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Consumers Demand for Social Farming Products: An Analysis with Discrete Choice Experiments

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Abstract: This paper analyses the demand for social farming (SF) products. In particular, we investigate the preferences of consumers who buy their products from large retailers, rather than from solidarity purchasing groups or other niche markets using a sample of 225 consumers. In this regard, a discrete choice experiment (DCE) was carried out to estimate the willingness to pay (WTP) a premium price for the purchase of a common product (i.e., eggs) from farms that employ disabled people. The attributes considered in our DCE design are the employment of disabled people and two additional attributes which may have ethical implications for the choices. The results indicate that consumers are interested in buying SF products, with about 74% of the sample willing to buy the eggs produced by social farms and the average WTP being equal to €1.36 for a pack of six eggs. Moreover, the average WTP for the use of labour of disabled people attribute amounted to €0.69 for a pack of six eggs.

Keywords: social farming; food; agriculture; consumer demand; disability; discrete choice experiment; eggs; sustainable agriculture

1. Introduction

In addition to the socio-economic contribution of agri-food production, societal expectations toward agriculture focus on its role in promoting and proposing activities aimed at bolstering environmental and landscape services such as water management, social care and cohesion [1]. The reason is that agriculture is still involved in the largest use of land by far [2] and that rural areas are increasingly shifting from being productive areas to what can be called consumptive areas [3] that need to perform social, recreational, and maintenance functions. Multifunctionality, as a core item in the common agricultural and rural development agenda, refers to the different functions that agriculture performs in society, functions that are not only oriented to the production of food and fibres, but also include, for instance, the creation of new job opportunities and the development of rural areas to attract other new customers of rural services [4]. These new opportunities for farms within the multifunctional paradigm are diversely detected, with the common target to reconsider their predominant orientation towards primary production and profit maximization and to rearrange the adoption of a more socially responsible pattern of production [5–9]. Therefore, multifunctionality can be the new unifying paradigm to bring post-modern agriculture in accord with the new societal demands [4]. Among the various multifunctional practices, social farming (SF) allows the farms to reach their scope of activities [10,11]. SF has appeared as a multifunctional innovative strategy [12]

that contributes to social care through the production and processing of agricultural products by incorporating direct social benefits in employment, training, and therapy or rehabilitating groups at risk of social emargination [13]. Following this logic, many European countries and regions have tried to promote SF among local communities to create and popularize innovative work practices [14].

The term "social farming" is also called care farming, farming for health, green care, and connective agriculture [15], and is used to describe farming activities when they are oriented toward the promotion of the rehabilitation and care of disadvantaged people and the integration of people with low job-holding capacity, i.e., people with psychophysical disabilities, convicts, drug addicts, minors, and immigrants. Besides rehabilitation and sheltered employment, other examples of SF services include therapy, lifelong education and other opportunities to contribute to enhance social inclusion [16–18]. SF is the result of a new, widespread positive perception of agricultural and rural resources, enhancing the interest in the beneficial effects of nature and agricultural activities on the social, physical, and mental wellbeing of people [19], thus linking elements of healthcare system to agriculture (social and therapeutic horticulture), landscape or nature conservation (eco-therapy), animal keeping (animal-assisted intervention), or animal husbandry (care farming) [20].

SF and its relevance is now emerging in Italy, as well as in other European Countries and other parts of the world [16,20–22]. It is paving the way for a new chance to diversify rural activities, to enhance the role of a renewed agriculture in society, and to strengthen the economic and social viability of farms and rural communities as a whole [10,23–26]. Although there is great interest for SF, social farms still suffer the need to find adequate funding [27]. Analysing social co-operatives, which represent one of the most relevant SF initiatives in Italy, Fazzi [17] pointed out their important involvement in the management of social health services outsourced and financed by local healthcare boards, and at the same time their need to have a profitable activity to reduce their risks of dependence on public funding only. Besides the public sector, new opportunities for social farms rely on, for example, the private demand for a social service, e.g., clients or client representatives that contact a care farm directly without connecting their needs to a public institution [27].

In recent years, a new phenomenon is spreading in many industrialised countries, where consumers reacted to the global standardisation and homologation of agricultural products [11] developing a special sensitivity to their ethical attributes. Such penomenon is the so-called critical consumption or the anti-consumerism movement. Among the ethical characteristics of products, "critical" consumers are very interested in issues such as environmental sustainability, social justice and inclusion, income distribution, economic diversification, and preservation of small and local firms [28]. The new needs of these consumers, not satisfied by the standard products, resulted in the development of new markets. These markets mainly rely on short value chains [29–32] or direct purchase from the producers. In this way the consumers can satisfy their need for local, typical, and very often organic products, characteristics that are a proxy for values such as sustainability, solidarity with small farmers, fair trade and personal health. The increasing interest about the ethical content of agricultural products, may also develop a notable opportunity for social farms, given that their products comply with the ethical requirements of these new consumers. In fact, the growing demand for these products suggests that the ethical content of the SF produce could be remunerated by the market [11,33].

