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Frequency of consumption and changing determinants of purchase decision: from attributes to values in the organic food market

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Abstract

Increasing saturation, maturity and globalisation in the agricultural goods market is forcing suppliers to innovate in order to sustain their business performance. One of the options open to them is to gain a deeper understanding of existing and potential customers in order to develop marketing strategies tailored to meet their priorities. This paper contributes to this option by identifying the food choice process for regular and occasional consumers of organic products. Consumer behaviour is modelling using the means-end chain method, which, as well as consumers' interest in product attributes also considers their knowledge of themselves and their personal involvement in the organic food choice process. The results show that the purchase choice between both consumer groups. For regular consumers the two main components in the final purchase choice are health and self-image. Therefore market positioning should pay attention to these personal consumer priorities in addtition to the product differentiating features. Break down the cognitive barriers that continue to hamper the development of this market.

Additional key words: consumer behaviour, laddering interview, means-end chain, positioning, regular organic consumption.

Resumen

Frecuencia de consumo y cambios en los determinantes de la decisión de compra: de los atributos a los valores en el mercado de los alimentos ecológicos

El creciente fenómeno de saturación, maduración y globalización de los mercados agroalimentarios, obliga a la oferta al diseño de innovadoras estrategias de actuación, con el fin de conseguir aceptables niveles de rentabilidad de sus negocios. Una de sus opciones potenciales es conocer en profundidad el comportamiento del actual y potencial comprador para adaptar las actuaciones comerciales a sus prioridades. Este trabajo, en este contexto, contribuye identificando el proceso de compra para compradores habituales y ocasionales de alimentos ecológicos. El análisis de dicho comportamiento del consumidor se realiza utilizando la metodología de *Means-End Chain*, que considera, además del interés por los atributos del producto, el conocimiento de sí mismos que tienen los compradores, y su implicación personal en el proceso de elección en alimentos ecológicos. Los resultados indican que las elecciones de compra difieren entre ambos grupos. Para los consumidores habituales los dos factores claves en la elección de compra son la salud y la buena valoración personal. Pueden, por lo tanto, estos aspectos de la persona ser utilizados tanto en el posicionamiento de mercado como en las actuaciones de diferenciación del producto, reduciendo las barreras del conocimiento que siguen limitando el desarrollo de este mercado.

Palabras clave adicionales: cadena medio fin, comportamiento del consumidor, consumo habitual de alimentos ecológicos, entrevista laddering, posicionamiento.

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Abbreviations used: APT (association pattern technique), FCQ (food choice questionnaire), GM (genetically modified), HVM (hierarchical value map), LOV (list of values), MEC (means-end chain theory), RVS (Rokeach Value Survey).

Introduction

Throughout the developed world, and across a wide variety of product categories, consumption patterns and marketing management practices have evolved in recent years as a result of changes in consumer tastes and preferences. A paradigmatic example of this change, due to the strategic role it plays in all economies, is to be found in the agrifood sector, which, in addition to the above-mentioned changes, has also been affected by food scares and new consumer perceptions of food. Furthermore, steadily rising production along with stagnating demand has led to market saturation, creating the need for careful product positioning. Quality is now the key marketing strategy, its success a result of consumers' increasing concern for their own health and the state of the environment. Growing interest in products catering to these newly emerging needs has led to a sharp increase in the development of what are presented as healthy and environmentally friendly new food products. The so-called organic foods form an important part of this category.

The effect of diet on consumer health can only be appreciated in the long term. It is therefore impossible to identify at the time of purchase. It can only be assessed on the basis of the available information regarding the nutritional properties or food and food-processing methods, which consumers may in one way or another associate with health. Health benefits cannot be directly felt by consumers, making this a credence attribute that has to be conveyed through information rather than by the actual product (Frewer *et al.,* 2003). This brings us to one of the name aims of this study, which is the analysis of the decision-making process used by consumers when purchasing credence goods. Definition based on Information Economics Theory, which considers products to possess any or all of three types of characteristics: search characteristics (discernible before purchase and serving as a quality cue to the consumer), experience characteristics (discernible only after purchase and consumption of the product) and credence characteristics (those that can neither be identified nor assessed, they have to be taken on faith) (Nelson, 1970; Darby and Karni, 1973; Bello and Calvo, 1998).

In the context of this market, where credence attributes feature heavily among the characteristics of the goods, some recent studies have tried to switch the focus from product attributes as the basic elements in the consumer's decision-making process, to factors of a more emotional nature that might affect the consumer. In this respect, it is worth mentioning Pferdekämper (2003), which stresses the effect of individual consumer health awareness on these markets, thus opening a new line of research that explores the relationships between trust, information, the personal traits affecting the consumer's decision-making process and product attributes.

The purpose of this approach is to advance in, further understanding of the end market by departing from the traditional attribute-based approach, which focuses exclusively on the physical characteristics of products (Bass *et al.,* 1972), and adopting a broader approach, that analyses the influence of the personal traits of the decision maker on product attribute perception. This theoretical framework fits into the context of present-day society, in which consumers' desires are more plentiful than their needs, leading them to seek additional functions that give added value to the product and were identified in Hanf and Kühl (2003). In the context of the organic food market chosen for this study, this means having to satisfy emotional needs as well as ensuring the functional potential of the product; it therefore requires creating an emotional link with the consumer, who is more likely to purchase the product if, along with the expected functional properties, she also perceives the psychological benefit of its emotional components.

Having made this discovery, this theoretical approach proceeded to a second stage inspired by a growing belief that product positioning processes should not be based entirely on product attributes themselves but also on the benefits that they represent to the consumer (Haley, 1968). Thus, product definition was then extended to higher levels of abstraction (Gutman and Reynolds, 1979), including personal values (Vincon *et al.,* 1977), eventually leading to what came to be known as the means-end chain theory (MEC). Previous studies have employed similar methodology to that selected for this analysis (Grunert and Juhl, 1995; Cicia *et al*., 2002; Makatouni, 2002; Zanoli and Naspetti, 2002; Baker *et al.*, 2004; Padel and Foster, 2005). And another set of researchers has already demonstrated that the choice of organic foods is influenced by an emotional response that varies with the individual's personal values (Grunert and Juhl, 1995; Barreiro *et al.*, 2002; Makatouni, 2002; Fraj *et al*., 2004; Hoogland *et al*., 2005; Verhoef, 2005; Kihlbert and Risvik, 2007; Lusk and Briggeman, 2009). One of the main differentiating features of our study, nevertheless, is the use of a method that enables us to quantify and statistically analyse differences in the cognitive structures of regu-

lar and occasional purchasers of organic foods. As a result, we are able to make useful suggestions to the supply side in this sector for courses of action that will allow them to improve their market positioning using not only the differentiating features of the product but also those of their target customer.

Thus, there are three different approaches in the large body of existing literature on organic foods in the marketing system and this paper fits into the less widely explored intermediate context which compares regular and occasional consumers. Briefly, therefore, we would first mention those authors who have analyzed differences between organic and conventional food consumers. A number of studies have tried to analyze the drivers of organic food consumption (Jolly *et al*., 1989; Beharrell and MacFie, 1991; Grunert and Juhl, 1995; Wandel and Bugge, 1997; Lohr and Krissoff, 2001; Magnusson *et al.,* 2003; Rimal and Moon, 2005; Yiridoe *et al.*, 2005; Botonaki *et al.,* 2006; De Magistris and Gracia, 2008; Tsakiridou *et al.,* 2008; Chen, 2009, among others). Then there is another group examining willingness to pay a premium for organic over conventional food products (Fotopoulos and Krystallis, 2002; Krystallis and Cryssohoidis, 2005; Botonaki *et al.,* 2006); organic food consumers' sociodemographic features (Tsakiridou *et al.*, 2008; Wier *et al.*, 2008) and their purchase behaviour (Ritcher *et al.*, 2000).

Finally, another body of research is focused exclusively on the organic food consumer. Ritcher *et al.* (2000) analyze differences between regular and occasional buyers in relation to place of purchase and motives for consumption. Similarly, Zanoli and Naspetti (2002), Padel and Foster (2005) and Sirieix *et al.* (2006) seek to determine consumer purchase motives across different levels of purchase frequency. Makatouni (2002) attempts to identify the motivations of British parents who buy organic food for their children, and First and Brozina (2009) explore the cultural values and motives of organic food consumers in Western European countries.

