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The effects of person-related and environmental factors on consumers' decision-making in agri-food markets: The case of olive oils

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ABSTRACT

Refined olive oil (ROO) and extra virgin olive oil (EVOO) categories are different products with respect to their objective quality. Nevertheless, this quality gap is not reflected in the purchase behaviour of consumers in Spain, which is the main producer country worldwide. On the basis of economic theory, the price gap could be a part of the explanation; however, the objective price gap between EVOO and ROO has been on average around €0.40 kg^{-1} since the 2007/2008 crop year in Spain. Therefore, this paper contributes to a more in-depth understanding of those factors, besides price, affecting consumers' decision-making process in olive oil markets. We examine how consumers build their purchase preferences towards two products – namely EVOO and ROO–based on their evaluative judgements shaped by person-related and environmental factors. In doing so, a theoretical model is proposed and an empirical application in southern Spain is presented, using variance-based structural equation modelling (SEM) by means of partial least squares path modelling (PLS). The results show how attitude towards EVOO and ROO play a key role in explaining both EVOO and ROO consumption. In addition, taste preferences are shown to have an overriding moderator effect on the relationship between attitude towards ROO and consumption. Negative anticipated consequences regarding EVOO are core to shape consumers' attitude towards ROO and also influence attitude towards the own product. Meanwhile, healthy shopping habits affect mainly attitude towards EVOO and the perceived value of private brands influences attitude towards ROO.

1. Introduction

Olive oil markets are continuing to raise their profile internationally, although the highest levels of per capita consumption are still found in the main traditionally producer countries, such as Spain, Greece and Italy (IOC, 2015). More specifically, Spain is by far the largest olive oil producing country in the world, accounting for 40% of worldwide production, 80% of which is concentrated in southern Spain (MECD, 2017). However, when assessing olive oil, it should be borne in mind that the generic designation "olive oil" applies to different market categories available for consumption (European Commission, 2012a). These categories differ in quality, composition and organoleptic properties, especially when comparing refined olive oil (ROO[1]) and extra virgin olive oil (EVOO) categories. ROO, which is obtained through an industrial refining process, is a colourless product with neither flavour nor aroma. It is blended with a non-regulated small percentage of virgin olive oil which gives it the organoleptic properties (Cabrera, Arriaza, & Rodríguez-Entrena, 2015). On the other hand, EVOO is a product obtained directly from olives by solely mechanical means; it is thus made entirely of olive juice, maintaining its healthy and organoleptic properties (see, e.g., Inarejos-García, Androulaki, Salvador, Fregapane, & Tsimidou, 2009; Amirante, Clodoveo, Tamborrino, Leone, & Paice, 2010; Inarejos-García, Fregapane, & Salvador, 2011; Clodoveo, Dipalmo, Schiano, La Notte, & Pati, 2014).

Therefore, the two products are completely different with respect to the health of the olives and their degree of ripeness, post-harvest

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[1] It is worth mentioning that the trade description is "olive oil composed of refined olive oils and virgin olive oils"; the industry itself added the terms "mild" or "intense" (non-regulated terms only for marketing purposes). Here, we use the abbreviation ROO to distinguish it from EVOO, and generic wording when olive oil market is used to refer to all the market categories taken together.

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handling and manufacturing process, all of which is reflected in the intrinsic quality – the organoleptic attributes (Amirante, Clodoveo, Leone, Tamborrino, & Patel, 2012; Bedbabis, Trigui, Ben Ahmed, Clodoveo, Camposeo, Vivaldi, & Ben Rouina, 2015; Cabrera et al., 2015). Nevertheless, this quality gap does not appear to be reflected in the purchase behaviour of Spanish consumers of olive oil, given that ROO consumption comprises around 60% of the total (MAPAMA, 2017a). On the basis of economic theory, the price gap between products could be a part of the explanation (Shepherd, 1990); in Spain, however, the objective price gap between EVOO and ROO has been on average around €0.40 kg^{-1} since the 2007/2008 crop year (MAPAMA, 2017a).

In this regard, scholars (e.g., Engel, Blackwell, & Miniard, 1995; Marshall, 1995), even those emphasising economic considerations, agree that the so-called non-rational factors are key to untangling consumer behaviour related to food (Marreiros & Ness, 2009). Therefore, the consumer decision-making process depends not only on satisfying needs from an economic perspective but also from a psychological, sociological and cultural standpoint (Chisnall, 1995). According to Steenkamp's (1997) conceptual model of consumer behaviour with respect to food, this decision-making process is influenced by factors related to the properties of the food, as well as person-related and environmental factors. However, according to Shepherd (2011), the perception linked to the properties of the food can be modified by both person-related and environmental factors since they involve perceptions, beliefs, attitudes, and motivations. Consequently, those become critical.

Therefore, taking the characteristics of olive oil markets and Steenkamp's model as a starting point, this paper examines how consumers build their purchase preferences towards two products – namely EVOO and ROO – based on their evaluative judgements shaped by person-related and environmental factors. In doing so, a theoretical model is built and an empirical application in Spain is presented, using variance-based structural equation modelling (SEM) by means of partial least squares path modelling (PLS). Although this study focuses on specific foodstuffs, EVOO and ROO, we also provide some general contributions. First, the analyses are performed by presenting consumers two product alternatives to consider in the decision-making process, which overcomes the main limitation in the studies about purchase behaviour regarding food (Sheppard, Hartwick, & Warshaw, 1988). Second, we expand the knowledge about the role played by branding within the environmental factors, an element that has not been examined in-depth by Steenkamps' approach.

The remainder of the paper is structured as follows. The following section outlines the theoretical framework and the methodological approach. After presenting the results of the research, the paper closes with the discussion and the conclusions.