Many studies highlighted that consumers are willing to pay a premium price for socially responsible products [34], namely, for products produced by companies that adopt production and organizational techniques capable of providing social benefits that are not incorporated in other goods, and therefore, do not bring any direct advantage to the buyer.

Analysing the studies that estimated the consumers' willingness to pay (WTP) for socially responsible products Tully and Winer [34] highlight that the social benefits usually considered in the literature concern the environment, animals, or other people. With regard to the benefits of other people, previous studies considered the WTP related to fair trade for products imported from tropical or sub-tropical countries such as coffee, chocolate, and bananas [34,35].

To our knowledge, only one study has analysed the demand and WTP for SF products [36]. However, in this study, people who buy food from alternative food networks (AFNs) were mainly interviewed. In general, although these people currently constitute the reference market for SF in Italy, they have a greater sensitivity towards socially responsible products, thus being more attentive to the use of short supply chains and the consumption of organic and low environmental impact products. Nevertheless, we should notice that only a small fraction of Italian consumers buy food from AFNs, as the large majority of consumers usually buy food from supermarkets; thus, it would be useful to understand if and to what extent they are sensitive to the ethical and environmental aspects related to food production. In particular, the increase in the consumers' knowledge on SF could favour its diffusion in the future, increasing social benefits and at least partially reducing the costs borne by public structures for social inclusion of people with disabilities or other social disadvantages. Additionally, it should be noted that large-scale distribution has sometimes shown itself to be sensitive to the support of products with a high degree of ethical attributes, favouring and encouraging their sale.

The objective of this paper is to analyse the demand for SF products, but contrary to Torquati et al. [36] that focused on AFNs, we considered a sample of consumers who buy their products from large retailers. We want to test whether consumers not belonging to any specific niche market have a positive WTP for SF products. Therefore, a discrete choice experiment (DCE) was carried out to estimate the willingness to pay a premium price for the purchase of a common product (eggs) from farms that employ disabled people.

The attributes considered in our DCE design are the employment of disabled people and two additional attributes which may have ethical implications for the consumers' choices. The first is the possibility that the eggs are produced by organic farming, while the second considers the location of the producing farm, more precisely, if the producing farm is located near the place of purchase. The purchase of organic products can be promoted both by the benefits that can be obtained from it on a personal level (consumption of foods without chemical residues or with better organoleptic characteristics), and by the environmental benefits resulting from the adoption of more environmentally friendly production methods. The proximity of the production site enables the consumption of fresh products, and simultaneously, reduces the environmental impact of transporting goods.

The rest of the paper is organized as follows. Section 2 describes the methodology. In Section 3, we present the results, while in Section 4, we discuss the results and summarise the conclusions.

2. Material and Methods

2.1. Questionnaire Structure

To analyse the potential demand for eggs produced by companies that practice SF, we designed a questionnaire of four parts.

The first part presents the research and provides some information on SF. The interviewees were advised that during the interview they would be asked to indicate their preferences regarding the purchase of eggs produced by different methods, including the employment of disabled people, that is, companies that practice SF, organic farming respecting animal welfare, and production in farms located near or far from the place of purchase.

The second part was structured to collect information on the buying habits of the respondents. First, the interviewees were asked to indicate where they usually buy food (type of commercial structure and distance from home) and how often. Afterwards, the interviewees were asked to rate the importance of the following elements when buying food according to a five-point Likert scale (ranging from not relevant at all to highly relevant): the brand, price, organoleptic characteristics (taste, smell, etc.), produced by organic farming, quality certifications (protected designation of origin (PDO), protected geographical indication (PGI), etc.), processed products (products prepared or ready to use), health and hygienic safety, place of production (Italy or abroad), convenience (offers), and trust in the seller. Some questions were asked to verify the degree of SF knowledge and to identify which factors

could favour the purchase of SF products. The third part included the DCE and the six choice sets that are described in the following paragraphs.

Finally, the socio-economic characteristics (gender, age, educational level, and employment position) were collected in the last part. Since people in Italy are very reluctant to provide data on family income, we asked them to judge their family standard of living which somehow provides a more accurate measure of the real well-being level of the family.

The questionnaire was initially tested on a small group of people to check the comprehensibility and duration before being administered to the interviewees. Following this preliminary analysis, changes were made to simplify some questions and provide a greater clarity in others.

2.2. The DCE Methodology

We applied DCE to estimate the consumers' preferences with regard to SF products. Given that the DCE approach is well known nowadays and widely applied in marketing, agribusiness, environmental valuation, health economics, and transportation studies, our presentation of DCE will not be exhaustive, providing only a broad overview of the methodology and introducing the reader to its specific terminology. We invite the readers not very familiar with such approach and interested in a deeper understanding to read Hensher et al. [37], Hauber et al. [38] or Ben-Akiva et al. [39]. The DCE is one of the stated preference methods used in economics [40], having its solid theoretical foundations in the Lancaster's consumer theory [41], where random utility models are applied [42,43]. The popularity of DCE is due to its ability to estimate both the value of a good/service as a whole and the implicit value of its attributes [44]. A further aspect that deserves attention is its applicability to ex-post and ex-ante valuations. In fact, given that the DCE presents a hypothetical scenario to respondents, it allows us to value future scenarios/products, thus performing ex-ante valuations.

