



*International Food and Agribusiness Management Review*  
Volume 16, Issue 4, 2013

## **A Powerful Word: The Influence of the Term 'Organic' on Perceptions and Beliefs Concerning Food**

Manuela Vega-Zamora<sup>a</sup>, Manuel Parras-Rosa<sup>b</sup>, Eva María Murgado-Armenteros<sup>c</sup>,  
and Francisco José Torres-Ruiz<sup>d</sup>

<sup>a</sup>Associate Professor, University of Jaén, Business Organization, Marketing and Sociology Department, Campus Las Lagunillas, S/N, D3-215, Jaén, 23071, Spain

<sup>b</sup>Professor, University of Jaén, Business Organization, Marketing and Sociology Department, Campus Las Lagunillas, S/N, B1, Jaén, 23071, Spain

<sup>c</sup>Associate Professor, University of Jaén, Business Organization, Marketing and Sociology Department, Campus Las Lagunillas, S/N, D3-159, Jaén, 23071, Spain

<sup>d</sup>Associate Professor, University of Jaén, Business Organization, Marketing and Sociology Department, Campus Las Lagunillas, S/N, D3-140, Jaén, 23071, Spain

---

---

### **Abstract**

The controversy between altruistic (environment) and egoistic (health) values as explanatory factors of organic food consumption raises suspicions that consuming organic foods is not an end in itself but a means—a way to achieve healthiness rather than an expression of environmental values. In this case, the term 'organic' could be assumed to be a heuristic cue. This paper examines whether the heuristic role of the term 'organic' can indeed be assumed. Personal interviews were conducted with 800 individuals. Results indicated that the term 'organic' plays an important role as a heuristic cue of superiority.

**Keywords:** organic food, heuristic cue, indicator of perception, consumer behavior.

<sup>Ⓞ</sup>Corresponding author: Tel: + 34.953.213.314  
Email: M. Vega-Zamora: mvega@ujaen.es  
M. Parras-Rosa: mparras@ujaen.es  
E.M. Murgado-Armenteros: emurgado@ujaen.es  
F.J. Torres-Ruiz: ftorres@ujaen.es

## Introduction

The organic food market has become one of the most rapidly growing sectors in developed economies around the world, especially in the European Union (Chen 2007). In 2010, this market reached 18.1 billion euros in sales, compared to 10.0 billion euros in 2004 (Schaack et al. 2012).

Organic farming originally began as an alternative production system to help preserve the environment, and reduce the negative environmental impact on natural resources such as soil, air, and water (Stolze et al. 2000; Alonso and Guzmán 2004; González et al. 2005). Other benefits, like rural economic development, also stem from this basic objective (Cobo and González 2001; Ploeg et al. 2002; González et al. 2007).

Therefore, it is understood that organic food consumption should be associated with altruistic motivations or values related to the environment, ecology, animal welfare and rural and local development.

In general, however, studies of organic food consumers do not bear out this assumption. A greater number of reports show that the motives for eating organic foods are more egoistic, focusing on individual health and food safety and hedonistic aspects such as quality or flavor. In other words, a product (organic) with certain benefits or attributes (better for the environment) is bought by consumers who are generally looking more for other benefits (health, safety, quality, flavor, etc.). This situation gives rise to two considerations. Firstly, the only difference between organic and conventional products for the customer in a buying situation is a mark or a word (organic). This distinguishes which products will allow the consumer to make purchases in keeping with his/her motives and values. Consequently, there could be a direct connection between the word and the consumers' values. Secondly, it seems that the word 'organic', chosen to describe and communicate a clear meaning (environmental conservation) is interpreted by consumers in a different way, based on their values and general motivations related to food consumption. Here the term seems to act as a powerful heuristic cue, a way for consumers to save time and effort in assessing and choosing better, healthier, tastier, etc. food. In this regard, it is noteworthy that the only objective difference between organic and conventional foods is that the former are more environmentally respectful. There is more controversy over other properties where organic foods are assumed to be superior to their conventional counterparts, such as healthfulness, quality, taste and smell. In fact, Brennan et al. (2003, 391) conclude that "although consumers have developed beliefs that organic foods are healthier, more nutritious and taste better, these beliefs are generally scientifically unproven".

The objective of this paper is to analyze whether the term 'organic' acts as a heuristic cue for superiority compared to conventional foods. Operatively, the aim was to obtain empirical evidence about (1) whether organic foods were seen as superior to conventional ones and (2) whether the connotations surrounding them make organic foods superior not only in terms of their environmental attributes but also as regards the other attributes that consumers consider valuable or important.

Analysis of the evocations of the term 'organic' is useful in relation to developing the demand for these products, particularly when creating communication strategies and especially when positioning the products in emerging markets. Therefore, defining the message is very important (for example, environmental conservation or selfish arguments about health, quality and taste). Similarly, the possibility that the term will be interpreted differently from its basic objective (environmental conservation) makes it possible to draw inferences regarding how individuals process information. This has important implications for other communication strategies. Indeed, the conclusions and evocations of consumers in relation to organic products lead researchers to suspect the absence of a complex analysis process. Models like the Heuristic-Systematic Model – HSM– (Chaiken 1980) or the Elaboration Likelihood Model –ELM– (Petty and Cacioppo 1986) can serve as guides to understanding how information is processed and what recommendations should be made.

## Motives for Eating Organic Foods

The reasons why people buy or would buy organic foods have been studied extensively around the world. Although many motives have been reported, they are not all as important or of equal priority for consumers.

A wide-ranging review of the literature on the subject (Table 1, see Appendix) indicates that the main motives for buying this type of food can be classed into two groups. The first is **egoistic motives**, which center on the individual's health and food safety and on hedonistic aspects such as quality, nutrition or flavor. The second is **altruistic motives**, related to protecting the environment, animal welfare and rural development. In general, consumers are more motivated by egoistic factors as not only do studies that encounter this type of motivation abound, but where altruistic motives appear they are usually in the background or considered less important. In other words, concern for the environment, animal welfare and local and rural development usually come after health, food safety, quality, etc. in the hierarchy of motives for consuming organic products. The results of Pearson et al. (2011) also point in the same direction.

As well as the above motives, which might be termed more intrinsic to the individual and can be related to personal values, others that have been reported –such as disposable income or food-related scandals– have more to do with the situation or the background and can, in turn, precede the intrinsic motives. Both these motives (income levels and the distrust of conventional foods generated by food scares such as bovine spongiform encephalopathy [BSE], foot and mouth disease, bird flu, etc.) have encouraged the appearance of new life styles with new values and new consumption orientations, increasing the consumers' awareness of food integrity and security (Yeung and Morris 2006).

Although most of the studies show that the main reasons for buying and consuming organic food are the perceived health benefits, food safety, quality and taste (Pearson et al. 2011; Basirir and Gheblawi 2012; Sangkumchaliang and Huang 2012; Justin and Jyoti 2012; Aygen 2012), what truly increases their value is their greater respect for the environment. The main characteristic of these foods which is supported by empirical evidence is that their production methods protect the environment or conserve natural resources better (Mäder et al. 2002; Fuller et al. 2005). Moreover, the characteristics associated with greater healthiness, safety, quality or flavor have

not been scientifically proved (Brennan et al. 2003; Burton 2006; Benbrook et al. 2008), they are only consumer perceptions.

The review by Pearson et al. (2011) has already shown a certain divergence between consumer perceptions concerning the greater healthiness of organic foods and the scientific evidence. The present paper is based on this divergence between the main motives of consumers and what their motives should be, given the nature of the organic foods themselves and the scientific proof. A possible explanation for the divergence could be that the term 'organic' plays an important role as a heuristic cue, evoking attributes related to the consumers' motives. Nevertheless, this requires empirical verification.

## Hypotheses

Assuming the role of the term 'organic' as a heuristic cue, it is worth noting that according to multilevel hierarchy persuasive models such as HSM (Chaiken 1980) or the ELM (Petty and Cacioppo 1986), heuristic cues are commonly used to process information about something (in this case, organic food) when a heuristic or peripheral route is used. This is the case when information processing is weak, characterized by little effort to judge the validity of the message and the absence of comprehensive thinking about the contents. This is a fast, superficial and automatic processing method that attaches importance to the external elements of a message, such as the attractiveness of the source or striking images. This type of processing typically occurs when people do not have sufficient motivation (involvement, interest, relevance or importance of the subject) or capacity (knowledge about the topic) for a complex evaluation of the message.

