post-moderni. *Sociologia*, 40(41) 3: 69-77.
- Cembalo L., Migliore G. and Schifani G., 2012. Consumers in postmodern society and alternative food networks: The organic food fairs case in Sicily. *New Medit*, 11(3): 41-49.
- Cleveland D.A., Carruth A. and Mazaroli D.N., 2015. Operationalizing local food: goals, actions, and indicators for alternative food systems. *Agriculture and Human Values*, 32: 281-297.
- Delvecchio F., 1992. *Analisi statistica di dati multidimensionali*. Bari: Cacucci Editore.
- Donald B., 2009. Contested notions of quality in a buyer-driven commodity cluster: the case of food and wine in Canada. *European Planning Studies*, 17(2): 263-280.
- Follett J., 2009. Choosing a food future: Differentiating among alternative food options. *Journal of Agriculture and Environmental Ethics*, 22: 31-51.
- Galli F. and Brunori G., 2013. *Short Food Supply Chains as drivers of sustainable development. evidence document*. Document developed in the framework of the FP7 project FOODLINKS (GA No. 265287); Laboratorio di studi rurali Sismondi: Pisa, Italy.
- Garnett T., 2000. *Exploring the relationship between food transport and CO₂*. London: Transport 2000 Trust. www.fcrrn.org.uk/sites/default/files/Wise_moves.pdf [Accessed May 7, 2016].
- Goodman D., Goodman M. and DuPuis M., 2011. *Alternative food networks: knowledge, place and politics*. London: Sage.
- Goodman D., 2002. Rethinking food production-consumption: integrative perspectives. *Sociologia Ruralis*, 42(4): 271-277.
- Greenacre M.J., 1984. *Theory and application of correspondence analysis*. London: Academic Press.
- Hess M., 2004. Spatial relationships? Towards a reconceptualization of embeddedness. *Progress in Human Geography*, 28(2): 165-186.
- Hingley M., Boone J. and Haley S., 2010. Local food marketing as a development opportunity for small UK agri-food businesses. *International Journal on Food System Dynamics*, 1(3): 194-203.
- Holloway L. and Kneafsey M., 2004. Producing-consuming food: closeness, connectedness and rurality in four “alternative” food networks. In: Holloway L. and Kneafsey M. (eds). *Geographies of rural cultures and societies*. London: Ashgate, 262-282.
- Krueger R.A., 1994. *Focus Group. A practical guide for applied research*. 2nd ed. London: Sage.
- Kneafsey M., Venn L., Schmutz U., Balázs B., Trenchard L., Eyden-Wood T., Bos E., Sutton G. and Blackett M., 2013. *Short Food Supply Chains and Local Food Systems in the EU. A state of play of their socio-economic characteristics*. Joint Research Centre <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6279> [Accessed May 7, 2016].
- Ilbery B., Morris C., Buller H., Maye D. and Kneafsey M., 2005. Product, process and place. An examination of food marketing and labelling schemes in Europe and North America. *European Urban and Regional Studies*, 12(2): 116-132.
- Mariani A., Taglioni C., Torquati B. and Viganò E., 2011. Alternative Food Networks e sviluppo locale sostenibile: riflessioni sui Gruppi Organizzati di Domanda e Offerta. *Economia & Diritto Agroalimentare*, 16(2): 263-281.
- Marsden T., Banks J. and Bristow G., 2000. Food Supply Chain approaches: Exploring their role in rural development. *Sociologia Ruralis*, 40(4): 424-438.
- Migliore G., Forno F., Dara Guccione G. and Schifani G., 2014. Food Community Networks as sustainable self-organized collective action: a case study of a solidarity purchasing group. *New Medit*, 13(4): 54-62.
- Murdoch J. and Miele M., 2004. A new aesthetic of food? Relational reflexivity in the alternative food movement. In: Harvey M., McMeekin A. and Warde A. (eds.). *Qualities of Food*. Manchester: University of Manchester Press, 156-175.
- Norberg-Hodge H., Merrifield T. and Gorelick S., 2002. *Bringing the food economy home: Local alternatives to global agribusiness*. London: Zed Books.
- O’ Brien K. and Morgan D.L., 1993. *Successful focus groups: Advancing the state of the art*. Sage, Newbury Park, 105-117.
- Parrott N., Wilson N., Murdoch J., 2002. Spatializing quality, regional protection and the alternative geography or food. *European Urban and Regional studies*, 9(3): 241-261.
- Pascucci S., 2010. Governance structure, perception, and innovation in credence food transactions: The role of food community networks. *International Journal on Food System Dynamics*, 1(3): 224-236.
- Paul V. and McKenzie F.H., 2013. Peri-urban farmland conservation and development of alternative food networks: Insights from a case-study area in metropolitan Barcelona (Catalonia, Spain). *Land Use Policy*, 30(1): 94-105.
- Pearson D., Henryks J., Trott A., Jones P., Parker G., Dumaresq D. and Dyball R., 2011. Local food: Understanding