Data are collected using either a paper-based or a digital questionnaire. The DCE goal is to analyse the respondents' preferences with regard to a hypothetical scenario/product. Respondents are presented with such hypothetical scenario and then requested to choose -often repeatedly- from a bundle of different options (such bundle is technically called the 'choice set') according to their preferences. The different choice options included in the choice set usually present the same good/service, characterised by a set of attributes, with the levels of such attributes varying in each choice option. For example, considering eggs, an attribute could be the 'egg size', and its levels could be 'small', 'medium', and 'big'.

A key aspect of the DCE preparation is the 'experimental design' [45], namely, the process that allows the researcher to build the choice sets that will be presented to respondents. The first phase of the 'experimental design' is the selection of the key attributes of the good/service presented to the respondents, with the levels of attributes being determined in this phase. To reduce all possible combinations of attributes and levels that will be presented to respondents, the researcher creates a subset of them using the 'experimental design' according to different statistical criteria (see Johnson et al. [45] for more details). The final subset of all potential choice sets is then included in the questionnaire and presented to the respondents, who are expected to choose their preferred alternative among those options presented in the choice sets. According to the random utility theory, each respondent assigns a certain utility to each choice option in the choice set and performs his/her choice maximizing his/her expected utility. Although it is not possible to measure the respondents' utility directly, the researcher can observe their choices. Thereby, the part-worth utilities of the attribute levels are estimated linking the probability of choice to the respondent utility function. Such estimates can be performed applying different models, including a popular model which is McFadden [46] conditional logit model, often referred to as the multinomial logit (MNL) model in the DCE literature. MNL models have been widely applied when studying the sample mean preferences, while the random parameter logit models (RPL) [47–49] and latent class models (LCM) [50] are applied to investigate heterogeneity across respondents. Although both models are suitable, they differ. RPL takes the preference heterogeneity into account in a continuous fashion, considering it random with a specific

density function, whereas LCM can be considered a semiparametric variant of MNL [47], as the probability of choosing an option is conditional on two aspects: the good characteristics and the individual belonging to a cluster of people with common preferences.

2.3. Attributes Selection and Experimental Design

As highlighted in the introduction, the purpose of the survey was to assess the consumers' WTP for a pack of six eggs produced using different production methods. In this regard, following Torquati et al. [36], four different attributes were considered:

1. type of labour used (only by "able-bodied" persons or includes persons with "disabilities");
2. place of production (close to or far from the place of purchase);
3. the production technique (conventional or organic);
4. the price for a pack of six eggs (2.4, 2.7, and 3€).

The lower price level for the attribute price (€2.4) was chosen based on the average price of the eggs sold in the supermarkets in the area where the interviews were conducted. Since the total number of profiles (choice options) derived from all the possible combinations of attributes and levels was too high ($2^3 \times 3^1 = 24$ profiles), through an experimental orthogonal design, 12 profiles were selected from which six choice sets were created, with each choice set being composed of two profiles and the opt-out (or no choice option). Figure 1 shows a choice set used in the DCE. Data were analysed using a RPL model [39,46,49], which has the advantage of considering the sample heterogeneity, treating it in a continuous fashion and allowing the estimation of the individual WTP for each attribute investigated. The RPL model examined, along with DCE attributes, both the socio-economic characteristics and motivational aspects of respondents for choosing the eggs. To measure the effect of individual characteristics on the demand for eggs, three interaction variables were included in the model: age over 60 years, high or medium-high living standards, and consumer attitudes with respect to the purchase of food products, with the latter obtained through a cluster analysis.

Attributes	**Buying: Option A**	**Buying: Option B**	**Not buying**
Type of worker	Not disabled worker labour	Not disabled worker labour and disabled workers	
Place of production	Anywhere	Close to the place of purchase	
Organic	Yes	No	
Price for a pack of six eggs (€)	3.00	2.40	
Your choice	☐	☐	☐

Figure 1. A choice card presented in the choice experiment.

The interviewees were characterised as belonging into two clusters by means of k-means cluster analysis performed on the scores given to the seven elements considered when buying food. The k-means cluster analysis was estimated using the SPSS statistical package, version 25. A dummy variable referring to the respondents that belong to the second cluster was interacted with the eggs' attributes in the utility function used in the RPL model. The following utility function (Equation (1)) was used to estimate the model:

$$U(x_i) = \sum \beta_i \cdot A_i + \sum \beta_{A_i \cdot AGE} \cdot A_i \cdot AGE + \sum \beta_{A_i \cdot HST} \cdot A_i \cdot HST + \sum \beta_{A_i \cdot CLUST} \cdot A_i \cdot CLUST + \beta_{price} \cdot PRICE + \beta_{OPTOUT} \cdot OPTOUT \quad (1)$$

where A represents all attributes except price, *AGE* is a dummy variable assuming the value 1 if the respondents have an age greater than 60 years, *HST* is a dummy variable assuming the value 1 if the respondents have a standard of living high or very high, *CLUST* is a dummy variable assuming the value 1 if the respondents belong to cluster number 2, *PRICE* is a continuous variable for the attribute price, and *OPTOUT* is a dummy variable that assumes value 1 when the choice option is 'Not Buying' (see Figure 1). All independent variables in the utility function, except for *PRICE* and *OPTOUT*, were effect coded. Using Equation (2), it is possible to estimate the average WTP for each attribute level as follows:

$$WTP_i = -\frac{2\beta_i}{\beta_{price}} \quad (2)$$

Looking at Equation (2), β_i was multiplied by 2 to take into account that the variables in the model were effect coded [51].