Within this framework, assuming that information processing is weak, two results can be expected: first, that consumers of organic foods will have very little knowledge about them and second, that their involvement with or interest in them will be very low. Thus:

*H<sub>1</sub>: Consumers have very little knowledge about organic food.*

*H<sub>2</sub>: The level of consumer involvement with organic food is low.*

Consequently, as the literature shows, consumers will use heuristic cues. As a result, organic foods could be expected to be valued more highly than their conventional counterparts for a variety of reasons, including safety, quality, taste, smell or the environment. Thus:

*H<sub>3</sub>: Organic food will generally be valued more than its conventional counterparts.*

Moreover, given the nature of heuristics (replacement or absence of complex cognitive mental processes), one would expect greater value to be placed not only on the aspects of organic products which have been proven to be superior (related to conserving the environment), but also on aspects whose superiority is more controversial. From this perspective:

*H<sub>4</sub>: Organic food is valued more than its conventional counterparts even in aspects that have not been scientifically proven to be superior.*

Finally, considering that heuristics replace in-depth, intensive, detailed information processing, in other words, when detail is replaced by overall assessments, it can also be assumed that the use of heuristics will generally involve a reduction of dimensionality in people's individual assessments. This would indicate strong internal correlation between the descriptors used and the absence of some independent macro-dimensions, so:

*H<sub>5</sub>: There is minimal dimensionality in perceptions and an important general dimension.*

## **Materials and Methods**

### *Research Design and Data Collection*

This study compares an organic food to a conventional one. Extra virgin olive oil is widely known and familiar to Spanish consumers. This product is a staple of the Spanish diet and Spain is the largest producer of olive oil in the world (International Olive Council 2012).

The target population for this study was urban buyers of olive oils, over 25 years old and living in Spain. Urban consumers are the segment most likely to purchase organic food, as shown by Von Alvensleben and Altmann (1986), Aguirre et al. (2003), Radman (2005) and Wier et al. (2008). Furthermore, in Spanish cities there are few young people under the age of 25 who are responsible for food purchasing decisions. Any buyer who purchased olive oil in the past year was considered an olive oil consumer.

In addition, the sampling quotas set were based on education level, gender and age, given the likely influence of these variables on behavior towards organic food. The quota of women in the overall composition of the sample was 60%, given their greater role in buying household products (Luque 1998; Martínez 1996). A quota of 50% for university-educated buyers was also established, due to their greater willingness to purchase organic food. Finally, half of the interviews were conducted with people aged 35 and under, given the increased consumption of organic food in this age group. The literature provides abundant empirical evidence on the influence of these three variables on purchasing behavior and the consumption of organic food (Cicia et al. 2002; Briz and Al-Hajj 2003; Storstad and Bjorkhaug 2003; Lockie et al. 2004; Radman 2005; Rimal et al. 2005; Muñoz et al. 2006; Onyango et al. 2007; Aguirre 2007; Bellows et al. 2008; Ureña et al. 2008; Wier et al. 2008; Tsakiridou et al. 2008; Roitner-Schobesberger et al. 2008; Díaz et al. 2009). Consequently, the sample comprises an informed public, more prone to organic food consumption than the Spanish average.

Personal interviews were conducted with the aid of a personal digital assistant (PDA) and included questions related to different experimental objectives that are not addressed in this paper. They numbered 800 and took place in six different cities: Madrid, Barcelona, Seville, Salamanca, Oviedo and Valencia. The main reason for this choice of cities was their geographical dispersion.

Fieldwork began simultaneously in all the cities on November 13, 2009, and ended on November 25, 2009. A company which designs and conducts market research and opinion campaigns was responsible for carrying out the survey. This company has its own field network and was

responsible for programming the PDAs, randomly selecting the respondents, conducting the interviews and processing the data files, under the supervision of the authors. The entire sampling process is summarized below (Table 2).

**Table 2.** Sample

Scope	National, Spain
Target	Urban buyers of olive oil, aged 25-65
Type of Interview	Personal interview, in the street, with a PDA, using a structured questionnaire, with experimental manipulation of some variables
Sample Size	800 valid cases
Type of Sample	Random. Restricted by age, gender and education level
Sample Error	For global data the sample error is $\pm 3.5\%$ ( $p=q=0.5$ , $k=1.96$ )
Study timeframe	13-25 November 2009

### *Questionnaire Structure*

This paper reports on part of a much larger study with a complex questionnaire composed of various multi-item scales. The questionnaire begins by introducing the interviewer and recording the necessary variables for the sample quotas (age, education and gender). It then measures the following aspects, essentially: (1) general food-related values, (2) motivation or involvement in different food products, (3) comparative perceptions and beliefs concerning conventional and organic olive oil, (4) trust in different aspects of agriculture, control and organic products, (5) perceived behavioral control, (6) subjective norm, (7) level of consumption of different organic foods, (8) predisposition to buy organic olive oil and (9) level of knowledge about organic foods and about olive oils. It ends with questions on socio-demographic variables (income, occupation, household composition, etc.). Half-way through the questionnaire, some of the respondents were shown a message about organic olive oil. Others (the control group) were not shown any message. Using a PDA made it possible to change the order of items in some questions randomly in each interview. The items in the questions used in this part of the study (level of knowledge, comparative perceptions and involvement) are shown in the tables in the Results section.

### *Measurement*

A six-item true/false scale (Table 3) was used to measure the individuals' degree of knowledge about organic production in general and the production of olive oils in particular. The individuals had to decide which statements regarding organic food and olive oils were true and which were false. The general items relating to organic food were inspired by the scale used by Roitner-Schobesberger et al. (2008) and by the definitions, principles, practices and regulations of relevant agencies in this area. These include the Spanish Ministry of Agriculture, Food and the Environment, the European Commission, IFOAM, Codex Alimentarius, the Spanish Organic Agriculture Society, Council Regulation (EEC) No 2092/91 (24-June 1991) on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs and Council Regulation (EC) No 834/2007 (28 June 2007) on organic production and labeling of organic products and repealing regulation (EEC) No 2092/91. For the items relating to olive oils, including organic olive oil, Council Regulation (EC) No 865/2004 (29-April 2004)

on the common organization of the olive oil and table olive market as amended by regulation (EEC) No 827/68 was also taken into account.

To measure the consumers' motivation or consumer involvement, they had to assess to what extent a range of foods, including virgin olive oils and organic food, were important, necessary, or of interest or concern to them on a five point Likert scale (Table 4). This scale was based on the original and revised Personal Involvement Inventory (PII) scales of involvement in products proposed by Zaichkowsky (1985 and 1994, respectively). McQuarrie and Munson's (1987 and 1992) criticisms of the latter scale with respect to the confusion that sometimes exists between this construct and attitude were also taken into account. The scale reflects only one facet of involvement: importance.

The measurement of beliefs or perceptions concerning organic extra virgin olive oil in comparison to conventional, non-organic extra virgin olive oil, again using a five point Likert scale, asked which oil the individuals identified with a series of statements. The answers ranged from 1: Clearly the conventional one to 5: Clearly the organic one (Table 5). Two items measured the consumers' general attitude directly, using the scale from Mitchell and Olson (1981) as a reference. Their general attitude was measured indirectly through 24 items based on the general beliefs discussed in the literature about organic food (as previously noted) and on the information obtained from four discussion groups that focused on perceptions of organic foods and olive oils (see Vega et al. 2010), which are therefore reflective in nature. Using both direct and indirect measurement made it possible to assess the convergent validity of the scale.

### *Data Analysis*

The data were analyzed with SPSS version 15.0 and EQS version 6.1 statistical software. The number of correct answers (which varied between 0 and 6) indicated the degree of knowledge. The first hypothesis ( $H_1$ ) was tested by calculating the confidence interval of the mean number of correct answers.

Analysis of the marginal distributions of frequencies on the scale of importance and interest of the two types of products and the joint distribution of the two variables showed the number of consumers involved with organic products and olive oils ( $H_2$ ).

