



***A WIDER TYRE FOR
THE WHEEL OF
CONSUMER
ANALYSIS IN 21ST
CENTURY***

**A RESEARCH ON ORGANIC
MARKET**

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A WIDER TYRE FOR THE WHEEL OF CONSUMER ANALYSIS IN 21ST CENTURY. A RESEARCH ON ORGANIC MARKET



**UNIVERSIDAD
DE SALAMANCA**

CAMPUS OF INTERNATIONAL EXCELLENCE

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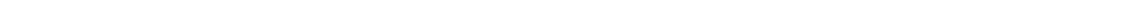
PERMISSION LETTER FOR SUBMITTING AND DEFENSE OF THE THESIS

Dr Óscar González Benito and Dr Mercedes Martos Partal, supervisors of the thesis “A wider tyre for the wheel of consumer analysis in 21st century. A research on organic market” carried out by María Hidalgo Baz, authorize the submitting and defence of the thesis attached to Department of Business Economics and Administration at the University of Salamanca.

For the record and for appropriate purposes, they sign the letter in Salamanca, of March 2017.

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Fdo. Mercedes Martos Partal



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CHAPTER 1. INTRODUCTION TO ORGANIC MARKET AND CONSUMER RESPONSES

1.1. Organic market. Definition and characteristics

Organic farming is a way to produce food whose definition has been treated by governmental institutions as European Union (EU) or Spanish Ministry of Agriculture, Food and Environment (MAGRAMA) and umbrella organizations as International Federation of Organic Agriculture Movements (IFOAM). All definitions highlight it is a farming system that relies on cycles adapted to local conditions and rules out chemical pesticides, synthetic fertilisers, antibiotics, antibiotics and genetically modified organisms, ... The goal is preserving environment, keeping and improving soil fertility and providing natural food (MAGRAMA, 2016).

According to organic attributes, consumers grant a greater nutritive value to this kind of products because of exclusion of chemical pesticides (Ott, 1990; Pino et al., 2012; Wandel and Bugge, 1997; Wilkins and Hillers, 1994). Thus, they define the product as more ecofriendly as well (Hughner et al., 2007; Wilkins and Hillers, 1994). In conclusion, environmental protection and health are the leading benefits linked to organic product (e.g. Essoussi and Zahaf, 2008; Kareklas et al., 2014). Nonetheless, they are also perceived as tastier and better visual appearance and smell (Cervellon and Carey, 2014; McEachern and McClean, 2002). Organic product is characterized by both utilitarian attributes, that refer to the maximization of utility and to long-term benefits, and hedonic attributes, that are linked to pleasure and short-term benefits.

Organic market has increased its relevance for latest years. As IFOAM – Organics International (2016) shows the following worldwide data:

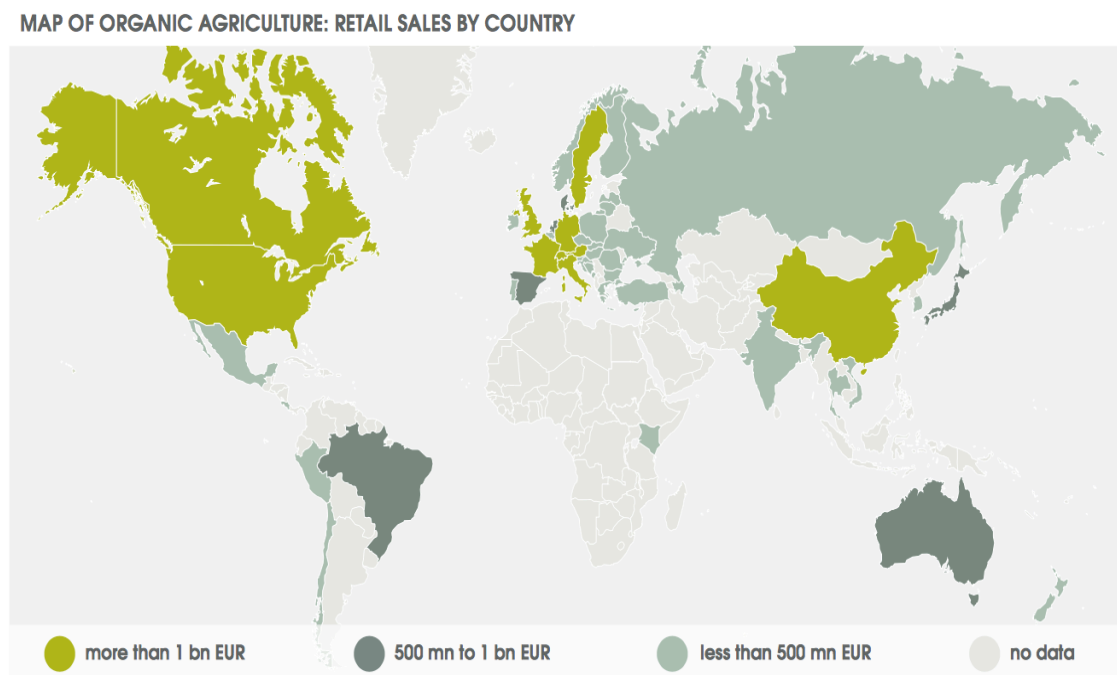
- Regarding producers, there has been a 1000% growth since 1999 with 2,3 millions in 2014.
- Regarding organic market size, its sales are characterized by a fivefold increase over 1999 (US\$15.2 billions), getting to US\$80 billions in 2014. Per capita expenditure was US\$11 billions in 2014 versus US\$2.5 billions.

Specifically, organic data characterizing this market in Spain and having been collected by researchers (Prodescon, 2015) has the same tendency as the global market. Some data are as follows:

- Regarding producers, they are 30602 in 2014, a number quite similar for latest years. Nonetheless, the number of industrial facilities devoted to these products has increased from 4.7 thousands of producers in 2011 to 5 thousands in 2014.
- Regarding organic market size, sales have reached €1202,8 millions from €965 millions characterizing the market in 2011. Additionally, household expenditure was €66,53 millions in 2014 versus €52,73 millions in 2011.

Comparing retail sales by country in 2014, North America, most countries in Europe and China are the leading consumers of organic product as Fig 1.1. In those countries sales were over one billion euros in 2014. Contrarily, the lower sales are gotten by Russia, India, and east countries in Europe, apart from other areas from South America, Indonesia and New Zealand.

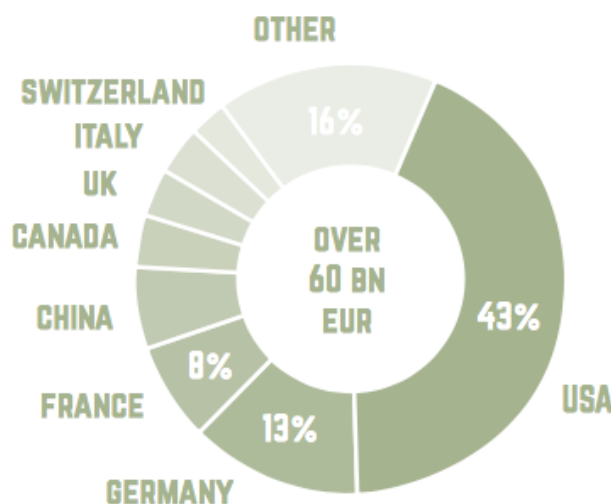
Fig 1.1. Map of Organic Agriculture: Retail Sales by Country



Source. IFOAM – Organics International (2016).

Statistical data as of December 2014 show that the greatest sales were reached by USA. This country depicts 43% out of total sales, which is basically the double share versus the following area, the EU. More specifically, USA is followed by Germany and France as provided on Fig.1.2.

Fig 1.2. Market shares for Organic



Source. IFOAM – Organics International (2016).

So, food retailers consider organic products as a key variable related to their assortment as numbers of this market, growing interest in social corporate responsibility initiatives (Ailawadi et al., 2014; Bhattacharya and Sen, 2004; Groening et al., 2009) and higher margins that these products versus their conventional counterparts can offer (Bezawada and Pauwels, 2013).

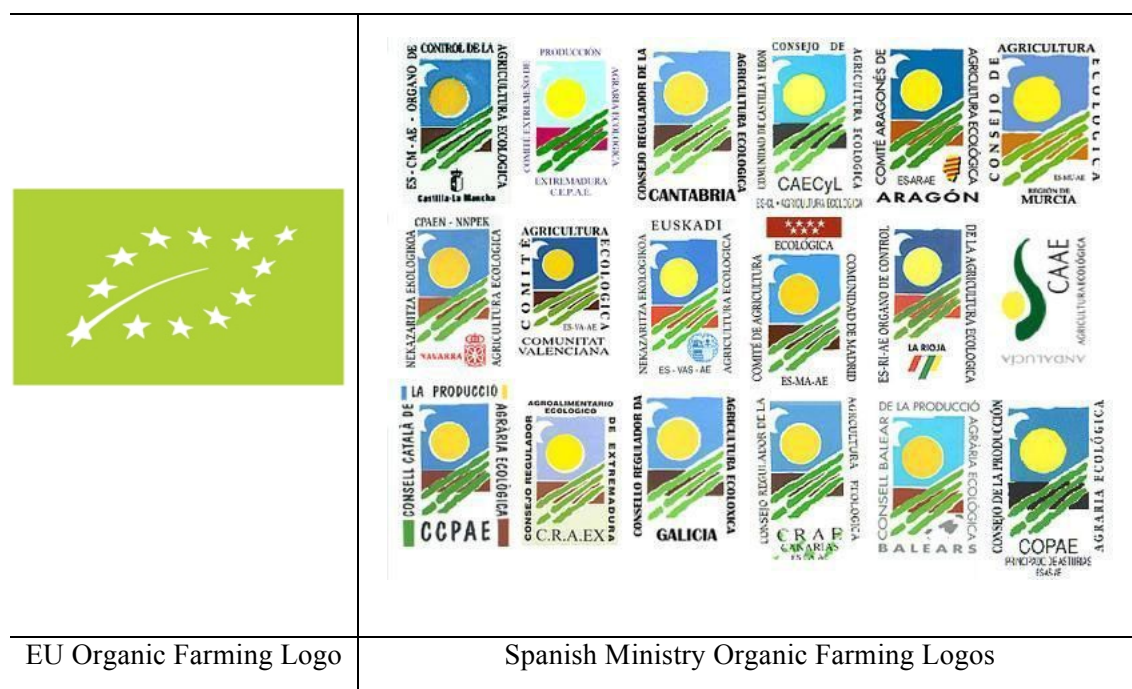
Parallel to the increase of the production in the organic market, EU has increasingly put effort into reinforcing politics, standards and control for these products. European regulation ensures coherence and the same meaning of organic food for all stakeholders in Europe. Specifically, the main European rule about the market is Commission Regulation (EU) No 834/2007. This regulation defines a legal framework about production, distribution and control and labeling organic foods to sell them in Europe. In addition, other

regulations for the production, labeling and control [(EC) No. 889/2008] and for imports to third countries [(EC) No.1235 / 2008] have been adopted, completing the main regulation of 2007. According to these regulations, an organic product can be labelled as such only if at least 95% of its ingredients meet the necessary standards. Thus, these regulations set producers of packaged organic food must incorporate the organic logo of the EU from 1 July 2010.

In Spain, organic products can also be certified following European regulations by the Spanish government and through public control authorities, territorial councils or committees of agriculture that depend on the corresponding departments or departments of agriculture.

Therefore, some of the logos that can appear in the packaging of the organic products are those shown in Figure 1.3.

Fig. 1.3. Current logos to certificate organic food



Source: prepared by the authors.

In spite of the encouraging data presented by organic market, there are barriers related to supply characteristics and consumer responses to these types of product. Considering

supply factors, some barriers are high prices, low availability of the product (Aschemann-Witzel and Zielke, 2015, Bhaskaran et al., 2006, Gleim et al., 2013) and low use of marketing tools (Hughner et al., 2007; Ngobo, 2011). As far as consumer responses, previous literature has highlighted the incongruity stated by consumers on this market. Thus, positive attitude that consumers have towards organic products or sustainability actions, in general, does not end up translating into the organic purchase or sustainable action (Ailawadi et al., 2014; Akehurst et al., 2012; Gleim et al., 2013). An additional obstacle would be related to the cognitive response of consumer. This obstacle is due to consumer confusion to differentiate organic product from conventional (Chryssochoidis, 2000; Gleim et al., 2013) and to process its quality (Gleim et al., 2013; Harbaugh et al., 2011) Even though this element constitutes a key variable to determinate company's competitiveness (Steenkamp, 1990).

Thus, organic market is characterized by barriers related to different types of response that consumer can state towards the product. That is, there are barriers regarding cognitive response as a perception or knowledge about the organic product, affective response as an attitude, and conative response as purchase.

1.2. Consumer behavior. Kinds of responses

The American Marketing Association (AMA) defines consumer behavior as a "dynamic interaction of affections and cognitions, behavior, and environment by which human beings carry out trade-trade aspects of their lives." So, the association settles that definition on a simple model, the Wheel of Consumer Analysis, which considers the key factors to understand consumer behavior and can be used as a guide to develop a marketing strategy by companies. It is divided into three parts: affection and cognition, behavior, and consumer environment.

According to AMA, affections refer to feelings, emotions, moods and assessments about pleasure or dislike, about a person's preference towards an object such as a brand or advertisement. The attitude, as a general evaluation about a concept, would be an affective response that involves broad feelings about the preference towards the object.

Another response that consumer can offer about an object or stimulus is based on cognition, which is defined as a consumer mental process by which they interpret and make decisions, build beliefs and meanings. Knowledge as the set of meanings about products, brands, retailers ... stored in their memory would be a kind of cognitive response. Another kind would be perceptions. These are defined as a cognitive impression that is built about a reality.

As AMA notes, a third type of response focuses on consumer actions that can be directly observed. So, visiting a retailer, using a product or service or buying it are overt behaviors.

Regarding development of the marketing strategy, the Wheel defends the interaction between those responses and environment. This environment would be depicted by external world to consumer as a complex set of social and physical stimuli.

Peter and Olson (2005) note dynamic and interactive nature of the Wheel. The consumer's responses, attitude, beliefs, actions, and environment are constantly changing. In addition, these responses and environment are connected to each other, they can be cause and effect at the same time. Nevertheless, overt behavior is the key element of the Wheel for the marketing strategy as that type of response can be directly translated into sales and utilities for the company. So, any marketing strategy should ultimately try to get an obvious behavior if it is to create value for the company. In conclusion, the dynamic and interactive nature of the Wheel of Consumer Analysis highlights the need for a continuous analysis of consumer behavior to develop an effective marketing strategy by companies.

These authors represent the model of the Wheel of Consumer Analysis as shown in Figure 1.4.

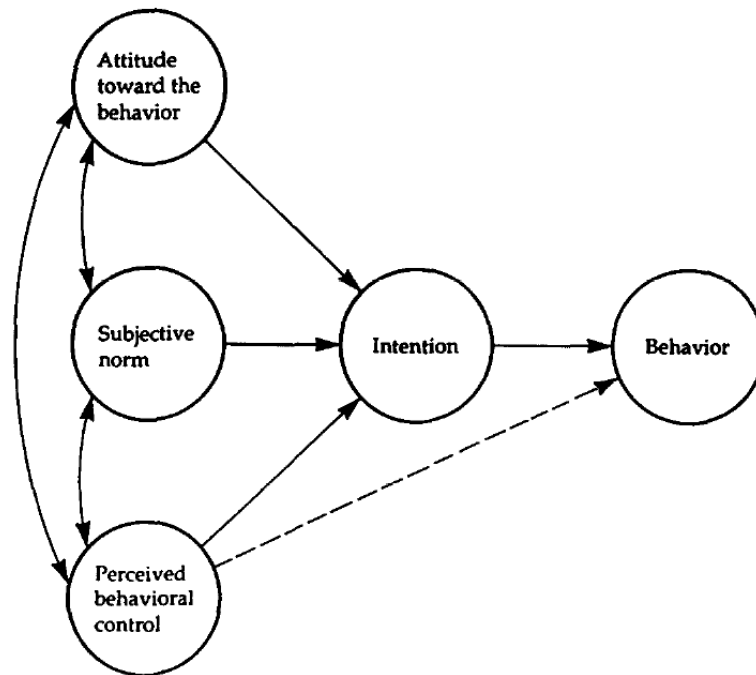
Fig. 1.4. The Wheel of Consumer Analysis



Source: Peter, J. P. & Olson, J. C. (2005).

In marketing, other models dealing with different types of response have also been developed and employed. One of the most widespread theories is Ajzen's Theory of Planned Behavior (1991). According to this theory, overt behavior would be explained by the intentions of performing this behavior. Thus, the author defines behavioral intentions as a key factor that depicts motivational factors as indicators of willingness to engage with behavior. Variables that would influence the intention would be: attitude defined as beliefs about consequences of a behavior in general; subjective norm refers to beliefs about expectations and behaviors of others; and perceived behavioral control means beliefs about potential factors that facilitate or inhibit behavior (such as pricing, product availability). Then, the model explains overt behavior from similar elements to the factors of the Wheel of Consumer Analysis, but attributing greater relevance to the cognitive response. As Figure 1.5 shows, the model takes into account the attitude and environment as subjective norm and perceptual control respectively, upon a cognitive perspective. That is, it considers these explanatory variables of overt behavior as a result of a mental process defined by consumer beliefs towards the object or stimulus that elicits the behavior.

Fig. 1.5. The Theory of Planned Behavior



Source: Peter, J. P. & Olson, J. C. (2005).

However, both the Wheel of Consumer Analysis and Ajzen's Theory of Planned Behavior (1991) do not take into account characteristics of the individual, beyond the sociodemographic ones, that could be important to explain overt behavior. These characteristics would be such as: their lifestyles or behavioral orientations, which can influence development of an overt behavior; and the cognitive style of an individual when they process information or stimuli, which could influence, mainly, the cognitive response towards the object or stimulus.

