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Organic farming and sustainability in food choices: an analysis of consumer preference in Southern Italy

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Abstract

In recent years an important trend in sustainable food consumption is represented by organic consumers. Organic agriculture not only preserves the environment but it also improves public health, bringing significant benefits both to the economy as well as to the social cohesion of rural areas. Based on these considerations the proposed paper aims to analyze consumers demand for organic food as products that contribute to the sustainability of food choices. Cross-sectional data were collected through a web-based survey on 200 organic consumers resident in Campania Region between January and March 2015. Furthermore, this research assess the impact of local origin on consumer preferences for organic products using a conjoint analysis.

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1. Introduction

Today's many food production systems are unsustainable and compromise the capacity of Earth to produce food in the future (FAO, 2012). Hence, food systems must undergo radical changes towards greater resource efficiency in order to respond to the food and nutritional needs of an increasingly urbanized planet.

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Food consumption is a major issue in the politics of sustainable consumption and production (SCP) because of its impact on the environment, individual and public health, social cohesion, and the economy (Reisch *et al.*, 2013). Consumer choices plays a leading role in orienting production: consumers select products according to place of origin, production processes or producer. Consumers also exert strong influences through the ways they buy, transport, conserve, cook and consume their food. On the other hand feeding is one of the main sources of use of the resources of the planet and at the same time contributes to the production of materials harmful to the environment (Baldi *et al.*, 2013).

In this background, organic consumers represent an important trend in sustainable food consumption (Colucci *et al.*, 2012). Organic farming is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic farming combines tradition, innovation and science to benefit the shared environment and promote equitable relationships and a good quality of life for all involved. In other words, organic agriculture aims to produce healthy and quality foods without using synthetic chemical products. Thus, organic agriculture not only preserves the environment but it also improves public health, bringing significant benefits both to the economy as well as to the social cohesion of rural areas (IFOAM, 2012; de Magistris and Gracia, 2008; Falguera *et al.*, 2012).

The organic sector in the EU has been rapidly developing during the past years. According to Eurostat data, the EU-27 had in 2011 a total area of 9.6 million hectares cultivated as organic, up from 5.7 million in 2002. Although this is a big increase, the entire organic area represents only 5.4% of total utilised agricultural area in Europe. The market of organic products continues to grow; it was valued at 21.5 billion euros in Europe in 2011, which is an increase of 9% compared to 2010 (IFOAM, 2012). In Italy, specifically, organic sales grew by 7.3% in 2012 (INEA, 2013).

Moreover, organic agriculture can represent an important alternative agricultural production system for large rural areas, such as Campania Region (Southern Italy) where organic farming plays a strategic role. In 2012, the area under organic farming in Campania region has undergone an increase of 6.2 percentage points with 1,893 active players in the sector. However, in recent years the Campania Region has faced serious problems of environmental pollution and food safety that have generated strong mistrust and insecurity among the public towards the quality of local agricultural food production, and undermined consumers' trust in the safety of local agri-food systems with particular reference to the topic of food chains contamination.

Based on these considerations the current paper aims to analyze consumers' food buying practices with regard to sustainability issues with particular reference preferences to organic food, as products that could contribute to sustainability in food choices. Furthermore, this research investigates consumers' preference for organic products with local origin in order to explore the extent of the recent environmental scandals that occurred in Campania.

2. Literature background

There is a large body of literature on consumers' attitudes towards organic food products and numerous empirical studies have focused on determining the premium price consumers are willing to pay for organic products and the factors explaining this premium (for a complete review see Schleenbecker and Hamm, 2013).

In this regard, Hughner *et al.* (2007) identify five main purchase motives that influencing consumer preferences of organic foods: (i) health concerns (including nutritional and safety); (ii) better taste; (iii) environmental concerns; (iv) animal welfare concerns; and (v) support of the local economy.

In the same way, consumer preference for production in relation to its origin have been investigated in several papers covering different approaches to origin, such as regional origin and local origin. Revealing that the regional origin and overall the local origin are positively valued and more valued compared to other quality aspects (Van der Lans *et al.*, 2001; Fotopoulus and Krystallis, 2003; Scarpa and Del Giudice, 2004). There are various reasons for this positive consumer interest. Several studies indicate that local food is associated with higher perceived food quality (e.g. Carpio and Isengildina-Massa, 2009) as well as perceived increased freshness of the products (Roininen *et al.*, 2006). On the other hand local food systems may have positive externalities, promoting local jobs and helping local business gaining market access (Carpio and Isengildina-Massa, 2009), and consumers may therefore believe that they support the local community when purchasing locally produced food (Bond *et al.*, 2008; Toler *et al.*, 2009). In addition, local food production may also imply environmental benefits due to reduced 'food miles'

(Denver and Jeansen, 2014).

