Territory, environment, and healthiness in traditional food choices: insights into consumer heterogeneity

RESEARCH ARTICLE

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Abstract

Traditional foods are facing new market challenges tied to current trends in food habits and their determinants, such as the decline of domestic food preparation, the increased demand for convenience foods, the increasing importance of industrial food production, and the evolution of regulations on food safety. In this context our study aims at improving the knowledge of consumer segments in traditional foods market in order to develop better marketing strategies. The preferences for different credence attributes are investigated applying a latent class choice model to the extra-virgin olive oil market in Italy. Results show the existence of a marked heterogeneity of preferences, which determines the presence of both vertical and horizontal differentiation of the product.

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1. Introduction

In the postmodern age, we witness a radical evolution of the role of consumption that transcends biological needs and manifests itself in new determinants of food choices that embrace the ethical, environmental, and cultural dimensions of food (Unnevehr *et al.,* 2010). Among these, the link between food and territory has received special attention. This is highlighted by extensive literature which has emphasized the interest of consumers for traceability (Verbeke and Roosen, 2009), typicality (Scozzafava *et al.,* 2015), local production (Darby *et al.,* 2008; Dentoni *et al.,* 2009), and for all the signals and logos that permit the consumer to associate the product with the region of origin (Deselnicu *et al.,* 2013; Hu *et al.,* 2012).

The association between food and territory is particularly strong with local and traditional foods. These kinds of food have received the attention of researchers (see Feldmann and Hamm, 2015 for an extensive review) and policy makers (DEFRA, 2005). Chambers *et al.* (2007) stressed that consumers perceive traditional and local foods as being of higher quality (Boyle, 2003; Fandos and Flavian, 2006), fresher (La Trobe, 2001), more nutritious, tastier, safer (Seyfang, 2004), and more sustainable (Cerjak *et al.,* 2014; Risku-Norja *et al.,* 2008).

Guerrero *et al.* (2009) develop the concept of traditional food, identifying the main features to define a food as traditional: (1) a product frequently consumed over time or associated with specific celebrations or seasons; (2) the focus of strong beliefs about nutritional and sensory characteristics that should be transmitted from one generation to another; (3) the preparation and consumption is specific, in accordance with a gastronomic heritage and finally, (4) must be associated with a certain local area, region, or country.

Based on the above characteristics and considering that similar beliefs determine highly homogeneous food choices (Lusk *et al.,* 2014), we could suppose that the consumption pattern of traditional products is homogeneous. However, it is possible to find a marked supply differentiation of traditional foods on the market, especially with respect to the credence attributes, such as site of production, organic certification, and health claims. Product differentiation by credence attributes effectively seems to be the principal differentiation strategy possible for these types of product. This is particularly true considering the scarce possibility for traditional food producers to undertake a communication strategy based on different quality characteristics in the case where the law defines strict parameters, such as acidity and peroxide number for extra-virgin olive oil (EC, 1991; Thomé da Cruz and Menasche, 2014).

In this context, understanding the consumers' preferences for different credence attributes of traditional products seems crucial for the development and revival of mature markets such as traditional food products. In particular, for some of these products, this appears even more important in relation to the new market challenges tied to current trends in food habits and their determinants, such as the decline of home food preparation (Casini *et al.,* 2013), the increased demand for convenience foods (Pieniak *et al.,* 2009), the increasing importance of industrial food production (Kuznesof *et al.,* 1997), and the evolution of regulations on food safety (Thomé da Cruz and Menasche, 2014).

Our study therefore intends to improve the understanding of consumer preferences with respect to credence attributes for traditional products by means of: (1) consumer segmentation, identifying the dimensions most important to understand market heterogeneity; (2) consumer profiling according to socio-demographics, purchasing habits, and motivations.

The connection between traditional products and consumer behaviour has been the subject of several papers, such as those on cheese in Portugal (Souza Monteiro and Ventura Lucas, 2001) and Spain (Bárcenas *et al.,* 2001), wine in France and Spain (Sáenz-Navajas *et al.,* 2014), and olive oil in the Mediterranean countries (Aprile *et al.,* 2012; Chan-Halbrendt *et al.,* 2010). However, these studies focused on several aspects of traditional food consumption and motivations without analysing the heterogeneity of consumer choices (Feldman and Hamm, 2015; Vanhonacker *et al.,* 2010a, 2010b). In fact, few authors have concentrated directly on segmenting and profiling traditional food consumers. Vanhonacker *et al.* (2010b) draw a profile according

to socio-demographics, attitudes, lifestyle orientations, and behavioural characteristics. However, no attention has been devoted to describing the potential heterogeneity of consumer preference choices for traditional foods. Even in cases where several markets were analysed from the perspective of both segmentation and profiling, no analysis was conducted on the role of credence attributes in choice behaviours with respect to traditional products.