1.3. Goals and Proposed thesis model

As a novelty about the relevant incongruity between attitude and purchase of organic products, we analyze the effect of cognitive response on this incongruence between two responses towards organic products. In addition, our research treats this incongruity as a single variable given by the difference between attitude and purchase responses in Chapter 2. In that chapter, we also see how consumer characteristics related to their orientations or lifestyles can influence the incongruity between attitude and purchase.

Then, we research cognitive response to the organic product defined as quality perception (Chapter 3). We use beliefs of consumers about the attributes of organic product, such as environmental protection, health and hedonic aspects, to explain perceived quality. We also study how certain characteristics can change that relationship between beliefs about specific attributes and quality of the organic product. Specifically, we assess the moderating effect of the cognitive style of consumers and product category of organic food.

In order to understand this cognitive response more thoroughly, we analyze the effectiveness of communication tools on the perceptions related to specific attributes of the organic products and on the perception of quality in Chapter 4. Marketing tools that we consider refer to packaging claims. We distinguish claims according to important characteristics to relieve consumer confusion about organic food and, therefore, to assess effectiveness of those communication tools. That is, we consider their explicitness to state the message about organic benefits, explicit and implicit claims, and as their topic, on environment or health. Additionally, we consider how consumer characteristics, such as their cognitive style, can influence the effectiveness.

The following table (Table 1.1) sums up the different goals of this Thesis and being detailed on each chapter, from two to four.

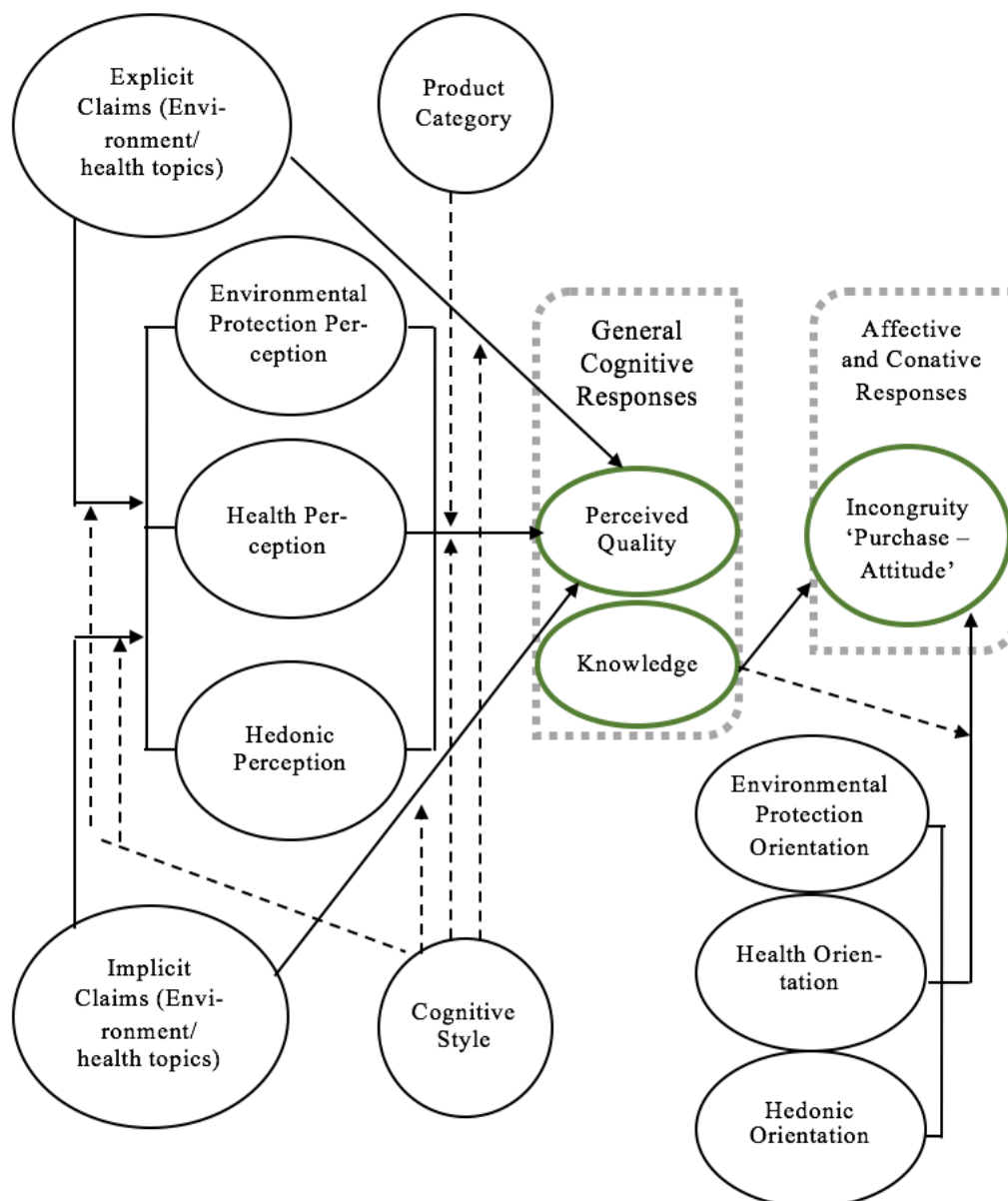
Table 1.1. Goals on each chapter

Goals	Chapter 2	Chapter 3	Chapter 4
Effect of consumer orientations and knowledge on incongruity attitude-purchase	✓		
Integration of attributes beliefs to process quality		✓	
Effect of packaging claims on perceptions about organic			✓
Moderating influence of cognitive style of consumers		✓	✓
Moderating influence of product category		✓	
Moderating influence of knowledge	✓		

Source: prepared by the authors.

In brief, we study the leading two issues of organic market related to consumer factors. As Figure 1.6 shows, we explain the incongruity between attitude and purchase responses (Chapter 2) and the consumer confusion about perceived quality and attributes beliefs (Chapter 3), apart from assessing the effectiveness of communication tools, as claims, to improve cognitive response of organic consumers (Chapter 4).

Fig. 1.6. A global vision of the models



Source: prepared by the authors.

1.4. Contribution of the thesis

In organic market, consumer responses do not seem to relate as expected. The positive attitudes expressed by consumer do not end up translating into the purchase of organic products, and neither are strongly associated with differential attributes versus their conventional counterpart nor are attributed to a clear quality. Through several studies, we deal with the different types of consumer response in order to provide a wider view of the Wheel of Consumer Analysis, the responses and their interactions for organic market. Beyond environment or external elements that could influence consumer responses to the organic product, we propose a set of personal factors, such as orientations or lifestyles of consumers and their cognitive style when they process information or stimuli, to study consumer responses and their interactions.

The cognitive response is a barrier for consumption of organic products, as noted above. It is an important element that would be related to the rest of consumer responses, as the Wheel of Consumer Analysis reflects. Specifically, it links to the incongruity between the attitude and purchase that consumers state on organic market. On the other hand, Peter and Olson (2005) point out that delivering superior quality can be one of the strategies to achieve overt behavior and create value for the company; Steenkamp (1990) emphasizes that quality is key to set the competitiveness of the company; Golders et al. (2012) point out that companies compete in quality, consumers seek quality, and markets are transformed by quality. Based on the relevance of quality and problems of consumers related to their cognitive response towards organic products, we study this type of response.

Previous literature on organic market has mainly studied attitudinal responses (e.g., Karaklas et al., 2014, Tucker et al., 2012) and organic purchase (e.g., Kim and Chung, 2011, Lin and Chang, 2012). Researches considering different types of response have used Ajzen's Theory of Planned Behavior of 1991 (e.g. Aertsens et al., 2009, Izagirre-Olaizola et al., 2013, Kalafatis et al., 1999; Kim and Chung, 2011). Thus, purchase behavior of organic products would be determined by intention and, in turn, intention would depend

on attitude of consumer towards the product, beliefs about expectations and purchase behaviors of others, and perceived control over behavior. Therefore, for papers based on that theory, affective responses and environment are antecedents of overt behavior and they are treated from a cognitive perspective according to consumer's beliefs.

Additionally, cognitive response has also been addressed by just a few previous researches as a result of use and interpretation of environment cues (Bauer et al., 2013; Borin et al., 2011; D'Souza et al., 2007; Hidalgo et al., in press; Kim and Seock, 2009; Larceneux et al., 2012). Thus, these papers focus on the first steps to process quality according to the model of Steenkamp (1990) or of Golder et al. (2012). However, the integration of attributes beliefs to process the perceived quality on organic market has not been studied by previous literature.

Finally, we find only some studies about the effect of the use of marketing tools on purchase intentions and attitudes (Atkinson and Rosenthal, 2014; Bauer et al., 2013; Bickart and Ruth, 2012; Loebnitz et al., 2015). Nonetheless, those papers only concentrate on the use of organic labels and eco-labels. Even though organic market is characterized by a low use of marketing tools (Aertsens et al., 2009; Boulding et al., 1994; Hughner et al., 2007; Krystallis et al., 2006; Ngobo, 2011), the previous literature has not considered more tools to assess their impact on consumer responses. Specifically, it has not been treated the impact of different ways of advertising on cognitive response to try to relieve the consumer confusion about these products.

Based on previous literature and the model of the Wheel of Consumer Analysis detailed above, we aim to analyze separately different components of the Wheel in organic market, where there are barriers related to individual's responses to that product. We focus on studying cognitive response given by consumer knowledge about these products as an explanatory variable, alongside consumer orientations, of incongruity between attitude and purchase responses. Likewise, we analyze the response defined by the perception of quality of organic products as a variable explained from beliefs about the attributes of the

organic product and from environmental signals given by different tools of communication for product packaging. For those studies, we consider the moderating effect of cognitive style of consumer to process information or stimuli. We add the moderating effect of an external characteristic as product category of organic food to study the effect of the beliefs about the attributes on the perception of quality. In conclusion, from the Wheel of Consumer Analysis, we provide a contribution based on a cognitive response with differentiating relevance versus affective response and we incorporate certain psychographic factors of consumer when we analyze their overt behavior and the effectiveness of marketing strategies on communication area: the orientations or lifestyles of consumer and their style to process information.

1.5. Thesis Structure

We will focus on the cognitive response to deal with barriers for consumption of organic food related to different consumer responses towards those products.

In the second chapter, we explain the incongruity between consumer responses that organic market sets out. We use behavioral orientations and knowledge about organic food of consumers as relief mechanisms to increase organic purchase and, therefore, reduce the cognitive dissonance. Specifically, we use orientations about leading benefits of organic product (environmental protection, health, and better hedonic attributes). We also take into account a positive moderating effect of orientations and knowledge to explain the incongruity. In summary, we explain the incongruity between the attitude and purchase of organic products from consumer knowledge about these products, their behavioral orientations regarding the benefits of these products and the interaction between these independent variables in this chapter.

In the third chapter, we focus on the consumer's cognitive response to organic products defined as perceived quality. We explain the quality of these products that consumer perceives from their beliefs about specific attributes of these products: Environmental protection, health, and better hedonic attributes. Additionally, we include moderating effects

such as product category and cognitive style. We differentiate two categories: products "vice" providing short-term benefits related to an immediate pleasure experience (such as the taste of pastries) but have long-term negative consequences (such as those related to health, weight or cholesterol); and products "virtue" that are unrewarding in the short term but more beneficial in the long term. Thus, the type of benefits of these categories will interfere in processing of quality of organic product from the beliefs about its specific attributes. On the other hand, in chapter 3 we show that the integration of different types of attributes of an organic product into quality will depend on the cognitive style of consumer to process information and stimuli. So, we distinguish two cognitive styles: the intuitive one, a cognitive style based on assessing quickly and holistically; and the analytical one, a cognitive style based on a detailed analysis style requiring a conscious effort. In brief, we explain perceived quality from attributes perceptions of organic food (environmental protection, health and hedonic aspects) including product category and cognitive style as moderating effects.

In the fourth chapter, we take a more practical approach. We evaluate the effectiveness of certain communication tools based on the use of different claims in the packaging of organic products. We developed an experiment to study the effect of the use of claims on consumer's perceived quality and on perceptions about differential attributes of organic products versus their conventional counterpart. More specifically, to provide effective tools to relieve consumer confusion about organic food for companies to use, we differentiate claims as different utilitarian benefits associated with the organic product (environmental protection and health) and as the degree of explicitness to state those benefits. On the other hand, in this chapter we show the moderating effect of cognitive style of consumers on the relationship between cognitive response that consumers infer from cues defined by different claims used on packaging. In brief, we research the effect of different claims as their topic (environment or health) and their degree of explicitness on perceptions of organic food (environmental protection perception, health perception, hedonic perception and quality perception).

In the last chapter, we will put in common all conclusions, implications and limitations jointly found in the studies exposed on the previous chapters.

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CHAPTER 2. ATTITUDES VERSUS PURCHASE BEHAVIORS AS EXPERIENCED DISSONANCE: THE ROLE OF KNOWLEDGE AND CONSUMER ORIENTATIONS IN ORGANIC MARKET

2.1. Introduction

Health concerns and environmental protection are increasingly important societal issues (Bhattacharya and Sen, 2004; Groening et al., 2009; Moisander, 2007; Nielsen, 2015; Pagiaslis and Krystallis-Krontalis, 2014), leading to the developments of green and organic markets. Whereas green markets focus on social and environmental responsibilities (Akehurst et al., 2012), organic markets address broader consumer concerns for health, environmental protection, and food safety by relying on agricultural systems that are free of human-made chemicals (Pino et al., 2012). Although related, these markets differ, in that the organic market entails not just environmental issues but also health and food safety concerns. With its focus on health and environmental protection (Baker et al., 2004; Bauer et al., 2013; Essoussi and Zahaf, 2008; Zanolli and Naspetti, 2002), the organic market also has experienced huge growth (Kareklas et al., 2014), transforming from a niche to a central product trend in the food industry (Van Doorn and Verhoef, 2015). Global sales of organic food and beverages reached US\$72 billion in 2013 (Willer and Lernoud, 2015), a nearly fivefold increase over 1999 sales (US\$15.2 billion), and then expanded even further to US\$80 billion in 2014 (IFOAM-Organics International, 2016). In Spain, expenditures on organic products reached 1018 million euros in 2013, equivalent to a 5.5% increase in sales compared with 2011 (Prodescon, 2014).

Parallel with this growing social interest and rapid sales expansions, academic research into the organic market has increased as well (Kim and Chung, 2011). Hughner et al. (2007) classify consumer responses to organic products, according to their consideration in previous literature. For example, some studies address factors that facilitate or encourage these responses, whereas others focus on inhibiting factors. Among the former, most studies concentrate on motivations or consumer orientations related to environmental protection and health (Bauer et al., 2013; Borin et al., 2011; Kim and Chung, 2011), as well as prosocial or altruistic values, together with hedonic or self-benefiting values (Cornelissen et al., 2008; Urien and Kilbourne, 2011; Yang et al., 2015). Among the latter, negative factors, we find studies of price, consumer confidence (Bhaskaran et al., 2006;

Gleim et al., 2013; Terrachoice Environmental Marketing 2009), and ineffective marketing (Aertsens et al., 2009; Hughner et al., 2007; Krystallis et al., 2006; Ngobo, 2011). Such factors all can influence consumers' attitudes toward and purchases of organic products (Akehurst et al., 2012; Atkinson and Rosenthal, 2014; Bickart and Ruth, 2012; Ngobo, 2011; Tsakiridou et al., 2008; Tucker et al., 2012).

However, attitudes toward organic products appear to differ from purchase behavior in this market. That is, sustainable consumption and healthy eating remain top priorities among modern consumers (Nielsen, 2015; Pagiaslis and Krystallis-Krontalis, 2014), yet an attitude–behavior gap or values–action gap arises, such that consumer express environmental concerns, but those concerns do not translate into purchase behaviors (Akehurst et al., 2012). Therefore, understanding the behaviors of organic consumers, the antecedents of organic consumption, and the incongruity between attitudes and behavior is critical. According to Akehurst et al. (2012), who study the difference between green purchase intentions and green purchase behaviors, this gap is less evident for consumers with high ecological consciousness.

The current research in turn investigates the incongruity between consumer responses, in the form of attitudes, and their behaviors, in the form of purchases, of organic products. We focus on the organic food market instead of the green market. Using cognitive dissonance theory (Festinger, 1957), we study the incongruity by analyzing the role of consumer orientation in relation to consumer behavior (Akehurst et al., 2012; Izagirre-Olaizola et al., 2013; Kim and Chung, 2011; Van Doorn and Verhoef, 2015). Specifically, we consider the potential effects of environmental protection, health, and hedonic (i.e., taste and satiety) orientations, together with consumer knowledge about organic products.

In the next section, we review previous literature and develop our hypotheses. After detailing our methodology and analysis, we present the study results. Finally, we discuss some conclusions, implications, and limitations of this study, as well as ideas for further research.

2.2. Theoretical framework

2.2.1. *Effect of knowledge on attitude-behavior incongruity in organic markets*

Even when consumers state very positive attitudes toward organic or green products, they frequently exhibit incongruous behaviors and fail to purchase these products. That is, a positive attitude does not translate into a purchase (D'Souza et al., 2007; Florenthal and Arling, 2011; Gleim et al., 2013; Moraes et al., 2012; Pickett-Baker and Ozaki, 2008). Thus, organic market is characterized by an attitude-behavior incongruity. Ongoing studies seek to explain this incongruity, using a variety of factors. For example, organic food consumption might be barred by high prices, lack of consumer confidence (Bhaskaran et al., 2006; Gleim et al., 2013; Terrachoice Environmental Marketing, 2009), or lack of consumer knowledge about these products. A lack of knowledge makes it difficult for consumers to differentiate organic from conventional products (Chryssochoidis, 2000; Gleim et al., 2013; Gfk, 2014). Thus, increased knowledge might be a key factor that would encourage organic purchase behavior. Aertsens et al. (2009) also note that providing more information or increasing awareness of organic products can help lower consumers' uncertainty about the unique attributes of organic offerings, as well as mitigate their lack of confidence about certification methods. Such reduced uncertainty then might improve purchase likelihood (Thøgersen, 2007).