2. Theoretical framework

2.1. A general theoretical framework for food choices

Based on consumer behaviour models such as the one put forward by Engel et al. (1995), Steenkamp (1997) proposes a theoretical framework that tries to provide a holistic perspective of consumer behaviour regarding food products. He explains how the decision-making process, that involves a number of stages in which a need arises and then consumers search for information, evaluate the alternatives and make their final choice, is driven by both person-related and environmental factors. Therefore, biological, psychological and socio-demographic factors (person-related), as well as economic, marketing and cultural factors (environmental) determine the consumer evaluative procedure. In addition, Sheppard et al. (1988) and Engel et al. (1995) emphasise the relevance of considering alternatives in consumer choices because the existence of diverse products may change the behaviour and, indeed, any analysis may be less accurate when it does not account for these alternatives. Following this line of thought, Steenkamp (1997) identifies this as a central process wherein consumers evaluate the alternatives of a choice set and, after integrating their perceptions, build their attitudes towards each product alternative. As a result, consumers will choose the product alternative which they have the most positive attitude toward, with Steenkamp (1997) aligned with the Theory of Reasoned Action (Fishbein & Ajzen, 1975) on this point. Therefore, according to Shepherd (2011), when analysing food choices, attitudes become a person-related factor which play an essential role in determining consumer purchase behaviours.

A primary biological tendency noted by Steenkamp (1997) is taste, given that taste preferences may be present from birth and, therefore, form a predisposition towards certain foods. However, those preferences can also be adapted and modified by cultural factors. Shepherd (2011) also includes taste preferences as biologically determined behavioural predispositions by means of sensory-affective responses, asserting their influence not only on the food choice process but also on dietary behaviour.

Similarly, from a psychosocial perspective, Hansen and Thomsen (2014) point out that consumers' affective responses to the product must be considered in food models. King and Meiselman (2010) note that satisfaction results from an affective state, which increases when the product has an emotional dimension (Steenkamp, 1997). At the same time, satisfaction relies on the relationship between positive and negative expectations related to the outcomes (Oliver, 1997). Bagozzi (2000) claims that consumers anticipate emotions derived from the outcome of the food consumption when making their choice and, in turn, this anticipation of product features partly shapes what Zeithaml (1988) calls perceived quality. Furthermore, decision-making processes can be influenced by consumers' way of living, or what is called lifestyle trends (Engel et al., 1995; Steenkamp, 1997). A healthy lifestyle trend usually implies people believing that food influences their health (Shepherd, 2011), which, together with a strong internal locus of control, fosters healthy behaviour (Stafleu, 1994). This may modify consumption patterns and, again, dietary behaviour (Contento & Murphy, 1990), thus leading consumers to take preventive actions (Stafleu, 1994), which may be translated into shopping habits.

Likewise, Steenkamp (1997) emphasises the pervasive role of socio-demographic features in the decision-making process, given that they are direct determinants of actual behaviour (Michael & Becker, 1973). Among such socio-demographic factors, Steenkamp (1997) highlights the level of education as a relevant feature that affects the interpretation and processing of information about food throughout the stages of this decision process – Shepherd (2011) makes a similar argument – as well as driving the selection of more trustworthy information sources (Holgado, Martínez-González, de Irala-Estévez, Gibney, Kearney, & Martínez, 2000).

Among environmental factors, marketing is interpreted by Steenkamp (1997) as activities which add value to foodstuffs, highlighting branding as one of the main cues influencing perceptions of other product attributes (Mitchell & Olson, 1977; Steenkamp, 1997). Given that consumers do not usually have full information about product attributes (Erdem, 1998), brands provide non-functional utility (Srivastava & Shocker, 1991) that may generate greater confidence in the product quality (Berthon, Hulbert, & Pitt, 1999), alleviating the potential issue of asymmetrical information and lower search costs (Assael, 1995). Hoch (1996) points out that brands are ranked by consumers with respect to their quality and price, with the choice depending on the utility derived from these features. According to Ghose and Lowengart (2001), there are at least two main types of brand identities: manufacturer brands (either domestic or international) and private brands. Traditional food manufacturer brands capture the abovementioned ideas, but in retailers, those brands compete with private brands. The latter were developed as low-priced food product alternatives (Hoch, 1996), but some private brands have abandoned this strategy and try to add value by means of capturing this quality

perception (Laaksonen & Reynolds, 1994; Hoch, 1996). In this regard, private brands have worked on building their own identity (González-Mieres, Díaz Martín, & Trespalacios Gutiérrez, 2006) and becoming simply one more alternative available to consumers (Nandan & Dickinson, 1994).

Steenkamp (1997) also highlights that culture is key in terms of what and how people eat, and it determines the set of beliefs and attitudes, and even patterns of behaviour, consumers have. Therefore, regional patterns become especially important and food culture involves prevalent regional features (Askegaard & Madsen, 1995), with food products being expressions of cultural forms (Douglas, 1982). In this regard, cultural identity may be translated into the purchase of national, regional or local products, and those local products may incorporate extrinsic characteristics related to the support of local communities (Tellström, Gustafsson, & Mossberg, 2006). Locally produced food products are usually identified with particular geographic regions (McCluskey & Loureiro, 2003); as such, where a person lives is a fundamental determinant of their cultural reference point (Shepherd, 2011).

Therefore, based on the framework developed by Steenkamp (1997), we link behavioural actions to attitudes and behavioural beliefs or perceptions (see Fig. 1).

2.2. Applying the general theoretical framework to olive oil markets

Applying Steenkamp's (1997) framework, we link choice to actions, given that conative aspects of attitudes can also be examined as observable behaviours (Schiffman & Kanuk, 2004), such as olive oil consumption (e.g., Saba & Di Natale, 1998). Likewise, attitudes determine consumers' choice (Steenkamp, 1997) in olive oil markets (Yangui, Costa-Font, & Gil, 2016) as consumers will choose a product not only based on their attitudes towards the product in question, but also on their attitudes towards other alternatives (Steenkamp, 1997). Therefore, attitude towards EVOO and ROO, which can be perceived as product alternatives, can generate a trade-off process. As such, evaluative judgments about EVOO and ROO may create positive feelings about their respective consumption; conversely, each attitude may lead to lower consumption of the other product. Consequently, the following hypotheses are posited:

H1: Positive attitude towards EVOO increases consumption of EVOO.

H2: Positive attitude towards EVOO reduces consumption of ROO.

H3: Positive attitude towards ROO reduces consumption of EVOO.