This paper therefore aims to progress a step further in the analysis of organic product consumption, by testing for variations in the consumer decision structure with the level of consumption of this type of product (credence products) in terms of a higher degree of abstraction. This relation may have important consequences for marketers, given that differences in the degree of abstraction will distinguish consumers who focus primarily on their knowledge of the product from those who go further and involve a significant part of their own personal characteristics in the purchase process, thus complicating the task of defining marketing strategies to match different levels of consumption.

Theoretical framework. The means-end chain theory (MEC)

The conceptualisation of the hierarchical process developed from the means-end chain theory, was introduced into the field of marketing and consumer research for Gutman (1981). He proposed the means-end chain as a way of explaining the relationship between consumer knowledge and consumer behaviour. The means-end chain is therefore a cognitive structure that links the consumers' knowledge of products to their knowledge of certain consequences and values connected with those products, as documented for a variety of markets by a series of authors including among others De Boer and McCharthy (2003), Fotopoulos *et al.* (2003) and Russell *et al.* (2004).

The basic premise is that customers learn to select those products that feature the attributes that allow them to achieve their desired goals. The main proposition is that product knowledge in consumers is hierarchically organised by levels of abstraction (Young and Feigin, 1975). In other words, consumers may know products in terms of their attributes, the personal consequences of using them or the personal values satisfied by them. The higher the level of abstraction, the stronger and more direct the product-consumer relationship (Olson and Reynolds, 1983).

In the analysis of mental schemas, each basic level of abstraction can be further broken down into sublevels, leading to the formation of different categories of abstraction by the decision maker. Thus, Walker and Olson (1991) propose a means-end chain comprising six levels. The three lower levels (*concrete attributes, abstract attributes and functional consequences*) form the consumer's knowledge of the product, while the three upper levels (*psychological consequences, instrumental values and terminal values*) comprise the consumer's self-knowledge. *Concrete* attributes are those properties or characteristics of the product, service or performance that may be desired or sought after by consumers; *abstract* attributes are those that cannot be checked prior to consumption of the product and must therefore be inferred from internal or external information sources. *Functional consequences* are the benefits associated with the product attributes that consumers

directly experience from consuming products or services. *Psychological consequences* are consequences of a more personal, social and less tangible nature. *Instrumental values* are intangible goals related with the behavioural means used to achieve the end aims, and finally, *terminal values* refer to desired end states. Several studies have analysed this cognitive sequence in consumers, for different product categories (De Boer and McCharthy, 2003; Chiu, 2004; Costa *et al.,* 2004).

Research hypotheses

This proposed sequential in the abstraction leads to the following hypotheses. First, in low involvement products (the consumer behaviour literature classes food products are low-involvement goods, mainly because food expenses account for a small share of personal or household income (Bell and Marshall, 2003) and also because they are high frequency purchases (Grunert *et al*., 1996; Costa *et al*., 2003), concrete attributes may be more relevant than abstract ones. These authors suggest as much, when they show that the main influence in food purchase decisions comes from habit and symbolic and emotional issues.

Consumers can only learn about the characteristics of an organic product the its various information cues or product attributes. Numerous authors have shown that the key factor governing organic food choice is to found in a series of concrete product attributes: a better taste or better organoleptic properties in general (Wier and Calverley, 2002; Magnusson *et al*., 2003; Bähr *et al*., 2004; Baker *et al*., 2004; Chryssohoidis and Krystallis, 2005; Arvola *et al*., 2008; Lusk and Briggeman, 2009); price as a product quality cue (Ritcher *et al.,* 2000; Cicia *et al.,* 2002; Wier and Calverley, 2002); geographic origin, local organic produce being preferred (Wier *et al.*, 2008; Lusk and Briggeman, 2009) and product appearance (Zanoli and Naspetti, 2002; among others).

Organic foods are potentially able to meet consumers' preferences in various ways, one being through their concrete attributes or characteristics, which help consumers to infer the abstract attributes that are more closely linked to the benefits they seek from consuming these foods. By learning how much importance consumers attach to each type of attribute, it is easier to tell which aspects require particular focus in order to boost sales of these products. Thus, the first hypothesis can be worded as follows:

H1 *Concrete attributes play a more predominant role than abstract attributes in the decision-making process involved in the purchase of a low involvement product*

With regard to the second part of the chain, that is, the consequences, in credence goods, such as organic food items (organic food has previously been defined as a credence good by Andersen and Philipsen, 1998; Giannakas, 2002), it is reasonable to expect psychological consequences to hop play a more dominant role than functional consequences. In this respect, Grunert *et al*. (2004) use means-end-chain techniques in a comparative analysis of organic and standard pork to test for differences in various types of beliefs and the way they relate to attributes, consequences and values. According to their observations, beliefs are easier to assess when consequences and values are taken into consideration rather than attributes alone. Another relevant study is the contribution made by Lind (2007) where the proposed methodology is used to identify how the decision-making process differs when purchasing a «think» product or a «feel» product (Claeys *et al.,* 1995). In «think» products, functional consequences were found to dominate and the level of abstraction to be lower. The decision making process surrounding the purchase of «feel» products, meanwhile, was found to be dominated by prices, values and self-knowledge, and a higher level of abstraction.

Following in this line, Zanoli and Naspetti (2002) found that among occasional consumers of organic foods more importance was attached to personal satisfaction, taste and appearance; while regular consumers presented a more idealistic and more complex cognitive structure. Positive correlation was found between the number of values present in the structure and frequency of consumption. Similarly, Baker *et al*. (2004) and Essoussi and Zahaf (2008), showed that German organic food consumers presented richer and more complex decision-making structures, due to their more far-dating knowledge and higher consumption levels of these products.

The literature suggests that it is reasonable to assume that those consumers reporting higher levels of product consumption, that is, those that consume larger quantities of organic food present a higher level of abstraction in their preference structure for these products (Grunert and Grunert, 1995; Zanoli and Naspetti, 2002; Baker *et al.,* 2004; Lind, 2007; Essoussi and Zahaf, 2008). Delving deeper into this idea, other authors have thought

that regular consumption of organics has the effect of making consumers incorporate more of their personal values into their choice process (Giraud, 2006; Kihlberg and Risvik, 2007; Gracia and De Magistris, 2008). This leads to the following hypothesis:

H2 *A higher level of consumption of this credence good (organic food) will be associated with a more important role of consumer attitudes and values in the purchase decision structure*

Acceptance or rejection of this hypothesis could have major repercussions and applications for the organic food market (and, presumably, by extension, in markets for other products with a high proportion of credence attributes). Market strategy for these organic foods needs to focus more on issues relating to consumers' personal characteristics, without losing sight of the fact that the relative importance of personal values may vary between consumers with different levels of organic food consumption.

One last hypothesis that remains to be tested in this study has to do with how the amount of available information affects the purchase decision of the buyers of credence goods. The fact that organic food consumers make more use of information channels than non-consumers has already been documented in Fotopoulos *et al*. (2003), where organic food buyers showed a stronger tendency to use extrinsic cues, while non-purchasers focused primarily on sensory and visual cues. Krystallis and Ness (2003), for their part, discovered that information sources, the impact of information on consumers, and awareness and concern for quality are all important areas of consumer behaviour research. It is also worth noting the findings made in one of the earliest studies in which the means-end chain model was used to relate the degree of product consumption with the decision-making process (Sørensen *et al.,* 1996). Fewer consumers evoke more negative consequences relating to the product, while more experienced consumers form more ladders. It is knowledge or information that enables them to differentiate between alternatives within the product category. The greater their experience or stock of information, the better able involved consumers are to process label information and other product information and the easier it is for them to differentiate product attributes (Howard and Sheth, 1969). According to Baker *et al*. (2004), organic food markets where frequency of consumption is higher (such as the German market in Europe), consumers consider a greater number of information cues in their cognitive structures. Numerous authors suggest that, faced with impossibility of telling whether a product is organic just by looking at it, they rely on labels (Darby and Karni, 1973; Haest, 1990; Hack, 1995; Sylvander, 1995; Andersen and Philipsen, 1998; Giannakas, 2002; Wier and Calverley, 2002; Idda *et al*., 2008; Padel and Foster*,* 2005; among others). The presence of labels helps to convert credence characteristics into search characteristics. According to Sorensen *et al.* (1996) however, the greater a person's experience with a product, the more information about it she is able to store in her memory, but this is only true above a certain level of product experience. In this respect, other authors also stress the importance of reaching a threshhold of knowledge of organic foods before crossing the line from occasional to regular consumer (Fraj *et al.,* 2004; Yiridoe *et al*., 2005; Gracia and De Magistris, 2007; Essoussi and Zahaf, 2008). Thus, in our study, in these credence goods, we ought to see frequent consumers of organic food relving more on product quality cues than might be observed among consumers with less interest in this product category. The third hypothesis therefore states the following:

H3 *A higher level of consumption of this credence good (organic food), will be associated with greater use of product information cues*

Given that product information increases consumers' knowledge and this, in turn, has a positive impact on their attitudes towards organic foods, and thereby on their purchase behavior (De Magistris and Gracia, 2008), an understanding of the extent of consumers' use of product information cues can be a key support to appropriate communication strategy for these products. If consumers's use of these cues differs with their consumption level, suppliers will need to decide which cues suit each type of consumer.