Overall, if more knowledge about organic products influences consumers' decisions and increases their willingness to pay (Barnes et al., 2009), it should have a positive effect on organic product purchases, while also attenuating other consumption barriers, such as a lack of confidence and high prices (Aertsens et al., 2009; Barnes et al., 2009). Knowledge thus might function as a transmitter, from attitudes to purchase behaviors. Therefore,

H1. More knowledge about organic products leads to greater congruity between consumers' attitudes and purchase behaviors.

2.2.2. *Cognitive dissonance*

According to cognitive dissonance theory, each person maintains a cognitive view of him- or herself, past behaviors, beliefs, attitudes, and environments (Oshikawa, 1968). Elements of this view might become dissonant if they are inconsistent or contradict each other. In an organic market setting for example, consumers express positive attitudes toward organic products but do not buy them, so they might experience dissonance between their own attitudes and behaviors. Therefore, we define that incongruity characterizing organic market as a dissonance arising from contradictory responses expressed by consumers. Cognitive dissonance theory suggests that such inconsistencies generate a disturbing, unpleasant sensation for the consumer, who then tries to avoid or prevent the inconsistency (Festinger 1957).

Dickerson et al. (1992) argue that this sensation of dissonance can result from hypocrisy, due to a discrepancy between actual behaviors and norms for what people should do to benefit the environment, according to their own beliefs, concerns, or orientations. Nonetheless, when faced with an incongruity between their attitudes and purchase behaviors in the organic market, consumers likely seek to modify the dissonant elements (Oshikawa, 1968), in accordance with their concerns or orientations. In fact, Cornelissen et al. (2008) point out that previous behavior of a consumer is used as a heuristic basis for later decisions. Therefore, consumer may change their purchase behavior toward organic products, rather than their attitudes. That way, consumers reflect orientations, that we define as a measure of consumer perception about their previous behavior, by means of their current behavior. In this respect, Becker et al. (1977) show a health orientation leads people to engage in healthy behaviors; and Schlegelmilch et al. (1996) show an environmental orientation prompts them to make green decisions.

More broadly, orientations related to the attributes and benefits of organic products should lead consumers to relax or correct the cognitive dissonance they experience, due to the difference between their attitudes and purchase behaviors, by increasing their purchase responses. In organic markets, the benefits associated with the products are mainly

environmental protection and health (Essoussi and Zahaf, 2008; Kareklas et al., 2014). Relative to conventional products, organic products generally are perceived as offering more nutritional value and being produced in a more natural way, without chemicals or harmful pesticides (Ott, 1990; Pino et al., 2012; Squires et al., 2001; Wandel and Bugge, 1997; Wilkins and Hillers, 1994). In this sense, organic products also are assumed to be more environmentally friendly (Hughner et al., 2007; Wilkins and Hillers, 1994).

Consumer orientations related to these organic benefits (i.e., environmental protection and health) therefore should have a positive impact on the purchases of organic products, thereby reducing the difference between attitudes and purchase behaviors. Akehurst et al. (2012) concur that the gap between purchase intentions and purchases is less evident for green products when consumers' environmental consciousness is high. Thus, we propose:

H2a. Consumers' higher environmental orientation leads to greater congruity between their attitudes and purchase behaviors toward organic products.

H2b. Consumers' higher health orientation leads to greater congruity between their attitudes and purchase behaviors toward organic products.

We also consider hedonic orientations, because previous research indicates that consumers perceive organic products as tastier and offering better visual appearances and scent (Cervellón and Carey, 2014; McEachern and McClean, 2002). For example, McEachern and McClean (2002) link perceptions of better flavour to the increased safety associated with organic food and cite these notions as the primary reasons consumers buy organic products. Cervellón and Carey (2014) also note that consumers consider the hedonic attributes of organic food, such as their visual appearance, scent, and texture, more positively in their post-purchase assessments. Therefore, consumers with a more hedonic orientation might be more consistent in their attitudes and purchase behaviors toward organic products, such that they may experience less dissonance. In further support of this prediction, Van Doorn and Verhoef (2015) show that consumers oriented toward product quality and taste are less concerned about prices. Therefore, the negative effect of the

price premium on the purchase of organic food may be weaker for consumers concerned about the quality and taste of the food. This preference and orientation can help overcome the barriers of organic consumption and facilitate the translation of positive attitudes into purchases. Therefore,

H2c. Consumers' higher hedonic orientation leads to greater congruity between their attitudes and purchase behaviors toward organic products.

2.2.3. *Moderating effect of knowledge*

Previous literature has analyzed environmental concerns and knowledge about organic products as factors that might explain organic or green purchase behavior (Kollmuss and Agyeman, 2002; Mostafa, 2007; Pagiaslis and Krystallis-Krontalis, 2014). For example, Pagiaslis and Krystallis-Krontalis (2014) propose a mediation relationship, following a sequence of orientation–knowledge and belief–behavior, such that consumers who are more oriented toward environmental protection are also more informed and have more positive beliefs about green products. Therefore, knowledge and beliefs may be necessary for purchases of these products to take place.

We propose that knowledge might be a moderator, as well as a mediator, in these relationships. Beyond organic literature, knowledge is considered as moderator in the relationship attitude-behavior. Specifically, Berger et al. (1994) take into account that moderating variable in the relationship between attitude and ecological behavior by studying different kinds of heating systems. Those authors note knowledge increases the attitude strength and, consequently, the effect of the attitude on behavior will be greater. In fact, subjective knowledge will be an important indicator in high involvement, high risk, search product categories. Information is collected over time for those cases. So, attitude would be stronger as subjective knowledge increases and, accordingly, its effect on behavior.

We already have predicted that the dissonance experienced as a result of incongruity between attitudes and behaviors might be lower among consumers with more knowledge,

such that knowledge might overcome some of the barriers to the consumption of organic products. In this sense, it could facilitate the transformation from positive attitudes to purchases of organic food. Nonetheless, we propose knowledge as moderator in the relationship between orientations and attitude-behavior congruence as well. We expect that more informed consumers, who know the attributes and benefits of organic products, respond in ways that are more consistent if their orientations also are linked to these attributes and benefits. Consumers with more knowledge about organic food will buy even more if their orientations also are aligned with the benefits attributed to organic products, such that the difference between their attitudes toward organic food and their purchase behavior will be smaller. This reasoning implies interaction effects between knowledge and orientations, such that knowledge accentuates the positive effect of an environmental orientation, health orientation, or hedonic orientation on the congruence between attitudes and purchase behaviors toward organic food. In other words, knowledge positively moderates the relationship between consumers' orientations and the congruence between their attitudes and behavioral responses.

H3a. Consumers' environmental orientation exerts a stronger effect on the congruence between their attitudes and purchase behaviors when consumers have more knowledge of organic products.

H3b. Consumers' health orientation exerts a stronger effect on the congruence between their attitudes and purchase behaviors when consumers have more knowledge of organic products.

H3c. Consumers' hedonic orientation exerts a stronger effect on the congruence between their attitudes and purchase behaviors when consumers have more knowledge of organic products.

2.3. Methodology

To test the hypotheses and obtain pertinent empirical evidence, we conducted a survey in an urban area in Castilla y Leon, Spain. A pretest prior to the main data collection ensured

the comprehensibility of the items within the survey, as well as the appropriateness of the data collection procedure. Respondents reported to be responsible for or actively involved in purchasing food for their households. We ensured that the data came from a wide range of ages and both genders, using a quota sampling method. We obtained data from 311 consumers between April and June 2013.

The information requested in the survey refers to the responses of consumers to organic food, the benefits sought, consumer orientations and their values, and socio-demographic characteristics. A seven-point Likert scale (0 = “strongly disagree” and 6 = “strongly agree”) applied to all the items except for sociodemographic characteristics.

2.3.1. Responses to the organic product.

We consider three consumer responses: cognitive, affective, and conative (Table 2.1). A cognitive response implies awareness of the existence of the object, retained information, and knowledge about an object. An affective response refers to the emotions the person feels relative to objects or events, such as a preference or dislike of a product or service. Finally, conative response implies the form of the reaction, such as a purchase (Lambin, 1993; Lavidge and Steiner, 1961; Peter and Olson, 2005).

The knowledge variable measures cognitive responses. We use items adapted from scale of Pagiaslis and Krystallis-Krontalis (2014) about subjective knowledge. So, our variable is constructed as the average of two items that refer to consumer knowledge about the attributes of organic products and the differentiation from their counterpart, conventional products.

Attitude toward organic foods constitutes the measure of affective responses; it is equal to the average of two items pertaining to overall assessments of organic products and consumer preferences. This measure is congruent with the attitude used by Ajzen and Madden (1986). Those authors define specifically the attitude as an overall assessment related to different consumer beliefs about a certain object or product.

We also calculate the average of two items to measure the conative response, as reflected in the purchase variable. Likewise, our measure is congruent with the measure proposed by Ajzen and Madden (1986) dealing with the likelihood of certain behavior. In this case, the two items pertain to the consumer's purchase and intention to consume organic products.

Table 2.1. Consumer responses to organic food

Variables	Items	M	SD	PC	α Cronbach
Knowledge	I know the benefits and attributes of organic products.	2.188	1.444	0.534**	0.673
	I know how to differentiate organic products from conventional products.				
Attitude	I would prefer to buy an organic product rather than a conventional one at the same price.	4.868	1.269	0.828**	0.906
	Buying organic products is a good choice for me.				
Purchase	I usually buy organic products.	1.346	1.367	0.648**	0.784
	It would be difficult for me to dispense with organic products in my shopping cart.				
Purchase Subtracting Attitude (PDA)		-3.523	1.451		

Notes: M = mean, SD = standard deviation, PC = Pearson correlation/ ⁺ $p < .10$, * $p < .05$, ** $p < .01$.

The “purchase deducting attitude” (PDA) variable is the difference resulting when we subtract the attitude variable from the purchase variable. Thus, it reflects the level of congruence between purchase behaviors and attitudes. In our sample, all respondents indicated more positive attitudes than purchase behaviors, such that the PDA values range from -6 to 0. Consumers with a positive attitude who buy organic products frequently (i.e., exhibit congruent responses) take values near 0. But if consumers indicate more incongruent responses, the PDA values are more negative and farther away from 0.

2.3.2. Consumer orientations.

We used six items adapted from the “Self-perception” scale of Cornelissen et al. (2008) to measure consumer orientations. Hence, we consider orientations as self-perception of the consumer about their past behavior related to the different benefits of organic product. Specifically, we extracted three orientations: environmental orientation, health orientation, and hedonic orientation. Every orientation is calculated as the average of two items about self-perception of consumer related to either proenvironmental behavior or health behavior or hedonic behavior, depending on the orientation. The statistical results and reliability and validity measures for these constructs are in Table 2.2.

Table 2.2. Items and exploratory factor analysis for consumer orientations

Factors	Items	M	SD	PC	α Cronbach
Environmental Orientation	I think my behavior is eco friendly.	4.003	1.338	0.418**	0.575
	I take into account the environmental impact when I buy food.	2.174	1.757		
Health Orientation	I think my behavior is responsible for my health.	4.029	1.387	0.359**	0.529
	I take into account the impact on my health and fitness when I buy food.	4.553	1.404		
Hedonic Orientation	I usually indulge in eating some kinds of food.	4.553	1.404	0.419**	0.581
	Some food intake makes me feel better, happier.	3.344	1.588		

Notes: M = mean, SD = standard deviation, PC = Pearson correlation/ ⁺ $p < .10$, * $p < .05$, ** $p < .01$.

2.3.3. Consumer characteristics.

The survey also gathered demographic profiles, reflecting the respondents' gender, age, household size, and presence of children (younger than 6 years or 7–12 years old) in the house. Gender was a dichotomous variable (0 = male, 1 = female). Women represent

86.5% of the sample. Age is a count variable; 45.85 years is the average (SD = 12.06). Open questions assess both household size and the number of children. Household size is a count variable, with the following distribution: one-member households (19.6%), two members (27.7%), three members (28.3%), four members (21.2%), and five or more members (3.1%). Finally, 10.6% of respondents have children younger than 6 years, and 11.6% have children between 7 and 12 years of age in their households.

2.4. Analysis and results

We use linear regression models to test the hypotheses. The results and their interpretations reflect widely accepted significance values ($p < .05$ and $p < .01$), though in some cases, we consider values of $p < .10$ as well. The following specification provides the test for our first hypothesis and second block of hypothesis:

$$\text{PDA} = \alpha + \Sigma \beta (\text{CV}) + \gamma \text{ Knowledge} + \Sigma \sigma (\text{O}) + \xi, (1)$$

where PDA is the “purchase deducting attitude” variable, α is a constant we use to estimate the model, CV is the vector of the control variables in the study (gender, age, household size, number of children), β denotes the vector of parameters to estimate the effect of the control variables, γ is a parameter to estimate the effect of knowledge, O represents the vector of variables related to consumer orientations (environmental, health, and hedonic), σ denotes a vector of parameters we use to estimate the effect of the variables related to those consumer orientations, and ξ refers to the error term of the model.

The estimation results of our tests of H1 and H2a–c are in the first column of the Table 2.3. The effect of knowledge on PDA is positive and significant at a confidence level greater than 95%, in support of H1. Higher knowledge leads to greater congruity in consumer responses toward organic products; consumers who are more familiar with organic products buy more of them. In turn, the difference between their attitudes and purchase behaviors shrinks. According to the coefficients in Table 2.3, an environmental orientation has a positive effect on PDA too (95% confidence level). For the health orientation and hedonic orientation, there is no significant effect. Nevertheless, they are congruent

with our hypothesis. Although no significant, their effects are positive. In conclusion, these results offer only support for H2a. Consumers oriented toward the environment, which also is the main benefit gained from organic food, have more consistent responses to organic products.

Table 2.3. Effects of knowledge and consumer orientations on congruence in consumer responses to organic food

	PDA (1)	PDA (2)
Control Variables		
Constant	-5.459**	-5.318**
Gender (1= female)	-0.290	-0.176
Age	0.017*	0.015 ⁺
Household size	-0.002	0.014
Children under 6 years old	0.104	0.083
Children from 7 to 12 years old	-0.328 ⁺	-0.303
Direct Effects		
Knowledge	0.137*	0.053
Environmental orientation	0.165*	-0.127
Health orientation	0.089	0.329*
Hedonic orientation	0.077	-0.009
Interactions		
Knowledge x Environmental orientation	-	0.114*
Knowledge x Health orientation	-	-0.094 ⁺
Knowledge x Hedonic orientation	-	0.030
Coefficient of Determination (R²)	0.099**	0.130**

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

To test H3a–c, we use the following specification:

$$PDA = \alpha + \sum \beta (VC) + \gamma \text{ Knowledge} + \sum \sigma (O) + \sum \lambda (\text{Knowledge} \times O) + \xi, (2)$$

where $(\text{Knowledge} \times \text{O})$ denotes the vector of variables reflecting the interactions between knowledge and consumer orientation, and λ is the vector of parameters we use to estimate the effect of these interactions.

The estimation results for H3 are in the second column of the Table 2.3. Firstly, we check changes for coefficient of determination (R^2) between a regression model about direct effects only (first column of Table 2.3) and a regression model including interaction effects (second column of Table 2.3). Comparing their R^2 , it proves that interaction effects get to improve the goodness of model fit for the two presented regressions on the table. As Table 2.3 shows, both the knowledge–environmental orientation and the knowledge–health orientation interactions are significant (95% and 90% confidence levels, respectively). But, those results show only support for knowledge–environmental orientation interaction (H3a). They do not offer support for H3b: the interaction between knowledge and health orientation is negative, opposite of our predictions. Hughner et al. (2007) note that most research identifies health as the main reason for buying organic food, but other authors, such as Williams (2002), find no conclusive evidence of an effect of organic food on people's health, compared with conventional food, which might explain this opposite result. That is, increasing knowledge does not reduce the incongruence between attitude and purchase behavior for health-oriented consumers. Instead, more knowledge of organic products strengthens the relationship only for environmental orientation in terms of the congruity in their attitudes and purchase behaviors. In brief, only consumers with environmental orientation will express more congruent attitudes and purchase behaviors when they know more about organic food, but consumers with a health orientation or hedonic orientation do not.

To check the heteroscedasticity of all estimated models, we ran a Breusch-Pagan test, one of the most common tests of heteroscedasticity. This test rejects homoscedasticity in the two models we used to test our hypothesis. Thus, we used robust estimations for the regression models appearing in the Table 2.3.

2.5. Discussion

The empirical results confirm both that knowledge and environmental orientation of consumers influence the congruity between their attitudes and purchase behavior when it comes to organic food. We also find significant interaction effects across these factors, such that more knowledgeable people with environmental orientation have more congruent responses, and their attitudes and purchase behaviors toward organic products in turn are more similar.

2.5.1. Theoretical implications

In line with previous literature that suggests incongruities between attitudes and purchase behaviors toward environmental or green products (Akehurst et al., 2012; Kollmuss and Agyeman, 2002; Moraes et al., 2012), we find that consumers have very positive attitudes toward organic products, with a mean of 4.9 on a 0–6 scale, whereas their purchase behaviors are incongruent, with a mean of 1.3 on the same scale (see Table 2.1). This incongruity likely reflects the predictions of cognitive dissonance theory. This theory predicts that people can experience dissonance over a wide range of dimensions (e.g., behaviors, attitudes, beliefs), such that the set of possible mechanisms to mitigate the dissonance also is broad. Our results suggest that consumer orientations reflecting the environmental benefits of organic products, and consumers' knowledge about organic products both are mechanisms that can reduce incongruities between attitude and purchase behaviors in the organic market.

Consistent with Akehurst et al. (2012), who find a gap between purchase intentions and purchase behaviors for green products, which diminishes among people with greater ecological consciousness, we find a difference between attitudes and purchase behaviors. The experienced dissonance in turn can be explained by consumer orientations related to environment. Consumers with an environmental-protection orientation exhibit more similar responses, such that the gap between their attitudes and their purchase behaviors is smaller.