H4: Positive attitude towards ROO increases consumption of ROO.

While Steenkamp (1997) acknowledges that taste preferences may have biological roots, Shepherd (2011) includes these as unlearned biological predispositions and points out that this represents a factor contributing to food intake. Scholars such as Ward, Briz, and de Felipe (2003) and Dekhili, Sirieix, and Cohen (2011) find that taste is the main factor driving the olive oil purchase decision. Delgado and Guinard (2011) also observe a rejection of olive oil with intense, bitter and spicy flavours; similarly, Mtimet, Kashiwagi, Zaibet, and Masakazu (2008) report that consumers prefer a mild flavour to a strong one. Mahlau, Briz, and de Felipe (2002) also find that the strong flavour, which can be characteristic of EVOO, is a factor that limits its culinary use. In addition, Shepherd (2011) suggests that adults show a more indirect relationship between taste preferences and food choices because experience with food and beliefs can modify their propensity to act. Therefore, the following hypotheses are proposed:

H5: Taste preferences have a moderating effect on the relationship between attitude towards EVOO and consumption of EVOO.

H6: Taste preferences have a moderating effect on the relationship between attitude towards ROO and consumption of EVOO.

H7: Taste preferences have a moderating effect on the relationship between attitude towards EVOO and consumption of ROO.

H8: Taste preferences have a moderating effect on the relationship between attitude towards ROO and consumption of ROO.

In the case of olive oil, the objective quality is determined by the physical and chemical parameters stipulated by the applicable legislation (European Commission, 2012a). Meanwhile, perceived quality comes from the assessment that each consumer makes of the product (Grunert, Larsen, Madsen, & Baadsgaard, 1996) and that arouse certain expectations prior to consumption (Bagozzi, 2000). Therefore, consumers compare expected outcomes of olive oil consumption to personal criteria and if they anticipate negative consequences from the consumption based on negative beliefs about the quality of the product, they tend to avoid it (Bagozzi, 2000). Thus, the following hypotheses are posited:

H9: Negative anticipated consequences of EVOO consumption reduce positive attitude towards EVOO.

H10: Negative anticipated consequences of EVOO consumption increase positive attitude towards ROO.

As we mention above, lifestyle trends, such as concerns about health and nutrition, affect consumer behaviour (Engel et al., 1995; Steenkamp, 1997). In this vein, there is a strong link between olive oil and the renowned Mediterranean diet, based on which consumers

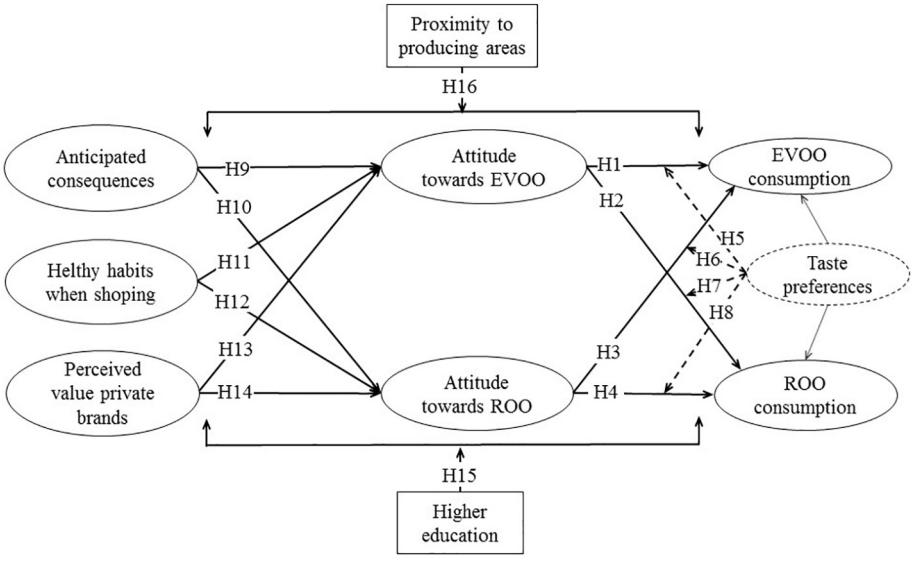

Fig. 1. Conceptual model.

perceive a healthy image of the product (Willett, Sacks, Trichopoulou, Drescher, Ferro-Luzzi, Helsing, & Trichopoulos, 1995). This is often one of the main reasons for buying olive oil (Siskos, Matsatsinis, & Baourakis, 2001; García-Martínez, Aragonés, & Poole, 2002; Ward et al., 2003; Mili, 2006; Delgado & Guinard, 2011). However, among the different olive oils, it is EVOO that preserves all its healthy properties, due to its production process. Consequently, it is allowed to feature health claims – such as the polyphenol content – on its labelling (European Commission, 2012b). In light of the above, the following hypotheses are presented:

H11: Healthy shopping habits increase positive attitude towards EVOO.

H12: Healthy shopping habits reduce positive attitude towards ROO.

Value is defined as the difference between the utility that consumers perceive they are receiving and what they perceive they are giving (Zeithaml, 1988), i.e., the consumers' perception of the trade-off between benefits and sacrifice (Monroe, 1991). As is well known, the so-called perceived value is a pivotal driver for purchase behaviour (Zeithaml, 1988; Johnson, Herrmann, & Huber, 2006), although scholars have mainly applied it to products (perceived value of goods or services) rather than brands. In this regard, the perceived value of a brand may be directly linked to consumers' perception of utility from a brand, and, as a result, this fact is applicable to private brands. Webster (2000) highlights the relevance for retailers of incorporating consumer value propositions with respect to brands. However, literature studying the impact of perceived value from private brands on food purchase behaviour is scarce. For example, Chaniotakis, Lymperopoulos, and Soureli (2010) find that the perceived benefits of own-label premium olive oil have an impact on attitude towards those types of products. Considering that the most popular private brands of Spanish retailers stand out for having a much higher market share of ROO (70% market penetration) than EVOO (Olimerca, 2017), the following hypotheses arise:

H13: The perceived value of private brands reduces positive attitude towards EVOO.