The average score of all the items related to comparative perceptions, beliefs and attitudes towards the two oils indicated whether organic olive oil was more highly appreciated than the conventional olive oil ( $H_3$ ). Subsequent partial evaluations were calculated by dividing the items into two groups ( $H_4$ ). In both cases, the hypothesis that the value of the mean differed by three was tested by a T-test. A score of three is the median of the scale and indicates that both oils are perceived as similar. These two hypotheses were tested through analyses of the control group alone because the message could have influenced the perceptions and beliefs of the respondents who had seen it.

Finally, the dimensionality of perceptions ( $H_5$ ) was studied through confirmatory factor analysis of the data concerning beliefs, perceptions and attitudes towards organic olive oil compared to the conventional olive oil. The items used were those that measure this construct indirectly (a total of 24), which refer to the different dimensions of the product (environment, health, social,

quality, authenticity, etc.). The Robust Maximum Likelihood method (Satorra 2002) was employed because the data did not fulfill the assumption of multivariate normal distribution. The Satorra-Bentler  $\chi^2$ -value, as well as other indices, including the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the incremental fit index (IFI), the non-normed fit index (NNFI) were used to assess the model fit. Values below 0.08 for RMSEA (Browne and Cudeck 1993) and above 0.90 for CFI, IFI and NNFI (Bollen 1989; Bentler 1990; Bentler and Bonett 1980; Del Barrio and Luque 2000; Lévy et al. 2006) indicate an acceptable model fit.

## Results and Discussion

The consumers' general knowledge about organic food and olive oils was low (Table 3), since the confidence interval of the mean (2.720, 3.007), with a level of significance of 99.9%, includes the scale average. The expected score for the hypothesis of random response was 3 and almost 70% of respondents answered fewer than 4 questions correctly, although 86.5% of the sample were olive oil or organic food consumers, which supports these results.

**Table 3.** Degree of knowledge: answers for each item (%) and overall mean of correct answers.

Item	Right answers (%)	Wrong answers (%)
Normally, organic production uses synthetic pesticides and fertilizers, but much less than other production methods	49.9	50.1
Organic foods are natural foods that people have not handled, processed or manipulated	38.1	61.9
Olive oil is a mixture of refined and virgin olive oils	29.8	70.2
The greener and more bitter the oil, the greater its quality	36.4	63.6
Olive oil from the first pressing is organic	42.9	57.1
Organic olive oil is produced without using synthetic pesticides or herbicides	89.4	10.6

**Note.** Overall mean correct answers per person: 2.8638 (minimum 0, maximum 6); SD 1.22865

Studies like those of the Spanish Ministry of Agriculture, Food and the Environment (2007), Stobbelaar et al. (2007), Fuentes and López (2008) and Roitner-Schobesberger et al. (2008) also reflect a lack of consumer knowledge about organic food and the effect this has on demand. Some authors consider this lack of knowledge an obstacle to consumption (Briz and Al-Hajj 2003; Padel and Foster 2005; Alonso 2005; Soares et al. 2008; Martínez-Carrasco et al. 2009; Chamorro et al. 2009; Sangkumchaliang and Huang 2012). Therefore, these results are consistent with the related literature, and confirm hypothesis H<sub>1</sub>.

Furthermore, it is worth noting that, in general, the subjects' degree of interest in organic products was very low although over half of them seemed to have an interest in virgin olive oils (for practical purposes, subjects with scores of 4 or 5 on the scale were considered 'involved'). Considering both products together, just under a third of the sample (30.38%) indicated that organic olive oil was important or of interest to them but only 11.6% showed strong interest (scores of 5 on both scales). Consequently, it can be assumed that their level of involvement in the market is low (H<sub>2</sub>), (Table 4).



**Table 4.** Distribution of consumers by degree of involvement with virgin olive oils and organic food (total percentages) (n=800).

Involvement or interest in	Organic Food					Total	
	1 (none)	2	3	4	5 (a lot)		
Virgin Olive Oil	1 (none)	0.3	0.5	0.1	0.0	0.1	1.0
	2	1.5	1.0	0.4	0.4	0.0	3.3
	3	3.0	3.8	5.4	1.0	0.3	13.4
	4	3.4	6.5	10.8	8.3	1.9	30.8
	5 (a lot)	7.5	9.6	14.3	8.6	11.6	51.6
Total	15.6	21.4	30.9	18.3	13.9	100.0	

Calculating the perceived superiority of organic olive oil compared to conventional extra virgin olive oil from the mean scores for all the items (Table 5), organic olive oil was generally perceived as better (Table 6).

**Table 5.** Items used to measure comparative perceptions or beliefs concerning organic extra virgin olive oil and conventional olive oil (scale from 1 to 5)\*

Variable**	Item and Description
	1. If you have tried both kinds of oil, which do you like most?
	2. Which is the better quality oil?
V1	3. It is healthier
V2	4. It is more flavorful
V3	5. It poses fewer risks and is safer for consumers
V4	6. It has better sensory appeal (smells better, has a better texture, better color...)
V5	7. It is more respectful to the environment
V6	8. It is more nutritious (contains more minerals and vitamins)
V7	9. It is more natural, less processed
V8	10. It has less chemical residues (fertilizers, pesticides)
V9	11. It expires sooner (shorter shelf life)
V10	12. It is more artisanal
V11	13. It is more authentic
V12	14. It doesn't contain additives (preservatives or artificial colors)
V13	15. It has more curative properties
V14	16. It is better in most respects
V15	17. It generates more wealth for farmers
V16	18. It encourages rural development
V17	19. Its production leaves a smaller chemical footprint
V18	20. It uses fewer natural resources (water, etc.)
V19	21. It is more expensive
V20	22. It is a more gourmet product
V21	23. It is more appropriate for special occasions
V22	24. It has better packaging (container, labels and size)
V23	25. It is more traditional
V24	26. It generates more rural employment

\* 1: Clearly the conventional one; 2: The conventional one somewhat more; 3: They are the same; 4: The organic one somewhat more; 5: Clearly the organic one

\*\* Variables used in the confirmatory factor analysis

**Table 6.** Overall assessment of organic extra virgin olive oil compared to conventional extra virgin olive oil (mean of all items) and T-test.

Mean	T-Test. H <sub>0</sub> : Mean = 3				
	T	df	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
3.6351	6.308	79	0.000	0.4347	0.8355

*Variable:* 1: Clearly the conventional one; 2: The conventional one somewhat more; 3: They are the same; 4: The organic one somewhat more; 5: Clearly the organic one

**Note.** This analysis used the control group data exclusively (n=80) since all other groups had been exposed to a message about organic olive oil prior to this question

The results below (Table 7) replicate the above analysis, excluding items in which there was certainty that extra virgin organic olive oil was, or should be, better than conventional olive oil. This includes items related to environmental impact and the use of certain products and substances (Items 7, 14 and 19). The results are similar to the previous data.

**Table 7.** Overall assessment of organic extra virgin olive oil compared to conventional extra virgin olive oil (mean of items in which it is not clear that the organic olive oil is better) and T-test.

Mean	T-Test. H <sub>0</sub> : Mean = 3				
	T	df	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
3.5345	5.433	79	0.000	0.3387	0.7304

*Variable:* 1: Clearly the conventional one; 2: The conventional one somewhat more; 3: They are the same; 4: The organic one somewhat more; 5: Clearly the organic one

**Note.** This analysis used the control group data exclusively (n=80) since all other groups had been exposed to a message about organic olive oil prior to this question

Therefore, organic extra virgin olive oil was more highly valued than its conventional counterpart even when measuring aspects where it is not clear that organic is better. This is consistent with previous literature that shows that consumers have certain beliefs about the superiority of organic food that are not scientifically proven (Brennan et al. 2003).

The disaggregated list shows the average score of all items (Table 8). It should be pointed out that the average score was greater than three in all items except one. Therefore, the perceived superiority of the organic olive oil was evident in virtually all the aspects the consumers were questioned about and was not the result of overall compensation between some items and others. Accordingly, these results support hypotheses H<sub>3</sub> and H<sub>4</sub>.