consumer motivations in innovative retail formats. *British Food Journal*, 113(7): 886-899.

Pouzenc M., Coquart D., Pilleboue J., Olivier V., Guibert M., 2007. Diversification des modèles de qualité territorialisée des produits agroalimentaires: risque ou opportunité pour les terroirs? *Méditerranée*, 109: 31-40.

Pugliese P., Zanasi C., Atallah U. and Rota C., 2013. Investigating the interaction between organic and local foods in the Mediterranean: The Lebanese organic consumer's perspective. *Food Policy*, 39: 1-12.

Renting H., Marsden T. K. and Banks J., 2003. Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and Planning A*, 35: 393-411.

Schifani G. and Migliore G., 2011. Solidarity Purchase Group and the new critical and ethical consumer trends: first results of a direct study in Sicily. *New Medit*, 10(3): 26-33.

Selfa T. and Qazi J., 2004. Place, taste, or face-to-face? Understanding producer-consumer networks in "local" food systems in Washington State. *Agriculture and Human Values*, 22: 451-464.

Seyfang G., 2007. Growing sustainable consumption communities. The case of local organic food networks. *International Journal of Sociology and Social Policy*, 27(3-4): 120-134.

Si Z., Shumilas T. and Scott S., 2015. Characterizing alternative food networks in China. *Agriculture and Human Values*, 32: 299-313.

Sonnino R., 2007. Embeddedness in action: Saffron and

the making of the local in southern Tuscany. *Agriculture and Human Values*, 24(1): 61-74.

Sonnino R. and Marsden T.K., 2006. Beyond the divide: rethinking relationship between alternative and conventional food networks in Europe. *Journal of Economic Geography*, 6(2): 181-199.

Tavella E. and Hjortsø C.N., 2012. Enhancing the design and management of a local organic food supply chain with soft systems methodology. *International Food and Agribusiness Management Review*, 2(15): 47-68.

Torjusen H., Sangstad L., O'Doherty K.J. and Kjærnes U., 2004. European consumers' conceptions of organic food: A review of available research. *Professional report 4*, National Institute for Consumer Research, Oslo. <http://orgprints.org/2490/> [Accessed June 1, 2016].

Trubek A.B. and Bowen S., 2008. Creating the taste of place in the United States: can we learn from the French?. *GeoJournal*, 73: 23-30.

Venn L., Kneafsey M., Holloway L., Cox R., Dowler E. and Tuomainen H., 2006. Researching European 'alternative' food networks: some methodological considerations. *Area*, 38(3): 248-258.

Viganò E., Mariani A., Taglioni C. and Torquati B., 2012. Consumatori e canali alternativi per il biologico: il caso del Gruppo Organizzato di Domanda e Offerta di AIAB-Umbria. *Economia Agro-Alimentare*, 14(1): 173-194.

Watts D., Ilbery C.H.B. and Maye D., 2005. Making reconnections in agro-food geography: alternative systems of food provision. *Progress in Human Geography*, 29(1): 22-40.