H14: The perceived value of private brands increases positive attitude towards ROO.

Steenkamp (1997) notes how the level of education affects the decision-making process related to food. Moreover, Capon and Burke (1980) find that people with higher levels of education have a better-quality diet and are better able to seek, process, interpret and apply information they obtain, and even to have healthier eating habits. Applying this to the case of olive oil (Vlontzos & Duquenne, 2014), a higher educational level can endow consumers with a judgment that will result in a preference for products with better characteristics and/or of higher quality, affecting the whole decision-making process. Therefore, the following hypothesis is presented:

H15: Higher education level has a moderating effect on the decision-making process related to the consumption of olive oils.

Finally, cultural contexts, which determine cultural expectations and social norms, are key to explaining the process of choosing food (Steenkamp, 1997; Shepherd, 2011). One of the main cultural context cues comes from geographical location (Shepherd, 2011). The consumers in this study have different proximity to traditional olive oil producing areas. This may give rise to different relationships with EVOO and ROO, given that living in the vicinity of producing areas makes it more likely that consumers will have relatives and friends connected to this sector and its culture (Vlontzos & Duquenne, 2014). In this regard, Arvola, Vassallo, Dean, Lampila, Saba, Lähteenmäki, and Shepherd (2008) and Guido, Prete, Peluso, Maloumby-Baka, and Buffa (2010) include country of origin as a moderating variable in their study of consumer behaviour regarding organic products. Consequently, the following hypothesis is proposed:

H16: Proximity to production areas has a moderating effect on the decision-making process related to the consumption of olive oils.

3. Materials and methods

The proposed hypotheses were tested using data from an online questionnaire administered (from January to October 2016) to 1029 regular olive oil buyers aged over 19 from a household-level panel; structural equation modelling (SEM) by means of partial least squares path modelling (PLS) (Wold, 1979) was then applied in the analysis.

The sample of 1029 buyers was obtained in Spain, specifically from the regions of Andalusia and Madrid. These regions represent two of the three most populated Spanish regions, accounting for 32% of the country's total population (INE, 2015). In addition, Andalusia is responsible for 30% of worldwide olive oil production (MECD, 2017), whereas Madrid has the highest income per capita of any Spanish region (INE, 2015) but only 1.1% of the country's olive groves (MAGRAMA, 2015). The sample was drawn from cities with > 100,000 inhabitants. We tried to avoid Andalusian rural areas where olive oil is the main economic activity. Therefore, our focus was on studying the potential behaviour of ordinary urban consumers, who represent the greatest share of the population, thus allowing better comparability of the results between the two abovementioned areas. Two pre-tests were carried out beforehand (the first face-to-face and the second online), each on 8% of the sample. In addition, the sample was controlled for age and level of schooling according to regional data (INE, 2015), in order to avoid the main drawback associated with the use of panels, namely that certain population profiles such as older people or those with a lower level of schooling, tend to be underrepresented (Lohse, Bellman, & Johnson, 2000). In this regard, 30% of the sample was over 55 years old (around 36% of the population is over 55 years old in these areas (INE, 2011)) and 67% has less than higher education (around 74% of the population has no education, primary education only or secondary education in those areas (INE, 2011)).

Table 1 shows how the concepts presented in Fig. 1 were operationalized and measured.

EVOO and ROO consumption were considered an objective behaviour-related latent variable and it was measured by the self-reported actual consumption in terms of uses and habits according to both the type of cooking and weekly uses in breakfast, lunch and dinner. The rest of the observable variables were evaluated using 7-point Likert scales (1 indicating the lowest level and 7 the highest). The validity of both the observable variables and the measurement scales is supported by the existing literature (see Table 1). Regarding the moderator variables, in order to assess the role played by the level of education, the original sample was segmented into two groups. One group contained people with no education, primary education only or secondary education (no higher education group – NHE) and the other one those with higher education (university level of education – HE), yielding groups of 687 and 342 observations, respectively. To capture the respondents' proximity to olive oil producing areas, and thus olive oil culture, the sample was split into three segments. First, people from four provinces of Andalusia (Jaén, Córdoba, Granada and Seville) were grouped together as the main olive oil producing regions (Group belonging to producing areas – BtP, with a sample size of 374). They have a strong olive-growing tradition and high levels of production, they are home to 85% of all Andalusian olive groves and together they produce around 92% of the regional olive oil (MAPAMA, 2017b). Next, residents in the coastal provinces of Andalusia (Málaga, Almería, Cádiz and Huelva) formed the second segment (Group close to producing areas – CtP), with a final size of 386 observations. Lastly, the third segment (Group far from producing areas – FP) was composed of Madrid inhabitants, with 269 observations.

Finally, structural equation modelling (SEM) was applied since it allows to simultaneously model the relationships among theoretical constructs and their relationship with the observable variables (Bagozzi & Phillips, 1982). In the agri-food sector, this technique has been widely applied to analyze how the decision-making process takes place; for example, in wine (Bianchi, Drennan, & Proud, 2014), fruits and

Table 1
Constructs and observable variables.