**Table 8.** Average score on comparing organic extra virgin olive oil with conventional extra virgin olive oil.

Item	Statements*	Average
1	If you have tried both kinds of oil, which do you like most?	3.29
2	Which is the better quality oil?	3.90
3	Which oil is healthier?	3.91
4	Which oil has a better flavor?	3.23
5	Which oil is safer (poses fewer risks) for consumers?	3.64
6	Which oil appeals more to your senses (smells better, has a better texture and color)?	3.41
7	Which oil is more respectful to the environment?	4.31
8	Which olive is more nutritious (contains more minerals and vitamins, etc.)?	3.70
9	Which oil is more natural, less processed and manipulated?	4.15
10	Which oil has less chemical residues (fertilizers or pesticides)?	4.16
11	Which oil expires sooner (has a shorter shelf-life)?	3.60
12	Which oil is more artisan?	4.05
13	Which oil is more authentic?	3.83
14	Which oil does not contain preservatives, artificial coloring or other additives?	4.13
15	Which oil has better curative properties?	3.61
16	Which oil is better in most respects?	3.69
17	Which oil generates more wealth for farmers?	3.16
18	Which oil favors rural development more?	3.39
19	Which oil produces less chemical residues?	4.06
20	Which oil uses fewer natural resources in its production (water, etc.)?	3.63
21	Which oil is more expensive?	4.59
22	Which oil is more gourmet?	3.84
23	Which oil is more appropriate for special occasions?	3.44
24	Which oil has better packaging (container, labels and size)?	3.13
25	Which oil is more traditional?	2.86
26	Which oil generates more rural employment?	3.11

\*We would like to know your opinion and beliefs about organic extra virgin olive oil compared to conventional extra virgin olive oil.

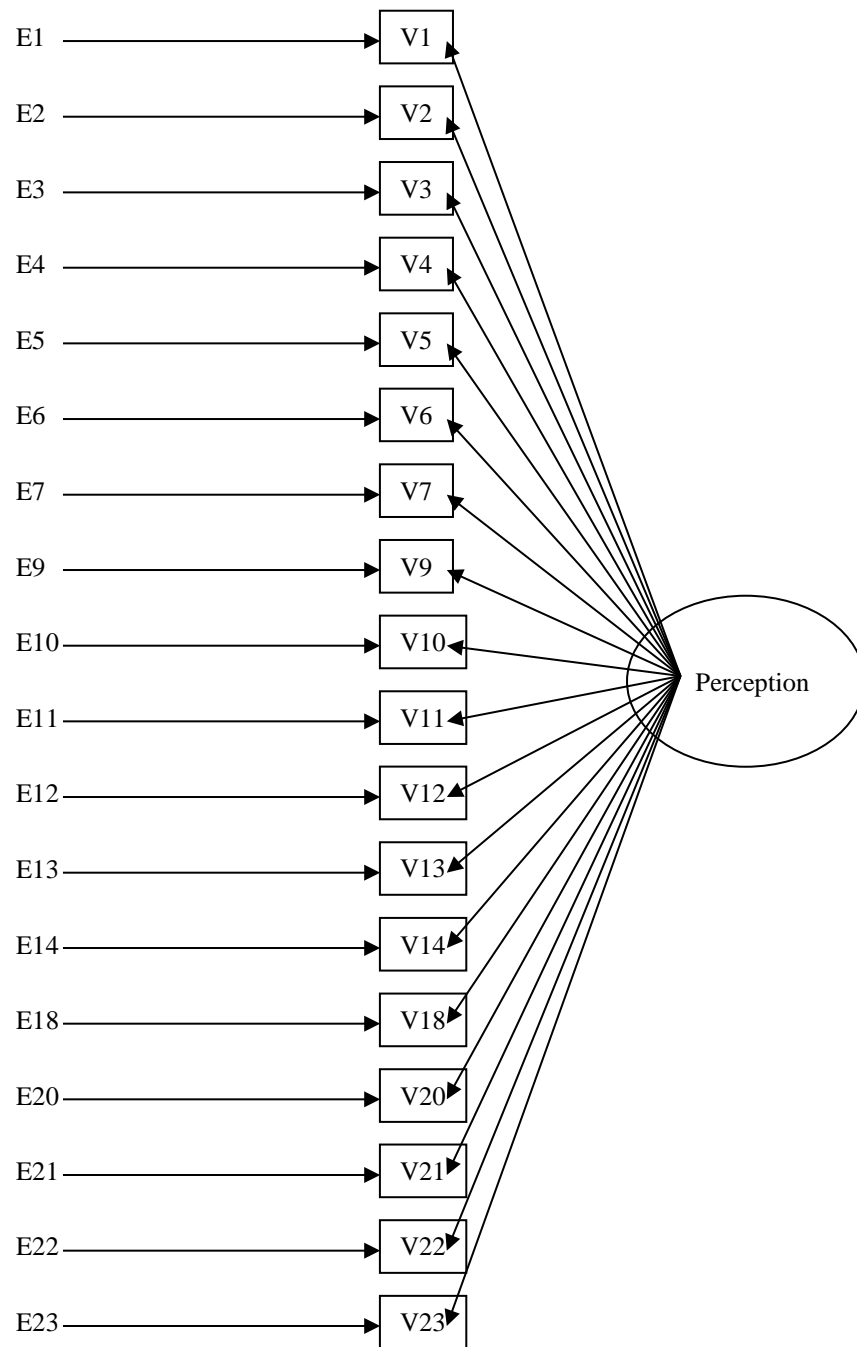
Variable: 1: Clearly the conventional one; 2: The conventional one somewhat more 3: They are the same; 4: The organic one somewhat more 5: Clearly the organic one.

**Note.** This analysis used the control group data exclusively (n=80) since all other groups had been exposed to a message about organic olive oil prior to this question.

Confirmatory factor analysis of the 24 items that indirectly measure the perceptions or beliefs about organic olive oil compared to conventional olive oil (Table 5) and testing the unidimensionality of these perceptions or beliefs showed that some of the indicators or adjustment measures did not reach the recommended values mentioned in the *Data Analysis* section. The Wald test, the test of significance of parameters and the normalized residual matrix (Rial et al. 2006) eliminated six of the 24 initial variables (V8, V15, V16, V17, V19, and V24). However, this amendment did not change the primary structure of the model, preserving the initial theoretical stance concerning the trend towards one-dimensionality of the perceptions compared.

The estimation of the model after the modification (Figure 1) shows a marked improvement in the goodness of fit. As a result, most of the measures of fit show that the model is adequate (Table 9). The exception is the significance of the chi-squared test, probably due to the size of

the sample. This test is sensitive to sample size (Schumacker and Lomas 1998; Hair et al. 1999; Del Barrio and Luque 2000) and multivariate normality (Rial et al. 2006).



**Figure 1.** Confirmatory factor model of the unidimensional perception of organic olive oil.

**Table 9.** Indicators of overall goodness of fit of the model.

Measure	Value
Satorra-Bentler chi-squared	355.4067 (gl. 133; p=0)
RMSEA	0.061
CFI	0.920
IFI	0.920
NNFI	0.908

Furthermore, after a more detailed diagnosis with reference to the measurement model, the statistical significance of all the parameters was noteworthy: all the  $\lambda$  coefficients (which measure the relationship between latent and observable variables) were significant at a 95% confidence interval and all were positive, so they contributed positively to the perception of quality (Table 10). The validity of the construct can therefore be accepted. Furthermore, it is noteworthy that the values for Cronbach's alpha and the composite reliability index ( $\rho$ ) were high (0.925 and 0.928 respectively), so it may be assumed that the scale is a reliable measure of the construct (Nunnally 1978; George and Mallery 1995; Bentler 2006), although these figures could also be due to the number of items.

**Table 10.** Statistical significance of the parameters.

Variable	Standard Error	Test Statistic
V1	0.042	16.151*
V2	0.051	14.084*
V3	0.052	13.915*
V4	0.058	13.676*
V5	0.045	12.593*
V6	0.045	15.336*
V7	0.046	15.161*
V9	0.053	7.299*
V10	0.050	14.443*
V11	0.048	16.491*
V12	0.049	14.261*
V13	0.066	9.919*
V14	0.039	19.473*
V18	0.045	11.634*
V20	0.048	14.761*
V21	0.049	13.760*
V22	0.051	6.496*
V23	0.059	8.166*

\* Statistics significant at the 5% level.