Data were analysed with the NLogit version 6 software. We applied RPL models to take into consideration preference heterogeneity. RPL models were estimated using 1000 Halton draws and the random parameters were assumed as normally distributed, incorporating into the model only interaction terms that had a significant result after an exploratory analysis. To derive the demand function it is important to consider the relationship between the premium price and the quantity sold. This enables producers to define a marketing strategy for their product, given that they know the market share that their product will have at each price level. To derive such information we analysed respondents heterogeneity by means of the RPL model, and in particular their individual WTP for the attribute levels considered in the DCE. From the individual WTPs we derived their complementary cumulative frequency distribution. The latter can be considered a proxy for the market demand function, under the assumption that respondents state their WTP for a single product unit. To evaluate the complementary cumulative frequency distribution, the following logistic function was estimated for each attribute (Equation (3)):

$$MarketShare = \frac{1}{\frac{1}{u} + b_0 \cdot b_1^{Price}} \quad (3)$$

where u is the upper bound of the market share (equal to 1), and *Price* corresponds to the individual WTP.

Once known, the complementary cumulative frequency distribution can help producers in optimising their marketing strategies choosing the price and quantity that maximise their profit, in accordance with their market power.

2.4. Data Collection

Data collection was carried out in the period from 10 October to 15 November 2017. A total of 225 questionnaires were collected by direct interviewing at the entrance or at the supermarkets of the municipality of Brescia, Italy. We could thus analyse the behaviour of the population as a whole and not of particular segments of demand. In fact, in Italy, people usually buy food at large retail chains. To avoid distortions, the interviews were carried out every day of the week, at different times of the day and in front of different supermarkets in the Brescia municipality to collect a highly representative sample of the consumers.

3. Results

3.1. Socio-Economic Characteristics of Respondents

The average age of respondents was 55 years, being higher than the national average (44 years), since generally the younger ones do not do the shopping. In fact, respondents younger than 20 years of age were only 5.3% of the sample, and those with an age between 21 and 30 years were 10.7%

(Table 1), whereas 44.0% were over 60 years of age. Regarding gender distribution, the sample was not distributed in a balanced way between males and females, with females constituting 71.6% of the sample. This imbalance is because women usually deal with food shopping in most Italian families.

Table 1. Socio-economic characteristics of the sample.

Variable	N.	%
Age		
<21	12	5.3
21–30	24	10.7
31–40	24	10.7
41–50	26	11.6
51–60	40	17.8
>60	99	44.0
Total	225	100
Education level		
Primary school	22	9.8
Middle school	40	17.8
Secondary school	97	43.1
University degree	66	29.3
Total	225	100
Employment status		
Employed	96	42.7
Unemployed	11	4.9
Housewife	21	9.3
Student	10	4.4
Retired	86	38.2
Other	1	0.4
Total	225	100
Number of family members		
1	62	27.6
2	79	35.1
3	38	16.9
4	29	12.9
5 or more	17	7.5
Total	225	100
Living standard		
Low	17	7.6
Medium low	77	34.2
Medium high	126	56.0
High	5	2.2
Total	225	100

With respect to the educational qualification, 9.8% of the interviewees had an elementary school certificate or no educational qualifications, 17.8% had a lower middle school certificate, 43.1% had a high school diploma, and 29.3% had a college degree. Compared to the average Italian situation, in the sample, people with a diploma were more likely to be represented than those with only a primary school certificate. Nevertheless, it should be noted that in urban and metropolitan areas, the population has higher educational qualifications than the average of the country.

Regarding the employment status, 42.7% said they were employed, 4.9% were unemployed, 9.3% were housewives, 4.4% were students, and 38.2% were retired.

Most respondents lived alone (27.6%) or with another person (35.1%), while a minority belonged to families with four or more members (20.4%). This datum could be associated with age, given that single-person families often constitute elderly people who live alone.

As noted above, considering the difficulty encountered in Italy in collecting information on the family income of respondents, to have at least an indication of the economic status of the sample, people were asked to assess their standard of living. Most respondents (56.0%) considered it medium-high, while 34% considered it low-medium, 7.5% low, and only 2.2% high (Table 1). Therefore, in the majority of cases, the interviewees considered themselves quite well-off; however, it can be assumed that for psychological and privacy reasons, there has been a tendency not to declare themselves belonging to either of the two extreme categories.