With several traditional products facing a difficult market outlook, it seems very important to garner further knowledge of consumer segments in function of their preferences for credence attributes. This would indeed make it possible to develop better marketing strategies to calibrate the range of products or to focus communication on the most important food credence characteristics. The preferences for different credence attributes of traditional food are investigated using extra-virgin olive oil in Italy as a case study. This product fully matches the Guerrero *et al.* (2009) definition for traditional foods. Extra-virgin olive oil consumption in Italy is indeed habitual and strongly tied to the gastronomic tradition; moreover, there are strong beliefs about its nutritional and sensory characteristics.

A review of literature on consumer preferences for olive oil reveals that important elements in the purchasing decision are represented by experience attributes like colour, taste, and smell, as well as by search and credence characteristics such as price, denomination of origin, organic certification, brand, and packaging. Overall, price is one of the most important product attributes (García *et al.,* 2002), followed by taste, while packaging is the least important (Dekhili *et al.,* 2011). Moreover, the studies show that the origin cues also prove to be fundamental elements in decision-making, and that the reputation of the region of origin influences the perceived overall quality (Dekhili and d'Hauteville, 2009; Delgado and Guinard, 2011; Sottomayor *et al.,* 2010). A further determinant of preferences is represented by organic certification, which is frequently associated with health aspects (Krystallis and Chryssohoidis, 2005; Sandalidou *et al.,* 2002; Soler *et al.,* 2002).

In general, a composite picture emerges in which the effective importance of the above attributes depends to a large extent on the consumer's characteristics in terms of experience, awareness, and perception of the product (Fotopoulos and Krystallis, 2001; Kalogeras *et al.,* 2009; Scarpa and Del Giudice, 2004). In this regard, a decisive factor in differentiating behaviours is represented by familiarity. There are in fact significant differences between traditional oil-producing countries and countries where oil consumption has only recently been introduced. In particular, the area of origin assumes greater importance in countries where oil is part of tradition (Espejel *et al.,* 2009; Finardi *et al.,* 2009; Krystallis and Ness, 2005; Manapace *et al.,* 2011; Sottomayor *et al.,* 2010), while in other countries, price is the most important attribute (García *et al.,* 2002).

In this paper we shall illustrate the methodological theoretical framework and then describe the choice experiment conducted on a representative sample of Italian consumers. Finally, results will be discussed, and the main managerial implications outlined.

2. Theoretical framework and methods

Consumers' preferences were analysed, employing the random utility theory (Louviere and Woodworth, 1983; McFadden, 1974; Train, 2003). The theoretical basis of this framework is in Lancaster (1966), which states that a good can be considered as a bundle of attributes, and that each one contributes to the consumer's utility. The consumer therefore chooses a specific good according to his preference for the single features.

In general, a given individual *i* has a set of m_i mutually exclusive alternatives *j* that constitute his possibility set of choices. The individual will chose the alternative with greater utility. The utility assigned depends on the observable characteristics, or attributes, of the alternative itself. Therefore:

$$U_j^i = U^i(\boldsymbol{x}_j^i) + \varepsilon_j^i \tag{1}$$

where $\boldsymbol{x}_j^i$ is the vector of attributes relative to the alternative j and ε_j^i is a stochastic component of utility. The individual i will choose alternative j if the utility associated to this alternative, a function of its attributes $\boldsymbol{x}_j^i$, is greater than other alternatives in the set m_i. The choice experiment is based on this assumption (Carlsson *et al.,* 2007; Lusk and Schroeder, 2004).

In this study we applied a latent class model (LCM) in order to estimate the consumer preferences stated in the choice experiment. This model allows us to investigate the heterogeneity of preferences and, at the same time, obtain segmentation into groups of consumers with similar preferences (Swait, 1994; Swait and Louviere, 1993). The advantage in applying this model is the possibility to assess utility functions that are conditioned by the probability of individuals belonging to the different latent segments. In fact, the LCM is being increasingly used as an approach to account for differences in consumer preferences. This is because the traditional logit model assumes that the consumers are homogeneous (Tonsor *et al.,* 2009). Although the random parameters logit (RPL) model incorporates preference heterogeneity into the estimation, this model is not adequate for the purpose of this paper, since RPL assumes a continuous distribution of the parameters to introduce heterogeneity without identifying discrete classes.

Furthermore, the LCM outperforms traditional clustering techniques, mainly because it is based on a probability model that permits the use of inference on the results. Another benefit of the model is that it bypasses the problem of choosing linkage rules and dissimilarity measures. The choice of these elements is of great importance in cluster formation, but it is extremely hard to identify a preference criterion among them from the theoretical-economic viewpoint. Moreover, the LCM enables the calculation of statistical indicators, such as Bayesian information criteria (BIC) and Akaike information criterion (AIC), to guide the choice of the number of classes (Yang, 2006).