Since the goodness of fit indices are acceptable, the existence, in general, of a one-dimensional structure of differential perceptions or beliefs between the two products is understandable. It can be inferred that there is a strong factor that unites most global perceptions of organic olive oil compared to conventional olive oil.

The unidimensionality of consumer perceptions could explain that despite a lack of knowledge about the properties of organic food and organic olive oil, the consumers considered organic olive oil to be of higher quality and/or superior to conventional olive oil in almost all the items. Consequently, 'organic' is a simple means of assessing product quality without complex processing or knowledge related to the differential characteristics of organic olive oil and its relationship to health, the environment, or its manufacturing process. In short, the term 'organic' can be viewed as a heuristic cue, a key to quality or superiority that allows any product information to be included in the general assessment. Presumably, the term alone evokes inferences of superiority compared to conventional products.

## Conclusions

In view of the results, it can be concluded that the term 'organic' plays an important role as a heuristic cue to superiority and that organic foods are purchased by consumers who value health, safety, quality, authenticity and naturalness in food. Thus, conserving the environment is not an end but a mediating factor. In this context, it is noteworthy that the clear, objective relationship between organic food and environmental conservation has been the springboard for consumers to develop other connections between the term 'organic' and important consumer values with regard to food. These connections are made by consumers who have reinterpreted the meaning of 'organic' to suit their consumption behavior. As a result, the term 'organic' has become a highly evocative word, a key heuristic trigger or a set of meanings developed and inferred by consumers. Therefore, the mere use of the word 'organic' evokes powerful connotations about a product that undoubtedly increase its value to consumers. Organic means better, not because the manufacturer communicates it but because the consumer thinks so.

The development of this market behavior could be explained by its advantages to consumers. Besides the obvious simplification of the purchasing process, the establishment of these meanings (the organic-value relationship) removes the need for consumers to analyze such abstract or difficult-to-evaluate features as health or safety, which are nonetheless important to them.

From an academic perspective, this study highlights the relationship between the choice of terms and the meanings understood by consumers. This field of study is of undoubted interest, especially for products with low involvement, in relation to two fundamental questions: how does the construction of meaning develop in the market through the use of a specific term and what features should those terms possess to generate higher perceived value to the consumer? The study of these issues can provide valuable information for businesses and academics, increasing their knowledge of consumer behavior. Thus, a direct application of these studies could be to choose words to identify, position and market products (generic designations, labeling or advertising campaigns).

Furthermore, in conjunction with the theoretical models used as references (the HSM and ELM), these results provide some suggestions for marketing organic products. Simply using the term 'organic' in product communication evokes superiority, creating a favorable attitude towards organic products. This is partly due to weak consumer information processing that ignores the rest of the message's content. Similarly, emotional messages should be more persuasive than

rational ones and the use of attractive and credible sources is more persuasive than the message content. In this case, the context of the message and the peripheral elements are more important than the message itself, which only needs to contain the term organic. A future study along these lines could identify which combinations of experimental elements (message sources, amount of information, form of presentation) would be most effective in developing or increasing the demand for these products.

Finally, the present study has some limitations. The first is that this paper focuses on the specific case of a single product, organic olive oil. It would be interesting to replicate the study to include more foods with varying degrees of familiarity and cultural connotations.

Additionally, this research focuses on Spain, where the market penetration of organic food and retail development is lower than in other countries (Padel and Midmore 2005; Schmid et al. 2007). The assumption of environmental values and their impact on consumer behavior might be greater in more mature markets (Switzerland, Denmark, Austria, etc.).

## Acknowledgements

This research is part of the 'Marketing Strategies of Organic Olive Oil in the Spanish Market' project. The authors wish to thank the Department of Organic Farming of the Andalusian Regional Government (Spain) for funding this project and Mary Georgina Hardinge for her assistance in translating and revising the English manuscript.

## References

- Aguirre, G.J.A. 2007. The farmer's market organic consumer of Costa Rica. *British Food Journal* 109 (2): 145-154.
- Aguirre, M.S., C. Aldamiz-Echevarría, J. Charterina, and A. Vicente. 2003. El consumidor ecológico. Un modelo de comportamiento a partir de la recopilación y análisis de la evidencia empírica. *Distribución y Consumo* 67: 24-39.
- Alonso, A. 2001. Desarrollo y situación actual de la agricultura ecológica: elementos de análisis para entender el caso español. *Revista Española de Estudios Agrosociales y Pesqueros* 192: 123-159.
- \_\_\_\_\_. 2005. Caracterización del mercado de productos ecológicos frescos. El caso de Granada. *Distribución y Consumo* 84: 65-75.
- Alonso, A.M., and G.I. Guzmán. 2004. Sostenibilidad y Agroecología: Oportunidades para el sector agrario andaluz. In *Informe Anual del Sector Agrario en Andalucía 2003*, edited by F. Villalba and F. Becerra, 471-541. Málaga: Analistas Económicos de Andalucía.
- Arcas, N., P.J. Cuestas, and S. Ruiz. 2002. El sistema de los productos agroalimentarios ecológicos en España. *Esic-Market* 113: 187-206.

- Aygen, F.G. 2012. Attitudes and behavior of Turkish consumers with respect to organic foods. *International Journal of Business and Social Science* 3 (18): 262-273.
- Basirir, A., and M.S. Gheblawi. 2012. Analyzing demand and consumers' willingness to pay for organic fruits and vegetables. *Journal of Food, Agriculture & Environment* 10 (3&4): 86-91.
- Bellows, A.C., B. Onyango, A. Diamond, and W.K. Hallman. 2008. Understanding consumer interest in organics: Production values vs. purchasing behavior. *Journal of Agricultural and Food Industrial Organization* 6 (1): 1-28.
- Benbrook, C., X. Zhao, J. Yanez, N. Davies, and P. Andrews. 2008. *State of Science Review: Nutritional Superiority of Organic Foods*. The Organic Center. University of Arizona. <http://www.organiccenter.org> (accessed June 27, 2010).
- Bentler, P.M. 1990. Comparative fit indexes in structural models. *Psychological Bulletin* 107 (2): 238-246.
- \_\_\_\_\_. 2006. *EQS structural equations program manual*. Encino, CA: Multivariate Software, Inc.
- Bentler, P.M., and D.G. Bonett. 1980. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* 88 (3): 588-606.
- Bollen, K.A. 1989. *Structural equations with latent variables*. New York: Wiley.
- Botonaki, A., K. Polymeros, E. Tsakiridou, and K. Matas. 2006. The role of quality certification on consumers' food choices. *British Food Journal* 108 (2/3): 77-90.
- Brennan, C., K. Gallagher, and M. McEachern. 2003. A review of the consumer interest in organic meat. *International Journal of Consumer Studies* 27 (5): 381-394.
- Briz, T., and M. Al-Hajj. 2003. Percepción del consumidor en productos hortícolas ecológicos. Trabajo presentado en II Congreso Internacional de Horticultura Mediterránea: Nuevos retos en la distribución hortícola, Almería, November.
- Browne, M.W., and R. Cudeck. 1993. Alternative ways of assessing model fit. In *Testing structural equation models*, edited by K.A. Bollen and J.S. Long, 136-162. Newbury Park, CA: Sage.
- Burton, S. 2006. Contrasting organic and conventional food products: Consumers' subjective perceptions and objective evaluations of nutrition and taste. *Journal of the International Society of Business Disciplines* Spring: 37-47.