Knowledge also helps explain the dissonance resulting from this incongruity. This type of response is not only a mediator for the relationship between attitude, as a measure of overall belief about the product, and organic purchase as Pagiaslis and Krystallis-Krontalis (2014) propose for their relationship beliefs-behavioral intention. It is also a moderator. Knowledge helps transmit attitudes to purchase behaviors, overcoming several barriers to organic consumption, such as a lack of consumer confidence and high prices. Knowledge also moderates the effect of environmental orientation on the congruence between attitudes and purchases of organic food. For consumers with more information about the environmental benefits of organic products, the relationship between that orientation and the congruence between attitudes and purchase behaviors is stronger.

2.5.2. Managerial implications

Use of marketing tools and communication strategies for organic market is not usual (Aertsens et al., 2009; Boulding et al., 1994; Hughner et al., 2007; Krystallis et al., 2006; Ngobo, 2011). Consequently, performing communication politics by companies that encourage orientations or lifestyles about environmental protection and provide information about those kinds of benefits and attributes could improve organic purchase and, as a result, reduce the difference between that response and the attitude toward organic products.

2.5.3. *Limitations and future research*

Some limitations of this study suggest directions for further research. We focus on factors that facilitate consumption and inhibit incongruity; we ignore factors that might inhibit consumption and facilitate incongruity, such as consumers' willingness to pay. Furthermore, we use consumers' assessments of their own purchases, rather than actually observed organic purchase data. This measure could lead to an underestimate of the actual level of incongruity between their attitudes and purchase behaviors. Other variables, such as social influence or social pressure, also could affect consumers' purchases of organic

foods and their attitudes, such that they might increase or decrease the gap. Social influence also might be direct, or it could moderate the effect of the consumer orientations on congruity between attitudes and purchase behaviors. Thus, additional research thus should consider factors that inhibit purchases, along with other variables that were not included herein, such as the effect of social pressure on organic purchase behaviors, to analyze the incongruity between attitudes and purchase behaviors in this market.

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**CHAPTER 3. ASSESSMENT QUALITY OF ORGANIC PRODUCTS VER-
SUS CONVENTIONAL BY PRODUCT CATEGORY AND COGNITIVE
STYLE**

3.1. Introduction

Organic markets continue to grow increasingly relevant for food retailers. From sales of just \$15.2 billion in 1999 (Willer and Lernoud, 2015), the industry expanded to \$80 billion worldwide as of 2014 (IFOAM–Organics International, 2016). This expansion of the market has benefitted from consumers' concerns about health and environmental protection (Baker et al., 2004; Bauer et al., 2013; Essoussi and Zahaf, 2008) but also from their prioritization of various hedonic benefits of organic products, such as better taste, appearance, and smell (Cervellon and Carey, 2014; McEachern and McClean, 2002).

Yet barriers to organic consumption remain in place, including higher prices, lack of consumer confidence (Aschemann-Witzel and Zielke, 2015; Bhaskaran et al., 2006; Gleim et al., 2013), and insufficient marketing efforts (Hughner et al., 2007; Ngobo, 2011). Consumers' confusion and inability to differentiate organic products from their conventional counterparts also hinder this market (Chryssochoidis, 2000; Gleim et al., 2013). In particular, product quality largely determines competitiveness at macro and micro levels (Golder et al., 2012; Steenkamp, 1990), and confusion about what makes a product "organic" may prevent consumers from recognizing their quality and thus from adopting and using such products (Gleim et al., 2012; Harbaugh et al., 2011). So, identifying and predicting consumers' cognitive responses to organic food could help explain their perceptions of the quality of these products, as well as reveal which situations or characteristics might drive changes to these perceptions.

Previous studies of consumer responses to organic markets tend to focus on their attitudes (e.g., Kareklas et al., 2014; Tucker et al., 2012) and purchases (e.g. Kim and Chung, 2011; Lin and Chang, 2012); only a few researchers analyze consumers' cognitive responses (Bauer et al., 2013; Borin et al., 2011; D'Souza et al., 2007; Hidalgo et al., in press; Kim and Seock, 2009; Larceneux et al., 2012). Thus, extant research details only some of the steps involved in processing quality evaluations, such as the use of cues and belief formation about attributes (Steenkamp, 1990) or how quality experiences shape perceptions of a firm's delivered attributes (Golder et al., 2012). These studies address the effects of

environmental cues or consumer lifestyles on perceptions of specific (organic) product attributes; however, they ignore potential moderating effects on the relationship between attribute perceptions and perceived quality. For example, Steenkamp (1990) shows that during interactions with objects, people assess those objects to build their perceptions, such that their perceptions arise from the contextual frame, defined by both personal and environment variables. Such variables then influence the relationship between perceptions of certain attributes and perceived quality. Golder et al. (2012) note that consumers differ according to how important they consider an attribute for developing their quality perceptions. They explain these differences using variables such as the type of attributes, expectation certainty, or the benchmarks consumers use.

We seek to extend these insights by focusing on the last step of Steenkamp's (1990) model and the third state in Golder et al.'s (2012) model. That is, the stage that involves the integration of attribute perceptions into quality perceptions about the organic market. Thus, we can identify which attributes explain the perception of quality of organic food versus conventional options. These potentially influential attributes are wide ranging, including both hedonic perceptions and utilitarian perceptions related to health or environmental protection benefits. Nonetheless, our contribution is focused on moderating variables on the relationship among those attributes perceptions and perceived quality. We consider the product category associated with organic food options together with consumers' cognitive styles as potential moderating variables that affect the relationships of the different perceptions. Specifically, we distinguish two types of product categories: vice products with more short-term and emotional benefits, and virtue products with more long-term, utilitarian benefits. In terms of cognitive style, we investigate how the relationships among perceptions change depending on how people process information: intuitively and holistically or else analytically and in detail.

In the next section, we review previous literature and propose our hypotheses. After detailing the method, measures, and analyses, we present the results, which in turn reveal some notable theoretical and managerial implications, as well as some limitations and directions for further research.

3.2. Theoretical framework

3.2.1. *Conceptual model of the quality perception process for organic market*

According to Steenkamp (1990, p. 317), product quality is an important cognitive response and “an idiosyncratic value judgement with respect to the fitness for consumption which is based upon the conscious and/or unconscious processing of quality cues in relation to relevant quality attributes.” In his model, consumers use certain environmental cues linked to specific product attributes to build their perceptions of attributes, which in turn explain their ultimate perceptions of quality. In this continuous process, he differentiates several quality assessment steps: cue acquisition and categorization, quality attribute belief formation, and integration of quality attribute beliefs. In the last step, the importance of different attributes for explaining perceived quality depends on their instrumentality in providing the desired consumption experience. Thus, depending on the kind of product and beliefs about specific attributes, perceived quality can be explained by specific, pertinent attributes.

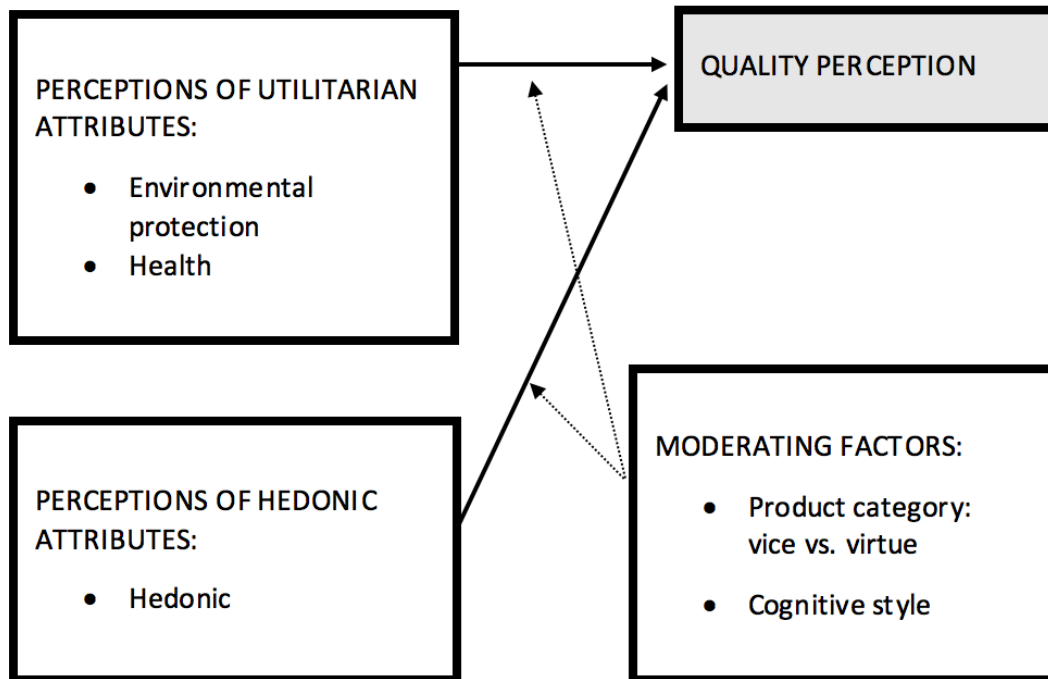
Instead, Golder et al. (2012, p. 2) define quality as “a set of three distinct states of an offering’s attributes relative performance generated while producing, experiencing, and evaluating the offering.” So, “each state of quality is a comparative assessment of an offering’s attributes’ performance relative to a reference standard desired by either firms or customers.” During the production process, firms transform inputs into attributes, reflecting their attribute and process design specifications. The resulting attribute quality reflects the offering’s attribute performance, relative to the design specification. Then in their experience of this quality, consumers build beliefs about the specific attributes delivered by firms, so their experienced attribute quality reflects the offering’s attribute performance, relative to the customer’s ideal. Finally, during the quality evaluation process, customers develop their perceptions of specific attributes, then form summary judgments of quality and satisfaction. Evaluations of aggregate quality reflect the sum of the perceived performance of all attributes, relative to some ideal expectation.

Although these models differ, they are not exclusive. Golder et al.'s (2012) fuller model takes different stakeholders into account, but both contributions suggest that perceptions of quality depend on consumers' beliefs about specific product attributes.

In turn, studies that seek to describe consumers' cognitive responses to organic offerings tend to concentrate on specific steps in these models, such as the effects of organic label cues (Bauer et al., 2013) or claims on the packaging (Hidalgo et al., in press). To advance the field, we instead focus on a further step, namely, the aggregation or integration of attribute perceptions. Organic products tend to be perceived as more nutritive and natural than conventional options, due to their production system, which promises to be free of chemicals or additives (Ott, 1990; Pino et al., 2012; Squires et al., 2001; Wandel and Bugge, 1997; Wilkins and Hillers, 1994). Their utilitarian benefits increase their utility, in that they promise improved health and environmental protections (e.g. Essoussi and Zahaf, 2008; Kareklas et al., 2014). However, organic products also comprise hedonic attributes. As McEachern and McClean (2002) note, organic products tend to taste better than conventional ones, and Cervellon and Carey (2014) cite consumers' more positive assessments of the appearance, smell, and texture of organic food, following their purchases and experiences with the products.

Thus, organic products are characterized by attributes related to environmental protection, health, and hedonic elements such as taste. We accordingly seek to explain quality perceptions according to the aggregation of perceptions of these three specific attributes of organic food (Figure 3.1).

Fig. 3.1. Conceptual model to process quality on organic market.



Source: prepared by the authors.

3.2.2. Moderation of contextual factors on the relationship between beliefs of attributes of organic products and perceived quality

Decision makers generally confront a dilemma between choosing what they want to do versus what they should do (Bazerman et al., 1998). Accordingly, prior literature identifies two broad product categories that reflect the most notable benefits: vice, or “want,” products that provide pleasurable experiences (e.g., cakes, pastries) but also threaten negative future outcomes (e.g., increased weight and cholesterol levels) and virtue, or “should,” products that offer less rewarding immediate benefits but are more beneficial in the long term. Consumers’ choices largely depend on this vice/virtue categorization (Milkman et al., 2008; Okada, 2005; Van Doorn and Verhoef, 2011).

We similarly expect that these categories influence how consumers integrate their perceptions of product attributes to determine their perceptions of quality in organic markets. That is, their organic product category-based judgments might alter the perceptions of quality that they derive from their beliefs about the products' attributes. Van Doorn and Verhoef (2011) similarly apply the vice/virtue distinction to previous steps in the model of perceived quality, noting differences among perceptions of attributes related to prosocial, hedonic, or health benefits (e.g., environmental protection, taste). Because consumption of vice products involves guilt feelings, consumers seek to justify their purchases in that category, such as by highlighting the prosocial benefits that stem from consuming organic food. In this case, consumers can link their guilt-inducing vice consumption to their positive contributions to a good cause. With a similar rationale, health benefits might help decrease guilt feelings. Thus, environmental and health perceptions positively influence quality perceptions for both vice and virtue organic products, even though these product benefits appear less congruent with the former category.

By definition, virtue products feature utilitarian attributes, increase utility, and provide long-term benefits, whereas vice products are linked to hedonic aspects and short-term benefits. Environmental protection and health benefits are longer-term and thus more congruent with virtue than with vice categories. In contrast, hedonic attributes, related to organic foods' taste and satiety, are short-term benefits, in line with the vice category. Therefore,

H1a. The effect of environmental protection perception of an organic food versus its conventional counterpart on quality perception will be greater for virtue products than vice products.

H1b. The effect of health perception of an organic food versus its conventional counterpart on quality perception will be greater for virtue products than vice products.

H1c. The effect of hedonic perception of an organic food versus its conventional counterpart on quality perception will be greater for vice products than virtue products.

3.2.3. *Moderation of personal factors on the relationship between beliefs of attributes of organic products and perceived quality*

Prior research notes the relevance of consumers' cognitive styles for their decisions. For example, Bloch (1995) notes that information processing styles influence consumers' responses to product design, and Hidalgo-Baz et al. (in press) argue that cognitive styles also affect assessments of attributes based on cues. We thus propose a moderating effect of cognitive style, which reflects the way people assess stimuli and process information. More intuitive consumers use holistic assessments and engage in faster processing (Al-linson and Hayes, 1996), whereas analytical consumers make conscious efforts to assess and understand information about their environment, following a step-by-step, detailed process.

According to Darby and Karni (1973), some products and attributes can be assessed only through their usage or experience with them, whereas others feature credence attributes that are difficult to assess through direct observation or regular use. Organic food mainly is a credence product (Lee and Hwang, 2016). It offers utilitarian attributes such as environmental protection and health benefits that are nearly impossible to assess solely through observation and rapid processing of information. Instead, they require more rational information processing, which is difficult for intuitive consumers but well-matched with analytical consumers who already process information using detailed analyses. In terms of the hedonic attributes of organic food though (McEachern and McClean, 2002), consumers can readily assess factors such as taste and appearance through their usage, in line with the rapid processing of information preferred by intuitive consumers. Thus,

H2a. The effect of environmental protection perception of an organic food versus its conventional counterpart on quality perception will be greater for analytical consumers than intuitive consumers.

H2b. The effect of health perception of an organic food versus its conventional counterpart on quality perception will be greater for analytical consumers than intuitive consumers.

H2c. The effect of hedonic perception of an organic food versus its conventional counterpart on quality perception will be greater for intuitive consumers than analytical consumers.

3.3. Methodology

We conducted a survey in a Spanish city to gather empirical evidence. Using a quota sampling procedure, we identified 209 respondents who indicated that they were actively involved in purchasing food for their households. A pretest ensured the comprehensibility of the survey items and photos, as well as the appropriateness of the data collection procedure.

3.3.1. Product category

Participants completed the questionnaire, pertaining to one of the two product categories: chocolate as a vice product or yogurt as a virtue product (Hui et al., 2009; Van Doorn and Verhoef, 2011). They saw a picture of an organic product, as well as its conventional counterpart, so that we could obtain comparative assessments and specify any distinct attributes between organic and conventional versions. The participants indicated their perceptions of the pictures, such that we gathered information about organic versus conventional chocolate from 111 respondents and information about organic versus conventional yogurt from 98 participants. The pictures revealed actual packages of real organic and conventional products, produced by the same brand (Carrefour), to avoid any brand

effects. The Carrefour brand is a suitable choice, because it offers both organic and conventional versions of food products. In addition, it achieved the top rank in brand awareness for 2012 (Taylor Nelson Sofres-TNS, 2012).

3.3.2. Consumer perceptions, cognitive style and demographic profile

The questionnaire consists of two sections. First, we measure perceptions of the products in the pictures on a seven-point scale (0 = strongly disagree; 6 = strongly agree), following research by Krystallis et al. (2006). The perceptions are reflective constructs, extracted from two principal component analyses, which helps ensure content validity. Similar to Steenkamp (1990), we regard perceptions of specific attributes as linked, rather than being orthogonal, so we start with a Promax rotation for the analyses. We extract the three constructs pertaining to attributes of organic food relative to conventional counterparts: environmental protection perceptions, health perceptions, and hedonic perceptions. Then we extract another perception from a second principal component analysis, reflecting the respondents' broad assessments of organic food, that is, their quality perceptions. Table 3.1 contains the statistics and factor loadings for these items. The mean values signal that organic food mainly is linked to environmental protection and health perceptions. The items' factor loadings are greater than 0.8 on the relevant constructs.

Table 3.1. Perceptual factors. Items and principal components analysis.

<i>Factors</i>	Items	M	SD	Factor Loading				VE
				F1	F2	F3	F4	
Perceptions of attributes of organic versus conventional products								0.86
Perception of Environmental Protection (F1)	Product 1 has fewer harmful components for the environment than product 2.	4.4	1.22	0.93				
	Product 1 is more environmentally friendly than product 2.	4.5	1.16	0.94				
Health perception (F2)	Product 1 is more natural than product 2.	4.3	1.32		0.91			
	Product 1 is healthier than product 2.	4.3	1.24		0.92			

Hedonic perception (F3)	Product 1 is tastier than product 2.	2.4	1.24	0.81
	Product 1 is more satiating than product 2.	2.6	1.13	0.89
Broad perceptions of organic versus conventional products				0.78
Quality perception (F4)	Product 1 is better than product 2.	3.8	1.34	0.88
	Product 1 is of higher quality than product 2.	3.5	1.16	0.88

Notes: M = mean, SD = standard deviation, VE = variance explained.