Methodology. Choice of product and data collection

As we have already remarked, the agrifood sector has recently become an example of high level innovation. This has led to the development of a large number of new foods, most of them incorporating so-called

credence attributes (organic foods, functional foods, genetically modified (GM) foods, convenience foods, etc.). The organic food sector is growing rapidly, not only in terms of production and consumption but also in the degree of interest shown by the government and the various actors in the agrifood chain in using it as a vehicle for economic development and the marketing of new products (Kletzan *et al.,* 2006; Vermeir and Verbeke, 2008). These circumstances, together with the large number of credence attributes associated with these products (Darby and Karni, 1973) made them an obvious choice for testing our proposed hypotheses.

The necessary data were collected in the spring of 2006 by means of a four-part, one-to-one survey of main household shoppers in Navarra (a region in the north of Spain that is representative of average Spanish consumption patterns). The first part contained questions relating to subjects' organic food consumption frequency. In the second part, the interviewees were presented with various product attributes which they were asked to rate for their importance of consideration when purchasing a product of this nature. The third part of the questionnaire was an application of a technique designed to elicit subjects' means-end chains (*laddering interviews*) and the fourth and final section was geared to capturing their background characteristics.

The means-end chain is usually elicited by means of a qualitative interviewing technique known as laddering, first developed by Hinkle (1965), and later improved and refined by various authors. Laddering interviews are personal, individual, in-depth, semi-structured interviews aimed at revealing the attribute-consequence-value associations made by consumers with respect to a particular product, as described by various authors who have used it. Laddering is a three stage process beginning with the selection of the relevant attributes, followed by an in-depth interview and, finally, the results analysis. In the first stage, the researcher uses various techniques to identify the relevant attributes of the test product. In the second stage, subjects are invited through a series of questions of the type «Why is that important to you?» to explain why the attributes chosen in the first stage are relevant in terms of their associated consequences and values. In the third stage, the concepts emerging from the interviews are divided into a reduced number of categories, and the links are then entered on an implication matrix, from which a hierarchical value map (HVM) can then be constructed (Nielsen *et al.,* 1998).

One of the key issues to be considered when constructing a HVM is the choice of cut-off level, since only associations above this level will be mapped (Leppard *et al.,* 2004). It is hard to decide which is the most significant or relevant frequency of connections or direct relations between two levels of abstraction that needs to be included on an HVM. The choice of a high cut-off level (which leaves only the most frequently made associations) simplifies the map by reducing the number of associations shown, but may also lead to major information loss. A low cut-off level (which allows less frequent associations to be mapped) results in a complex map that is difficult to interpret. Previous research has presented various criteria for selecting the cut-off level (Pieters *et al.,* 1995), most studies agreeing that the best option is one that leads to a solution yielding the maximum amount of information without presenting interpretation problems (Audenaert and Steenkamp, 1997), while Gengler and Reynolds (1995) consider it advisable to retain approximately 70% of the data. In our case, following various trials, cut-off points of eight and seven were adopted for the two groups respectively, since the resulting HVMs were readily interpretable and lower levels produced highly complex maps that were extremely difficult to interpret while yielding similar overall findings. Furthermore, this cut-off level captured a reasonable amount of the initial data shown in the final variance of the model. For the purposes of this study, hard laddering, and, more specifically, for this part of the questionnaire, Association Pattern Technique (APT) was adopted. This technique uses two independent matrices: one that plots attributes against consequences, and another that plots consequences against values.

The attributes chosen for the attribute-value matrix were drawn from the reviewed literature and consultation with experts through a pilot survey. This yielded eleven attributes of an organic product including both concrete and abstract features, as shown in Table 1. The concrete attributes, as shown, include those usually connected with food (price, flavour, appearance, origin and apparent freshness), along with specific organic market attributes, such as a certified organic label, or other label information. The selected abstract attributes focus particularly on two key aspects of the organic market, health (health safety guarantee and health benefit effect) and nutritional value. Roinien *et al.* (2000) used the food choice questionnaire (FCQ) to select key food attributes, and demonstrated the relevance of those selected for this study, particularly those

Table 1. Identification and classification of the attributes, consequences and values used in study

Attributes	Consequences	Values
Concrete attributes	*Functional* consequences	*Instrumental* values
– Price (A1) – Flavour (A2) – Certified organic seal (A3) – Label information (A5) – Outward appearance (A6) – Geographical origin (A9) – Apparent freshness (A10)	– It is a healthy food (C1) – It is nutritious (C3) – Good value for money (C5) – I am well-informed (C7) – I am helping to protect the environment (C12) – I'm helping to sustain local agriculture (C14) – Enjoyed by the whole family (C15) – I feel more relaxed (C17)	– Provides fun, pleasure and enjoyment (V2) – Enhances my quality of life and security (V4) – Provides me with emotional fulfilment (V6) – I'm more successful (V9)
Abstract attributes	*Psychological* consequences	*Terminal* values
– Nutritional value (A4) – Quality (A7) – Health guarantee (A8) – Health benefit effect (A11)	– Good eating habits (C2) – It is appetising (C4) – Reduces my health risk (C6) – I'm consuming a quality product (C8) – It feels traditional and familiar (C9) – Brings back memories (C10) – Ensures my family are well fed (C11) – Status symbol (C13) – A sense of doing the right thing (C16) – I enjoy the taste (C18) – It is genuine (C19) – Regulates my health and that of my family (C20) – Provides happiness and satisfaction (C21) – The world is a better place (C22)	– A sense of social belonging (V1) – Enhances my relationship with others (V3) – A sense of self- fulfilment and attention to duty (V5) – I feel more respected by others (V7) – Peace of mind and self-respect (V8)

relating to health and flavour. Bourn and Prescott (2002) identified nutritional attributes, sensory cues and food safety, as the key factors in the decision to purchase organic food. According to Lin *et al*. (1986), appearance is not important. An extensive study by the Organic Agriculture Centre of Canada (2006) claims that more importance is attached to the personal benefit to be obtained from organic farming, in the form of a better health safety guarantee and health benefit effect, than to the social benefit of improved environmental quality.

Similarly, a review of the literature on means-end chain theory and laddering techniques, especially as applied to organic food consumption, revealed findings from previous research. This provided us with twenty-two functional and psychological consequences. Standing out from the rest of this literature were a number studies oriented towards identifying functional attributes relating to health, nutrition, value for money, information and flavour. Among the psychological consequences it is worth noting those relating to customs, habits, the pleasure factor, quality and genuineness (Makatouni, 2002; among others). Finally, the values were selected from the LOV (list of values) proposed by Kahle (1985), and later modified in the Rokeach Value Survey (RVS). This includes the nine personal consumer values shown in the same Table 1.

Our study sample, as indicated earlier, was a convenience sample of organic products purchasers and consumers in Pamplona (capital of Navarra in Spain). Vannopen *et al.* (1999) approve of the use of convenience samples in laddering procedures, given the complexity of the process and the fact that respondents are already familiar with the product and are therefore able to express more relevant views. In this case, the sample was made up of 70 household food purchasers who agreed to a personal interview after being contacted by e-mail. This size of sample is in line with the majority of past surveys using this technique, Costa *et al*. (2004) having recommended the use of hard ladde-

Table 2. Characteristics of the sample and the population of the Spanish region of Navarra

	Sample	Spanish region Navarra
Sex		
— Male	25.8%	49.77%
— Female	74.2%	50.23%
Age (mean)	40.3	40.5
Family size	2.80	2.90

Source: Spanish National Institute of Statistics (INE-NIS, Spain, 2007) and authors' own estimates.

ring for sample sizes above 45-50 subjects, thus strengthening the rationale for our decision to use hard as opposed to soft laddering.

For purposes of comparison, Table 2 shows the characteristics of the sample and the population of the region (Navarra). The only demographic difference between the sample and the population is related to gender, since the sample is weighted towards women. This is due to the fact that the survey was conducted on main household shoppers, the majority of whom turned out to be women, as supported by most studies. Average age, meanwhile, can be seen to be similar in both contexts, as is family size. For that reason, this sample is considered to provide a good approximation of consumer behaviour in the population of Navarra.