- Byrne, P.J., U.C. Toensmeyer, C.L. German, and H.L. Muller. 1992. Evaluation of consumer attitudes towards organic produce in Delaware and the Delmarva region. *Journal of Food Distribution Research* 23 (1): 29-44.
- Chaiken, S. 1980. Heuristic versus Systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology* 39 (5): 752-766.
- Chamorro, A., V. Valero, J.M. García, and M.M. Palacios. 2009. Respuesta cognitiva, afectiva y comportamental de los consumidores extremeños ante los alimentos ecológicos. Trabajo presentado en VII Congreso de Economía Agraria. Economía agroalimentaria, medio ambiente y medio rural: nuevos enfoques, nuevos desafíos, Almería, Septiembre.
- Chen, M.F. 2007. Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference* 18 (7): 1008-1021.
- \_\_\_\_\_. 2009. Attitude toward organic foods among Taiwanese as related to health consciousness, environmental attitudes, and the mediating effects of a healthy lifestyle. *British Food Journal* 111 (2): 165-178.
- Chen, M.F., and H.L. Li. 2007. The consumer's attitude toward genetically modified foods in Taiwan. *Food Quality and Preference* 18 (4): 662-674.
- Chinnici, G., M. D'Amico, and B. Pecorino. 2002. A Multivariate Statistical Analysis on the Consumer of Organic Products. *British Food Journal* 104 (3/5): 187-199.
- Chryssohoidis, G.M., and A. Krystallis. 2005. Organic consumers' personal values research: testing and validating the list of values (LOV) scale and implementing a value-based segmentation task. *Food Quality and Preference* 16 (7): 585-599.
- Cicia, G., T. Del Giudice, and R. Scarpa. 2002. Consumers' perception of quality in organic food. A random utility model under preference heterogeneity and choice correlation from rank-orderings. *British Food Journal* 104 (3/5): 200-213.
- Cobo, F.B., and L. González. 2001. La agricultura ecológica ante la gran distribución. *Distribución y Consumo* 60: 66-80.
- Davies, A., A. Titterington, and C. Cochrane. 1995. Who buys organic food? A profile of the purchasers of organic food in Northern Ireland. *British Food Journal* 97 (10): 17-23.
- Del Barrio, S., and T. Luque. 2000. Análisis de ecuaciones estructurales. In *Técnicas de Análisis de Datos en Investigación de Mercados*, edited by T. Luque, 489-557. Madrid: Ediciones Pirámide.

- Díaz, M., R. Olivas, R. Bernabéu, and M. Olmeda. 2009. Características del consumidor de alimentos ecológicos de Castilla-La Mancha. Trabajo presentado en VII Congreso de Economía Agraria. Economía agroalimentaria, medio ambiente y medio rural: nuevos enfoques, nuevos desafíos, Almería, Septiembre.
- Durham, C.A. and D. Andrade. 2005. Health vs. environmental motivation in organic preferences and purchases. Paper presented at American Agricultural Economics Association Annual Meeting, Providence, July.
- Fotopoulos, C., and A. Krystallis. 2002a. Organic product avoidance. Reasons for rejection and potential buyers' identification in a countrywide survey. *British Food Journal* 104 (3/5): 233-260.
- \_\_\_\_\_. 2002b. Purchasing motives and profile of the Greek organic consumer: a countrywide survey. *British Food Journal* 104 (8/9): 730-765.
- Fuentes, E., and E. López. 2008. El consumo de productos ecológicos. *Distribución y Consumo* 99: 5-24.
- Fuller, R., L. Nortin, R.E. Feber, P.J. Jonson, D.E. Chamberlain, A.C. Joys, F. Mathews, R.C. Stuart, M.C. Townsend, W.J. Manley, M.S. Wolfe, D.W. Macdonald, and L.G. Firbank. 2005. Benefits of organic farming to biodiversity vary among taxa. *Biology Letters* 1 (4): 431-434.
- George, D., and P. Mallery. 1995. *SPSS step by step: a simply guide and reference*. Belmont: Wadsworth Publishing.
- Gifford, K., and J.C. Bernard. 2006. Influencing consumer purchase likelihood of organic food. *International Journal of Consumer Studies* 30 (2): 155-163.
- Gil, J.M., A. Gracia, and M. Sánchez. 2000. Market segmentation and willingness to pay for organic products in Spain. *International Food and Agribusiness Management Review* 3 (2): 207-226
- González, M., A.M. Alonso, and G.I. Guzmán. 2007. La agricultura ecológica en España desde una perspectiva agroecológica. *Revista Española de Estudios Agrosociales y Pesqueros* 21: 47-73.
- González, M., G.I. Guzmán, A.M. Alonso, and R. García. 2005. Sobre la sostenibilidad de la agricultura andaluza. In *Introducción a la sostenibilidad en Andalucía*, edited by L. Moreno, and M. Calvo, 119-144. Sevilla: Consejería de Medio Ambiente, Junta de Andalucía.
- Gracia, A., and T. Magistris. 2007. Organic food product purchase behaviour: a pilot study for urban consumers in the south of Italy. *Spanish Journal of Agricultural Research* 5 (4): 439-451.

- \_\_\_\_\_. 2008. The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy* 33 (5): 386-396.
- Haghiri, M., J.E. Hobbs, and M.L. McNamara. 2009. Assessing consumer preferences for organically grown fresh fruit and vegetables in Eastern New Brunswick. *International Food and Agribusiness Management Review* 12 (4): 81-100.
- Hamzaoui, L., and M. Zahaf. 2008. Decision making process of community organic food consumers: an exploratory study. *Journal of Consumer Marketing* 25 (2): 95-104.
- Hair, J.F., R.E. Anderson, R.L. Tatham, and W.C. Black. 1999. *Análisis Multivariante*. Madrid: Prentice Hall.
- Harper, G.C., and A. Makatouni. 2002. Consumer perception of organic food production and farm animal welfare. *British Food Journal* 104 (3/5): 287-299.
- Honkanen, P., B. Verplanken, and S. Ottar. 2006. Ethical values and motives driving organic food choice. *Journal of Consumer Behaviour* 5 (5): 420-430.
- Huang, G.L. 1996. Consumer preferences and attitudes toward organically grown produce. *European Review of Agricultural Economics* 23 (3): 331-342.
- Hutchins, R.K., and L.A. Greenhalgh. 1997. Organic confusion: sustaining competitive advantage. *British Food Journal* 99 (9): 336-338.
- International Olive Council. 2012. The world market in figures. *Olivae* 117: 28-34.
- Justin, P. and R. Jyoti, 2012. Consumer behavior and purchase intention for organic food. *The Journal of Consumer Marketing* 29 (6): 412-422.
- Kalogeras, N., S. Valchovska, G. Baourakis, and P. Kalaitzis. 2009. Dutch consumers' willingness to pay for organic olive oil. *Journal of International Food and Agribusiness Marketing* 21 (4): 286-311.
- Kriwy, P., and R.A. Mecking. 2012. Health and environmental consciousness, costs of behaviour and the purchase of organic food. *International Journal of Consumer Studies* 36 (1): 30-37.
- Lampkin, N.H., and S. Padel. 1994. *The Economics of Organic Farming. An International Perspective*. Wallingford, United Kingdom: CAB International.
- Lea, E., and T. Worsley. 2005. Australians' organic food beliefs, demographics and values. *British Food Journal* 107 (11): 855-869.

- Lévy, J.P., M.T. Martín, and M.V. Román. 2006. Optimización según estructuras de covarianzas. In *Modelización con Estructuras de Covarianzas en Ciencias Sociales*, edited by A. Lévy and J. Varela, 11-30. España: Netbiblo S.L.
- Lockie, S., K. Lyons, G. Lawrence, and J. Grice. 2004. Choosing organics: a path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite* 43 (2): 135-146.
- Lockie, S., K. Lyons, G. Lawrence, and K. Mummery. 2002. Eating green: motivations behind organic food consumption in Australia. *Sociologia Ruralis* 42 (1): 23-40.
- Lubieniechi, S.A. 2002. Romanian consumers' behaviour regarding organic food. *British Food Journal* 104 (3/5): 337-344.
- Luque, T. 1998. *Comercio minorista y comportamiento del consumidor granadino*. Granada: Cámara de Comercio, Industria y Navegación de Granada.
- Mäder, P., A. Fliessbach, D. Dubois, L. Gunst, P. Fried and U. Niggli. 2002. Soil fertility and biodiversity in organic farming. *Science* 296: 1696-1697.
- Magistris, T., and A. Gracia. 2008. The decision to buy organic food products in Southern Italy. *British Food Journal* 110 (9): 929-947.
- Magnusson, M., A. Arvola, U. Koivisto, L. Aberg, and P. Sjoden. 2001. Attitudes towards organic foods among Swedish consumers. *British Food Journal* 103 (3): 209-227.
- \_\_\_\_\_. 2003. Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite* 40 (2): 109-117
- Makatouni, A. 2002. What motivates consumers to buy organic food in the UK? *British Food Journal* 104 (3/5): 345-352.
- Martínez, E. 1996. Tipología de decisiones familiares: El papel de los cónyuges. Trabajo presentado en VIII Encuentro de Profesores Universitarios de Marketing, Zaragoza, Septiembre.
- Martínez-Carrasco, F., F.J. Mesías, J.M. Martínez, and P. Gaspar. 2009. El consumo de alimentos ecológicos en España: un análisis comparado de las preferencias por el atributo orgánico. Trabajo presentado en VII Congreso de Economía Agraria. Economía agroalimentaria, medio ambiente y medio rural: nuevos enfoques, nuevos desafíos, Almería, Septiembre.
- McQuarrie, E.F., and J.M. Munson. 1987. The Zaichkowsky personal involvement inventory: modification and extension. *Advances in Consumer Research* 14: 36-40.