Second, we gathered information about the respondents' cognitive styles and demographic profiles. We use a reduced, six-item version of the cognitive style index (CSI; Allinson and Hayes, 1996), measured on a seven-point scale (0 = strongly disagree; 6 = strongly agree). According to the scale authors, cognitive style is a continuous variable; people are not strictly analytical or strictly intuitive. We include three important dimensions of the CSI: the intention to keep a routine, the number of elements used to make a decision, and the kind of elements considered. Then we develop one analytical item and one intuitive item for each dimension. The analytical items are scored with an upward trend (0 to 6); the intuitive items are scored in reverse (6 to 0). The final measure sums the scores for all six items. Table 3.2. details the items and reliability analyses, which are suitable for the formative constructs, as well as the correlations among the items.

Table 3.2. Cognitive Style Index.

Items	M	SD	Pearson Correlation					
			I1	I2	I3	I4	I5	I6
I1: I try keeping a routine in tasks that I do in my life, personal and professional.	3.4	1.40	1	0.90*	0.15*	0.12 ⁺	0.20**	0.19**
I2: I usually prefer to search variety to monotony (R).	3.2	1.37		1	0.15*	0.11	0.20**	0.23**
I3: I usually pay attention to details before drawing conclusions.	3.4	1.42			1	0.84**	0.36*	0.36**
I4: I make a lot of decisions by using my intuition (R).	3.2	1.48				1	0.25**	0.35**

I5: I need a detailed explanation of causes or backgrounds to understand facts completely.	3.1	1.55	1	0.88**
I6: I am more comfortable with broad ideas rather than extensive arguments (R).	2.9	1.53		1

Note: M = mean, SD = standard deviation, R = reversed items.

⁺ $p < .10$; * $p < .05$; ** $p < .01$.

Finally, we gathered the respondents' genders and ages, along with measures of the size of their household and the presence of children younger than 6 years or from 7 to 12 years. Women represent 86.6% of our sample. The age range spans from 18 to 82 years, with 45.9 years as the average (standard deviation = 12.6). Households include 2.6 people on average, and 10.5% of them have one child younger than 6 years (1% have at least two young children), while 9.1% of households include one child between 7 and 12 years of age (3.8% have at least two children in this age range).

3.4. Analysis and results

We rely on linear regression models to test the hypotheses, then use two specifications to test each hypothesis block. The following specification provides the test for H1:

$$QP = \alpha + \sum \beta (CV) + \sum \gamma (P) + \sigma (VP) + \sum \lambda (VP \times P) + \xi, (1)$$

where QP denotes perceived quality; α is a constant to estimate the model; CV is a vector of the control variables (age, gender, household size, number of children under 6 years, number of children between 7 and 12 years); β is a vector of parameters that estimate the effects of these control variables; P is a vector of variables related to perceptions of specific attributes of organic food (environmental protection, health, hedonic); γ is a vector of parameters that can estimate the effects of these perceptions of specific attributes of organic food; the VP dummy variable takes a value of 1 for vice products (chocolate) and 0 for virtue products (yogurt); σ is a parameter that estimates the effect of the product category; $(VP \times P)$ is a vector of interactions between product category and each product

attribute perception; λ is the vector that estimates those interaction effects; and ξ provides an error term.

The first column in Table 3.3. contains the results from this first regression model. In a model with only direct effects (no interaction effects), the results support H1a (95% confidence level): The positive effect of environmental protection perceptions on perceived quality is greater for virtue than for vice products. However, the effects of health and hedonic perceptions on perceived quality, moderated by product category, were not significant, so we cannot support H1b or H1c. Despite a general research consensus that chocolate is a vice product (Hui et al., 2009; Van Doorn and Verhoef, 2011), consumers might have read popular recent press articles about the healthy attributes of chocolate (Alonso, 2015; Baker, 2016), which could explain why chocolate did not reveal a negative interaction with the effect of health perceptions on perceived quality, as we proposed in H1b. Furthermore, this healthier perception of organic chocolate could reduce the pleasure associated with vice consumption, as Van Doorn and Verhoef (2011) and Raghunathan et al. (2006) show. Ellison et al. (2016) find that consumers assess strawberries' taste as better than chocolate cookies'; this category effect could explain the lack of positive interaction of the vice category with hedonic perceptions to affect perceived quality, as we anticipated with H1c.

Next, we used the following specification to test H2:

$$QP = \alpha + \sum \beta (CV) + \sum \gamma (P) + \delta(CSI) + \sum \zeta (CSI \times P) + \xi, (2)$$

where CSI refers to consumers' cognitive style (intuitive vs. analytical); δ is a parameter to estimate the effect of cognitive style; $(CSI \times P)$ is a vector of variables for the interaction between cognitive style and each attribute perception; and ζ is a vector of parameters to estimate those interaction effects.

According to the second column in Table 3.3., the direct effects model supports H2c (90% confidence level), such that effect of hedonic perceptions on perceived quality is weaker when CSI is higher—that is, for more analytical relative to more intuitive consumers.

Therefore, the positive effect of hedonic perceptions of an organic product on perceived quality increases for the most intuitive consumers. Our results also are in line with H2a and H2b, because the positive effects of environmental protection and health perceptions on perceived quality are greater for more analytical consumers. However, those effects are not significant, so we cannot fully confirm H2a and H2b.

As a further test, we transform our continuous CSI measure, which ranges from 0 to 36 points (Allinson and Hayes, 1996), into a categorical variable, such that highly intuitive consumers score between 0 and 9; intuitive consumers who have some analytical traits score from 10 to 18; analytical consumers with some intuitive elements score from 19 to 27; and highly analytical consumers score higher than 28 points. In our sample, 40% percent of respondents are either highly intuitive or mainly intuitive, 50% are mainly analytical, and only 10% are highly analytical. The low significance in the regression model that contains the interactions with CSI thus could be a result of a lack of variability.

Table 3.3. Model to process quality on organic market.

	Quality Perception (H1)	Quality Perception (H2)
Control variables		
Constant	0.158	0.067
Gender (1= female)	-0.032	-0.010
Age	0.003	0.003
Household size	-0.043	-0.060
Children under 6	0.081	0.103
Children from 7 to 12	-0.018	-0.019
Direct Effects		
Perception of environmental protection	0.311**	0.072
Health perception	0.485**	0.333
Hedonic perception	0.232*	0.515**
Product category (VP: 1=chocolate)	-0.263*	-
CSI	-	-0.003
Interactions		

Perception of environmental protection x Chocolate	-0.285*	-
Health perception x Chocolate	0.059	-
Hedonic perception x Chocolate	-0.129	-
Perception of environmental protection x CSI		0.004
Health perception x CSI		0.009
Hedonic perception x CSI		-0.017+
Adjusted coefficient of determination (R²)	0.454**	0.427**

+ $p < .10$; * $p < .05$; ** $p < .01$.

Finally, we use the common Breusch-Pagan test to check the heteroscedasticity of the models. This test confirms the homoscedasticity of all our models. Robustness estimations thus are not necessary.

3.5. Discussion

The perceived quality of organic products can be explained better by environmental protection perceptions when the product represents a virtue category rather than a vice category. The effect of hedonic attributes, such as taste, on perceived quality also is greater when consumers process information holistically, following an intuitive style.

3.5.1. Theoretical implications

With these findings, this study contributes to academic marketing research about organic products. In particular, we confirm and extend existing models that explain perceived quality (Golder et al., 2012; Steenkamp, 1990) by identifying which attribute perceptions best explain the perceived quality of organic products, as well as several conditions and variables that can alter this relationship. As our results show, environmental protection, health, and hedonic beliefs all combine to explain consumers' perceptions of the quality of organic products, but their perceptions shift depending on the specific product category and the cognitive style of the consumer. Specifically, the effect of environmental protection perceptions on perceived quality is greater for virtue products, such as yogurt, than for vice products, such as chocolate. The effect of hedonic perceptions on perceived qual-

ity also depends on consumers' cognitive style, because perceptions that are easily assessed through consumption (e.g., taste) exert stronger influences among intuitive consumers who process information quickly and holistically.

3.5.2. *Managerial implications*

These results in turn suggest implications for organic manufacturers and retailers. In particular, they should consider the product categories of the organic items they sell when they pursue a competitive quality strategy. To enhance perceptions of the quality of virtue products for example, they should emphasize utilitarian, long-term benefits, such as environmental protection.

Furthermore, they should acknowledge consumers' methods for processing and assessing information. Perceptions of less rational benefits, which can be assessed quickly and without much detailed information, exert stronger impacts on the quality perceptions of intuitive consumers who assess stimuli holistically. As Royne et al. (2011) note, communication strategies tailored to different kinds of consumers can encourage the consumption of organic products, such that "reaching different consumer groups with the appropriate strategies may translate into more positive eco-friendly behaviors" (p. 332). For example, an environment with fewer stimuli (e.g., less information on packages) might facilitate processing of information related to hedonic benefits and in turn exert stronger effects on the perceived quality of organic food.

3.5.3. *Limitations and future research*

Some limitations of this research indicate the need for further investigation. We only consider two products, one each to represent the vice and virtue categories. Continued research might assess the perceived quality of other products in each category to enhance the generalizability of our results. Other contextual factors also might affect the relationship between perceived quality and each attribute perception, such as the kind of organic brand (global vs. local vs. private) or the environment in which the consumer is purchasing the organic food (e.g., specialty stores, supermarkets, convenience stores). Likewise,

additional personal factors might moderate these relationships, and we recommend that further research account for consumers' interests and lifestyles, in relation to environmental protection, health, and hedonic aspects, to determine their potential effects on perceptions of the quality of organic food.

Because we examine a set of attributes that distinguish organic products from their conventional counterparts, we consider only independent variables that have positive influences on quality perceptions. However, other supply factors constitute barriers to the consumption of organic food, and they also might have negative impacts on perceived quality. For example, the relatively higher prices and poorer availability of organic products compared with their conventional counterparts could translate into a negative effect on perceived quality. Further research should consider these effects too.

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**CHAPTER 4. IS ADVERTISING HELPFUL FOR ORGANIC BUSI-
NESSES? DIFFERENTIAL EFFECTS OF PACKAGING CLAIMS**

4.1. Introduction

Organic food products result from organic farming, which imposes strict restrictions on the use of chemical pesticides, synthetic fertilisers, antibiotics and other substances. This agricultural system seeks to provide consumers with fresh, tasty and authentic food while respecting natural life cycle systems (European Commission, 2015). Organic food products usually feature some organic certification, issued by an independent, accredited institution that performs organic product testing (Bauer et al., 2013). Accordingly, food retailers regard organic products as a key element of their assortments (Bauer et al., 2013; Van Doorn and Verhoef, 2011; 2015; Van Nierop et al., 2012), in recognition of both growing interest in social corporate responsibility initiatives (Ailawadi et al., 2014; Bhattacharya and Sen, 2004; Groening et al., 2009) and the higher margins that these products usually offer, compared with their conventional counterparts (Bezawada and Pauwels, 2013). As Willer and Lernoud (2015) note, global sales of organic food and beverages reached US\$72 billion in 2013, reflecting a sharp increase in revenues compared with the US\$59 billion earned in 2010 and an almost five-fold increase since 1999 (US\$15.2 billion). This growing organic trend, even during economic downturns, suggests that organic products represent an attractive market (Sander et al., 2011; Willer and Kilcher, 2015).

Despite generally positive attitudes toward organic food products though, the size of this market continues to pale in comparison with that for conventional items (D'Souza et al., 2007; Gleim et al. 2013; Izagirre-Olaizola et al., 2013; Kollmuss and Angyeman 2002; Moraes et al., 2012; Peattie, 1999). Thus, Gleim et al. (2013, pp. 44) caution that 'estimates report the market share for green products to be less than four percent worldwide ... in spite of consumers' expressed concern for the environment'. For example, Spanish consumers spend 1018 million Euro on organic food but 101,250 million Euro on conventional products (PRODESCON, 2014). The reasons for this gap mainly involve barriers to consumption, such as high prices, lack of consumer confidence in supplier organizations (Bhaskaran et al., 2006; Gleim et al., 2013; Terrachoice Environmental Marketing 2009) or a lack of availability (Gleim et al., 2013). But another obstacle may result

from consumers' confusion and difficulty differentiating organic food from conventional products (Chrysochoidis, 2000; Gleim et al., 2013; Gfk, 2011). This situation might be aggravated by the relatively limited use of marketing tools in organic markets (Aertsens et al., 2009; Hughner et al., 2007; Krystallis et al., 2006; Ngobo, 2011); insufficient marketing communication exists to help them differentiate the products (Boulding et al., 1994).

Most prior literature investigating the market performance of organic products concentrates on perceptions and beliefs as causal variables, prompting either conative (e.g. Kim and Chung, 2011; Lin and Chang, 2012) or affective (Kareklas et al., 2014; Tucker et al., 2012) responses. Studies also address consumer price sensitivity (Van Doorn and Verhoef 2011, 2015) and describe the perceptual dimensions of organic products (Fotopoulos and Krystallis, 2002; Krystallis et al., 2006) or their related communication tools (Carlson et al., 1993). Recent research (Atkinson and Rosenthal, 2014; Bickart and Ruth, 2012; Loebnitz et al., 2015) indicates an effect of eco-labels or organic labels on purchase intentions and attitudes; Bauer et al. (2013) specifically address how an organic label affects perceptions of global, local or private brands. Such studies focus solely on organic labels as a form of packaging claims.

Although this article adopts an approach similar to Bauer et al. (2013), we extend previous research into the effect of various communication strategies. In particular, our definition of organic food reflects the array of requirements that regulators in Western nations have developed for producing, packaging and labeling organic food (Guilabert and Wood, 2012; Van Doorn and Verhoef, 2015). In turn, we can investigate the effects of packaging claims on consumer perceptions of organic products. That is, packaging claims might minimise consumer confusion by providing a clear definition of organic products and differentiating them from conventional counterparts. Packaging claims are widely prevalent for consumer goods (Lado et al., 2012), largely because so many grocery purchases (59%) are unplanned (Inman et al., 2009; Stilley et al., 2010). Both manufacturers and retailers thus pay special attention to in-store stimuli, including the claims presented on product packaging.

As a further contribution, this study goes beyond research on green advertising that takes a threat appeals perspective, focusing only on environmental risks (Hartmann et al., 2014; LaTour and Tanner, 2003; Obermiller, 1995). For example, Hartmann et al. (2014) confirm that exposure to an advertisement featuring threat appeals related to climate change affect consumers' beliefs and pro-environmental behavior. We instead adopt a benefits-sought perspective, with the recognition that organic food often is associated with positive attributes pertaining to environmental preservation and people's health (Essoussi and Zahaf, 2008; Kareklas et al., 2014). Therefore, these benefits should represent key differentiators between organic and conventional foods. This study investigates how specific packaging claims might influence consumers' perceptions of the product's environmental protection, health and hedonic benefits, as well as their broader assessment of product quality (Van Doorn and Verhoef, 2011).

We further predict that the method adopted in packaging claims to express the benefit might influence people's perceptions. To address this aspect, we distinguish two message types: explicit and implicit. Explicit messages express benefits clearly and unmistakably; implicit messages might be understood in various ways and support different interpretations. The differential effects of these two kinds of claims likely influence people's perceptions of the benefits associated with organic food. That is, this study details how claims that differ in their level of explicitness and in their message topic affect consumers' perceptions of organic products. Finally, people use two main cognitive styles to process information or evaluate stimuli: intuitive or analytical (Allinson and Hayes, 1996; Simon, 1987; Taggart and Valenzi, 1990). Analytical consumers generally put more conscious and explicit effort into assessing stimuli, by carrying out a step-by-step analysis, whereas intuitive consumers rely on a more implicit process, with holistic assessments and less conscious effort (Bloch, 1995). To contribute to this line of research, we analyse how cognitive styles might affect the relationship by which the signals issued by packaging claims on organic food products influence consumer perceptions.

In the next section, we develop our proposed hypotheses. After explaining the methodology for the empirical analysis, we detail the findings and their interpretations. Finally, this article summarises some major conclusions and implications of our investigation.

4.2. Theoretical framework

4.2.1. Signaling and congruent cues on perception

According to information economics theory (Nelson 1970, 1974), consumers are uncertain about the attributes and benefits of the products they aim to purchase because of the imperfect, asymmetric information that characterises most product markets. To compensate for this lack of knowledge, consumers can seek information about the products' attributes before purchasing (i.e. search products) or gather more information through use after purchasing (i.e. experience product) (Nelson 1970, 1974). In addition, credence products are those that cannot be evaluated through normal use (Darby and Karni, 1973), such that their assessment requires additional, costly information. Although many product attributes can be verified through personal experience or information search, credence claims must be accepted at face value (Atkinson and Rosenthal, 2014). Organic foods are credence products (Karstens and Beltz, 2006; Loureiro et al., 2002).

Signaling theory, as has been applied in previous research related to claims on organic products (e.g., Atkinson and Rosenthal, 2014; Loebnitz et al., 2015), in turn offers an explanatory mechanism for how packaging claims might affirm the credibility of an advertiser's organic claims and thereby improve consumers' attitudes toward these credence product (Erdem and Swait, 1998). That is, it predicts that individuals in the marketplace (buyers) are at a disadvantage compared with manufacturers (sellers). Consumers face an information deficit, so they must assess products and services on the basis of incomplete, misleading or otherwise imperfect information. In this asymmetric information environment, consumers rely on cues or signals to evaluate product quality (Atkinson and Rosenthal, 2014; Nelson 1970, 1974; Olson, 1972).

These cues can be intrinsic or extrinsic. The former refers to attributes whose modification would involve a change in the physical properties of the product. The latter relate less closely to the product, such that changes to extrinsic cues do not necessarily entail changes to product attributes (e.g. brand names, packaging, product communication). Packaging, as a form of advertising that ‘carries a strategic message, such as performance claims’ (Richards and Curran, 2002), is also an extrinsic cue.

To resolve their information asymmetry and make product assessments, consumers thus might rely on packaging claims as informative cues (Larceneux et al., 2012; Loureiro et al., 2002; Roe and Sheldon 2007). Empirical evidence reveals the positive impact of packaging claims on consumer perceptions of organic products, such as the significant influence of eco-labels and seals on attitudes toward and purchase intentions for organic foods (Atkinson and Rosenthal, 2014; Bickart and Ruth, 2012). Furthermore, the use of ‘organic’ messages improves consumer perceptions (Bauer et al., 2013; Larceneux et al., 2012; Loebnitz et al., 2015). Accordingly, we predict that packaging claims on organic products are extrinsic cues that have positive influences on consumers’ perceptions of the products.