In preparation for the interviews, the subjects were split into groups of about ten and given an explanation of the survey content and filling-in instructions. Special emphasis was placed on explaining laddering methodology, and an example of the means-end chain relationship was presented to enhance their understanding of the process. The total duration of the interview was between 40 and 60 minutes.

A final point to consider in relation to the research design has to do with the final assessment of the relevance of the various attributes, consequences and values in the consumer decision structure. The literature presents various indices, definitions of which are to be found in Pieters *et al.* (1995). Two of the most widely used are the abstractness index and the centrality index.

The data were subjected to a five-stage analysis process. In the first, bivariate significance testing was used to group the subjects by purchase frequency levels in the various organic food categories. The second stage enabled us to split the sample into high and low organic food buyers, by means of bivariate hypothesis testing. Having defined a typology to describe high organic food purchasers and low organic food purchasers, HVMs were then constructed to reveal the preference structure of each of these consumer segments. In the following stage, these maps would offer an aggregate picture of the elements of the ladders (attributes, consequences and values). The differences between the two consumer segments were identified by hypothesis significance testing. The final stage of the analysis was to perform a multiple correspondence analysis and hierarchical segmentation in order to reveal the relative positioning both of the various elements along the chain and the ladders for the two groups of consumers (high and low involvement organic food buyers). The main results obtained via these data analysis methods are presented below.

Results

Segmentation by organic food consumption level

As already indicated, one of the purposes of this study was to try to determine whether consumers shopping for high-credence products differ in their purchase decision structure according to their consumption level. To this end, the subjects were split into two groups, one labelled the «occasional consumers» and the other «regular consumers». Table 3 gives the consumption frequencies of the ten organic food items (milk, dairy products, fruit, vegetables, cereals, rice and pasta, eggs, wine, and sweets) for each consumer segment. These ten organic food categories cover the top 10 foods in the Spanish diet. Separate hypothesis tests per product revealed significant differences between the two groups in terms of their consumption frequency in all products, and the high frequency segment was indeed found to consume greater quantities of organic foods. It is also worth noting that organic milk and organic meat are among the least frequently consumed organic foods in both groups, while the most frequently consumed were shown to be organic fruits, vegetables, rice and pasta and eggs. The sample findings are consistent with the local population consumption patterns documented in other studies.

The characterisation of each group is given in Table 4, which shows the most noteworthy features of each one in terms of their product attribute ratings, place of purchase for organic products, and background and li-

Table 3. Consumption frequency of different types of organic foods

	χ^2	Group 1 (54% of the sample) Occasional consumers		Group 2 (46% of the sample) Regular consumers	
		Occasional consumption	Once or more than once a week	Occasional consumption	Once or more than once a week
Milk	13.19***	97.3%	2.7%	65.6%	34.4%
Dairy products	40.82***	100%	—	28.1%	71.9%
Fruit	35.61***	71.0%	29.0%	6.3%	93.7%
Vegetables	33.34***	68.4%	31.6%	6.3%	93.7%
Meat	27.73***	97.3%	2.7%	40.6%	59.4%
Cereals	38.58***	86.8%	13.2%	12.5%	87.5%
Rice and pasta	31.94***	94.7%	5.3%	31.3%	68.7%
Eggs	35.14***	89.4%	10.6%	19.4%	80.6%
Wine	15.36***	71.1%	28.9%	25.0%	75.0%
Sweets and confectionery	20.93***	84.2%	15.8%	31.3%	68.8%

***: Statistically different at the 1% significance level.

festyle characteristics. The personal attitudinal and behavioural traits used to differentiate between high organic food purchasers and low organic food purchasers were selected on the basis of previous findings made by other researchers who have investigated the differences between the two segments.

Key differences were found between the two groups. The members of the high consumption group (habitual consumers) are older (average age 41.7 *vs* 33.1 in group 1), and fewer of them claim to be in a good state of health. As well as showing a greater interest in organic foods, the members of this group also show

Table 4. Characterisation of respondents by rating of importance they attach to attributes when buying organic foods, place of purchase, background and lifestyle

	F/χ^2	Group 1 Occasional consumers (54% of sample)	Group 2 Regular consumer (46% of sample)
*Importance of **attributes** when buying organic foods* (scale of 1 to 5, 5 = maximum level of importance)			
Price	2.50*	**3.66**	**3.31**
Flavour	0.34	4.05	4.18
Certified organic	1.84	2.71	3.15
Nutritional value	2.98**	**3.11**	**3.62**
Label information	0.15	3.42	3.53
Outer appearance	0.35	3.45	3.28
Quality	11***	**4.00**	**4.59**
Health guarantee	8.04**	**3.94**	**4.53**
Geographical origin	0.34	3.08	3.25
Apparent freshness	0.23	4.02	3.90
Health benefit effect	0.67	4.16	4.34
Place of purchase			
Supermarket	0.06	78.9%	81.3%
Superstore	0.55	47.4%	56.3%
Specialised outlet	0.38	44.7%	37.5%
Organic food store	17***	**0%**	**37.5**%
Direct from farmer	0.03	53.0%	6.3%
Health food shop	3.72*	**0%**	**9.4**%
Herbalist	5.04**	**0%**	**12.5**%
Market	2.43*	**13.2**%	**28.6**%

Table 4 (cont.). Characterisation of respondents by rating of importance they attach to attributes when buying organic foods, place of purchase, background and lifestyle

	F/χ^2	Group 1 Occasional consumers (54% of sample)	Group 2 Regular consumer (46% of sample)
Background characteristics			
Age (average)	13.87***	**33.1**	**41.7**
Household size	0.30	3.02	2.87
Household income	4.24**		
Low (under 2,000 euros/month)		**18.9**%	**21.9**%
Medium (2,000-4,000 euros/month)		**54.0**%	**56.3**%
High (over 4,000 euros/month)		**27.1**%	**21.8**%
Gender	0.41		
Male		34.2%	43.8%
Female		65.8%	56.2%
Educational level	1.82		
Primary		—	3.2%
Secondary		13.2%	19.4%
Higher		86.8%	77.4%
State of health	6.13**		
Normal		**7.8**%	**15.6**%
Good		**75.0**%	**78.1**%
Very good		**22.2**%	**6.3**%
Lifestyle (scale of 1 to 5, where 5 = maximum level of importance)			
I attend voluntary health checks	0.44	3.86	3.65
I eat a healthy diet	0.20	3.81	3.90
I exercise weekly	0.67	3.44	3.15
I like to keep time free for the family	0.54	4.15	4.31
I am concerned by social problems	0.14	3.97	4.06
I observe waste recycling procedures	0.02	4.07	4.12
I'm interested in dietary information	4**	**3.34**	**3.81**
I read food labels	9.27***	**3.28**	**3.96**
I am concerned by the health-food link	2.53*	**3.81**	**4.18**
I prefer to buy cut-price products	3.10*	**3.05**	**2.56**
I like cooking and enjoy my free time	0.03	3.28	3.34

*,**,***: Statistically different at the 10%, 5% and 1% significance level.

greater concern for the food-health link, are keener to learn about nutritional issues and more accustomed to reading food labels, while showing less interest in special offers than low frequency organic food consumers. The remaining demographic and lifestyle characteristics differ little across the two groups. Furthermore, in line with what has been described above, an initial assessment of the preferred attributes of organic food revealed the more organically-concerned group to show a preference for the nutritional value, quality and health safety of organic products, whereas the less frequent organic food purchasers appeared to be more concerned with price issues. As a final point in this characterisation of the two groups, we might mention that organic food stores, health food stores, herbalists and marketplaces featured as the main places of purchase among the high consumption segment. These findings regarding the attitudinal and behavioural differences between the two consumer segments are consistent with those obtained for a variety of national and international markets.

Thus, we are able to conclude that the two groups differ clearly in terms of the importance they attach to the food-health link, and to the guarantee of health safety offered by organic products. In addition, the less frequent consumers of these products attach more importance to the price aspect, as supported by other studies, where it is shown that as their organic food

consumption increases, consumers become increasingly more willing to pay the required premium (Vindigni *et al.*, 2002; Zanoli and Naspetti, 2002; Project CONDOR, Thøgersen, 2005).

The means-end-chain in regular and occasional organic food consumers

Having obtained this characterisation of the two groups, we proceeded to investigate the complex decision process surrounding the purchase of these products. To this end, we proceeded with the means-end chain analysis in order to determine which attributes, consequences and values prove relevant in each of the predefined consumer segments. This process, as indicated earlier, involved the use of MecAnalyst 1.0.8 software to generate HVMs.