Other studies analyzed consumer preferences for both attributes, organic method of production and local origin of production (e.g. Denver and Jensen, 2014; Gracia *et al.*, 2013; Costanigro *et al.*, 2014) but the origin is often used as a proxy for sensorial or other quality characteristics. In other researches, it was found that organic and local product attributes could serve as substitutes (Costanigro *et al.*, 2011). In this study, we used local origin in order to estimate its impact on consumer perception of safety for organic food.

3. Materials and methods

Cross-sectional data were collected through a web-based survey on 200 organic consumers (i.e. individuals consuming organic at least once a month) resident in Campania Region between January and March 2015. The questionnaire consisted of five parts. The first part was related to analyse general food buying and consumption habits with regard to sustainability issues. The second part explores consumers' organic knowledge, attitudes and purchase behavior. The third part investigated the degree of respondents confidence towards the organic foods produced in Campania Region; the fourth part includes lifestyle and demographics variables, while the fifth part includes the experimental design.

To estimate consumer preferences towards local and organic products conjoint experiment method was used by presenting respondents a series of alternatives (choice set). Conjoint analysis models the nature of consumer preferences in the form of consumer trade-offs amongst multi-attribute concepts (Krystallis and Ness, 2005). The conjoint model assumes that products can be defined as a series of specific levels of attributes and that the total utility that the consumer derives from a concept is determined by the partial utilities contributed by each attribute level. It provides for the identification of attribute combinations that are most preferred by respondents and the identification of the relative importance of each attribute.

In this research, conjoint analysis was performed using canned peeled tomato as base product. Conjoint analysis involved the selection of three product attributes: origin (3 levels), certification body (2 levels) and price (3 levels).

The first attribute is the origin for which, based on the literature review (Gracia *et al.*, 2013; Costanigro *et al.*, 2014) three levels were identified: regional, national and foreign. The choice of certification body as second attribute is linked to the fact that several studies on organic consumers have shown that the presence of a certification body well known and with good reputation on the market can affect the choice and consumer confidence compared to a less known certification body (Del Giudice and Scarpa, 2002; Lohr, 1998). For this reason two options were shown: Agency Certification Bioagricert (well known and established in Italy), and CODEX srl (a private company). Finally, with reference to price several studies in the literature have shown that organic consumers seem to show a greater willingness to pay than conventional consumers, so as previous research we selected three price levels (Canavari and Olson, 2007; Cicia *et al.*, 2002). The full conjoint analysis design produced 18 product profiles. Applying orthogonal design the complete choice stimuli generated 6 final alternatives. The different alternatives produced were shown to consumers on pictures cards asking them to express a preference for each products on a metric preference scale from 1 = "not preferable at all" to 5 = "totally preferable". Data were analyzed using SPSS 19.0 (SPSS Inc., Chicago, IL).

4. Results

The explorative analysis shows that the sample is composed of women (53%) aged between 35-45 year old (28%), mainly married (59%), living in families with an average of 3 individuals, 21% with child < 10 years. With reference to the education level, 42% hold a secondary school diploma, while 28% hold a bachelors degree. 32% are employees in the public sector and 25% in the private sector, 18% are students, 15% are housewives and 10% are retired.

Analysis of general food buying practices and consumption habits with regard to sustainability issues was carried out by proposing 14 statements adapted from the Food Choices Questionnaire and from other studies (Vanhonacker *et al.*, 2013; Annunziata and Scarpato, 2014). Respondents were asked to rate the importance of several items (on a 5-point scale, with the end points 1 = "not at all important" and 5 = "very important").

Table 1 show that respondents tend to consider very important that food "keeps them healthy" (46%) "is

produced in full respect of human rights” (43%) or “without exploiting women and children” (41%). Moreover, 35% consider very important that food “Is produced in an uncontaminated environment” and 26% “is obtained in an environmentally friendly way” while 23% that “Is locally produced to support local farmers”. On the other hand low carbon emission, animal welfare rights, environmentally friendly packaging are considered less important.