3.2. Buying Habits of Respondents

The majority of respondents (94.7%) shopped in supermarkets, 16.9% in stores, and 11.6% in discount stores, with the percentage of those attending local markets (8.4%) or members of solidarity purchasing groups (5.8%) being much lower (Table 2). This last figure is confirmed by the fact that only 1.6% stated that they are members of consumer associations. In most cases, the place where the shopping is done is less than 1 km from home (68.0%), while only 6.2% buy food in shops located more than 5 km from home (Table 2). Since the interviewees live in an urban area, it can be assumed that, due to their buying habits, they could hardly consider the opportunity to buy food directly at the place of production. In these cases, the purchase of social agriculture products could take place only if they were also offered for sale in large-scale distribution or local markets located in urban areas.

Table 2. Interviewees buying habits.

Variable	N.	%
Place of shopping food *		
Supermarkets	213	94.7
Other stores	38	16.9
Local markets	19	8.4
Farms	10	4.4
Discount stores	26	11.6
Solidarity purchasing groups	13	5.8
Internet	1	0.4
Distance from home of the food shopping place		
Less than 1 km	153	68.0
From 1 to 5 km	58	25.8
Form 5 to 10 km	11	4.9
More than 10 km	3	1.3
Total	225	100
Eggs purchase frequency		
Once a week	98	43.6
Once every two weeks	71	31.6
Once every three weeks	15	6.7
Once a month	32	14.2
Less than once a month	9	4 .0
Total	225	100

* Multiple choice question.

Considering the purpose of this study, it is beneficial to understand the behaviour of the interviewees regarding the purchase of eggs. As reported in Table 2, 43.6% of respondents buy eggs once a week, 31.6% once every two weeks, and only 4.0% do not buy eggs regularly (less than once a month), indicating that eggs are a common ingredient of the respondents' diet.

67.6% of respondents said they buy organic products; however, this does not mean that they consume exclusively organic products, but that these products are bought occasionally. This is confirmed by the fact that 53.8% stated that they sometimes bought organic eggs. This observation is important because it suggests that the interviewees are aware of the good under investigation.

Although 120 respondents (53.3%) stated that they had already heard about SF, this knowledge seems to relate more to the existence of the phenomenon rather than to the real meaning of SF in normative terms. In other words, we can assume that the knowledge of SF is quite superficial because it is based mainly on hearsay and not on direct experience. In fact, with reference to the Italian context, in a study conducted by Nassivera et al. [52], only 22% of respondents stated that they had an adequate knowledge of SF. With reference to the factors most considered during food shopping, we can see (Table 3) that the greatest importance is attributed to health and hygienic safety (4.04), followed by sales discount (3.70), Italian production (3.66), organoleptic characteristics (3.60), and price (3.45). On the contrary, processed food (2.02), the brand (2.52), and organic production (2.57) are of little importance. This last datum somehow contradicts the statements concerning the purchase of organic products, but is derived to a large extent from the presence of two categories of interviewees within the sample who attribute a markedly different importance to organic food.

Starting from the scores given by the interviewees to the factors considered in the purchase of food, using a cluster analysis, the interviewees were divided into two clusters with quite distinct characteristics (Table 4). Only in the case of the purchase of processed products, the members of the two groups seemed to have similar preferences. Conversely, in all other cases, average scores differed at least with a 95% probability. To get a more precise idea of the greatest differences between the two groups, the Cohen's d coefficient was calculated.

Table 3. Average scores of the factors affecting the food purchase by the interviewees.

Factors	N.	Mean †	Mean Standard Error	95% Conf. Int. *	
				Inf. **	Sup. **
Product health safety and hygiene	225	4.04	0.054	3.934	4.146
Sales discounts	225	3.70	0.063	3.579	3.825
Italian product	225	3.66	0.074	3.518	3.806
Organoleptic characteristics (taste, flavour, etc.)	225	3.60	0.055	3.493	3.707
Price	225	3.45	0.060	3.332	3.566
Trust in the producer	225	3.29	0.062	3.167	3.411
Quality certifications (PDO, GPI, etc.)	225	2.78	0.080	2.625	2.940
Organic	225	2.56	0.078	2.407	2.713
Brand	225	2.52	0.064	2.399	2.650
In-product services (processed food, ready to use)	225	2.02	0.072	1.881	2.163

† Based on a five point Likert scale ranging from 1 (not relevant at all) to 5 (highly relevant). * Conf. Int. = Confidence Interval. ** Inf. = Inferior limit; Sup. = Superior limit.

Table 4. Average scores of the factors affecting the food purchase of the interviewees belonging to Cluster 1 and Cluster 2.

Factors	Cluster 1 (N = 104)	Cluster 2 (N = 121)	Means' Difference	Sign. *	Cohen's d
Brand	2.663	2.400	0.263	0.0436	0.2714
Price	3.077	3.769	−0.692	0.0000	−0.8353
Organoleptic characteristics (taste, flavour, etc.)	3.798	3.430	0.368	0.0007	0.4609
Organic	3.346	1.884	1.462	0.0000	1.6010
Quality certifications (PDO, GPI, etc.)	3.625	2.058	1.567	0.0000	1.7024
In-product services (processed food, ready to use)	2.087	1.967	0.120	0.4085	0.1107
Product health safety and hygiene	4.375	3.752	0.623	0.0000	0.8257
Italian product	4.212	3.190	1.021	0.0000	1.0428
Sales discount	3.519	3.860	−0.340	0.0067	−0.3662
Trust in the producer	3.548	3.066	0.482	0.0001	0.5346

* Sign. = Significance.