From the 70 personal interviews, a total of 3,457 ladders representing attribute-consequence links or consequence-value links were revealed for the occasional organic food consumers, and 3,217 for the more regular consumers, with an average of 85.71 and 100.53 ladders per subject in each group, respectively. These initial findings suggest that the high-frequency consumption group present a more complex decision-making process, which would be consistent with a difference in the degree of abstraction reached by the purchaser, that is, in the level of personal involvement in the product, which is the aim to test. Nevertheless, deeper analysis of the results obtained by this technique will be required to enable us to accept or reject our hypotheses concerning differences in the level of abstraction in relation to a higher or lower level of consumption of a credence product, in this case organic food.

Figures 1 and 2 show the HVMs for each of the two groups, with a cut-off level of 8 in group 1 and 7 in group 2. These cut-off levels retain approximately 67% of the variance in the original data, thus providing interpretable maps including the key data and retaining close to 70% of the data as recommended by Gengler

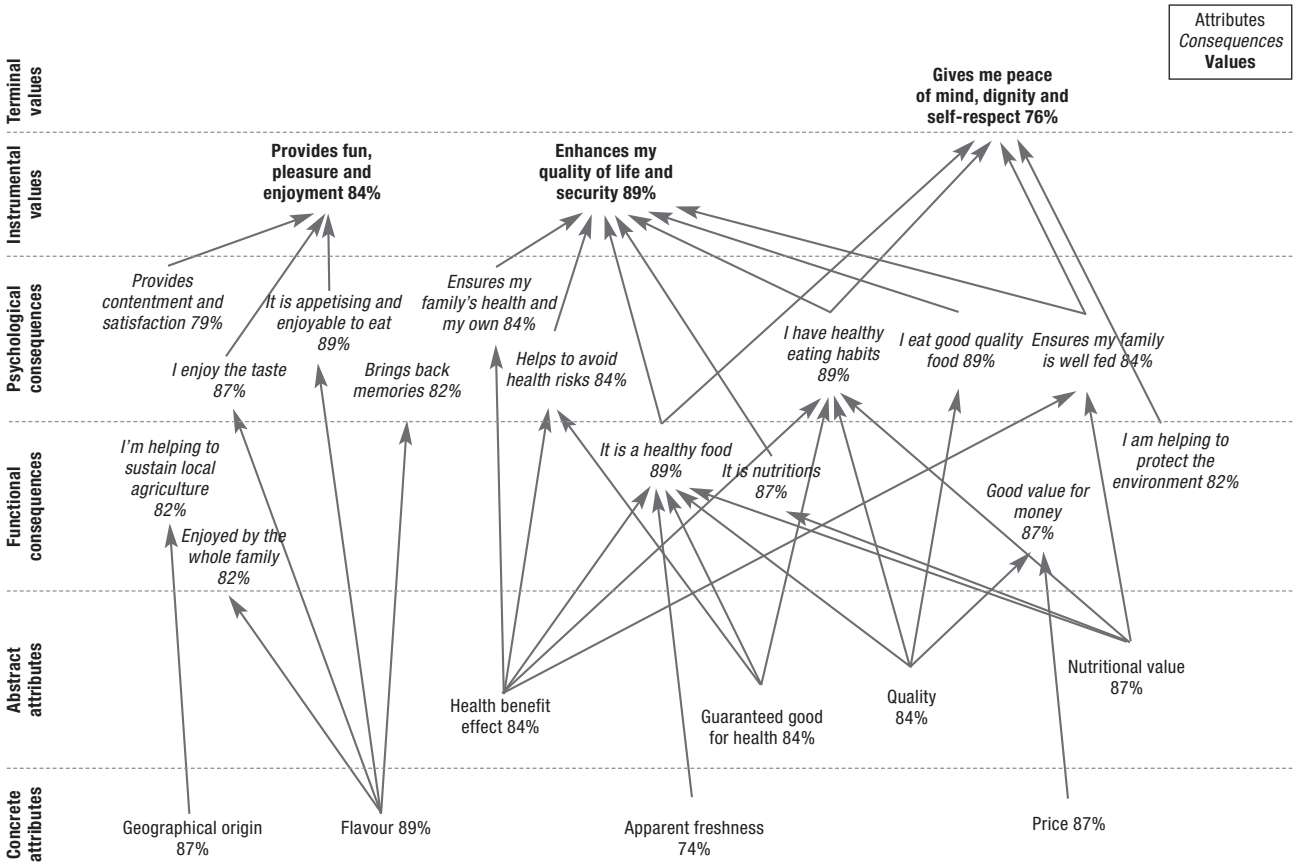

Figure 1. Hierarchical value map with a cut-off point of eight for the occasional consumers group (group 1) (67.5% variance explained).

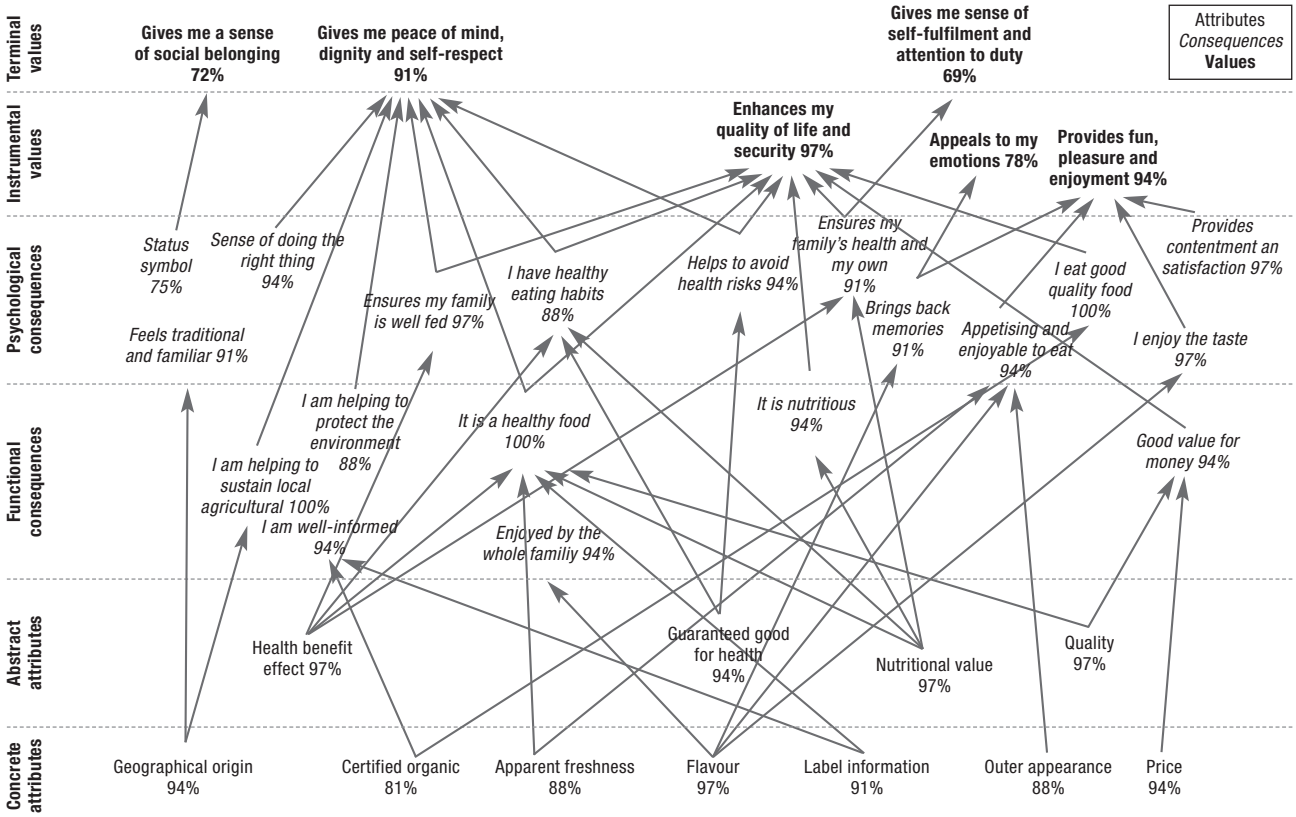

Figure 2. Hiearchical value map with a cut-off point of seven for the regular consumers group (group 2) (66.3% variance explained).

and Reynolds (1995). Each of the elements in the means-end chains (attributes, consequences and values) are shown on the maps alongside the percentage of subjects that formed the link in question. The predominance of frequency levels above 80% observed in both groups provides an initial clue to the relevance of the aspects selected to be presented to subjects in order to form their attribute-consequence-value links in this process.