Consumers’ perceptions of organic products often involve the leading benefits sought from these items, namely, environmental protection and health (e.g. Essoussi and Zahaf, 2008; Kareklas et al., 2014). Whether packaging claims improve or diminish consumers’ perceptions of the quality of the organic food is not entirely clear (Larceneux et al., 2012; Van Doorn and Verhoef, 2011). Better quality and taste also are key motivations for consumers to purchase organic food (Bourn and Prescott, 2012; McEachern and McClean, 2002), but empirical evidence of these hedonic advantages for organic products remains unconvincing, and unsatisfactory quality often is cited as a main reason that people choose not to purchase organic food (Bourn and Prescott, 2002). Therefore, we analyse the effect of the different types of packaging claims on environment, health, hedonic and quality perceptions. Formally,

H1a: Implicit and explicit claims improve environmental protection perceptions of organic products.

H1b: Implicit and explicit claims improve health perceptions of organic products.

H1c: Implicit and explicit claims improve hedonic perceptions of organic products.

H1d: Implicit and explicit claims improve quality perceptions of organic products.

Inference processes, through which consumers build their beliefs and perceptions, are highly selective, such that consumers use certain signals and disregard others (Olson, 1978). When consumers associate cues with a product, they use those cues to make inferences. For example, consumers generally analyse product information in relation to the benefits sought (Haley, 1971). Ratneshwar et al. (1997) measure the prominence of a sought benefit according to the speed with which that benefit comes to the consumer's mind in relation to a product category.

Packaging claims seek to attract consumers' attention, such that they constitute selective communication strategies (Pechmann and Stewart, 1990). Including a claim about a particular attribute may result in more prominent perceptions of that attribute among consumers. For example, when an organic product features a packaging claim about a specific benefit (i.e. health), that claim should attract consumers' attention, leading them to associate the claim with the product and experience a more prominent perception about the specific topic (i.e. health). That is, consumers' behavior is congruent with their inferences, such that a cue of health benefits should enhance their corresponding perceptions of those health benefits.

To test these predictions, we analyse packaging claims related to environmental protection and health and assess their congruence with consumers' perceptions of those benefits. Formally,

H2a: Implicit claims about environmental protection enhance perceptions of environmental benefits more than do implicit claims about health.

H2b: Explicit claims about environmental protection enhance perceptions of environmental benefits more than do explicit claims about health.

H2c: Implicit claims about health enhance perceptions of health benefits more than do implicit claims about environmental protection.

H2d: Explicit claims about health enhance perceptions of health benefits more than do explicit claims about environmental protection.

4.2.2. Degree of message explicitness

The effectiveness of communication content might depend on message explicitness, which affects people's attitudes toward advertising and products (Ahearne et al., 2000). Sawyer and Howard (1991) distinguish between open-ended, implicit ads (no specific conclusion, inviting consumers to form their own conclusions) and closed-ended, explicit ads (following a deductive process to offer consumers a conclusion). Ahearne et al. (2000) note that implicit messages are more effective than explicit ones, in terms of their influence on consumers' attitudes toward low complexity products. However, they find no effect for complex goods. Evidence pertaining to green products overall also suggests that the message type can influence consumer responses (Chan, 2009; Kronrod et al., 2012).

According to European legislation (EC 834/2007 of 28 June, Article 23), biological (BIO) and ecological (ECO) terminology may be used only in reference to organic products, so such messages are legally restricted. Although these legal terms represent quality cues that provide some warranty for organic consumers, they are not well recognised; consumers have difficulties identifying organic products just by using their labels (Gfk 2011; Harbaugh et al., 2011). The confusion might arise because the terms represent implicit claims that can be understood in more than one way. Messages that detail the benefits

associated with a product and offer more explicit claims instead could improve understanding of the product by consumers and thus lead to better assessments.

H3a: Explicit claims improve perceptions of environmental protection more than implicit claims do.

H3b: Explicit claims improve perceptions of health more than implicit claims do.

H3c: Explicit claims improve hedonic perceptions more than implicit claims do.

H3d: Explicit claims improve quality perceptions more than implicit claims do.

4.2.3. Combination of explicit and implicit claims

Shu and Carlson (2014) reveal that consumers perceive the use of more than one claim as a persuasion tactic rather than an information strategy; according to Friestad and Wright's (1994) persuasion knowledge model, if consumers believe a message is intended to persuade, they adopt a confrontational attitude. Shu and Carlson (2014) assert that three claims are the optimal number for increasing positive impressions of a product. However, for the present study, consumers purchase credence products that are difficult to assess and have trouble differentiating them from conventional goods (Chryssochoidis, 2000; Gfk, 2011; Gleim et al., 2013). In such a market, a combination of implicit and explicit claims might not result in better impressions. That is, implicit messages may have smaller positive effects on perceptions, but using explicit and implicit claims simultaneously is unlikely to improve perceptions.

H4a: The combination of an explicit claim and an implicit claim on the packaging of organic products does not improve perceptions of environmental protection compared with those that result from the presence of a single claim.

H4b: The combination of an explicit claim and an implicit claim on the packaging of organic products does not improve perceptions of health compared with those that result from the presence of a single claim.

H4c: The combination of an explicit claim and an implicit claim on the packaging of organic products does not improve hedonic perceptions compared with those that result from the presence of a single claim.

H4d: The combination of an explicit claim and an implicit claim on the packaging of organic products does not improve quality perceptions compared with those that result from the presence of a single claim.

4.2.4. Role of Cognitive Style

Bloch (1995) shows that the styles consumers use to process information affect their responses to product designs. Some people process a set of information or stimuli holistically; others analyse all the information thoroughly. Bloch's (1995) styles resonate with the styles proposed in management literature to explain organizational behavior (Hayes and Allinson, 1994; Mintzberg, 1976). Namely, to process information and stimuli, people might use either an intuitive style or an analytical style (Allinson and Hayes, 1996; Simon, 1987; Taggart and Valenzi, 1990). Although traditional descriptions of cognitive styles suggest a dichotomous variable, the polar extremes are unlikely to be independent (Allinson and Hayes, 1996). That is, people are not strictly analytical or strictly intuitive but instead adopt elements of both styles (Allinson and Hayes, 1996). An analytical consumer generally makes a conscious, deliberate effort to understand the available information, by performing a step-by-step analysis and focusing sequentially on different pieces of information. Intuitive people adopt a more implicit learning process instead, making quick, holistic evaluations with a broader perspective.

If the relationship between product design and consumers' behavioral and psychological responses depends on cognitive style (Bloch, 1995), then cognitive style also might affect the relationship between packaging claims and cognitive responses, as defined by consumer perceptions. Specifically, explicit claims should have a greater effect when the target market is more analytical, because they offer more detailed, extensive information that hinders an immediate trial. Implicit claims may have a greater effect when the target

market is more intuitive, because of their holistic input for immediate trial. Thus, cognitive style might be a moderator, such that the relation between explicit claims and perceptions could be stronger for analytical consumers, whereas the relation between implicit claims and perceptions could be stronger for intuitive consumers.

H5a: Implicit claims exert a stronger effect on perceptions of environmental protection when consumers are intuitive rather than analytical.

H5b: Implicit claims exert a stronger effect on perceptions of health when consumers are intuitive rather than analytical.

H5c: Implicit claims exert a stronger effect on hedonic perceptions when consumers are intuitive rather than analytical.

H5d: Implicit claims exert a stronger effect on quality perceptions when consumers are intuitive rather than analytical.

H5e: Explicit claims exert a stronger effect on perceptions of environmental protection when consumers are analytical rather than intuitive.

H5f: Explicit claims exert a stronger effect on perceptions of health when consumers are analytical rather than intuitive.

H5g: Explicit claims exert a stronger effect on hedonic perceptions when consumers are analytical rather than intuitive.

H5h: Explicit claims exert a stronger effect on quality perceptions when consumers are analytical rather than intuitive.

4.3. Methodology

To test the hypotheses and obtain pertinent empirical evidence, we conducted an experiment in Spain, with respondents responsible for or actively involved in purchasing food for their households, intercepted in the street, who completed a questionnaire. A pre-test

prior to the main data collection ensured the comprehensibility of the items and photos within the survey, as well as the appropriateness of the data collection procedure. To ensure the representativeness of the sample, we used quota sampling, a non-probability method that controlled for the demographic characteristics of the sample (gender and age). We obtained data from 311 consumers between April and June 2013.

4.3.1. Experimental design

We used a between-subjects experiment with a 3 (implicit claims: ECO/BIO/no message) \times 3 (explicit claims: no chemical additives or synthetic pesticides, IT TAKES CARE OF THE ENVIRONMENT/No chemical additives or synthetic pesticides, IT TAKES CARE OF YOU/no message) design. Participants were assigned randomly to the different experimental conditions, with controls to ensure similar sizes across treatments, as Table 4.1. details.

Table 4.1. Sample size by treatments

Product	Explicit		No message	Explicit claim about environment	Explicit claim about health	Total
	No message	Implicit				
Cereals						102
	No message		17	11	11	39
	Implicit claim ECO		9	10	11	30
	Implicit claim BIO		11	11	11	33
Chocolate						111
	No message		17	13	11	41
	Implicit claim ECO		12	12	12	36
	Implicit claim BIO		11	11	12	34

Yogurt					98
No message	17	11	10	38	
Implicit claim ECO	11	9	11	31	
Implicit claim BIO	11	9	9	29	
Total	116	97	98	311	


Regardless of the degree of explicitness, the claims expressed two benefits typically associated with organic products: environmental protection (ECO/No chemical additives ... IT TAKES CARE OF THE ENVIRONMENT) and health (BIO/No chemical additives ... IT TAKES CARE OF YOU). Each participant considered a picture of one food product certified with an organic label and a conventional counterpart (see Figure 4.1). We gathered their assessments of the organic product, not the product category. The claims on the packaging of each organic product differed in their topic and explicitness. Altogether, we presented nine pictures for assessment: (1) no claim; (2) BIO; (3) ECO; (4) no chemical additives or synthetic pesticides, IT TAKES CARE OF THE ENVIRONMENT; (5) no chemical additives or synthetic pesticides, IT TAKES CARE OF YOU; (6) BIO/no chemical additives or synthetic pesticides, IT TAKES CARE OF THE ENVIRONMENT; (7) BIO/no chemical additives or synthetic pesticides, IT TAKES CARE OF YOU; (8) ECO/no chemical additives or synthetic pesticides, IT TAKES CARE OF THE ENVIRONMENT; and (9) ECO/no chemical additives or synthetic pesticides, IT TAKES CARE OF YOU.

Moreover, we included three product categories in the experiment: chocolate, cereals and yogurt. Respondents assessed only one product category, so the categories do not constitute an additional experimental condition; the use of the three different categories instead served to enhance the validity of the study, such that one product came from a plant origin (breakfast cereal), one had an animal origin (natural yogurt) and one food was of mixed origin (chocolate tablet). In addition, consumers are familiar with and frequently purchase these products. For example, on a list of 46 products, Spanish consumers devoted 8.7 per

cent of their food expenditures to cereals, 4.2 per cent to dairy products and 1.6 per cent to chocolate. They spent more money only on non-packaged products such as meat, fish and fruits (MAGRAMA 2015).

The same brand (Carrefour) appeared on both conventional and organic products to ensure the responses reflected the participants' assessments of organic products, not a brand effect. This food brand achieved the top rank in terms of brand awareness in 2012 (TNS 2012) and sells both certified organic products and their conventional counterparts in the categories analysed.

Figure 4.1. Pictures used in the experiment.

Conventional chocolate	Organic Chocolate			Example	
	Experimental treatments*				
		Health	Environmental protection		
	Implicit		BIO	ECO	
	Explicit		Sin aditivos químicos ni pesticidas de síntesis CUIDA DE TI	Sin aditivos químicos ni pesticidas de síntesis CUIDA DEL MEDIOAMBIENTE	
Conventional cereals	Organic Cereals			Example	
	Experimental treatments*				
		Health	Environmental protection		
	Implicit		BIO	ECO	
	Explicit		Sin aditivos químicos ni pesticidas de síntesis CUIDA DE TI	Sin aditivos químicos ni pesticidas de síntesis CUIDA DEL MEDIOAMBIENTE	
Conventional yogurt	Organic yogurt			Example	
	Experimental treatments*				
		Health	Environmental protection		
	Implicit		BIO	ECO	
	Explicit		Sin aditivos químicos ni pesticidas de síntesis CUIDA DE TI	Sin aditivos químicos ni pesticidas de síntesis CUIDA DEL MEDIOAMBIENTE	

Notes: a third experimental treatment provides no message at all. The translation into English of explicit claims are as follows: “No chemical additives or synthetic pesticides, IT TAKES CARE OF THE ENVIRONMENT”; and “No chemical additives or synthetic pesticides, IT TAKES CARE OF YOU”.

4.3.2. Measures

The measure of consumer perceptions used Krystallis, Fotopoulos, and Zotos's (2006) seven-point Likert scale (0 = 'strongly disagree' and 6 = 'strongly agree'), which assesses each item in relative terms, such that product 1 (organic product) gets compared with product 2 (conventional version of the same product). This approach prevents any potential bias related to consumers' preferences in the product category and provides a clearer assessment of organic food. The items and the scale analysis are in Table 4.2.

Table 4.2. Items and principal components analysis for perceptual factors

<i>Factors</i>	Items	M	SD	Factor loadings				VE
				F1	F2	F3	F4	
Factor analysis 1. Perceptions of attributes of organic versus conventional products								0.85
Perception of environmental protection (F1)	‘Product 1 has fewer harmful components for the environment than product 2’	4.4	1.23	0.92				
	‘Product 1 is more environmentally friendly than product 2’	4.6	1.17	0.94				
Health perception (F2)	‘Product 1 is more natural than product 2’	4.2	1.43		0.92			
	‘Product 1 is healthier than product 2’	4.2	1.39		0.93			
Hedonic perception (F3)	‘Product 1 is tastier than product 2’	2.2	1.25			0.81		
	‘Product 1 is more satisfying than product 2’	2.5	1.12			0.89		
Factor analysis 2. Broad perceptions of organic versus conventional products								0.80
Quality perception (F4)	‘Product 1 is better than product 2’	3.7	1.43				0.89	
	‘Product 1 is of higher quality than product 2’	3.5	1.22				0.89	

Notes: M = mean, SD = standard deviation, VE = variance explained, ^a Pearson Correlation with $p < .01$.

In this study, perceptions are reflective constructs; two principal components analysis helped ensure content validity. Items pertaining to environmental, health and hedonism perceptions of the organic product constitute the focus in the first analysis. A Promax rotation is appropriate, because these dimensions do not need to be strictly independent. As Table 4.2 shows, the results distinguish three dimensions in the scale. The perceptions are dimensional and pertain to certain product attributes. Two of the three perceptions are utilitarian, focused on utility maximisation for consumers and related to the main benefits of organic products (environmental protection and health). The third perception is hedonic, reflecting taste and satiety attributes. A second analysis includes the items related to the broader assessments of quality or an overall assessment of the product. The results from both analysis confirm the scale's reliability (i.e. the composite reliability of each factor and the explained variance in both principal components analysis are greater than .7 and .5, respectively).

The scale for this study is a reduced, six-item version of the cognitive style index (CSI), which characterises how people process information, as developed by Allinson and Hayes (1996). According to these authors, a formative index is more appropriate than a reflective variable. We therefore consider three important dimensions associated with information processing: the intention to keep a routine, the kind of elements taken into account to make decisions and the number of elements used. Three items refer to analytical processing methods, one for each dimension considered, whereas the other three items reflect intuitive tactics, all on seven-point Likert scales (0 = 'strongly disagree' and 6 = 'strongly agree'). The analytical items are scored on an upward line (0 to 6), whereas the intuitive items score on a descending line (6 to 0), to represent reversed scores (denoting with R in Table 4.3). The final measure is the sum of the scores for all six items. Therefore, a respondent is analytical if the CSI is high but intuitive if the CSI is low. The items used and the analysis performed are detailed in Table 4.3.

Table 4.3. Cognitive Style index.

Item	M	SD	Pearson Correlation
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			I1	I2	I3	I4	I5	I6
I1: I try keeping a routine in tasks that I do in my life, personal and professional.	3.3	1.46	1	0.92*	0.16*	0.14 ⁺	0.22*	0.20*
I2: I usually prefer to search variety to monotony. (R)	3.1	1.45		1	0.16*	0.14 ⁺	0.23*	0.25*
I3: I usually pay attention to details before drawing conclusions.	3.3	1.45			1	0.85*	0.43*	0.43*
I4: I make a lot of decisions by using my intuition. (R)	3.0	1.49				1	0.37*	0.44*
I5: I need a detailed explanation of causes or backgrounds to understand facts completely.	3.0	1.58					1	0.89*
I6: I am more comfortable with broad ideas rather than extensive arguments. (R)	2.8	1.59						1

Notes: M = mean, SD = standard deviation, R = reversed items.

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

In addition to perceptual information and CSI, the survey gathers demographic profiles, based on the respondents' gender, age, income level, household size, and presence of children younger than six years and between seven and twelve years in the house. Gender was a dichotomous variable (0 = male, 1 = female). Women represent 86.5% of the sample. Age is a count variable; 45.85 years is the average (standard deviation = 12.06). A categorical variable serves to measure annual income levels: less than or equal to 20,000 Euros (40.8% of the sample), between 20,001 and 50,000 Euros (50.5%) or greater than 50,001 Euros (8.7%). Open questions assess both household size and the number of children. Household size is a count variable: one-member households (19.6%), two members (27.7%), three members (28.3%), four members (21.2%) or five or more members (3.1%). Finally, 10.6% of respondents have children under six years old and 11.6% have children between seven and twelve years of age in their households.