- \_\_\_\_\_. 1992. A revised product involvement inventory: improved usability and validity. *Advances in Consumer Research* 19: 108-115.
- Millock, K., M. Wier, and L.M. Andersen. 2004. Consumer's demand for organic foods-attitudes, value and purchasing behaviour. Paper presented at XIII Annual Conference of European Association of Environmental and Resource Economics, Budapest, June.
- Mitchell, A.A., and J.C. Olson. 1981. Are product attribute beliefs the only mediator of advertising effects on brand attitudes? *Journal of Marketing Research* 27: 290-303.
- Munuera, J.L., and M. Pemartín. 2005. El consumidor europeo de productos ecológicos. Primeros resultados de un estudio cualitativo del consumidor español. *Distribución y Consumo* 84: 50-64.
- Muñoz, F., F.J. Montoro, and J.A. Castañeda. 2006. Productos de agricultura ecológica y sistemas de certificación: perfiles de consumidor. *Distribución y Consumo* 87: 62-73.
- Nunnally, J.C. 1978. *Psychometric Theory*. New York: Mc Graw Hill.
- O'Donovan, P., and M. McCarthy. 2002. Irish consumer preference for organic meat. *British Food Journal* 104 (3/5): 353-370.
- Oliveira, D., F. Quevedo-Silva, and C. Acosta. 2012. A profile of the Brazilian consumers of organic products. *African Journal of Business Management* 6 (23): 6939-6947.
- Onyango, B.M., W.K. Hallman, and A.C. Bellows. 2007. Purchasing organic food in US food systems. A study of attitudes and practice. *British Food Journal* 109 (5): 399-411.
- Padel, S., and C. Foster. 2005. Exploring the gap between attitudes and behaviour. Understanding why consumers buy or do not buy organic food. *British Food Journal* 107 (8): 606-625.
- Padel, S., and P. Midmore. 2005. The development of the European market for organic products: insights from a Delphi study. *British Food Journal* 107 (8): 626-646.
- Padilla, C., A. Cordts, B. Schulze, and A. Spiller .2013. Assessing determinants of organic food consumption using data from the German National Nutrition Survey II. *Food Quality and Preference* 28 (1): 60-70.
- Pearson, D., J. Henryks, and H. Jones. 2011. Organic food: What we know (and do not know) about consumers. *Renewable Agriculture and Food Systems* 26 (2): 171-177.
- Petty, R.E., and J.T. Cacioppo. 1986. The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology* 19: 123-205.

- Pino, G., A.M. Peluso, and G. Guido. 2012. Determinants of regular and occasional consumers' intentions to buy organic food. *The Journal of Consumer Affairs* 46 (1): 157-169.
- Ploeg, J.D., A. Long, and J. Banks. 2002. *Living Countrysides. Rural Development Processes in Europe: The State of the Art*. Doetinchem: Elsevier.
- Radman, M. 2005. Consumer consumption and perception of organic products in Croatia. *British Food Journal* 107 (4): 263-273.
- Rial, A., J. Varela, J. Abalo, and J.P. Lévy. 2006. El Análisis Factorial Confirmatorio. In *Modelización con Estructuras de Covarianzas en Ciencias Sociales*, edited by A. Lévy and J. Varela, 119-154. España: Netbiblo S.L.
- Rimal, A., W. Moon, and S. Balasubramanian. 2005. Agro-biotechnology and organic food purchase in the United Kingdom. *British Food Journal* 107 (2): 84-97.
- Rivera, L.M., and M. Brugarolas. 2003. Estrategias comerciales para los productos ecológicos. *Distribución y Consumo* 67: 15-22.
- Rodríguez, A. 2006. Agricultura ecológica. Situación actual, retos y oportunidades. *Distribución y Consumo* 87: 52-61.
- Roitner-Schobesberger, B., I. Darnhofer, S. Somsook, and C.R. Vogl. 2008. Consumer perceptions of organic foods in Bangkok, Thailand. *Food Policy* 33 (2): 112-121.
- Sánchez, M., M. Etxaniz, and I. Tekelioglu. 1997. Análisis de las preferencias en el consumo de productos de agricultura ecológica. *Estudios sobre Consumo* 41: 49-63.
- Sánchez, M., J. Gil, and A. Gracia. 1998. Frenos al crecimiento del mercado ecológico: ¿el precio o la actitud hacia el medio ambiente? *Revista Española de Investigación de Marketing ESIC* 2 (2): 103-116.
- Sánchez, M., I. Grande, J. Gil, and A. Gracia. 2001. Diferencias entre los segmentos del mercado en la disposición a pagar por un alimento ecológico: valoración contingente y análisis conjunto. *Revista de Estudios Agrosociales y Pesqueros* 190: 141-163.
- Sangkumchaliang, P., and W. Huang. 2012. Consumers' perceptions and attitudes of organic food products in Northern Thailand. *International Food and Agribusiness Management Review* 15 (1): 87-102.
- Satorra, A. 2002. Asymptotic robustness in multiple group linear-latent variable models. *Econometric Theory* 18 (2): 297-312.

- Schaack, D., J. Lernoud, S. Padel, and H. Willer. 2012. The organic market in Europe. In *The World of Organic Agriculture. Statistics and Emerging Trends 2012*, edited by H. Willer and L. Kilcher, 206-211. Frick and Bonn: Research Institute of Organic Agriculture (FiBL) and International Federation of Organic Agriculture Movements (IFOAM).
- Schifferstein, H.N.J., and P.A.M. Oude Ophuis. 1998. Health-related determinants of organic food consumption in the Netherlands. *Food Quality and Preference* 9 (3): 119-133.
- Schmid, O., G. De Fontguyon, and P. Sans. 2007. Desarrollo del mercado de productos de la agricultura ecológica en Europa: un análisis de sus condiciones y del papel de las iniciativas comerciales. *Revista Española de Estudios Agrosociales y Pesqueros* 214: 15-44.
- Schumacker, R., and R. Lomas. 1998. *A beginners guide to structural equation modelling*. Erlbaum, NJ: Hillsdale.
- Soares, L.L.S., R. Deliza, and S.P. Oliveira. 2008. The Brazilian consumer's understanding and perceptions of organic vegetables: A focus group approach. *Ciencia e Tecnologia de Alimentos* 28 (1): 241-246.
- Spanish Ministry of Agriculture, Food and the Environment. 2007. *Estudio de mercado. Observatorio del consumo y la distribución alimentaria. Monográfico productos ecológicos*. [http://www.magrama.gob.es/es/alimentacion/temas/la-agricultura-ecologica/productos\\_ecologicos\\_tcm7-8099.pdf](http://www.magrama.gob.es/es/alimentacion/temas/la-agricultura-ecologica/productos_ecologicos_tcm7-8099.pdf) [accessed June 9, 2012].
- Squires, L., B. Juric, and T.B. Cornwell. 2001. Level of market development and intensity of organic food consumption: cross-cultural study of Danish and New Zealand consumers. *The Journal of Consumer Marketing* 18 (5): 392-409.
- Stobbelaar, D.J., G. Casimir, J. Borghuis, I. Marks, L. Meijer, and S. Zebeda. 2007. Adolescents' attitudes towards organic food: a survey of 15- to 16-year old school children. *International Journal of Consumer Studies* 31 (4): 349-356.
- Stolze, M., A. Piorr, A. Häring, and S. Dabbert. 2000. *The Environmental Impacts of Organic Farming in Europe. Organic Farming in Europe. Economics and Policy*. Stuttgart: University of Hohenheim.
- Storstad, O., and H. Bjorkhaug. 2003. Foundations of production and consumption of organic food in Norway: common attitudes among farmers and consumers. *Agriculture and Human Values* 20: 151-163.
- Torjusen, H., G. Lieblein, M. Wandel, and C.A. Francis. 2001. Food system orientation and quality perception among consumers' and producers of organic food in Hedmark Country, Norway. *Food Quality and Preference* 12 (3): 207-216.