Based on the values assumed by Cohen's d, it should be noted that people belonging to the first cluster (N = 104) when doing food shopping give a much higher importance to organic farming products, the presence of labels or quality cues that certify the origin of the product (PDO, PGI, etc.), Italian production, and health security. However, they tend to attach less importance to price. Conversely, the second cluster (N = 121) includes subjects who are less attentive to the problems connected to the environmental impact of production techniques or have less confidence in quality certification marks. However, they pay more attention to the price and the presence of sales discount. The members of the two clusters differ in a statistically significant way (Pearson's Chi-squared probability < 0.05) with respect to some socio-economic and behavioural characteristics. The members of the first cluster have a higher educational qualification, belong to a greater extent to cultural or environmental associations, buy more organic products or fair trade certificated, declare themselves to a greater extent to be aware of the meaning of SF, and have a higher frequency of shopping in specialized shops or farm markets. To understand which factors could increase the sales of SF, the interviewees were asked to indicate which elements, not actually present, could make them consider in the future the possibility of buying SF products. Most respondents (56.0%) stated that more information about SF could help them consider buying these products, 52.9% believed that a greater availability of products would help the purchase, while for 42.7%, price policies would be important, namely, it would be useful if the SF products had a price similar to others. Finally, 33.8% underlined that the certification of such products could favour their purchase, guaranteeing consumers the origin of the product. With regard to the attention paid to the ethical aspects of consumption, it is interesting to note that 45.7% stated that they had purchased fair trade products in the past.

3.3. The DCE Results

The DCE estimated model has a good interpretative capacity (McFadden's Pseudo R-squared: 0.50) according to the standards of these models [37]. The attributes considered in the model have a significant degree of heterogeneity, indicating that the interviewees attribute different degrees of importance to these characteristics of the product under analysis. All estimated parameters (Table 5) proved significant at the 95% level, except for the coefficient of the interaction term: disabled workers × belonging to cluster 2 ($p = 0.051$).

The WTPs of the coefficients not interacted correspond to the premium price that the interviewees who have a low standard of living, belong to cluster 1, and are aged less than 60 years, are willing to pay. The members of this group were on average willing to pay €0.83 more for the eggs produced in farms that also employ disabled people, €0.50 for products made near the place of purchase, and €1.10 for organic eggs. Age presents a positive correlation only for the social agriculture attribute level (disabled workers), while it does not seem to have any effect on the WTP for organic and local products. The WTP of people who declared a medium-high or high standard of living, which constitute 58.2% of the sample, was considerably higher for all the attributes considered. Further, their average WTP for eggs produced by SF was €1.71, for local products €0.85, and for organic products €2.00. The average WTP of the members of the second cluster for each of these characteristics was always very low and ranged from €0.10 to €0.16.

The effect of age is significant only for the eggs produced by the employment of disabled people. People over 60 were willing to spend €1.63 more on average than younger people. Considering the sample as a whole, the average WTP for eggs produced by SF is equal to 1.36 €/pack of six eggs (95% confidence interval (CI) is 1.09€–1.63€); for organic productions, it is 1.13 €/pack of six eggs (95% CI is 0.93€–1.33€); and for local productions, it is equal to 0.49 €/pack of six eggs (95% CI is 0.45–0.53). Considering the average price of €2.4 for a pack of 6 eggs (free-range poultry farming) in the survey area, the premium price would tend to be 56% for eggs from SF, 47% for organic eggs, and 20% for local products. These percentages are comparable to those obtained by Loke et al. [53] in a study that used the hedonic price method to analyse the factors affecting the price of eggs in Hawaii (organic + 64%; local + 40%).

However, it should be noted that the standard deviation of the estimated coefficients is much higher for eggs produced by SF (s.d. = 2.70) than for the organic products (s.d. = 2.03) and local production (s.d. = 0.47). This highlights that for the SF products, there is a greater uncertainty among consumers, probably, because they are not familiar with them.

The analysis of individual WTPs estimated with the RPL model (Figure 2) shows that the WTP complementary cumulative frequency distribution function for eggs produced using disabled labour and organic farming is very different from that of products produced near the site of purchase. First, the percentage of those who are willing to pay a minimum premium price for organic or SF products is considerably lower relative to the place of production. Furthermore, 26% of respondents are not willing to pay any amount for SF products, with 23% having a negative WTP for organic products. The percentage of those who are not willing to pay more for products produced near the place of purchase is just over 8%. It can also be seen that the WTP complementary cumulative frequency distribution function for this attribute has a much greater slope. From Figure 2, it can be observed that the percentage of people willing to pay a premium price higher than €0.30 for a pack of six eggs is always greater for both organic and SF products compared to the proximity of the place of production. For example, while more than half of respondents would be willing to pay 1 € more for eggs produced by SF and for organic products, this percentage drops to just over 6% in the case of local products.