In a partial analysis of the results, interesting similarities immediately emerge between the two consumer segments. Thus, in terms of the attributes, there is a predominance of the concrete over the abstract, suggesting that in low involvement markets (food markets in general), logic dictates that less abstract attributes should have a dominant influence in purchase decisions. The two groups share an interest in certain concrete attributes such as «geographical origin», «flavour», «apparent freshness» and «price»; and in some abstract attributes such as, «health safety guarantee», «quality», «the health benefit effect» and «nutritional value», all of which have to do with the food-health relationship. Other concrete attributes, such as «outer appearance», «label information» and «certified organic label» are taken up only by the second group (habitual consumers), which is a sign that these consumers use these cues in their search for information about credence products of this nature.

In terms of consequences or benefits, psychological factors predominated over functional factors in both groups, giving an idea of the complexity of the decision process involved in the purchase of this type of product. Thus, both segments showed an interest in the psychological consequences derived from «consuming a quality product», «having healthy eating habits», «ensuring a healthy diet for the whole family», «watching the family's health and one's own» and «avoiding health risks», all of which are health-linked; or sensory features, such as «I enjoy the taste» and «appetising and enjoyable to eat». Meanwhile, a series of functional consequences, «good value for money», «helping to sustain the environment and local agriculture», «healthy food», «nutritious» and «appeals to the whole family» appear in both segments.

Alongside these similarities, it is also worth noting the difference between the two groups in terms of the number of consequences evoked. More abstractions

are made by the habitual organic food consumers, who include four additional consequences, three of a psychological nature («it feels traditional and familiar», «I feel I'm doing the right thing» and «it's a status symbol») and one of a functional nature («I'm well-informed»). Thus, the finding made by other authors who report organic food consumers to have a higher degree of involvement is also confirmed by this study, where they are identified as being more deeply concerned by nutritional issues (Makatouni, 2002; Giraud, 2006; Organic Agriculture Centre of Canada, 2006). A greater presence of psychological consequences also appears to partially confirm that credence products evoke more consequences of a psychological nature.

A greater abundance of values is also observed in the second group (habitual consumers), although both share the instrumental values «enhances my quality of life and security» and «provides fun, pleasure and enjoyment» and the terminal value «enhances my peace of mind, dignity and self-respect». Associations between the terminal values «a sense of social belonging» and «a sense of self-fulfilment and attention to duty», and the instrumental value «emotional fulfilment» are made only by the second group. Again, the high frequency organic food consumers display a concern for self-confidence, self-satisfaction and commitment, which may provide persuasive arguments for use in product information campaigns. The presence of a large number of terminal values also suggests a higher level of abstraction among the members of the segment that shows the greater interest in organic food, which was to be expected, given the level of involvement usually associated with this type of consumer. This brings us closer to the possibility of differentiating organic food from conventional products not through product attributes alone, but also by consequences and values. Application of the latter means taking into account the values and consequences the consumer derives from each aspect of the product. Although further analysis will be necessary in order to fully confirm our second hypothesis regarding the presence of a large number of terminal values among high frequency organic food consumers, these initial findings already reveal that credence products are associated with a greater number of terminal values.

To sum up this first stage of the analysis of our findings for the decision structure, we are able to confirm the first hypothesis of the study. Therefore, attributes that generate confidence, consequences associate with the buyer and decision maker values more near to his consciousness have been identified with the higher consumption group. The same group also displayed a higher level of abstraction. Thus, the need for further analysis notwithstanding, some support has already been found for hypotheses H2 and H3, which predicted behavioural variations across different levels of involvement, since we have observed a higher level of abstraction, or involvement, among high-frequency consumers, who also make greater use of the available market information.

These initial findings can be analysed in more detail in the second stage of the study. Let us therefore build on these results in order to gain a deeper insight into the process by which the links between attributes, consequences and values are formed in organic food buyer's means-end chains. Focusing first on the ladders, the most obvious feature is that three links are shared by both sub-samples. The first is between the concrete attribute «flavour», which is associated with the psychological consequences «I enjoy the taste» and «it is appetising and enjoyable to eat» and with the instrumental value «provides fun, pleasure and enjoyment». This appears to suggest that one of the values to which consumers link this class of product is the enjoyment their consumption brings, which is a logical association in the food market. Meanwhile, the attributes «health benefit effect», «nutritional value» and «health safety guarantee» are linked by both groups to the consequences «healthy food», «health eating habits» and the values «quality of life and security» and «peace of mind, dignity and self-respect». This second association, which is made by all the consumers, is further proof of the importance of health and self-image. Another interesting link is formed between the abstract attribute «quality» and the consequences «healthy food» and «quality product» and the latter two with the instrumental value «quality of life and security». This third relational link, in which consumers relate quality to their lifestyle habits, carries great potential as a basis for marketing strategies, since enjoyment, health and food quality clearly emerge among the values pursued by the purchaser. As indicated earlier, these abstractions may be usefully incorporated into the product information strategies used by producers.

On the other hand, a series of differences emerge between the two groups in the remainder of the complete ladders. Occasional consumers also associate the «nutritional value» of these products with the psychological consequence «ensures my family's health and my own» which gives them «self fulfilment and attention

to duty». In the case of the habitual consumption group the «health benefit effect» is linked with the consequence «ensures that I and my family are well fed», which, in turn, they link with the values «quality of life and security» and «my peace of mind, dignity and self respect». The low frequency consumers however link this attribute to the psychological consequence «helps me to avoid health risks» and the values mentioned earlier. These results do not allow us to conclude that the health component is any more deeply rooted in the high consumption group than in the low consumption group. It is an important factor for both segments. The difference lies in the fact that less frequent consumers associate it with nutritional values and self-fulfilment, while habitual organic food buyers relate it to guarantee and peace of mind.

An interesting difference with the «quality» attribute arises from the fact that the low consumption group associate it with «healthy eating habits», which appears to suggest that this group are already quite satisfied with their dietary regime, which may explain why they consume practically no organic foods. To conclude this discussion of the differences, it is worth noting the presence of interesting ladders in connection with information issues, which show that the attributes «label information» and «certified organic label» are associated by the high consumption group with the benefits «I'm well-informed» and «I'm consuming a healthy, quality product» which leads them to the belief that they have «enhanced quality of life and security». These ladders suggest that the members of the habitual consumption segment read the product labels to obtain information regarding their properties. These relationships are consistent with the remainder of the results obtained, since the high-frequency consumers are found to include more high-involvement organic food buyers, who display a greater desire for product information and reassurance. On a more personal level, these are people who enjoy food but need guarantees and product information for more peace of mind. These results help to confirm the third hypothesis of the study, in which it is claimed that high-frequency consumers of a credence product such as organic food are more intense information seekers.

The above results therefore lend further support both to the existence of some level of abstraction in the organic market which is a high-credence setting, and also to variations in consumers' decision structures in relation to their consumption frequency. This can be observed both in the distances between the two groups in terms of the numbers of ladders and links made by each.

Table 5. Average number of attributes, consequences and values evoked by each group

	F	Group 1 Ocasional consumers	Group 2 Regular consumers
Concrete attributes	1.62	5.76	6.31
Abstract attributes	2.92*	3.47	3.87
Functional consequences	1.34	6.13	6.75
Psychological consequences	0.59	10.65	11.40
Instrumental values	4.13**	2.68	3.22
Terminal values	7.27***	2.21	3.12
Total ladders		85.71	100.53

*,**,***: Statistically different at the 10%, 5% and 1% significance level.

For a deeper analysis of the degree of abstraction in this market, let us refer to Table 5, which gives the average number of attributes, consequences and values of each type evoked by each group. Inter-group comparison reveals significant differences in three of the six levels shown (concrete and abstract attributes, functional and psychological consequences and instrumental and terminal values), although the high-frequency consumers evoke more values in all cases. The habitual consumption group evokes more abstract attributes (3.87 *vs* 3.47), more instrumental values (3.22 *vs* 2.68) and more terminal values (3.12 *vs* 2.21). This suggests that habitual consumers report a higher degree of abstraction, tending towards the highest of the theoretical levels proposed by Walker and Olson (1991). They also evoke more values, that is, they form the last link in the means-and chain. Thus, as already explained, through product attributes, organic food buyers project more of their own values into their purchase decisions. The higher level of abstraction suggested by this confirms the second hypothesis that the degree of abstraction increases with the level of involvement.