The parameter heterogeneity is modelled across a set of latent groups or classes. Class c is latent because the individual membership is not revealed to the analyst but assigned by the model. Given a fixed number of classes c, the LCM estimates specific parameters for each class and an individual probability to belong to the classes. Thus, the utility of individual i to choose among j alternatives conditional to being in class c can be written as:

$$U_{ji|c} = \beta_c{}' \boldsymbol{x}_{ji} + \varepsilon_{ji} \tag{2}$$

where U_{ji} is the utility of alternative j to individual i; $\boldsymbol{x}_{ji}$ is the vector of attributes (certifications, health claims, site of production and price in this case); ε_{ji} is the unobserved heterogeneity, and β_c the class specific parameter vector.

A multinomial logit model generates the choice probabilities:

$$\text{Prob}[y = j|c] = \frac{\exp(\beta_c \boldsymbol{x}_{ji})}{\sum\limits_{j=1}^{j} \beta_c \boldsymbol{x}_{ji}} \tag{3}$$

The dependent variable y is represented by the choices elicited in the experiment by the respondents. The vector of parameters β_c is not specific to an individual but is a class-specific parameter vector estimate. The assignment of individuals into classes is probabilistic and based on their choice. This is done in order to obtain classes where members have similar tastes and preferences.

In this paper, the estimation of the LCM parameters was conducted utilising the statistical software Latent Gold Choice 4.5 (Statistical Innovation Inc., Belmont, MA, USA). Then the segments were profiled by means of chi-squared automatic interaction detection (CHAID) analysis. We have used SI-CHAID software for this purpose, integrating it with Latent Gold, which makes it possible to gather the degree of uncertainty associated with each individual's belonging to a class.

3. Choice experiment and data

The characteristics of extra-virgin olive oil that were analysed in the choice experiment were certifications, health claim, site of production, and price. The certifications included protected designation of origin (PDO) and organic, which are the characteristics concerning the production process that literature indicates are the most influential in consumer choices (Aprile *et al.,* 2012; Manapace *et al.,* 2011). We considered four levels resulting from all of the possible combinations between the two certifications, including the absence of both (i.e. PDO, organic, PDO + organic, none). The second food attribute concerned the health claim, given the growing interest of consumers in health aspects of food (Grunert and Wills, 2007; Roosen *et al.,* 2007; Verbeke *et al.,* 2009). Indeed, healthiness, along with taste, represents one of the principal purchasing motivations of olive oil (Santosa *et al.,* 2013; Santosa and Guinard, 2011). Two levels were considered, i.e. no health claims or the health claims authorised by the European Commission (EC, 2012), which is 'Olive oil polyphenols contribute to protecting blood lipids from oxidative stress. The beneficial effect is obtained with a daily intake of 20 g of olive oil'.

The site of production was included among the attributes used to analyse the importance of consumer attributes to the territory of origin. In particular, four levels for the site of production were considered: Italy, Tuscany, Apulia, and Spain. Tuscany was chosen because it represents one of the regions of Italy that is renowned for oil production, while Apulia represents the region of Italy with the greatest production in terms of quantity. The level 'Italy' represents a generic indication of origin, which differs from the specific indication of Tuscany or Apulia, and Spain is the other main producer in the Mediterranean.

Finally, price was selected because it is one of the most important attributes in the choice of olive oils (Dekhili *et al.,* 2011; García *et al.,* 2002). There were six price levels, which were selected based on the distribution of prices for extra-virgin olive oils (Nielsen data; Nielsen Corporation, New York, NY, USA). The respondents were shown the choice sets without any further information that could explain the meaning of the labels used in the experiment or of the health claim.

The experimental design was built by an orthogonal fractional factorial design. Each choice task contained four alternatives, as well as the no-choice option. The alternatives were presented in the form of labels that differed in their combinations of attributes. The design produced 24 choice tasks, which were divided into two blocks of 12 sets each.

The information was collected in April 2013 by administering questionnaires via the internet to adult consumers who use extra-virgin olive oil. Internet surveys offer several advantages over traditional surveys. The most important concern speed and the reduced costs of collecting data (McCullough, 1998; Smith, 1997). On the other hand though, the fact that Internet users form a population that is not fully superimposable onto the general population could be a limitation. We assume that this discrepancy does not have a significant impact on the results in our case study.

A company specialised in market surveys recruited the sample, which was representative of the Italian population by age, gender, and geographical area (ISTAT, 2014) (Table 1). The sample was also characterised by a high frequency of extra-virgin olive oil consumption, as 91% of respondents used it more than once per week. The analysis was based on 1000 completed questionnaires. The information collected, in addition to the socio-demographic characteristics, concerned purchasing motivations for extra-virgin olive oil on a five-point Likert scale, product purchasing behaviour, and choice experiments.