- Tregear, A., J.B. Dent, and M.J. McGregor. 1994. The demand for organically-grown produce. *British Food Journal* 96 (4): 21-25.
- Tsakiridou, E., C. Boutsouki, Y. Zotos, and K. Mattas. 2008. Attitudes and behaviour towards organic products: an exploratory study. *International Journal of Retail & Distribution Management* 36 (2): 158-175.
- Ureña, F., B. Bernabéu, and M. Olmeda. 2008. Women, men and organic food: differences in their attitudes and willingness to pay. A Spanish case study. *International Journal of Consumer Studies* 32 (1): 18-26.
- Vega, M., F.J. Torres, and E.M. Murgado. 2010. Explorando modelos explicativos del consumo de alimentos ecológicos: el caso de los aceites de oliva en España. Trabajo presentado en XXII Congreso Nacional de Marketing, Oviedo, Septiembre.
- Verdurme, A., X. Gellynck, and J. Viaene. 2002. Are organic food consumers opposed to GM food consumers? *British Food Journal* 104 (8/9): 610-623.
- Vicente, M.A., and M.S. Aguirre. 2003. Factores psicológicos determinantes del comportamiento ecológico: una aproximación a través de la evidencia empírica. *Esic-Market* 114: 201-222.
- Von Alvensleben, R., and M. Altmann. 1986. Die nachfrage nach alternativen Lebensmitteln. *Agrarwirtschaft* 10: 289-295.
- Wandel, M., and A. Bugge. 1997. Environmental concern in consumer evaluation of food quality. *Food Quality and Preference* 8 (1): 19-26.
- Wier, M., K. O'Doherty, L. Morch, and C. Millock. 2008. The character of demand in mature organic food markets: Great Britain and Denmark compared. *Food Policy* 33 (5): 406-421.
- Wilkins, J.L., and V.N. Hillers. 1994. Influences of pesticide residue and environmental concerns on organic food preference among food cooperative members and non-members in Washington State. *Journal of Nutrition Education* 26 (1): 26-33.
- Worner, F. and A. Mier-Ploeger. 1999. What the consumer says. *Ecology and Farming* 20: 14-15.
- Yeung, R.M.W., and J. Morris. 2006. An empirical study of the impact of consumer perceived risk on purchase likelihood: a modeling approach. *International Journal of Consumer Studies* 30 (3): 294-305.
- Zaichkowsky, J.L. 1985. Measuring the involvement construct. *Journal of Consumer Research* 12 (3): 341-352.



- \_\_\_\_\_. 1994. The personal involvement inventory: reduction, revision and application to advertising. *Journal of Advertising* 23 (4): 59-70.
- Zanoli, R., and S. Naspetti. 2002. Consumer motivations in the purchase of organic food. A means-end approach. *British Food Journal* 104 (8/9): 643-653.
- Zotos, Y., P. Ziamou, and E. Tsakiridou. 1999. Marketing organically produced food products in Greece. *Greener Management International* Spring: 91-104.

## Appendix

Table 1. Factors that motivate the demand for organic foods.

Factors	References
Increasing consumer concern for the environment	Davies et al. (1995), Sánchez et al. (1997), Sánchez, Gil and Gracia (1998), Zotos et al. (1999), Worner and Meier-Ploeger (1999), Gil et al. (2000), Sánchez et al. (2001), Squires et al. (2001), Makatouni (2002), Arcas et al. (2002), Verdume et al. (2002), Padel and Foster (2005), Lea and Worsley (2005), Durham and Andrade (2005), Honkanen et al. (2006), Gracia and Magstris (2007), Schmid et al. (2007), Aguirre (2007), Stobbelaar et al. (2007), Tsakiridou et al. (2008), Chamorro et al. (2009), Basir and Gheblawi (2012), Sangkumchaliang and Huang (2012), Krivy and Mecking (2012), Pino et al. (2012), Oliveira et al. (2012), Padilla et al. (2013).
Greater interest in animal welfare among some consumers	Makatouni (2002), Padel and Foster (2005), Honkanen et al. (2006), Stobbelaar et al. (2007), Schmid et al. (2007).
Support for local farming development (consequently benefiting farmers)	Worner and Meier-Ploeger (1999), Padel and Foster (2005), Chamorro et al. (2009).
Increasing consumer concern for health (seeking healthier, more natural food)	Byrne et al. (1992), Tregear et al. (1994), Davies et al. (1995), Huang (1996), Wandel and Bugge (1997), Hutchins and Greenhalg (1997), Sánchez et al. (1997), Schifferstein and Oude Ophuis (1998), Sánchez, Gil and Gracia (1998), Worner and Meier-Ploeger (1999), Zotos et al. (1999), Gil et al. (2000), Squires et al. (2001), Torjusen et al. (2001), Sánchez et al. (2001), Magnusson et al. (2001), Arcas et al. (2002), Lockie et al. (2002), Lubieniechi (2002), O'Donovan and McCarthy (2002), Zanoli and Naspèti (2002), Harper and Makatouni (2002), Chinnici et al. (2002), Makatouni (2002), Verdume et al. (2002), Magnusson et al. (2003), Rivera and Brugarolas (2003), Millock et al. (2004), Chrysohoidis and Krystallis (2005), Radman (2005), Padel and Foster (2005), Lea and Worsley (2005), Botonaki et al. (2006), Rodriguez (2006), Schmid et al. (2007), Aguirre (2007), Chen and Li (2007), Chen and Li (2007), Gracia and Magstris (2007), Stobbelaar et al. (2007), Ornyango et al. (2007), Tsakiridou et al. (2008), Magstris and Gracia (2008), Roitner-Schobesberger et al. (2008), Gracia and Magstris (2008), Hamzaoui and Zahaf (2008), Chen (2009), Haghiry et al. (2009), Chamorro et al. (2009), Basir and Gheblawi (2012), Sangkumchaliang and Huang (2012), Krivy and Mecking (2012), Oliveira et al. (2012), Aygen (2012), Justin and Jyoti (2012).
Greater consumer concern for food safety and security (no chemical residues, no additives)	Byrne et al. (1992), Wilkins and Hillers (1994), Hutchins and Greenhalg (1997), Harper and Makatouni (2002), Lubieniechi (2002), Rimal et al. (2005), Gifford and Bernard (2006), Pino et al. (2012).
Greater consumer interest in buying better quality, more nutritious food	Sánchez et al. (1997), Lubieniechi (2002), Radman (2005), Rodriguez (2006), Chen (2007), Chen and Li (2007), Magstris and Gracia (2008), Basir and Gheblawi (2012).
Better flavor	Byrne et al. (1992), Davies et al. (1995), Zotos et al. (1999), Worner and Meier-Ploeger (1999), Verdume et al. (2002), Millock et al. (2004), Chrysohoidis and Krystallis (2005), Radman (2005), Lea and Worsley (2005), Rodriguez (2006), Schmid et al. (2007), Roitner-Schobesberger et al. (2008), Chamorro et al. (2009).
Fresher	Byrne et al. (1992), Millock et al. (2004).
Curiosity	Roitner-Schobesberger et al. (2008).
Higher disposable income	Munuera and Pemartin (2005).
Food scores	Lampkin and Padel (1994), Alonso (2001), Arcas et al. (2002), Fotopoulos and Krystallis (2002a and b), Verdume et al. (2002), Vicente and Aguirre (2003), Briz and Al-Hajj (2003), Munuera and Pemartin (2005), Ornyango et al. (2007), Schmid et al. (2007), Kalogeras et al. (2009).