Constructs	Observable variables	Measurement	Adapted from – Ssources
EVOO consumption (ECO)	Eco_1: Uses in each type of cooking (stewing, frying in pan, frying in fryer, making desserts or pastries) Eco_2: Uses for breakfast, lunch and dinner	Number of uses per household/ weekly	Saba and Di Natale (1998)
ROO consumption (RCO)	Rco_3: Uses in each type of cooking (stewing, frying in pan, frying in fryer, making desserts or pastries) Rco_4: Uses for breakfast, lunch and dinner	Number of uses per household/ weekly	
Attitude towards EVOO (AE)	Ae_5: Your degree of trust in EVOO is Ae_6: The degree to which you need EVOO is Ae_7: The degree to which you recommend EVOO is Ae_8: The enjoyment you get from the consumption of EVOO is	Likert scale (1, the lowest and 7, the highest level)	Thorsdottir et al. (2012); Makanyeza (2014)
Attitude towards ROO (AR)	Ar_9: Your degree of trust in ROO is Ar_{10}: The degree to which you need ROO is Ar_{11}: The degree to which you recommend ROO is Ar_{12}: The enjoyment you get from the consumption of ROO is	Likert scale (1, the lowest and 7, the highest level)	Thorsdottir et al. (2012); Makanyeza (2014)
Anticipated consequences (AC)	Ac_{13}: EVOO and ROO have the same healthy benefits Ac_{14}: EVOO has more acidity than ROO Ac_{15}: EVOO is not as good for frying as ROO because it degrades faster Ac_{16}: EVOO and ROO have the same features except for taste	Likert scale (1, totally agree and 7, totally disagree)	Saba and Di Natale (1998); Bagozzi (2000)
Healthy habits when shopping (HS)	Hs_{17}: I buy an enriched or low-calorie foodstuff more often than a convenience one Hs_{18}: When buying food, I take into account its ingredients and nutritional composition Hs_{19}: I usually buy foodstuffs on offer	Likert scale (1, totally agree and 7, totally disagree) Binary scale (0 = Yes; 1 = No)	Tarkiainen and Sundqvist (2005); Barreiro-Hurlé, Gracia and Magistris (2010)
Perceived value private brands (PV)	Pv_{20}: Private brand olive oils offer good quality for the price Pv_{21}: Private brand olive oils would make me buy it Pv_{22}: Private brand olive oils would make me want to recommend it Pv_{23}: Even with other brands at the same price, I would prefer to buy the private brand of olive oil	Likert scale (1, totally disagree and 7, totally agree)	Sweeney and Soutar (2001)
Taste Preferences (TP)	Tp_{24}: EVOO is less versatile in the kitchen due to its taste Tp_{25}: I prefer a mild and light flavoured olive oil Tp_{26}: EVOO adds too strong flavour for most dishes	Likert scale (1, totally disagree and 7, totally agree)	Thorsdottir et al. (2012)

Source: Authors' elaboration.

vegetables (Menozzi & Mora, 2012), fish (Thorsdottir, Sveinsdottir, Jonsson, Einarsdottir, Thorsdottir, & Martinsdottir, 2012), organic production (De Magistris & Gracia, 2008) and genetically modified foods (Rodríguez-Entrena, Salazar-Ordóñez, & Sayadi, 2013). Regarding olive oil markets, the literature applying SEM is still in its early stages, although some examples can be found in the work of Saba and Di Natale (1998), Espejel, Fandos, and Flavián (2007, 2008) and Salazar-Ordóñez, Rodríguez-Entrena, Cabrera, and Henseler (2018). A number of other related studies, meanwhile, are aimed at examining the value for consumers of corporate, own-label or store brands (Bravo Gil, Fraj Andrés, & Martínez Salinas, 2007; Chaniotakis, Lymperopoulos, & Soureli, 2010; Beristain & Zorrilla, 2011) by analysing olive oil.

Among different estimators for SEM, we opted for the variance-based estimator PLS because it allows for estimating models containing both constructs modelled as common factors and composites (Henseler, Hubona, & Ray, 2016) which is the case for our study. Following the psychometric tradition, attitudes and perceived value of private brands were modelled as common factors given that those express an underlying concept which affects the observable variables (Chin, 1998a). The remaining constructs were modelled as composites, i.e., they are made up of the related observable variables (Henseler, 2017). To obtain consistent parameter estimates for models containing constructs modelled as common factor, consistent partial least squares (PLSc) was employed (Dijkstra & Henseler, 2015). It corrects for the attenuation bias in case of common factors. Since the model also consists of a moderating construct, i.e., taste preferences, PLSc for non-linear structural models (Dijkstra & Schermelleh-Engel, 2014) was applied. This approach consistently estimates the theoretical moments among the constructs, and, subsequently, estimates the linear and moderating effects based on the estimated moments of the constructs. In doing so, this approach allows for a simultaneous and consistent estimation of all the path coefficients. To analyse the moderating effects of the categorical variables, i.e., level of education and proximity to producing area, a multigroup analysis was conducted, i.e., the path coefficients were compared across groups. The reference distribution of the parameter differences was obtained by permutation (Chin & Dibbern, 2010). To control for the type I error inflation in case of more than two group comparisons, a Bonferroni correction was applied, i.e., the level of significance was divided by the number of group comparisons (Sarstedt, Henseler, & Ringle, 2011). The whole analysis was conducted in the statistical programming environment R (R Core Team, 2017) using the MoMpoly package (Schuberth, Schamberger, & Dijkstra, 2018) .

4. Results

The measurement model needs to fulfil a combination of criteria depending on the nature of the construct. Constructs operationalized by a reflective measurement model, .i.e., modelled as a common factor, should be evaluated in terms of their reliability and validity (Chin, 1998b), whereas constructs modelled as composites should be evaluated according to the sign, magnitude and significance of the weights, as well as the absence of multicollinearity among the observable variables forming the composite (Henseler, 2017). Table A1 (Appendix A) shows the results of the measurement model for the proposed general model, the multigroup model linked to the level of education and the

Table 2
Results of the structural model for the whole sample (general model).

Hypotheses		Path coefficients[a]	Percentile bootstrap 0.5%	Percentile bootstrap 99.5%	Hypothesis results	$f^{2,b}$
AE → ECO	H1	0.475*** (0.036)	0.384	0.568	Supported	0.281
AE → RCO	H2	−0.264*** (0.035)	−0.355	−0.177	Supported	0.079
AR → ECO	H3	−0.318*** (0.028)	−0.390	−0.246	Supported	0.152
AR → RCO	H4	0.406*** (0.025)	0.341	0.472	Supported	0.227
AE x TP → ECO	H5	−0.067[n.s.] (0.029)	−0.147	0.008	Not supported	–
AR x TP → ECO	H6	−0. 209*** (0.027)	−0.281	−0.138	Supported	0.071
AE x TP → RCO	H7	0.014[n.s.] (0.027)	−0.062	0.081	Not supported	–
AR x TP → RCO	H8	0.240*** (0.024)	0.177	0.306	Supported	0.085
AC → AE	H9	−0.198*** (0.032)	−0.283	−0.117	Supported	0.041
AC → AR	H10	0.458*** (0.028)	0.382	0.528	Supported	0.274
HS → AE	H11	0.276*** (0.038)	0.171	0.371	Supported	0.080
HS → AR	H12	−0.073** (0.028)	−0.149	−0.002	Supported	0.006
PV → AE	H13	−0.018[n.s.] (0.032)	−0.082	0.039	Not supported	–
PV → AR	H14	0.170*** (0.032)	0.112	0.237	Supported	0.036
TP→ ECO		0.201*** (0.030)	−0.275	−0.121		0.048
TP → RCO		0.222*** (0.028)	0.153	0.297		0.059

Note: Variance Inflation Factors (VIF) of each set of predictor construct is under 5 (Diamantopoulos & Siguaw, 2006).
Source: Authors' elaboration.