Table 1. Demographic characteristics of the sample.

Variables		Values (%)[1]
Geographical area	northern Italy	46 (46)
	central Italy	20 (20)
	southern Italy and islands	34 (34)
Age	18-34 years	28 (28)
	35-54 years	45 (39)
	higher than 54	27 (33)
Gender	male	48 (48)
	female	52 (52)
Household size	single	11
	two members	23
	three members	30
	four members	27
	more than four	9
Family members under 18	none	67
	one	19
	two	12
	more than two	3
Occupation	self employed	16
	employee	41
	housewife	11
	pensioner	14
	unemployed	9
	student	9
Family expenditures per month	less than 1000 €	40
	1000-1,999 €	39
	2,000-2,999 €	13
	more than 3,000 €	8

[1] The data between parentheses concern the Italian population in the year 2014, and were collected by the Italian National Institute of Statistics (ISTAT, 2014).

4. Results

To determine the best number of classes, we used the structure of the information criteria values, i.e. the AIC and the BIC (Yang, 2006), which are shown in Table 2. The best models should minimize the two indicators. Moreover, following the suggestion of Scarpa and Thiene (2005), we also considered the significance and signs of the parameters using various segmentation hypotheses. According to these criteria we estimated a 5-class model.

A preliminary analysis of the parameters across the five clusters proposed two possible interpretations. The first emerged from the evidence of a high level of non-choice in several groups and posed the question as to the motivations for rejection (Table 3). The second was based on analysing the importance of the attributes in orienting the preferences of consumers in each group.

More specifically, this interpretation enabled us to consider three consumer categories. The first was represented by consumers who choose essentially on the basis of production area; the second category was made up of consumers who, in addition to production area, attribute importance to price. In the third category, finally, price was the only decisive attribute. Certifications did not represent the priority choice element in any of

Table 2. Summary of latent class cluster models.[1]

Models	LL	BIC(LL)	AIC(LL)	Npar
1-Cluster model	-16,050	32,190	32,126	13
2-Cluster model	-13,589	27,364	27,231	27
3-Cluster model	-12,541	25,365	25,164	41
4-Cluster model	-12,048	24,476	24,206	55
5-Cluster model	-11,789	24,055	23,717	69
6-Cluster model	-11,613	23,800	23,393	83
7-Cluster model	-11,429	23,529	23,053	97

[1] LL = log likelihood; BIC = the Bayesian information criterion; AIC = Akaike information criterion; Npar = number of parameters.

Table 3. Latent class model parameter estimation.[1]

Attributes	Levels	Clusters				
		Quality seekers	Pragmatics	Price sensitive	Hard-to-please	No-choosers
Label	none	0	0	0	0	0
	PDO+Organic[2]	1.344**	1.011**	-0.716**	1.146**	-0.818**
	organic	0.635**	0.625**	-1.796**	0.636*	-0.453*
	PDO	0.715**	0.529**	-0.531**	0.77**	-0.046
Site of production	Spain	0	0	0	0	0
	Italy	1.422**	2.022**	2.135**	2.789**	2.103**
	Apulia	1.863**	2.005**	2.855**	2.959**	1.921**
	Tuscany	1.944**	2.298**	1.829**	2.989**	2.113**
Health claim	none	0	0	0	0	0
	claim	0.370**	0.205	0.158	0.59**	0.206
Price (€)	3	0	0	0	0	0
	6	0.742**	-0.208	-2.097**	0.819**	-0.031
	9	1.012**	-1.183**	-5.896**	-0.686**	-0.201
	12	0.787**	-2.422**	-5.864**	-2.079**	-0.839**
	15	0.377**	-4.728**	-9.627**	-4.434**	-0.921**
	18	-0.250**	-5.561**	-11.992*	-4.741**	-0.926**
No-choice	choice	0	0	0	0	0
	no-choice	-1.148**	-1.574**	4.083**	2.213**	3.916**

[1] ** and * denote significance at the 1 and 5% level, respectively.

[2] PDO = protected designation of origin.

the cases. The PDO and Organic labels influenced the choices of several types of consumers, while health claims played a more marginal role.

For a better understanding of the characteristics of the various segments that the LCM identified, we decided to integrate the information with the analysis of the socio-demographics, the purchasing channels, and the motivational variables. Table 4 reports the results of the CHAID analysis which underline that the market segments significantly differ as per three socio-demographic variables (i.e. age, occupation and family expenditure).

As far as motivational variables are concerned, two categories were identified – personal and relational motivations. As for personal motivations, culinary habits and taste did not prove to be significantly different among the groups. This non-predictable result shows that a marked heterogeneity of choice is accompanied

Table 4. Levels of significance of the variables used for profiling.