Table 1. Food buying practices and consumption habits with regard to sustainability issues

“It is important that the food I eat on a typical day...”	Not at all	Very important
Is obtained in an environmentally friendly way	6	30
Is locally produced to support local farmers	11	28
Is produced in full respect of human rights	-	41
Is sold at a fair price for the producer	9	28
Is produced in a way that respect the biodiversity	11	22
Is made without exploiting women or children	-	40
Is grown using sustainable agricultural practices	7	26
Is respecting animals' rights	15	16
Is produced without the use of pesticides	5	31
Is packaged in an environmentally friendly way	14	22
Is produced reducing the amount of food waste	12	20
Is produced with low carbon emission	16	18
Is produced in an uncontaminated environment	-	35
Keeps me healthy	-	46

The propensity to consume organic food was analyzed by verifying the degree of objective knowledge of such products by the respondents and then asking the frequency of purchase. To measure objective knowledge, the questionnaire uses a construct of four statements, the validity of which has been tested in previous research, asking consumers to indicate whether they thought the statements were true or false (Aertsens *et al.*, 2010; Park *et al.*, 1994).The results show that respondents are aware that organic products are produced without the use of synthetic substances. However, outcomes prove that consumers still have some uncertainties especially compared to the use of GMOs in organic farming.

Subsequently we tested the frequency of consumption of organic products and the place of purchase. Regarding the first aspect, 28% are one time per week consumer, followed by those who claim to consume at least two times a week (26% of cases) and those declaring that they are daily consumers (16%). While 30% state to consume rarely (one or two times a month).

With regard to the place of purchase, respondents prefer the supermarket (64% of cases), followed by the farm (16%) and the farmers' market or organic (bio) markets (12%). The specialty stores are less popular (only in 6% of cases), while a very small percentage buy through solidarity purchasing groups (GAS) or box schemes (2%).

In order to analyze consumers perception of organic food respondents were asked to score 20 statements on a five-point Likert types scale (ranging from totally disagree to totally agree), analyzing the main motivations to buy or not buy organic products.

The results reported in Tab. 2 show how consumers buy mostly organic products for health-conscious issues and because they are perceived to be more fresh and natural, but also for the added security that attach to the controls of the same. Moreover, consumers buy organic products for their low impact on the environment and because they help to preserve biodiversity.

Table 2 - Respondents' perception of organic food

	Totally disagree	Totally agree
Environmental protection	-	40%
Better for my health	-	42%
Better taste	13%	16%
Rigorous safety control	2%	38%
Biodiversity preservation	7%	30%
Distrust in conventional	18%	25%
Modern and trendy	31%	6%
To support rural farmers	7%	19%
Fresher products	2%	35%
Curiosity	3%	9%
Respect for animal welfare	9%	14%
Prices too high	15%	21%
Not available	6%	15%
Little difference with conventional	32%	4%
No trust in certification body	18%	12%
Too many label	16%	23%
Insufficient information	5%	18%

Subsequent analysis have investigated the perception of safety and the degree of confidence of respondents towards organic foods produced in Campania. First, was asked whether and how the recent environmental scandals that occurred in the region have affected their food choices.

With reference to changing into consumers' food habits, as showed in graph 1, almost 59% of respondents declared to have changed their shopping habits. Respondents, then, were asked in what way they had changed. Around 35% of consumers had given up buying the local product while 28% had started to buy organic food, 26% had moved to brands that offered them more confidence or guarantees and, finally, 10% had changed the retail outlet where they normally shop.

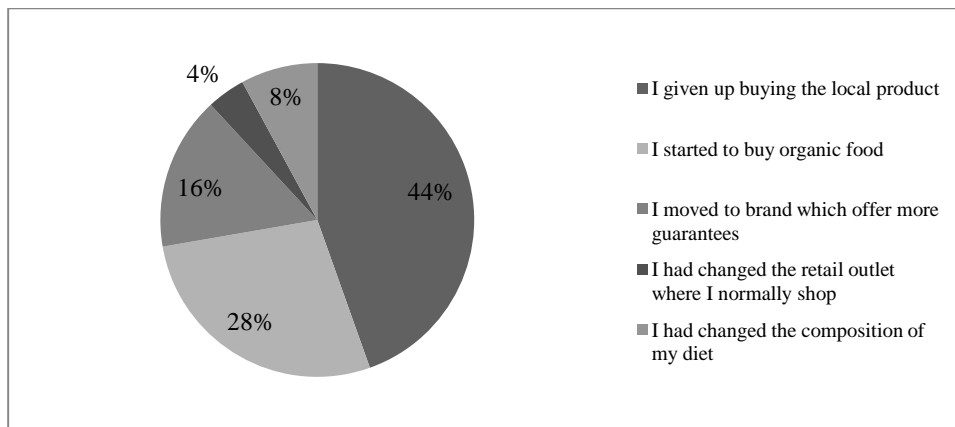


Figure n. 1 - Consumer changing food choices

With specific reference to the organic food from local origin 36% of respondents state to buy often organic foods locally produced and 21% always. On the contrary, 19% never buy organic foods with local origin, while 24% rarely.