[a] *** $p < .001$; ** $p < .01$; * $p < .05$; n.s. non-significant – based on the standard normal distribution. The standard errors (in brackets) are calculated based on the bootstrap samples (4999).

[b] According to Cohen (1988), f^2 values of 0.02, 0.15 and 0.35 result in small, medium and large effects, respectively.

multigroup model linked to the proximity to production area.

The general model fulfilled all the criteria. All factor loadings were larger than 0.6, as Chin (1998b) establishes for scales in the early stages of development, as ours. In any case, all the loadings were significant ($p < .001$), as stipulated by Cenfetelli and Bassellier (2009). In addition, the composite reliability ($\rho_a > 0.7$), average variance extracted (AVE > 0.5) and heterotrait-monotrait ratio of correlations (HTMT < 0.85) for constructs modelled as common factors complied with the corresponding thresholds. For the constructs modelled as composites, all weights were significant ($p < .05$), except for AC_{14}, and the variance inflation factors were below the recommended threshold of 5 (Diamantopoulos & Siguaw, 2006). Thus, multicollinearity seemed not to be an issue. Regarding the multigroup analysis, some indicators were removed (P_{v21} and P_{v23}) due to factor loadings larger than 1 in BtP group when the sample was split according to the proximity to producing areas.

To test the hypotheses, bootstrapping with 4999 runs was applied. Table 2 contains the path coefficient estimates and their significances for the general model.

As hypothesised, both attitudes showed a significant impact on EVOO and ROO consumption, supporting the hypotheses H1 to H4. In this regard, attitude towards a product often influences the consumption of that product and, in our case, the impact of attitude towards EVOO is medium-high, as shown by the effect size. Similarly, attitudes towards each product were shown to influence the consumption of the corresponding product alternative, i.e., ROO consumption was impacted by attitude towards EVOO, and EVOO by attitude towards ROO, with a medium effect size in the latter, justifying its inclusion. Hence, positive attitude towards the alternative product contribute to the decision to purchase, even though both products represent a different objective quality. In addition, the theoretical background was supported with respect to the moderating effect of taste preferences. First, the relationship between attitude towards ROO and EVOO consumption was moderated by taste preferences, confirming H6. The analysis shows a negative interaction path, with stronger preferences for mild flavours reinforcing the negative relationship between the abovementioned variables. Second, taste preferences also exerted a moderating role in the relationship between attitude towards ROO and ROO consumption (H8). The path was positive indicating that the greater the preferences for mild flavours, the stronger the relationship between the two abovementioned variables. In contrast, this interaction effect did not hold for H5 and H7. Consequently, attitude towards EVOO are shaped by the perception that mild-tasting olive oils are better. It is also worth noting that negative anticipated consequences regarding EVOO influence consumers' evaluation of EVOO (H9) and ROO (H10). The importance of this variable in explaining attitude towards ROO is reflected in the medium-high impact of their relationship, as shown by the f^2 criteria.

In addition, the healthy shopping habit variable did explain attitude towards ROO (H12), but showing a really low effect size. Hence, those people who are concerned about filling their shopping basket with healthier products seem to view only EVOO (H11) as a product that helps them stay healthy. Regarding the perceived value of private brands, its role in the model is restricted to the existence of a direct and significant relationship with attitude towards ROO (H14): people with positive perceived value of private brands tend to show positive

Table 3
Parameters and significances of the multigroup analysis.