Table 5. DCE model's results.

	Coeff. †		WTP	WTP 95% Conf. Int.	
			Average	Inf.	Sup.
Random Parameters (latent heterogeneity) ‡					
Disabled workers	1.0075	**	0.8379	0.4513	1.2246
Place of production close to the place of purchase	0.6060	***	0.5040	0.3591	0.6489
Organic	1.3267	***	1.1034	0.7874	1.4195
Non-Random Parameters					
Optout	1.4739	***			
Price	−2.4047	***			
Heterogeneity in mean parameters					
Disabled workers × living standard medium high or high	1.0567	**	0.8789	0.5152	1.2426
Disabled workers × cluster 2 belonging	−0.8387	*	−0.6976	−1.0572	−0.3380
Disabled workers × interviewees older than 60 years	0.9554	**	0.7947	0.4186	1.1707
Place of production close to the place of purchase × living standard medium high or high	0.4253	**	0.3538	0.2121	0.4954
Place of production close to the place of purchase × cluster 2 belonging	−0.4801	***	−0.3993	−0.5416	−0.2571
Organic × living standard medium high or high	1.0874	***	0.9044	0.5993	1.2095
Organic × cluster 2 belonging	−1.1231	***	−0.9341	−1.2418	−0.6264
Derived standard deviation of random parameters distributions					
Disabled workers	2.7020	***			
Place of production close to the place of purchase	0.4733	***			
Organic	2.0301	***			
N. respondents	225				
N. observations	1350				
Loglikelihood	−1483.1				
Halton draws	1000				
McFadden pseudo R-squared	0.503				

† Significance levels: *** significant at the 99% level; ** significant at the 95% level; * significant at the 90% level. ‡ Random parameters were assumed to be normally distributed.

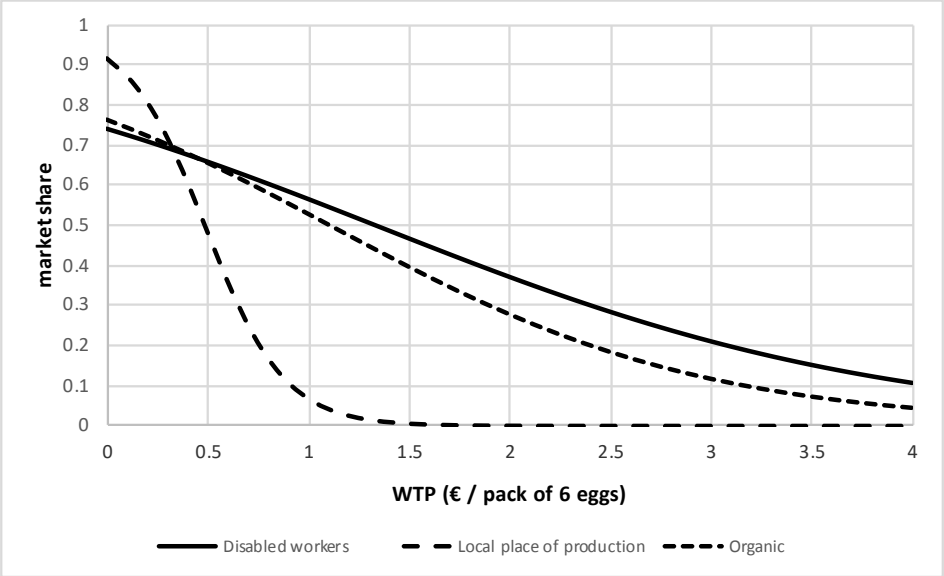

Figure 2. WTP complementary cumulative frequency distribution functions.

4. Discussion and Conclusions

Following De Pelsmacker et al. [54] and Doane [55], ethical consumerism can be defined as "the purchase of a product that concerns a certain ethical issue (human rights, labour conditions, animal well-being, environment, etc.) and is chosen freely by an individual consumer" [54]. According to Zander and Hamm [56], the ethical attributes considered in the purchase of food can be numerous, but, in general, they can be summarized as follows: animal welfare, good working conditions for farm workers, support for family farms, preservation of local cultural landscape, regional and local production, protection of biodiversity, fair prices to farmers, no air freighting, production in care farms, revival of traditional processing methods, and fair product prices.

Numerous studies have been carried out in the past to analyse the consumer demand and WTP for these attributes; in particular, the studies in the fields of fair trade (fair prices and good working conditions) [35], organic production [57,58], animal welfare [59], and local production [60,61]. However, only a few studies have dealt with eggs [36,62–64] or SF products [36,52,56], with only one study estimating the WTP for food products produced by social farms.

Our results highlight that consumers are interested in buying SF products, with about 74% of the sample willing to buy the eggs produced by social farms with an average WTP equal to €1.36 (+56% considering an average price of €2.4) for a pack of six eggs. Torquati et al. [36] carried out a DCE to analyse the WTP of members of solidarity purchase groups in the case of eggs and zucchini produced by SF. With regard to eggs, two attributes were considered similar to those present in our survey, namely, the use of labour from disabled people and the proximity of the place of production to the consumption market. The average WTP for the use of labour from disabled people attribute amounted to €0.69 for a pack of six eggs, while the WTP for purchasing products produced near the place of purchase was €0.51. These numbers are in some respect comparable to those estimated in this survey. Thus, the average WTP of the consumers interviewed is similar to that of the members of the solidarity purchase groups considered by Torquati et al. [36].