4.4. Analysis and results

Linear regression models serve to test the hypotheses. The following specification provides the test for the first four hypotheses:

$$P = \alpha + \Sigma \beta (VC) + \Sigma \gamma (EC) + \xi, \quad (1)$$

where P denotes consumer perceptions (of environmental protection, health, hedonic and quality); α is a constant to estimate the model; VC is a vector of the control variables in the study (gender, age, income household size, number of children under six and from seven to twelve years old); β is a vector of parameters to estimate the effect of the control variables; EC is a vector of variables that represents experimental conditions (ECO, BIO, explicit claim about environment, explicit claim about health, ECO \times explicit claim about environment, BIO \times explicit claim about health, ECO \times explicit claim about health and BIO \times explicit claim about environment); and γ is a vector of parameters to estimate the effect of the experimental conditions. The test of the heteroscedasticity of the models for the first four hypotheses relies on a Breusch-Pagan test, one of the most common tests for heteroscedasticity. It is broad and based on a Lagrange multiplier. Thus, a key advantage of the Breusch-Pagan test over other commonly used tests (e.g. the White test) is that it is broader and more powerful (Greene 2006). Because this test rejects homoscedasticity in the model for the quality perceptions, a robust estimation is more appropriate.

The estimations for four models, one for each dependent variable (i.e. dimensional and overall perceptions), appear in Table 4.4. The effects of ECO, BIO and explicit claims about the environment and health are fairly consistent across the different perceptions; with the exception of BIO, they all have significantly positive effects on perceptions. These results offer strong support for hypothesis H1a–H1d. Both implicit claims (ECO and BIO) and explicit claims (environment and health) improve perceptions of the organic products. Our results reveal only one non-significant effect, namely, the effect of BIO on environmental protection perceptions. Therefore, we confirm H1b–H1d and find partial support for H1a.

Table 4.4. Effect of packaging claims on consumer perceptions of organic products (non-standardized coefficients).

	Environmental perception	Health perception	Hedonic perception	Quality perception
Control variables				
Constant	-0.36	-0.95**	-0.69**	-0.42 ⁺
Gender (1= female)	0.34*	0.21	0.03	0.08
Age	-0.01**	-0.01	0.00	-0.00
Household size	-0.06	-0.08*	-0.07	-0.13**
Children under 6 years old	0.04	0.21*	-0.06	0.11
Children from 7 to 12 years old	-0.06	-0.03	0.15	0.09
Implicit claims				
ECO	1.16**	1.28**	0.74**	0.70**
BIO	0.34	0.86**	0.75**	0.44*
Explicit claims				
Environment	1.37**	1.57**	0.75**	1.07**
Health	1.06**	1.64**	0.79**	1.06**
Interaction explicit × implicit Claims				
ECO × Environment	-1.28**	-1.28**	-0.74*	-0.96**
BIO × Health	-0.39	-0.81**	-0.66*	-0.51
ECO × Health	-1.24**	-1.40**	-1.16**	-0.68*
BIO × Environment	-0.40	-0.92**	-0.52	-0.60 ⁺
Coefficient of determination (R²)	0.25**	0.34**	0.11**	0.15**

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

For hypothesis H2a–H2d, regarding the congruence between claims and perceptions, we find that for perceptions of environmental protection (H2a–H2b), the effects of explicit and implicit claims about the environment are greater than the effects of health claims. With regard to health perceptions (H2c–H2d), explicit health claims have a stronger effect than explicit environmental claims, but we find a contrasting effect for implicit claims. That is, the effect of ECO on health perceptions is greater than the effect of BIO. The tests of the parameter differences between ECO and BIO and between explicit claims about the environment versus health reveal that only implicit claims have a significantly (> 99% confidence level) different effect that varies with the topic in our effort to explain environmental perceptions (H2a), as Table 4.5 indicates. These results confirm congru-

ence between the claim topic and perceptions in H2a, such that we can explain environmental perceptions in response to implicit claims: Environmental perceptions are explained by the implicit claim ECO rather than BIO. However, we cannot confirm H2b–H2d. This result may reflect an effect of thematic scope (ETS), in the sense that environmental protection has a greater scope than a person’s individual health, because the environment involves far more elements. We might derive predictions about a person’s health and wellness from the state of the environment, but we could not explain the state of environment on the basis of a person’s individual health. In other words, the environment can influence a person’s health, but not vice versa. Therefore, consumers might infer similar levels of health beliefs from both health claims and environmental claims. In contrast, consumers must rely on environmental claims, rather than health claims, to infer environmental protection benefits, especially when those claims are implicit.

Table 4.5. Chi-square test of differences across parameters.

	Environmental perception	Health perception		
Hypothesis 2				
ECO – BIO	10.11**	2.65		
Environment – Health	2.59	0.13		
	Environmental perception	Health perception	Hedonic perception	Quality perception
Hypothesis 3				
ECO –Environment	1.07	1.50	0.00	1.93
BIO –Health	7.80**	12.29**	0.03	7.35**
Hypothesis 4				
ECO x Environment	0.30	0.00	0.00	1.11
ECO x Health	0.76	0.39	3.38 ⁺	0.01
BIO x Environment	0.09	0.08	0.85	0.39
BIO x Health	0.03	0.07	0.19	0.07

Notes: Implicit claims are ECO and BIO. Environment and Health refer to explicit claims

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

For the effect of messages with different degrees of explicitness (H3a–H3d), we find that the coefficients associated with explicit claims are greater than the coefficients for implicit claims, regardless of the message topic. However, the tests for differences between the coefficients are significant only for health claims and for all dependent variables except for hedonic perceptions (see Table 4.5). Otherwise, the differences are not significant, though the coefficients associated with explicit claims tend to be higher. The results are generally in line with Hypothesis 3, because explicit claims generally improve perceptions of organic products more than implicit claims do. But they offer only partial support, because the differences are hardly significant. Specifically, we find support for H3a, H3b and H3d for claims about health. Explicit claims about health improve perceptions of environmental protection, health and quality more than implicit claims about health do.

In support of Hypothesis 4, adding an explicit claim (about health or environment) to an implicit claim (ECO or BIO) does not improve perceptions of environment, health, quality or hedonic traits, compared with the perceptions that result from the presence of a single claim. We find negative coefficients for the combination of explicit and implicit claims (12 of 16 coefficients, 90% confidence level). The hypothesis test also features a contrast of the absolute value of the differences between the lesser effect of using one claim and the effect of using both explicit and implicit claims (see Table 4.5). Although no significant difference emerges, the strongly negative effects indicate support for the prediction that using more than one claim does not improve perceptions of organic food. The reason might stem from the confusion that consumers sense about organic products or their belief that firms use different claims as a persuasion tactic rather than as an information strategy.

Finally, the test of the last hypothesis entails the specification of the following model:

$$P = \alpha + \sum \beta (VC) + \sum \gamma (CEMA) + \delta (CSI) + \sum \lambda (CSI \times CEMA) + \xi, \quad (2)$$

where CEMA is a vector of variables depicting experimental conditions that focus on only one claim (ECO, BIO, explicit claim about the environment or explicit claim about health); γ is a vector of parameters to estimate the effect of the experimental conditions focused on a claim; CSI is the cognitive style variable; δ is the parameter to estimate the effect of the CSI; $\text{CSI} \times \text{CEMA}$ is the vector of variables for interactions between experimental conditions and CSI; and λ is a vector of parameters to estimate the effect of interactions. The Breusch-Pagan test again tests for heteroscedasticity; homoscedasticity can be rejected only in the model for health perception, so a robust estimation fits better in that case.

As the four estimated models in Table 4.6 show, the coefficients depicted by λ are not significant in the models for hedonic or quality perceptions. For health and environmental protection perceptions, only two significantly negative effects arise, for interactions between the implicit BIO and ECO claims with CSI. That is, implicit claims exert a greater effect when the target market is intuitive. These results offer partial support (weaker than the support for the other hypotheses) for hypothesis H5a–H5d, namely, that implicit claims exert a stronger effect on perceptions when consumers are intuitive and explicit claims exert a stronger effect on perception when consumers are analytical. Specifically, our results only support H5a and H5b, referring to the effect of implicit claims on perceptions of environmental protection and health.

Table 4.6. Cognitive style moderation of the claim-perception relationship (non-standardized coefficients)

	Environmental perception	Health perception	Hedonic perception	Quality perception
Control variables				
Constant	-0.35	-0.81 **	-0.57	-0.44
Gender	0.32 ⁺	0.24	-0.01	0.07
Age	-0.01 [*]	-0.01	0.01	-0.00
Household size	-0.05	-0.08 ⁺	-0.06	-0.13 ^{**}
Children under 6 years old	0.04	0.20	-0.08	0.13
Children from 7 to 12 years old	-0.06	-0.05	0.17	0.06

Implicit claims				
ECO	0.85 ⁺	1.38 ^{**}	0.02	0.49
BIO	0.79 [*]	0.77 [*]	0.43	0.25
Explicit claims				
Environment	0.41	0.40	0.51	0.37
Health	0.97 [*]	0.78 [*]	0.67 ⁺	1.37 ^{**}
Cognitive style index				
CSI	0.01	0.01	0.00	0.01
Interaction CSI × claims				
CSI × ECO	-0.03	-0.05 [*]	0.01	-0.02
CSI × BIO	-0.04 ⁺	-0.02	-0.00	-0.01
CSI × environment	0.02	0.03	-0.01	0.01
CSI × health	-0.02	0.01	-0.02	-0.04
Coefficient of determination (R²)				
	0.21 ^{**}	0.29 ^{**}	0.08 ^{**}	0.14 ^{**}

⁺ $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$.

4.5. Discussion

In organic markets, sellers make little use of marketing tools, leaving consumers confused about how to distinguish organic products from their conventional counterparts. This study addresses a particular type of communication, packaging claims, to determine their effects on consumer perceptions of certified organic food. The empirical results demonstrate that packaging claims about leading benefits associated with organic products affect consumers' perceptions of the products. The effect of explicit claims is stronger when they pertain to health topics, but no significant difference exists between explicit and implicit claims that describe environmental benefits. According to these data, using two claims (one explicit and one implicit) does not improve perceptions of the product beyond using a single claim. Finally, though cognitive style initially seemed relevant in the relationship between claims and perceptions, the full results support its moderating effect only when claims are implicit.

4.5.1. Theoretical implications

From a signaling perspective, the cues that appear on the packaging of certified organic products can be useful for differentiating them from conventional options and reducing consumer confusion. Their effectiveness depends on the degree of explicitness and the topic featured in the claim, how many claims are used and the style that consumers use to process the information. A single claim on the packaging of organic food enhances consumers' inferred perceptions when they assess such products relative to conventional counterparts. Using additional claims is not as useful for reducing information asymmetries. The degree of cue explicitness is especially important with regard to the influence of health claims on the packaging for organic food. In particular, more detailed messages about health dimensions appear more effective for complex goods such as organic food, contrary to Ahearne, Gruen, and Saxton's (2000) findings for low complexity products. Yet an implicit claim about health (BIO) does not enhance perceptions of environmental protection as much as an implicit claim about the environment (ECO) does, though this weaker effect of BIO on perceptions of environmental protection actually improves when considered by an intuitive consumer.

4.5.2. Managerial implications

These findings lead to several notable managerial implications. According to the results for Hypothesis 1, sellers of organic products should leverage their packaging to make claims and take better advantage of the market's potential. With packaging claims, they can reduce consumer confusion and effectively differentiate organic from conventional food, regardless of the highlighted benefit (i.e. environmental protection or health).

Still, the use of claims on packaging requires careful consideration, because using multiple claims does not improve perceptions any more than using one claim does. The goal is not to accrue more claims on packaging but rather to design the single claim in the most effective way. Consumers generally use claims about environmental protection and health to infer their perceptions, but for perceptions of environmental protection, they only make

inferences on the basis of implicit claims about that same dimension. They do not infer using BIO claims but do rely on ECO claims. Therefore, an implicit claim about the environment (ECO) is more appropriate on packaging for non-food products (e.g. office supplies, household cleaners), for which environmental benefits generally are more pertinent than health benefits. If the packaging features health claims, the benefits should be stated explicitly if sellers hope to influence consumer perceptions. Thus, a claim such as, 'No chemical additives or synthetic pesticides, IT TAKES CARE OF YOU', will be more effective than a claim such as 'BIO'.

Finally, different claims can catch the attention of customers who possess distinct cognitive styles. For example, implicit claims such as ECO and BIO work better to improve the perceptions of customers who are more intuitive.

4.5.3. *Limitations and future research*

These marketing implications require some caution, because of the limitations of this study. The participants in our experiment only assessed three product categories that represent different kinds of food; additional research should replicate the findings using other food categories or categories beyond food. In this experiment, respondents considered isolated pictures instead of regular grocery displays. Further research could develop field experiments to analyse the relationship between claims and perceptions more closely. Also, further analysis should include other possible moderators of this relationship. For example, the interaction between different types of brand strategies and claims could affect consumer perceptions differently (Bauer, Heinrich, and Schäfer 2013). Finally, further research could analyse the effect of messages that contain threat appeals on organic food perceptions (Hartmann et al. 2014).

4.6. **References**

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CHAPTER 5. CONCLUSIONES

5.1. Leading conclusion

Organic market highlights important aspects to society nowadays, such as environmental protection and health (Bhattacharya and Sen, 2004, Groening et al., 2009, Moisander, 2007, Nielsen, 2015; Pagiaslis and Krystallis-Krontalis, 2014). Consequently, this market has been characterized by an upward trend related to different parameters such as the number of producers, the extension of land destined to this productive system, and market sales. According to data from IFOAM - Organics International (2016): the number of producers in 2014 reached 2.3 million compared to 200 thousand in 1999; the extension of land destined to this system went from 11 million hectares in 1999 to the 43.7 million in 2014; and sales on these organic products increased from US\$ 15.2 billion in 1999 to US\$ 80 billion in 2014.

This type of product is a key element of assortment policy for retailers in the sector, (Bauer et al., 2012; Van Doorn and Verhoef, 2011; Van Nierop et al., 2012), getting higher margins on organic products versus their counterparts (Bezawada and Pauwles, 2010). However, market still has low levels of consumption compared to its conventional counterparts (D'Souza et al., 2007, Gleim et al., 2013, Izagirre-Olaizola et al., 2013, Kollmuss and Agyeman 2002, Moraes et al., 2012; Peattie, 1999). For example, Gleim et al. (2012) point out that 'estimates report the market share for green products to be less than four percent worldwide... in spite of consumers' expressed concern for the environment'. Consequently, previous literature notes the gap characterizing the market: the positive attitude expressed by the consumer related to organic products does not end up moving to an effective purchase at the same level (Ailawadi et al. 2014, Akehurst et al., 2012, Gleim et al., 2013). In addition, some obstacles are identified by previous literature. In terms of supply, this market is characterized by high prices, lack of availability (Gleim et al., 2012) and insufficient use of marketing tools (Aertsens et al., 2009; Gleim et al., 2012; Hughner et al., 2007; Krystallis et al., 2006; Ngobo, 2011). Considering consumer factors, confusion between organic product and conventional product (Chrysochoidis, 2000, Gleim et al., 2012, GfK, 2011) and product quality (Gleim et al., 2013; Harbaugh et al., 2011). In summary, the organic market is characterized by barriers regarding different

responses that consumer can state towards that type of product. On the one hand, their purchase response is not consistent with their attitude that consumers state and, on the other hand, cognitive response to the organic product is not clear. Thus, consumer analysis to explain problems characterizing organic market requires to add certain psychographic parameters of consumer, such as their cognitive style to process information and their behavioral orientations or lifestyles, apart from product category.

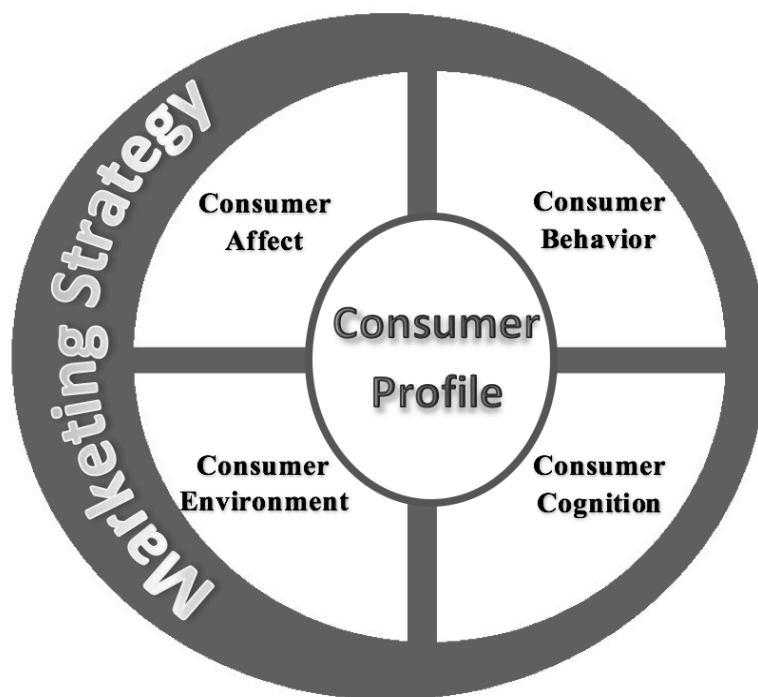
According to the results discussed throughout previous chapters, the incongruity between attitude and purchase responses towards organic products would be relieved by a greater knowledge of consumers about these products and a greater behavioral orientation towards environmental protection. In addition, the incongruity would be even lower for those consumers who are characterized by both variables, a greater knowledge and orientation towards environmental protection.

As far as cognitive response, the perception of quality of organic products will be explained by different attributes of the product: environmental protection, health and hedonic aspects. The positive relationships between these dimensional perceptions and overall quality perception will be stronger for virtue product categories such as yogurt when it comes to the effect of perceived environmental protection; and individuals who process information intuitively when it comes to the effect of hedonic perception.