Hypotheses	Path coefficients[a]								
	Level of education[b]			Proximity to producing areas[c]					
	NHE	HE	NHE vs HE	BtP	CtP	FP	BtP vs CtP	BtP vs FP	CtP vs FP
AE → ECO	0.464***	0.508***	−0.044	0.514***	0.433***	0.445***	0.080	0.068	−0.011
	(0.041)	(0.075)	[−0.132, 0.114]	(0.067)	(0.055)	(0.069)	[−0.190, 0.186]	[−0.234, 0.217]	[−0.201, 0.210]
AE → RCO	−0.272***	−0.239**	−0.033	−0.341***	−0.261***	−0.231***	−0.080	−0.109	−0.029
	(0.040)	(0.071)	[−0.118, 0.134]	(0.071)	(0.0565)	(0.060)	[−0.196, 0.214]	[−0.194, 0.218]	[−0.200, 0.191]
AR → ECO	−0.348***	−0.261***	−0.087	−0.266***	−0.313***	−0.360***	0.047	0.094	0.047
	(0.034)	(0.048)	[−0.095, 0.096]	(0.052)	(0.044)	(0.046)	[−0.158, 0.166]	[−0.165, 0.159]	[−0.151, 0.139]
AR → RCO	0.420***	0.373***	0.046	0.327***	0.454***	0.389***	−0.126	−0.062	0.064
	(0.031)	(0.044)	[−0.089, 0.086]	(0.047)	(0.040)	(0.042)	[−0.142, 0.148]	[−0.147, 0.157]	[−0.143, 0.138]
AE x TP → ECO	−0.066[n.s.]	−0.066[n.s.]	0.000	−0.032[n.s.]	−0.068[n.s.]	−0.032[n.s.]	0.035	0.000	−0.035
	(0.037)	(0.046)	[−0.100, 0.104]	(0.053)	(0.049)	(0.057)	[−0.167, 0.164]	[−0.193, 0.189]	[−0.192, 0.172]
AR x TP → ECO	−0.209***	−0.180***	−0.029	−0.083[n.s.]	−0.186***	−0.293***	0.103	0.227[s.d]	0.123
	(0.033)	(0.051)	[−0.096, 0.099]	(0.064)	(0.042)	(0.047)	[−0.148, 0.156]	[−0.183, 0.181]	[−0.155, 0.152]
AE x TP → RCO	0.027[n.s.]	−0.015[n.s.]	0.041	−0.047[n.s.]	0.044[n.s.]	−0.043[n.s.]	−0.090	−0.003	0.087
	(0.036)	(0.043)	[−0.093, 0.105]	(0.050)	(0.049)	(0.052)	[−0.177, 0.156]	[−0.148, 0.157]	[−0.160, 0.176]
AR x TP → RCO	0.234***	0.241***	−0.007	0.175***	0.210***	0.293***	−0.034	−0.117	−0.083
	(0.031)	(0.043)	[−0.083, 0.081]	(0.046)	(0.042)	(0.047)	[−0138, 0.140]	[−0.147, 0.159]	[−0.135, 0.132]
AC → AE	−0.186***	−0.238***	0.051	−0.292***	−0.184**	−0.174**	−0.108	−0.118	−0.010
	(0.039)	(0.055)	[−0.117, 0.114]	(0.066)	(0.053)	(0.054)	[−0.208, 0.203]	[−0.191, 0.196]	[−0.189, 0.181]
AC → AR	0.434***	0.514***	−0.079	0.498***	0.470***	0.420***	0.028	0.077	0.049
	(0.034)	(0.046)	[−0.092, 0.099]	(0.052)	(0.045)	(0.048)	[−0.163, 0.148]	[−0.166, 0.180]	[−0.148, 0.175]
HS → AE	0.263***	0.313***	−0.050	0.263**	0.304***	0.242***	−0.040	0.021	0.062
	(0.049)	(0.052)	[−0.133, 0.131]	(0.082)	(0.054)	(0.066)	[−0.213, 0.230]	[−0.260, 0.245]	[−0.214, 0.199]
HS → AR	−0.060[n.s.]	−0.084[n.s.]	0.024	−0.057[n.s.]	−0.096*	−0.065[n.s.]	0.039	0.008	−0.031
	(0.035)	(0.048)	[−0.102, 0.099]	(0.059)	(0.043)	(0.050)	[−0.182, 0.165]	[−0.172, 0.167]	[−0.158, 0.156]
PV → AE	0.040[n.s.]	−0.171**	0.211[s.d.]	−0.083[n.s.]	0.133*	−0.131*	−0.216	0.047	0.264[s.d.]
	(0.039)	(0.057)	[−0.107, 0.109]	(0.064)	(0.053)	(0.056)	[−0.230, 0.1230]	[−0.221, 0.214]	[−0.192, 0.187]
PV → AR	0.214***	0.078[n.s.]	0.135	0.140[n.s.]	0.158**	0.182**	−0.017	−0.042	−0.024
	(0.039)	(0.056)	[−0.108, 0.119]	(0.071)	(0.055)	(0.058)	[−0.206, 0.224]	[−0.213, 0.215]	[−0.188, 0.182]

Note: s.d. means there is a significant difference between the path coefficients of the two groups at least at $p < .05$ for level of education or $p < .016$ for proximity to producing areas.
Note: Variance Inflation Factors (VIF) of each set of predictor construct is under 5 (Diamantopoulos & Siguaw, 2006).
Source: Authors' elaboration.

[a] *** $p < .001$; ** $p < .01$; * $p < .05$; n.s. non-significative – based on the standard normal distribution. The standard errors (in brackets) are calculated based on the bootstrap samples (4999).

[b] NHE vs HE: The square brackets contain the 2.5% and the 97.5% quantiles of the reference distribution obtained by 4999 permutation runs.

[c] BtP vs CtP, BtP vs FP, CtP vs FP: The square brackets contain the 0.8% and the 99.2% quantiles of the reference distribution obtained by 4999 permutation runs. A Bonferroni correction was applied to avoid a type I error inflation.

attitude towards ROO. Furthermore, the R^2 values were notable for this type of consumer behaviour model, reaching 0.488 and 0.436 for EVOO and ROO consumption, respectively. Indeed, attitude towards ROO even had good predictive power, with a value of 0.304. Meanwhile the R^2 value for attitude towards EVOO was only 0.144; nevertheless, it was over 0.1, which is the lowest recommended threshold according to Falk and Miller (1992) for consumer behaviour studies.

With respect to the observed sample heterogeneity, the results of the multigroup approach are reported in Table 3.

Regarding the level of education, it is assumed that individuals with a higher education use more information when making decisions (Capon & Burke, 1980, Claxton, Fry, & Portis, 1974, Rodríguez-Entrena & Salazar-Ordóñez, 2013). These greater efforts can help consumers develop more complex judgments, which may increase their preference for products with better characteristics and/or of higher quality such as EVOO. However, in light of these results, it cannot be stated that a university education drives different consumer behaviour with respect to EVOO and ROO. In this regards, the results of the multigroup analysis revealed that only one path coefficient estimate differs statistically across the two groups when employing a significance level of 5%, but it became non-significant employing a significance level of 1%. This path coefficient estimate was that relating perceived value of private brands to attitude towards EVOO, in the sense that the higher the perceived value, the more negative the attitude towards EVOO for consumers with university studies. This could be related to a pattern, where the link between private brand perceived value and ROO features can be strengthened for consumers with a high level of education. Therefore, this moderator effect may point out the fact that when the consumer is convinced by the perceived value of a private brand, the effect of this may hinder the differentiation process by quality for those who may be surer about their beliefs and perceptions.