For a correct interpretation of our results, we have to consider the possibility that other ethical attributes may influence consumer behaviour. In this regard, Zander and Hamm [56] examined the effect of additional ethical attributes of organic food on the consumers' purchase decisions. Using an information-display-matrix approach, they found that "being produced in a care farm" is one of the ethical attributes less considered when buying organic products. Conversely, the most important attributes were animal welfare, regional production, and setting fair prices to farmers. However, it should be emphasized that, in Italy, organic farms must implement animal welfare

policies; therefore, the organic attribute largely covers animal welfare. Our findings indicate that the respondents attribute the same importance to animal welfare and SF.

Our study has shown the presence of a remarkable variability in the attitudes of the interviewees regarding all three attributes considered. This variability is related to some socio-economic characteristics of the respondents (age and standard of living) and the factors generally considered in the purchase of food products. On the one hand, a higher standard of living corresponds to a higher WTP for all attributes considered; on the other hand, belonging to cluster 2 reduces it. It should be remembered that the most important factor considered by members of cluster 2 when purchasing food is the price of the product, which tends to assume a higher importance than its organoleptic characteristics. For this group, the presence of labels that are somehow a proxy for the quality of the product (PDO, PGI, or organic) is of a little importance. Therefore, we can conclude that for about half of the interviewees the ethical factors play a marginal role in addressing the purchase choices of food products.

Our research also indicates the presence of a considerable segmentation in the demand for eggs with regard to some ethical attributes (organic and animal welfare). Similar results were found in previous literature; for example, Gerini et al. [62], with reference to Norway, who have shown that only consumers who purchase organic products with high frequency are willing to pay a premium price for organic eggs or those produced in compliance with animal welfare standards. Mesias et al. [65] in a study carried out in Spain identified the presence of four groups of consumers for whom the breeding method has a distinctly different effect with regard to the propensity to purchase eggs. Andersen [63] pointed out that the WTP for organic eggs is greater for people with higher incomes or who live in urban areas.

Even in the case of other foods and other ethical attributes, numerous studies have highlighted the presence of many factors that determine the market segmentation. For example, Feldmann and Hamm [60] reviewed the studies that analysed the effect of the place of production on food demand, finding that the importance of the place of production (origin) depends on demographics, knowledge, context, attitudes, and behaviour. With reference to demographics, old wealthy people, living in rural areas have more supportive attitudes towards local food. Attitudes and opinions on local productions also seem to be particularly important. Hemmerling et al. [58] pointed out that there are numerous factors that can influence WTP for organic production, with many studies demonstrating that the WTP for organic products increases with income and educational level, whereas the age and family size seem to have an inverse effect.

Our results indicate that the SF products could be bought by a fair number of consumers, even if the actual size of the market segment may depend on numerous factors, not explicitly tested in our study and that should be taken into consideration in future research.

First, many studies in the past have pointed out a considerable discrepancy between the purchase intentions expressed by consumers and their real behaviour [66]. The presence of this intention-behaviour gap may depend on both individual factors and organizational and structural factors [67]. Thus, we must first emphasise that consumers are often guided by their habits in purchasing decisions. Second, consumers are much more attentive to the price in real life than in the case of surveys that refer to purely hypothetical situations. In addition, taste plays an important role in the real consumption of food, as it can significantly change the importance of credence attributes in purchasing decisions [68]. Therefore, ultimately, the demand analysis based on declared preferences may overestimate the actual WTP for people and their actual propensity to purchase [69].

Second, we should note the considerable discrepancy between the quantity of ethical products placed on the market and their potential demand. The low availability of these products on the shelves means that they are generally not considered in the consumer-shopping basket, which most of the time ignores their existence. For example, in a fair trade coffee experiment, Hainmueller et al. [70] observed that the addition of the fair trade label increased sales by 15%. Hence, it should not be overlooked that the SF production constitutes a credence attribute, and therefore, a certification by an independent

third party is necessary to attest the characteristics of the product. In the absence of such certification or in the presence of a lack of knowledge of certification procedures by consumers, they may be reluctant to purchase SF and other ethical products.

In conclusion, despite the limitations mentioned above, it can be assumed that, similar to other ethical attributes, social farms' production can be an attribute appreciated by consumers. Nevertheless, according to the interviewees opinions, two factors emerge as critical in ensuring the future development of SF, namely, an adequate certification system and a proper communication of the added value of SF products.

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Abbreviations

The following abbreviations are used in this manuscript:

AFNs	alternative food networks
CI	confidence interval
DCE	discrete choice experiment
LCM	latent class model
MNL	multinomial logit model
PDO	protected designation of origin
PGI	protected geographical indication
RPL	random parameter logit model
SF	social farming
WTP	willingness to pay

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