Categories	Variables	Log-likelihood ratio Chi square	df	*P*-value
Relational motivations	familiarity with the producer	148.98	12	<0.001
	information campaigns	79.65	8	<0.001
	physician's advice	45.86	8	<0.001
	advertising	35.05	4	<0.001
Personal motivations	part of the Mediterranean diet	14.03	4	0.029
	healthier than other condiments	13.36	4	0.038
	culinary habits	0.00	0	1
	taste	0.00	0	1
Purchasing channels	direct sale	129.10	12	<0.001
	shops specialized in the sale of quality products	92.40	4	<0.001
	grocery stores	64.35	8	<0.001
	supermarket	61.97	8	<0.001
	farmers' market	47.47	4	<0.001
	discount store	54.38	8	<0.001
Socio-demographics	family expenditures per month	37.44	8	<0.001
	occupation[1]	37.00	8	0.011
	age	14.07	4	0.014
	number of members	10.47	4	0.44
	number of members under 18	0.00	0	1
	gender[1]	0.00	0	1
	geographical area[1]	0.00	0	1

[1] These variables are nominal. All the others are ordinal.

by some homogeneity of declared choice motivations. Instead, the relational motivations proved to be significantly different among the various segments. This evidence shows that in these contexts of choice, the communication variables tied to personal relationships have a great influence on purchasing behaviour. Figure 1 reports the distributions of the statistically significant variables used to profile the 5 clusters identified.

In accordance with the LCM results, the five clusters were labelled as follows: quality seekers (32%), pragmatic consumers (16%), price-sensitive consumers (16%), hard-to-please consumers (19%), and non-choosers (18%). It is worth noting that not only is the last group characterised by a high percentage of non-choice, but so are the price-sensitive and hard-to-please consumers as well.

The quality seekers are the group that attributes great importance to certifications, considering them to be an element of product quality. In particular, the importance of the PDO and Organic labels emerges and further increases when these labels are present at the same time. However, the group's decisive attribute is represented by the area of origin, meaning both its region of production and Italian origin. As far as price is concerned, this group shows a preference for the € 6.00 to 12.00 range, which reflects the market values that are associated with products of a fair quality level. This result indicates a perception of price as a quality cue. Therefore, the inclination towards quality is a distinctive feature of the segment, which is also confirmed by the fact that the preferred distribution channels are grocery stores, farmers' markets and shops, which specialise in the sale of quality products. The search for quality is also determined by the attention to health and quality seekers' sensitivity towards campaigns that promote a healthy diet and the advice of physicians (Figure 1).