To round off our presentation of the subject-level results, Appendix gives the abstraction and centrality indices for each of the HVMs, enabling us to identify the role played by each of the attributes, consequences and values within the structure. The elements with the highest abstraction indices on a HVM are the ends, while those with the lowest indices are the means. It is obvious in this case that the ends are the three values

that emerge on the map formed from the responses of the low consumption group, and the six values evoked by the high level consumers. As regards the centrality index, the highest value (0.05) represents the most central element within the structure, which in this case, and in both groups, is the value «quality of life and security». Next in order of importance in both groups come the consequence «a healthy food» and the value «peace of mind, dignity and self-respect», showing that one of the basic claims of these products, namely, their potential health benefit effect, is obvious to all the consumers.

The relative positioning of elements in the complete and incomplete ladders

Finally, multiple correspondence factor analysis is used to identify the relative positioning of the various elements of the means-end-chain by consumer segment. Two positioning analyses are performed. The first is aimed at comparing the positions of the concrete and abstract attributes, functional and psychological consequences, and the instrumental and terminal values in high- and low-involvement organic food buyers. The basis of this is a matrix that plots each respondent against their choices from the six possible elements included in his/her purchase decision structure. By plotting these responses in two dimensions, we obtain the relative positions of each category and segment, as shown in Figure 3. The first finding worth noting, as advanced earlier, is that the main difference in the buyer's decision structure occurs in the association with terminal values, which is stronger among the regular buyers of organic food. This is further confirmation of the fact that there is more personal involvement in the purchase decision of regular buyers, suggesting that marketing strategists would be wise to shift towards a more abstracting positioning rather than maintaining an exclusively attribute-based approach. As far as the remaining aspects were concerned, similar associations were made by both occasional and habitual organic food buyers. When, in a second stage of the positioning study, hierarchical classification analysis was used, it was observed that the two intermediate phases of the decision hierarchy, *i.e.,* abstract attribute (phase 3) and functional consequence (phase 4), on the one hand, and psychological consequence (phase 5) and terminal value (phase 6), on the other, form two separate clusters, while the first (concrete attribute) and last phases (terminal value) also form a cluster. Consumers therefore find a certain parallel between some phases of the process that might be worth exploring in other contexts.

The second relative positioning that emerged was between the eight types of ladders into which the associations can be grouped in ascending order of abstraction. Positioning by segments was found, based on a matrix that plots the respondents against their evoked ladders. Figure 4 shows, as in the positioning of the individual elements of the ladder, that occasional and habitual organic food consumers have similar decision structures. In other words, as far as the type of chain is concerned, the decision structure was very similar across the two segments. It is only in the use of ladders connecting abstract attributes with functional or psychological consequences and instrumental values, that it is possible to observe slight differences of usage between high- and low- frequency organic food consumers. Thus, the differences previously observed in the subject-level analyses of the means-end chain compo-

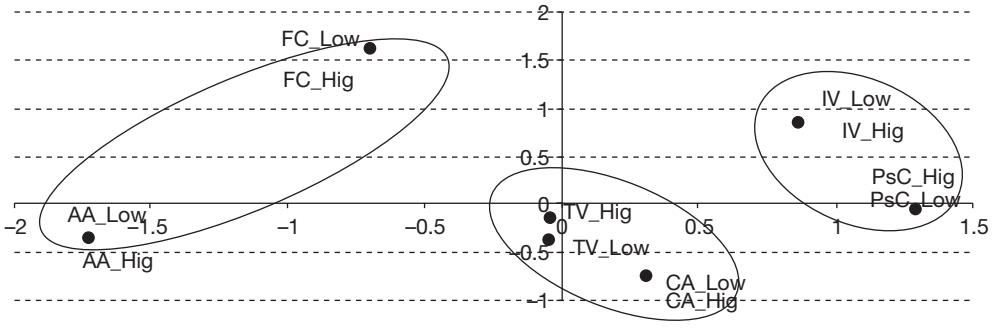

Figure 3. Relative positioning of the various components in the means-end-chains of high (regular) and low (occasional) organic food consumers. CA: concrete attribute. AA: abstract attribute. FC: functional consequence. PsCC: psychological consequence. IV: instrumental value. TV: terminal value. Low: low organic consumption. Hig: high organic consumption.

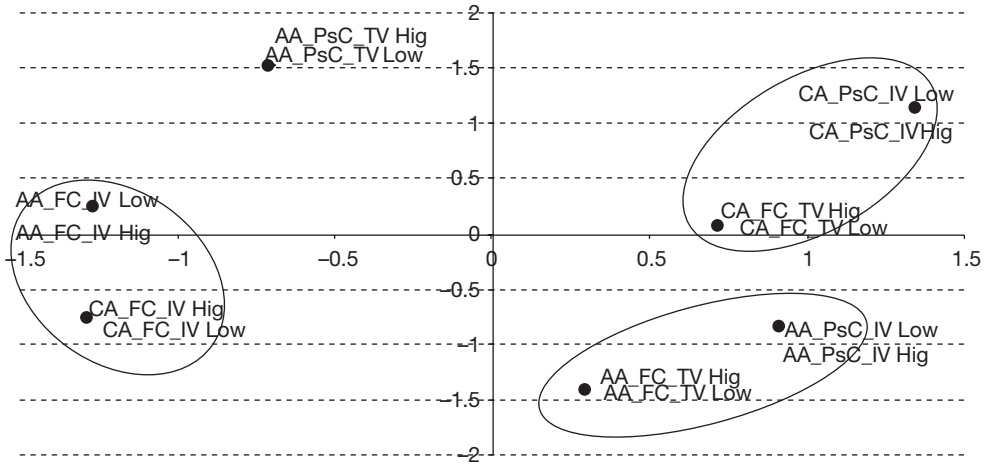

Figure 4. Relative positioning of the different types of ladders of high (regular) and low (occasional) organic food consumers. CA: concrete attribute. AA: abstract attribute. FC: functional consequence. PSCC: psychological consequence. IV: instrumental value. TV: terminal value. LOW: low organic consumption. HIG: high organic consumption. Cronbach mean value: 1, variance explained: 100%.

nents did not show up in the aggregate analysis by ladder type. As far as the clustering of phases as revealed by the hierarchical analysis is concerned, stages two and three, which represent associations between a concrete attribute and a functional or psychological consequence, and instrumental or terminal values, are relatively close, as are the sixth and seventh phases (abstract attribut-functional consequence and instrumental value or terminal value). Close to each other, at the other extreme, are the first and fifth phases (concrete or abstract attribute, functional consequence and instrumental value), and, separate from the rest, we find the final phase of the abstraction process (abstract attribute-psychological consequence-terminal value). These results may suggest certain similarities between phases, indicating a need for more detailed analysis in other contexts and markets and further exploration of the consequences of this relative positioning.

Discussion

The main purpose of this paper is to study the cognitive structures of regular and occasional organic food consumers to determine whether they differ in content and level of abstraction as a function of consumption frequency. The detection of possible differences would enable the development of marketing strategies tailored to sustain or boost consumption of this type of food product. This general aim was addressed by applying the so-called means-end chain theory, in which consumers' attribute-consequence-value associations are elicited through laddering interviews.

Prior to the cognitive structure analysis, survey respondents were characterized and segmented into two groups based on their consumption levels: occasional and regular consumers of organic food products. In line with the bulk of the literature, and as already noted, the main demographic variables considered were age, education and income level. However, this study finds no significant relationship between levels of education and levels of organic food consumption. Findings for the role of age vary, with the majority of studies reporting the youngest age segments to show the highest willingness to purchase organic products (Jolly, 1991; Rimal and Moon, 2005; Rimal *et al.,* 2005). Others find no significant relationship (Fotopoulos and Krystallis, 2002) or, if any, a negative relationship (Squires *et al.*, 2001), as in our study. It is also worth noting that our study reveals no significant gender effect on organic food consumption in the segmented sample, although most of the literature reports higher consumption of these products among women (Lockie *et al.,* 2004; Krystallis and Cryssohoidis, 2005; Lea and Worsley, 2005; Onyango *et al.,* 2007). Finally, place of purchase emerged as the key differentiating factor in Vannoppen *et al*. (2002), where the observed trend was towards specialist retailers, as in Richter *et al.* (2000) (in Organic Agriculture Centre of Canada, 2006). This trend can also be appreciated in our analysis.