Finally, our results reflect that different perceptions associated with organic product, both dimensional and general, can improve from the inclusion of environmental protection claims and health claims in the packaging of products. More specifically, we show: when health-related benefits are stated, it is more effective to use a more explicit message to state that benefit; use of more than one claim on packaging does not translate into a better perception compared to perception processed from packaging with a single message; and use of implicit messages, either about protection of environment or about health, seems to be more appropriate, leading to a better perception of organic product when target client is characterized by consumers who process information intuitively.

In conclusion, the use of the Wheel of Consumer Analysis for organic products reveals the requirement to include certain psychographic parameters of consumer to explain responses that consumer can express towards a product or service and their interaction, as shown in Figure 5.1. Particularly, the cognitive style of individuals seems to be a key variable to explain both the perception of quality from perceptions about attributes of organic product and to explain different dimensional and general perceptions from the use of communication tools, such as claims on product packaging of the products. In addition, behavioral orientations of consumer seem to explain the incongruity between attitude and purchase responses of organic. In addition to these personal factors, the thesis considers environment or situational factors, such as the type of product category of organic food, to specifically explain the perception of quality from the consumer's perceptions about different attributes characterizing the product.

Figure 5.1. A wider tyre for the Wheel of Consumer Analysis on 21st century.



Source: prepared by the authors.

5.2. Theoretical and managerial implications

The results obtained after using different methods of data collection and analysis, allow us to gather several important theoretical and practical implications. The implications of the three studies that have been noted in the previous chapters, from the second to the fourth, are summarized below.

Chapter 2. Attitudes Versus Purchase Behaviors as Experienced Dissonance: The Role of Knowledge and Consumer Orientations in Organic Market

Findings of the study detailed in Chapter 2 are consistent with the incongruity between attitudes and purchase responses about environmental or green behaviors reflected by the previous literature (Akehurst et al., 2012; Moraes et al., 2002): consumers of organic products have positive attitudes that do not end up moving to purchase, with an average of 4.9 on a scale from 0 to 6 points for the attitude and an average of 1.3 for the purchase according using the same scale. According to the Theory of Cognitive Dissonance (Festinger, 1957), the incongruity is a dissonance. Our findings provide some relief mechanisms to face that dissonance. Environmental orientations or lifestyles and knowledge about organic products would reduce the dissonance experienced by consumer because of the incongruity between their attitude responses and the purchase of organic products.

Similar to the findings of Akehurst et al. (2012) showing a reduction on the difference between purchase intention and overt behavior for individuals with greater ecological consciousness, the incongruity between attitude and purchase of organic is smaller for those with more environmental orientations.

In addition, knowledge seems not to act only as a mediator between attitude and purchase (Pagiaslis and Krystallis-Krontalis, 2014), but also as a moderator. Knowledge let purchase response get closer to the positive attitude towards organic products. This factor has an interaction effect along the orientation of environmental protection to explain the incongruity between attitude and purchase of organic products. So, individuals who have more information about organic food buy even more when their lifestyle or orientation is

more environmental. As a result of that increase on organic purchase, the difference between the purchase and attitude is lower.

Based on these results, an important recommendation, related to performing marketing strategies by companies offering organic products, would be to develop effective communication policies. That is, policies aimed to promote environmental orientations and provide information on the benefits of these products, especially those about environmental protection.

Chapter 3. Assessment Quality of Organic Products versus Conventional by Product Category and Cognitive Style

The study defines perceptions or beliefs about specific attributes of organic food that explain perceived quality of product by consumers from the models of Golder et al. (2012) and Steenkamp (1990). Thus, it notes the explanation of perceived quality from perception of environmental protection, health and hedonic aspects, such as flavour, in organic market. Apart from the application of the model, we set some conditions under which the relationship between these perceptions on attributes and the perception of quality changes. Specifically, perceived quality will change depending on product category and consumer's cognitive style to process information. Our study demonstrates a differential effect for the relationship between the perception of environmental protection and perception of quality as the type of organic product, vice or virtue. For virtue products, such as yogurt, the perception of quality will be more strongly associated with the perception of environmental protection than for a product of vice, such as chocolate. On the other hand, perceptions of attributes easily assessed by using or consuming the product, such as hedonic perceptions about taste, will have a greater impact on quality for intuitive individuals who routinely process information following a more holistically and faster than analytical subjects who process following a more rational and detailed process.

Companies offering organic food, therefore, must take into account product category of their organic good when they define and develop communication policies. For virtue

products, which maximize utility of purchase and are associated with longer-term profits, the company should highlight benefits, such as environmental protection, to further improve perceived quality of organic products. In addition, companies should not ignore cognitive style of their target consumers. Thus, they must design packaging for those products and communication policies tailored to their consumer groups. Thus, surroundings characterizing by less overload stimulus related to information supplied in packages or information provided more broadly at stores, for example, could facilitate processing of information for intuitive individuals, especially when it comes to hedonic benefits. Thus, hedonic perception would have a greater effect on perceived quality of organic good for these individuals.

Chapter 4. Is Advertising Helpful for Organic Business? Differential Effects of Packaging Claims

The research provides mechanisms, such as the use of claims on the packaging for organic products, for companies to face consumer confusion about the definition and differentiation between organic product versus its conventional counterpart from Signaling Theories (Nelson, 1970, 1974). Olson, 1972). The theoretical contribution of the research refers specifically to the effectiveness of claims depending on the degree of explicitness and topic stated on a claim, number of claims used and cognitive style of consumers to process information. Thus, we show differential effects of these parameters about different kinds of claim and personal factors of consumers to explain perceptions that individual perceives on organic product, both about specific attributes and about quality of the product. A single claim on organic packaging improves perceptions, but increasing the number of claims does not improve those perceptions. When claims are about health benefits, the more explicit messages to state those benefits get better perceptions for these complex organic goods, as opposed to findings of Ahearne et al. (2000). Additionally, we show that the use of claims to process a perception by consumers is congruent only when it comes to some topics. Specifically, the results show that an implicit health claim (BIO)

does not improve the perception of environmental protection as much as the implicit environmental claim (ECO). However, this weaker effect of BIO on environmental perception improves when consumers processing the perception from BIO are more intuitive.

Based on the results in that research, the main advice for enterprises, in order to minimize consumer confusion, is to use a single claim about benefits of organic products, environmental protection or health. Regarding the congruence between claim topic and the type of perception for organic goods different from food, when benefits are mainly about environment, a claim such as ECO would be more suitable because perceptions about this aspect are processed, above of all, from a claim as ECO rather than BIO. However, when it comes to stating benefits about health on claims, it is more effective to do it in more detail, explicitly, because processed perceptions would be stronger than those being less detailed or more implicit messages. Also, use of claims would be tailored to a cognitive style of consumers, so it is more appropriate to use implicit messages (ECO and BIO) for intuitive consumers to improve their perceptions about the environmental protection and the health of organic products.

5.3. Limitations and future research

This section summarizes the main limitations found on each study set out in previous chapters. According to these limitations, proposals for future researches are put below.

In the study presented in Chapter 2, the incongruity between attitude and organic purchase is explained only by factors boosting consumption and, therefore, relieving incongruity. Future research could deal with factors hindering consumption and getting bigger the incongruity, such as prices that consumers are willing to pay. On the other hand, the study uses measures based on information provided by consumers by means of the survey, but not by means of observation of their purchase behavior, which could be considered by future research. In addition, future research might include moderators, such as social influence, that would have a direct effect on the incongruity between attitude and purchase responses and a moderating effect along the orientations or lifestyles.

In Chapter 3, the research about the quality of organic products from perceptions about specific attributes of those products considers two categories of product and a single organic food per each type of category, yogurt for vice category and chocolate for virtue category. On the other hand, we do not take into account situational factors that could moderate the relationship between a perception about attributes and perceived quality: such as the type of organic product brand (global, local, private); prices; or surroundings associated with purchase and consumption by consumers (convenience stores, supermarkets, department stores...). Similarly, other factors more personal or about consumer characteristics, such as consumer preferences or lifestyles linked to environmental protection, health and hedonic aspects, could moderate the relationship as well. Thus, future research might consider more products per each product category or some of the moderating factors mentioned above.

Finally, the study detailed in the Chapter 4, when the effectiveness of using claims to improve consumer perceptions about organic product is assessed, is settled on only three food products and test the hypothesis from a laboratory experiment and, therefore, from an unnatural surrounding. Thus, future researches could consider more products and develop field experiments to study the relationship between a claim and a perception on a real purchase surroundings. Additionally, they could include moderators to analyze the relationship, such as brand type and message type. Finally, the study performed uses claims about benefits. Thus, future researches could use claims containing threat claims to replicate analysis.

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APPENDICES

Appendix 1.1. Questionnaire 1 on perceptions of organic food versus its conventional counterpart. EXPERIMENTAL CONDITIONS

A. CEREALS



B. MILK CHOCOLATE



C. NATURAL YOGURT



Appendix 1.2. Questionnaire 1 on perceptions of organic food versus its conventional counterpart. ITEMS ABOUT PICTURES EXPOSED

Look at those products and assess the product one versus the product two as your degree of agreement on the following statements and as the information provided on the pictures above.	
	Totally in disagreement Totally in agreement
... PRODUCT 1 is tastier than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is more satiating than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is more natural than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is healthier than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 has fewer harmful components for the environment than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is more environmentally friendly than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is better than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
... PRODUCT 1 is of higher quality than PRODUCT 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Appendix 1.3. Questionnaire 2 on personal factors such as orientations, cognitive style or demographic factors. CEREALS

Firstly, fill out sections A, B, C and D of the questionnaire by checking the box that suits better to your degree of agreement for each statement set out in the first column of the tables. Finally, fill out the part E of the questionnaire. IN ORDER TO ANSWER, PLEASE NOTE THAT ORGANIC, ECOLOGICAL AND BIOLOGICAL ARE SYNONYMS.

Note: the sections A, B, C and D ARE NOT a test of your ability, there are no right or wrong answers, only answer according to your opinion. Section E refers to personal data necessary for the study, but that they are treated anonymously, THEY ARE NEVER ASSOCIATED WITH CONCERNING PERSONAL DATA AS NAMES, SURNAMES OR ID.

Section A	Totally in disagreement							Totally in agreement						
I buy cereals 'muesli'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I buy products of the brand Carrefour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B	Totally in disagreement							Totally in agreement						
I know the benefits and attributes of organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to differentiate organic products from conventional products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would prefer to buy an organic product rather than a conventional one at the same price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buying organic products is a good choice for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually buy organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It would be difficult for me to dispense with organic products in my shopping cart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section C	Totally in disagreement ←-----→ Totally in agreement						
	I think my behavior is eco friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the environmental impact when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think my behavior is responsible for my health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the impact on my health and fitness when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually indulge in eating some kinds of food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some food intake makes me feel better, happier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D	Totally in disagreement ←-----→ Totally in agreement						
	I try keeping a routine in tasks that I do in my life, personal and professional.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually prefer to search variety to monotony.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually pay attention to details before drawing conclusions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I make a lot of decisions by using my intuition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need a detailed explanation of causes or backgrounds to understand facts completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am more comfortable with broad ideas rather than extensive arguments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Parte E. Check the appropriate box for items ‘Gender’, ‘Income’, ‘household characteristics’ and in order to answer the last item. Please, provide your age, household size and, if it concerns, the number of children in your house.			
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
Age (provide it on the square)	<input type="text"/>		
Yearly income for the whole household*	<input type="checkbox"/> ≤ 20000 € (≤ 1650€ per month)	<input type="checkbox"/> 20001 - 50000 € (1650€ - 4150€ per month)	<input type="checkbox"/> ≥ 50001 € (≥ 4150€ per month)
Household size (provide it on the square) *	<input type="text"/>		
Household characteristics *	<input type="checkbox"/> Partnership with or without children ** <input type="checkbox"/> Otherwise: household different from those characterizing by a couple with or with children (household including grandparents, single-parent household,...) <input type="checkbox"/> Number of children under 6 years old <input type="checkbox"/> Number of children between 7 and 12 years old		
¿Is it you (instead of any other member of your house) who takes in charge of grocery shopping or is you actively involved in purchasing food?	<input type="checkbox"/> YES		<input type="checkbox"/> NO


* Household refers to all people living in the same place (legal age or younger age).


** Partnership refers a couple regardless of legal condition.

Appendix 1.4. Questionnaire 2 on personal factors such as orientations, cognitive style or demographic factors. CHOCOLATE

Firstly, fill out sections A, B, C and D of the questionnaire by checking the box that suits better to your degree of agreement for each statement set out in the first column of the tables. Finally, fill out the part E of the questionnaire. **IN ORDER TO ANSWER, PLEASE NOTE THAT ORGANIC, ECOLOGICAL AND BIOLOGICAL ARE SYNONYMS.**

Note: the sections A, B, C and D ARE NOT a test of your ability, there are no right or wrong answers, only answer according to your opinion. Section E refers to personal data necessary for the study, but that they are treated anonymously, **THEY ARE NEVER ASSOCIATED WITH CONCERNING PERSONAL DATA AS NAMES, SURNAMES OR ID.**

Section A	Totally in disagreement Totally in agreement						
							
I buy milk chocolate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I buy products of the brand Carrefour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B	Totally in disagreement Totally in agreement						
							
I know the benefits and attributes of organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to differentiate organic products from conventional products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would prefer to buy an organic product rather than a conventional one at the same price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buying organic products is a good choice for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually buy organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It would be difficult for me to dispense with organic products in my shopping cart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section C	Totally in disagreement ←-----→ Totally in agreement						
	I think my behavior is eco friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the environmental impact when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think my behavior is responsible for my health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the impact on my health and fitness when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually indulge in eating some kinds of food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some food intake makes me feel better, happier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D	Totally in disagreement ←-----→ Totally in agreement						
	I try keeping a routine in tasks that I do in my life, personal and professional.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually prefer to search variety to monotony.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually pay attention to details before drawing conclusions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I make a lot of decisions by using my intuition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need a detailed explanation of causes or backgrounds to understand facts completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am more comfortable with broad ideas rather than extensive arguments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Parte E. Check the appropriate box for items ‘Gender’, ‘Income’, ‘household characteristics’ and in order to answer the last item. Please, provide your age, household size and, if it concerns, the number of children in your house.			
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
Age (provide it on the square)	<input type="text"/>		
Yearly income for the whole household*	<input type="checkbox"/> ≤ 20000 € (≤ 1650€ per month)	<input type="checkbox"/> 20001 - 50000 € (1650€ - 4150€ per month)	<input type="checkbox"/> ≥ 50001 € (≥ 4150€ per month)
Household size (provide it on the square) *	<input type="text"/>		
Household characteristics *	<input type="checkbox"/> Partnership with or without children ** <input type="checkbox"/> Otherwise: household different from those characterizing by a couple with or with children (household including grandparents, single-parent household,...) <input type="checkbox"/> Number of children under 6 years old <input type="checkbox"/> Number of children between 7 and 12 years old		
¿Is it you (instead of any other member of your house) who takes in charge of grocery shopping or is you actively involved in purchasing food?	<input type="checkbox"/> YES		<input type="checkbox"/> NO

* Household refers to all people living in the same place (legal age or younger age).

** Partnership refers a couple regardless of legal condition.

Appendix 1.5. Questionnaire 2 on personal factors such as orientations, cognitive style or demographic factors. YOGURT

Firstly, fill out sections A, B, C and D of the questionnaire by checking the box that suits better to your degree of agreement for each statement set out in the first column of the tables. Finally, fill out the part E of the questionnaire. IN ORDER TO ANSWER, PLEASE NOTE THAT ORGANIC, ECOLOGICAL AND BIOLOGICAL ARE SYNONYMS.

Note: the sections A, B, C and D ARE NOT a test of your ability, there are no right or wrong answers, only answer according to your opinion. Section E refers to personal data necessary for the study, but that they are treated anonymously, THEY ARE NEVER ASSOCIATED WITH CONCERNING PERSONAL DATA AS NAMES, SURNAMES OR ID.

Section A	Totally in disagreement Totally in agreement						
	←----- ----- ----- ----- ----- ----- -----→						
I buy natural yogurt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I buy products of the brand Carrefour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B	Totally in disagreement Totally in agreement						
	←----- ----- ----- ----- ----- ----- -----→						
I know the benefits and attributes of organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to differentiate organic products from conventional products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would prefer to buy an organic product rather than a conventional one at the same price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buying organic products is a good choice for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually buy organic products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It would be difficult for me to dispense with organic products in my shopping cart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section C	Totally in disagreement							Totally in agreement						
	←----- ----- -----→													
I think my behavior is eco friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the environmental impact when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think my behavior is responsible for my health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take into account the impact on my health and fitness when I buy food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually indulge in eating some kinds of food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some food intake makes me feel better, happier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D	Totally in disagreement							Totally in agreement						
	←----- ----- -----→													
I try keeping a routine in tasks that I do in my life, personal and professional.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually prefer to search variety to monotony.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually pay attention to details before drawing conclusions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I make a lot of decisions by using my intuition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need a detailed explanation of causes or backgrounds to understand facts completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am more comfortable with broad ideas rather than extensive arguments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Parte E. Check the appropriate box for items ‘Gender’, ‘Income’, ‘household characteristics’ and in order to answer the last item. Please, provide your age, household size and, if it concerns, the number of children in your house.			
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
Age (provide it on the square)	<input type="text"/>		
Yearly income for the whole household*	<input type="checkbox"/> ≤ 20000 € (≤ 1650€ per month)	<input type="checkbox"/> 20001 - 50000 € (1650€ - 4150€ per month)	<input type="checkbox"/> ≥ 50001 € (≥ 4150€ per month)
Household size (provide it on the square) *	<input type="text"/>		
Household characteristics *	<input type="checkbox"/> Partnership with or without children ** <input type="checkbox"/> Otherwise: household different from those characterizing by a couple with or with children (household including grandparents, single-parent household,...) <input type="checkbox"/> Number of children under 6 years old <input type="checkbox"/> Number of children between 7 and 12 years old		
¿Is it you (instead of any other member of your house) who takes in charge of grocery shopping or is you actively involved in purchasing food?	<input type="checkbox"/> YES		<input type="checkbox"/> NO

* Household refers to all people living in the same place (legal age or younger age).

** Partnership refers a couple regardless of legal condition.



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