Pragmatic consumers have inclinations that are similar to those of quality seekers, as far as area of origin and certifications are concerned. However, the discriminating factor between the two groups is the attitude
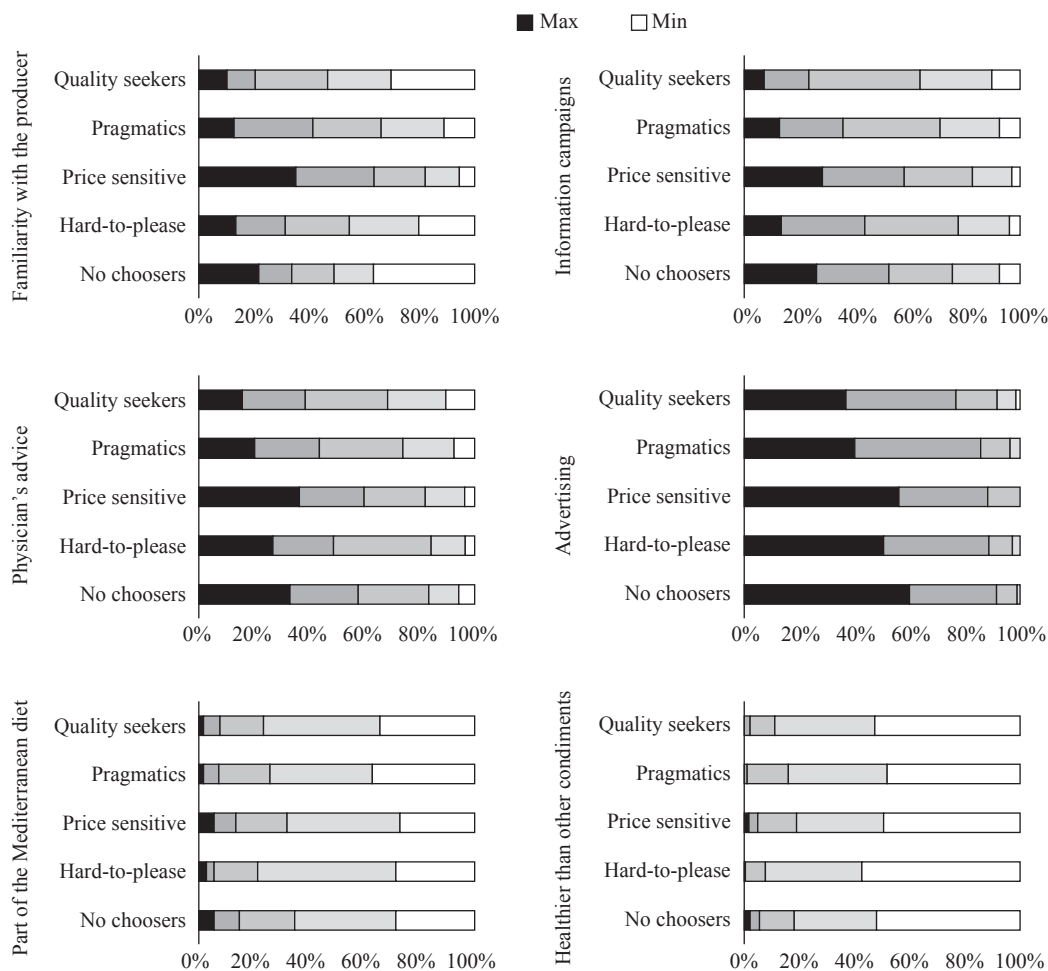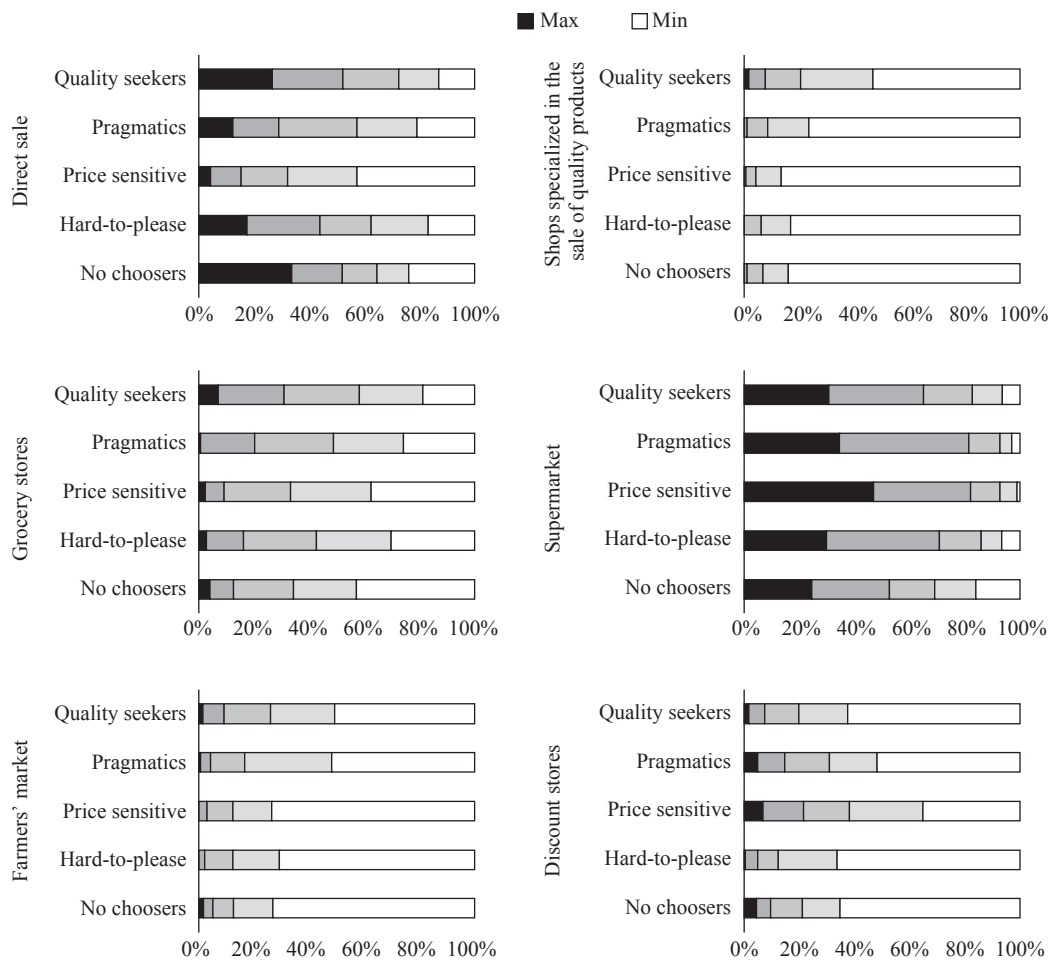
Figure 1. Segment profile defined by means of relational and personal motivations.

towards price. The sign and coefficients of price level in fact show an inclination towards choosing products with lower prices. This attitude seems to decisively guide the behaviour of the pragmatic consumer, insofar as the strength of price overshadows the product characteristics that are associated with quality. Consequently, the relative importance of certifications on this group's choices was lower than that of the quality seekers. This behaviour is also reflected in the purchasing channels. Indeed, the respondents who buy the product exclusively or prevalently in supermarkets or discount stores have a greater probability of belonging to this group (Figure 2).