Furthermore, the HVMs enable us to confirm the first hypothesis of our study, which claimed that concrete attributes hold more weight than abstract attributes in the food purchase decision structure, as maintained by authors such as Steenkamp (1998) and Costa *et al*. (2003), among others. Flavor and price are found to influence both of the consumer segments considered, supporting findings obtained by Wier and Calverley (2002), Baker *et al.* (2004), and Arvola *et al.* (2008) among others, who have reported better flavor as one of the key issues in organic food consumption along with price (Ritcher *et al.,* 2000; Cicia *et al.*, 2002; Giraud, 2006). Price was one of the main factors preventing the low consumption group (occasional consumers) from buying more organic food products, which reveals that this method of analysis reinforces the notion that price remains a barrier to the growth of the organic market.

A further observation is that higher frequency consumers are the ones that make the most use of information cues as a means to verify certain credence attributes, as proposed in our third hypothesis. This stresses the importance of a necessary threshold of organic product knowledge to raise consumption frequency levels. This supports the views of various other authors who have claimed that certain credence attributes can only be perceived by the consumer through some signal that is identifiable prior to consumption (Giannakas, 2002; Wier and Calverley, 2002). This is the case of these search attributes (certification of origin, label information), which are also differentiating factors, since there are identified only by regular organic food buyers.

Food consumption therefore involves a growing number of choice factors, heavily predominated by health-related issues, as this study has already begun to show. These factors are increasingly considered in strategic marketing decisions across the agricultural sector, particularly in the organic segment. Furthermore, given its important impact on demand and consumer choice and in view of its proven influence on the consumer decisions, it is obviously worth paying attention to the supply of food health and safety information. In this respect, these results corroborate the bulk of the research on organic food consumption, which reports the key motivating factor to be consumers' perception that these products are healthier and safer (Wier and Calverley, 2002; Baker *et al.*, 2004; First and Brozina, 2009; Lusk and Biggerman, 2009; among others). The sensory and functional features that have dominated the food market in the past, now share almost equal status with credence features, which complicates the task for marketing strategists and the choice process for consumers.

As conclusions, changes in consumer behaviour and consumption habits are leading to a situation in which a knowledge and understanding of how consumers perceive self-relevant attributes in the products that they purchase has become an issue of vital importance to producers with a need to consolidate their strategic positioning within the market. This analysis addresses the need to differentiate consumer markets, based on the consumer's personal involvement with the attributes of the product, and not simply the attributes in themselves. The key role played by emotional benefits in the life of consumers, especially in relation to high-credence products, suggests that they may explain consumer behaviour in situations where other factors fall short. Thus, given that the emotional responses the product evokes may be a key determinant in the purchase decision, this study set out to address this issue as it affects organic food items, chosen as a primary example of high-credence products.

The resulting HVMs showed that food in general, and organic food in particular, has an emotional dimension that is observed to increase in strength a consumption frequency rises, increasing the number of associations formed and the level of abstraction reached by consumers. This clearly suggests that credence characteristics become part of consumers' cognitive processes and have an impact on their decision-making structures.

The results revealed a degree of complexity in the decision-making process, which is seen to involve attributes, consequences and values, and to vary somewhat between the two consumer segments. It is also worth noting that psychological factors are gaining ground in the decision-making process, leading to an increase in complexity as the level of consumption rises. This trend is particularly noticeable in the degree of abstraction observed in the abstract attributes, and also in the number of values, both instrumental and terminal. Concrete attributes nevertheless outnumber abstract attributes, since organic products form part of the wider food sector, where consumer involvement is always relatively low. Given that the focus of the study is on credence products, it comes as no surprise that most of the consequences are of a psychological nature, thus increasing the complexity of the structure. The main overall outcome of these results lies in the discovery that demand side decision-making processes are no longer based entirely on knowledge of the product,

since they are now also influenced by consumers' self-knowledge, a discovery that broadens the range of options open to marketing strategists.

In the case of the products chosen for analysis in this study, in general terms, it can be said that occasional consumers of organic foods buy them for their sensory properties (pleasure and enjoyment) and their beneficial effect on health. For higher-frequency consumers (habitual consumers), however, the appeal of such products lies not only in the beneficial effect on health but also in their credence characteristics (certified organic seal and other labelling) which they, unlike the low-frequency consumers, recognise and use as cues. In other words, organic food consumers expect producers to provide more guarantees of safety and quality, which they look for in cues such as the labelling. This type of behaviour is one of the primary indicators of higher involvement among organic food buyers. This finding is further supported by the concern for self-fulfilment and attention to duty which can be more readily observed among high-involvement respondents. It is in these components of respondents' terminal values that the main differences between organic food consumer segments were found, thus confirming the importance of research into emotional responses in the purchase decision in this credence product market. This also provides further support for a hypothesis maintained by other authors; namely, that a higher degree of consumption implies a higher level of abstraction in the decision-maker. This finding is consistent with Westerlund (2007), where «feel» products were found to evoke a greater number of psychological consequences and values and a higher level of abstraction.

The beneficial effect on the environment also features in both consumer groups, although to a much lesser extent than the health benefit effect. This appears to suggest that the latter is of greater relevance to consumers trying to decide whether to introduce organic food into their diet.

These findings present interesting opportunities for the future, since they provide a new tool with which the designers of information and advertising campaigns might try to increase consumption, help to launch new products on the market and appeal to low-consumption segments. Furthermore, extra information is also a key factor when attempting to convey to consumers the characteristics of each product and the benefits it can provide.

Finally, it is our duty to point out the limitations of this study in terms of the possibility of generalising results to other markets, the main problems arising from the type of sample used for the data collection and the possibility of variations in attributes, consequences and values. Further support for our findings, which lead us to recommend a shift in market positioning methods from the exclusive focus on product attributes to the consideration of the benefits and values sought by consumers in the relatively low-involvement environment of food markets. Our research also endorses the importance of the threshold of product knowledge when seeking to raise consumer interest in certain food categories. This kind of data might be obtained by extending this study to other regions, testing other products, and increasing the size of the sample, or by including additional consumer behaviour variables, such as sensory product-evaluation skills.

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Appendix. «Abstraction» and «centrality» indices for the two organic food consumer segments

	Group 1 Occasional consumers		**Group 2 Regular consumers**	
	Abstraction	**Centrality**	**Abstraction**	**Centrality**
Price	0	0.01	0	0.01
Flavour	0	0.03	0	0.03
Certified organic	—	—	0	0.03
Nutritional value	0	0.03	0	0.03
Label information	0	0.02	0	0.02
Outer appearance	—	—	0	0.03

Appendix (cont.). «Abstraction» and «centrality» indices for the two organic food consumer segments

	Group 1 Occasional consumers		Group 2 Regular consumers	
	Abstraction	**Centrality**	**Abstraction**	**Centrality**
Quality	0	0.04	0	0.03
Guaranteed to be good for health	0	0.03	0	0.03
Geographical origin	0	0.01	0	0.02
Apparent freshness	0	0.02	0	0.02
Health benefit effect	0	0.04	0	0.03
It is a healthy food	0.66	0.04	0.069	0.04
I have healthy eating habits	0.59	0.03	0.58	0.03
It is nutritious	0.59	0.02	0.64	0.02
It is appetising, and enjoyable to eat	0.61	0.03	0.60	0.03
Good value for money	0.67	0.02	0.66	0.02
Helps to avoid health risk	0.69	0.03	0.60	0.02
I'm well-informed	0.64	0.02	0.57	0.02
I eat good quality food	0.66	0.04	0.62	0.03
It feels traditional and familiar	—	—	0.51	0.02
It brings back memories	0.51	0.01	0.50	0.02
Ensures my family is well fed	—	—	0.62	0.03
I am protecting the environment	0.39	0.02	0.36	0.02
Status symbol	—	—	0.52	0.01
I'm helping to sustain local agriculture	0.49	0.02	0.47	0.02
Enjoyed by the whole family	0.44	0.02	0.51	0.02
Sense of doing the right thing	—	—	—	—
Reduces cause for concern	—	—	—	—
I enjoy the taste	0.49	0.02	0.51	0.02
It's genuine	—	—	—	—
Ensures my family's health and my own	0.51	0.02	0.60	0.03
Provides contentment and satisfaction	0.43	0.02	—	—
The world is a better place	—	—	—	—
Gives me a sense of social belonging	—	—	1	0.02
Provides fun, pleasure and enjoyment	1	0.04	1	0.03
Enhances my relationships with others	—	—	—	—
Enhances my quality of life and security	1	0.05	1	0.05
Gives me a sense of self fulfilment and attention to duty	—	—	1	0.03
Provides emotional fulfilment	—	—	1	0.02
I feel more respected by others	—	—	—	—
Gives me peace of mind, dignity and self-respect	1	0.04	1	0.04
I am more successful	—	—	—	—