Subsequently, respondents was asked to indicate their degree of confidence in the safety and quality of local organic products. The data show that 54% considered safe organic products of local origin while 24% said they were unsure of the safety of the same. In contrast, 18% have little confidence in the safety of organic products of local origin.

4.1 - Conjoint Analysis results

The first step in defining the conjoint analysis was to identify the product covered by the experiment. Canned peeled tomatoes were selected as it is a product with high penetration in everyday household expenditures and is an element that characterizes local cuisine. Table 3 presents the levels of selected attributes and part-worths and the relative importance of each attribute estimated for every respondent. Part-worth utilities were estimated using Ordinary Least Squares regression analysis. This is the most extensively used method and allows establishing the relative importance of the attributes and the part-worth of each of their levels.

Table 3 - Part-worths utility and relative importance of each attribute

Attributes	Attributes level	Part-worth	Relative importance
Reputation of certification body	Codex s.r.l	-0,44	16%
	Bioagricert (most popular)	0,44	
Origin	Regional	0,86	41%
	National	0,32	
	Foreign	- 1,18	
Price	€1.50	0,51	43%
	€1.80	0,68	
	€2.20	-1,19	

The results confirm that the price plays a central role in determining preferences towards organic products, however it should be highlighted that consumers place greater utility to the intermediate level of the price, not the lowest. This could be explained by the fact that consumers are aware that organic products have a premium price than conventional. As for the origin, considered the second most important attribute, we should highlight that the preferred by the respondents is local, followed by national. Both are preferred over the foreign products, even within the European community. Finally, the reputation of the certification body is the attribute which consumers assign the lowest degree of utility, showing indifference between the two options.

5. Discussion and conclusions

In recent years there has been a growing interest in locally sourced organically produced food, suggested as a model of sustainable consumption for a range of economic, social and environmental reasons (Sefayang, 2006; Stagl, 2002). At the same time, organic and locally produced foods have seen a remarkable increase in availability and demand, creating new marketing opportunities also for local producers. However, while consumer preferences and attitudes towards organic food products have been extensively studied, there are relatively less empirical work on consumer preferences for organic products locally produced (Gracia *et al.*, 2014).

Results from this study confirm that consumers purchase organic foods because they are perceived as healthier as or more fresh than conventional products but also more environmentally friendly and supportive of the local economy (Zepeda and Deal, 2009). Nevertheless our results show that health and quality attributes are most important for consumers when purchasing organic products compared to environmental issues and the development of sustainable rural areas, which appeared to be less significant.

Hence, we can state that in recent times consumer's choice of organic products are driven mainly by hedonic values related to the product and its effects on their well-being and / or that of their family rather than ethical values, relating to social and environmental effects of the organic method (Lockertz, 2007).

As for the local origin of organic products and with specific reference to the products from the Campania region, our results show that although consumers state a generalized distrust of the healthiness of the regional products (due to recent environmental scandals) conjoint analysis outcomes prove that consumers assign a higher preference for organic food locally produced - for which they are also willing to pay a premium price compared to those from abroad. The results underline that the combination of territorial origin and quality certification, in our case organic, have a positive impact on the perception of consumers and may in some way contribute to the recovery of the

credibility of regional production. Obviously, it should be noted that in the design of conjoint analysis the origin of the product is regional and does not explicitly refer to the areas strongly affected by environmental scandals. However, findings are still comforting for local stakeholders considering that the entire regional food system has been strongly hit by a lack of confidence in recent years.

Consequently, Policy makers could consider to further stimulate the development of the organic sector through regional campaigns that aim to enhance and promote organic regional products and that could contribute to restore credibility and vitality to rural communities. At the same time to support the local food system it could be useful the enhancing and promoting of Bio-districts such as models of development and eco-sustainable local governance characterized by the involvement of local communities and a highly participatory planning.

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