Moving on to the analysis of the segments with the highest frequency of non-choice, the price sensitive consumers are characterised by non-choice motivations tied to price, in the sense that they exclusively purchase products in the lower price bracket and mainly from discount stores. It is noteworthy that, for these consumers, the parameters of labels are negative and significant. This implies that, for the price sensitive, the PDO and Organic certifications are associated with a negative utility. This result can be explained by the fact that, for these consumers, certifications combined with low prices are not only uninteresting but can even prove incoherent with top bracket prices. Therefore, they should be considered as negative indicators of quality. The predominance of the price attribute is responsible for the fact that this cluster was not receptive to any type of external information, whether of a health-oriented or commercial type (Figure 1 and Figure 2).

The hard-to-please consumer group is characterised by a purchasing behaviour that requires high quality levels (as shown by the significance of the parameters of origin and certification). At the same time, it showed

Figure 2. Segment profile defined by means of purchasing channels.

a growing utility only at prices no higher than € 6.00. Beyond this level, the product quality characteristics seemed to assume a lesser importance, compared to the increases in price. This behaviour consequently determines the difficulty of choice in many choice tasks, which corresponds to the high rates of non-choice that were surveyed. Finally, a particularly interesting group was that of the non-choosers. This group is characterised by a very high non-choice frequency, as shown by the value of the non-choice parameters in both absolute and relative terms. The explanation of this behaviour can probably be found in the prevalent purchasing habits of the group, which proved inclined to turn directly to the producer, avoiding the traditional channels. For this reason, faced with a choice experiment between alternatives of packaged oils, the non-choosers refused to choose. The analysis of the motivational variables confirmed this hypothesis and pointed out that familiarity with the producer is particularly important for the non-choosers (Figure 1). In this case, direct contact with the producer becomes the principal guarantee of quality, taking the place of other signals such as certification.

The five segments were profiled according to the three socio-demographic characteristics that proved to be discriminant between the classes: age, occupation, and monthly family expenditure (Figure 3). The analysis shows a clear prevalence of older consumers among the non-choosers, while younger consumers are predominant among the quality seekers. As far as the other segments are concerned though, the differences with respect to age are marginal. Profiling by occupation is coherent with profiling by age, as pensioners predominate in the group of non-choosers. Moreover, it emerges that the inactive (i.e. housewives, students) and the unemployed are concentrated in the hard-to-please segment. The employed are mostly distributed
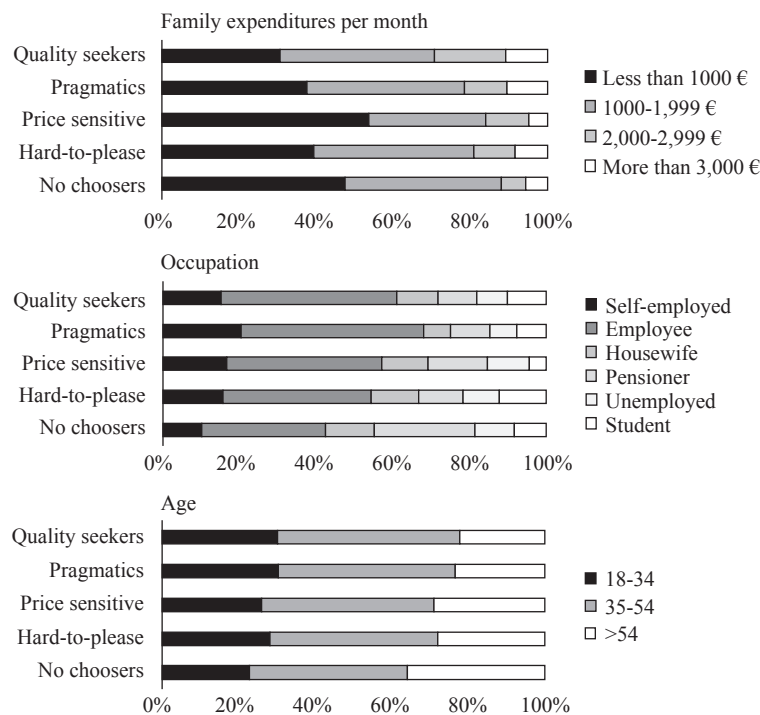
Figure 3. Segment profile defined by means of socio-demographic variables.

among the quality seekers and the pragmatics. Moving on to consider family expenditure, the respondents with higher spending levels fall in the classes that show more attention to quality. In fact, the weight of individuals with a family spending higher than 2,000 euros per month is greater in the classes of the quality seekers, while among the price-sensitive consumers and the non-choosers, the percentage with a family expenditure under 1000 euros per month is predominant.

5. Final considerations

The analysis of purchasing behaviours for traditional foods indicates the existence of a marked heterogeneity of preferences even where these foods are part of the traditional diet. For several groups of consumers, the product takes on features typical of a vertical differentiation (that is to say, a single qualitative ranking exists), while for other groups, a horizontal differentiation can be identified (the consumers have different concepts of quality). In fact, our study has brought to light various market segments representative of markedly differentiated choice behaviours, though presenting several shared characteristics.

The site of production shows a significant and positive impact on consumer preferences, thus confirming previous studies on traditional foods (Chan-Halbrendt *et al.,* 2010; Feldmann and Hamm, 2015). This represents an element of homogeneity of choices between clusters, though the relative importance of this attribute varies considerably between segments. Another element of homogeneity is the limited importance of the health claim. This finding apparently contrasts with the literature on health claims, which states that, for various products, health claims have a distinctly positive impact on choices (Grunert and Wills, 2007; Roosen *et al.,* 2007; Verbeke *et al.,* 2009). This can be explained by the fact that consumers of traditional foods have a large amount of knowledge about the outcomes attained from products due to repeated consumption in time. The information that the claim guarantees is therefore probably already known to the consumer, who thus attributes less importance to certification. Consequently, a more efficient use of health claims to promote traditional food should provide more specific information, that is to say information with a greater selectivity with respect to the different quality levels in nutraceutical terms. In the case of extra-virgin olive

oil, this goal could be pursued by defining more discriminating thresholds and parameters than those that European regulations currently provide.

Among the attributes that most influence the heterogeneity of choices, price and PDO and Organic certifications have emerged. Price appears to take on contrasting roles. For some segments, it constitutes a signal of value that determines the consumer's preference, thereby resulting in a preference for products with at least a certain price level. For other segments, low prices represent the main factor of preference in any event. In particular, in our study, a relevant share of consumers, almost one-third, is driven by price, and about half of these consumers assume the same decision-making process that they use with a commodity. For this segment, the marketing strategies that seem more efficient would therefore be those tied to the various types of promotional sales.

Another element that emerges from our study is the fact that certification can assume a negative utility for consumers oriented exclusively by price. In fact, in this case, the signal of certifications associated with low prices is perceived as incoherent information that increases the uncertainty about the product's effective properties. This behaviour is coherent with the 'More is less' preference reversal phenomenon. According to this theory, in the presence of uncertainty, consumers perceive an additional positive attribute as a cue that the rest of the good is not worth much (List, 2002).

The analysis of the profiles of consumers belonging to the different segments identified has pointed out the important role of purchasing channels, while among the socio-demographic variables used, age, profession, and average family expenditure have proved particularly discriminating. All three of these are reasonably correlated. Age proves to be the variable that can most differentiate behaviour with respect to a traditional product, as the ties with traditions for the younger generations can be attenuated compared to the past, while the influences of food habit trends on the overall level can prove stronger.

As far as distribution channels are concerned, our study has pointed out a strong relation between preferences and where the product is purchased. For olive oil, the direct relation with the producer proved to be the most important, especially for older people. This connection between tradition, preferences, and purchasing channels that emerged in our study can probably be extended also to many other traditional products. Hence the choice of place of purchase forms an integral part of the almost ritual relationship with the product.

These results can also carry interesting managerial implications. The different behaviour of the new generations in choosing purchasing channels allows us to glimpse the opportunity for new means to sell even traditional products. E-commerce, in particular, could constitute a means of bringing the producer and the consumer into a direct relationship in ways more consistent with new lifestyles.

Finally, our results underline the existence of numerically consistent segments of consumers characterised by the same scale of preferences (vertical differentiation) that can currently be explained by a few quality cues. Particularly interesting in this ambit appears to be the possibility to increase the available information on quality, so as to enable the consumer to improve his choice process and thus provide more tools for product differentiation. This could be the case of the production techniques or the product's objective characteristics, such as the content of specific elements associated with taste, genuineness, or nutritional value. Future studies could aim precisely at defining these new signals of value, possibly in a multidisciplinary context capable of developing the aspects tied to product quality in a holistic perspective.

The limits of this paper can be explained by the fact that our study concerned the specific case of extra-virgin olive oil in Italy. Extending analysis to other case studies could contribute to enrich the picture, strengthening the generalisation of the results.

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