Likewise, on the basis of the estimates, it cannot be stated that greater proximity to olive oil producing areas, and therefore to its culture, causes differences in behaviour for urban consumers. Only two statistically significant differences in the path coefficient estimate parameters across groups were detected. In this regard, taste, when acting as moderator between attitude to ROO and EVOO consumption, is shown to be more relevant to people who live far from the producing areas than for people who belonged to producing areas. Finally, for people living relatively close to producing areas, a higher perceived value of private brands results in better attitude towards EVOO than people living far from producing areas. Therefore, this group may be relating private brands with good quality EVOO, instead of ROO, thus reversing the proposed hypothesis.

5. Discussion

A number of implications can be drawn from the above analyses. In light of the results, and as indicated by the theoretical framework of Steenkamp (1997), it can be stated that various person-related and

environmental factors affect consumer behaviour in olive oil markets, albeit with different degrees of intensity. Thus, it is observed that the real consumption pattern of EVOO and ROO are directly determined by attitude towards these products, but also by attitude towards the corresponding product alternative. The results confirm that a positive attitude towards EVOO is reflected in a higher level of consumption of that product, and the same is also true for ROO. The relationship between consumer attitude and purchasing behaviour has been found by several authors, such as Arvola et al. (2008), Thorsdottir et al. (2012) and Rodríguez-Entrena et al., (2013), among others, for different agri-food products. Nevertheless, there has been very little literature addressing the relationship between the consumer's assessments of product alternatives through empirical applications, which is an interesting research line. In addition, when comparing EVOO and ROO as two categories of the same product, scholars found contradictory results; for example, Mtimet et al. (2008) indicate that consumers prefer ROO because it seems a safe bet given their lack of knowledge of the differences compared to the other categories. Marano-Marcolini and Torres-Ruíz (2017) state that the current olive oil categorisation scheme may hinder consumer learning and choices. In a subsequent paper, however, Mtimet, Ujiie, Kashiwagi, Zaibet, and Nagaki (2011) find a greater likelihood of choosing EVOO over ROO.

On the other hand, regarding the sensory characteristic of taste, this study finds that it influences the consumption of EVOO and ROO by altering their relationships with the attitude towards ROO. Taste is undeniably important in the purchase decision for olive oils, as shown by some studies on both the generic denomination of olive oil (Ward et al., 2003) and the extra virgin product (Mahlau et al., 2002; Dekhili et al., 2011). However, in the abovementioned studies by Mtimet et al. (2008, 2011), consumer preferences — whether for ROO or for EVOO — are distinguished on the basis of their choice of mild or fruity flavours, respectively. A drawback of those studies is that they do not analyse consumers' perception of EVOO taste, as we partially do, although they do seem to confirm that EVOO consumption can be negatively affected when the consumer perceives its taste — the main organoleptic characteristic — as too intense or strong. Current legislation (European Commission, 2013) regulates the use of the specific quality terms such as fruity, bitter and pungent attachable only to virgin olive oils which meet the required organoleptic parameters. However, these attributes may not be easily interpretable by a consumer unfamiliar with these terms, and they may even have negative connotations: the perception that the flavour of EVOO is too strong can be prompted by the terms “bitter” and “pungent”.

Similarly, quality can be perceived in terms of a product's superiority or excellence (Garvin, 1988), a feature that can be inferred or evaluated (Nelson, 1970, 1974) through observable aspects at the time of purchase and available information. In the case under analysis, when negative beliefs about the characteristics or effects of EVOO become set in the consumers' mind and lead to the expectation of negative emotions (Bagozzi, 2000), this affective process becomes the most determining factor in the formation of positive attitude towards ROO. Therefore, it may suggest that people who have these negative beliefs about EVOO also have a better attitude towards the lower quality product, ROO. It should be borne in mind, then, that the decision-making process is greatly influenced by the anticipated consequences of consuming the product; and when these are linked to false beliefs about the olive oils' quality and characteristics, it may reduce the quality gap between EVOO and ROO.

Healthy shopping habits mainly drive attitude towards the highest quality product, EVOO, a result in line with studies carried out on products other than olive oil, such as those by De Magistris and Gracia (2008), Michaelidou and Hassan (2010) and Thorsdottir et al. (2012). It should also be noted that, in the sense this concept has been defined here, these healthy shopping habits appear to be related to consumers' concerns about the repercussions on their health due to the composition of the food. Thus, even if consumers consider EVOO to be of higher quality than ROO, it does not necessarily mean that they perceive the latter as unhealthy. It is worth mentioning that EVOO is allowed to convey health claims such as containing high levels of unsaturated fatty acids and rich in vitamin E and polyphenols, according to current European Union regulations (European Commission, 2012a). However, given both recent innovations in olive oil such as ultrasonic-assisted extraction EVOO, which increases polyphenols (Clodoveo et al., 2016) and fruity taste (Clodoveo, Moramarco, Paduano, Sacchi, Di Palmo, Crupi, Corbo, Pesce, Distaso, Tamburrano, & Amirante, 2017), and the consumers' willingness to innovate with such products (Roselli, Cicia, Cavallo, Del Giudice, Carlucci, Clodoveo, & De Genaro, 2018), there are further possibilities for segmentation based on health claims in the EVOO market. In particular, Roselli, Clodoveo, Cobo, and De Gennaro (2017) state that polyphenol content claims may reduce information asymmetry for consumers and create value in the olive growing sector.

Literature about consumers and branding with respect to food has mainly focused on explaining consumers' preferences for or perception of brands and their components (see e.g., Kumar, 2011; Kim, 2012; Davcik, 2013). Consequently, to the authors' knowledge, there has been practically no empirical study of the impact of the perceived value of brands on food purchase behaviour. In our case, the perceived value of private brands only determines the formation of attitude towards ROO. This result is in line with the features of the olive oil sector in Spain, where until now retailers have focused on strengthening the image and boosting sales of private brands of ROO. Therefore, consumers may link olive oil private brands with ROO rather than EVOO, and as we mentioned above private brand perceived value may be strengthening ROO features.

Regarding the observed heterogeneity, it was analysed with respect to two variables: first, a person-related variable, specifically the socio-economic factor relating to the level of education; and, second, an environmental variable, the product culture translated into the proximity to producing areas. It does not seem that consumers having a university degree make greater efforts to seek out information and better assimilation of said information, on which to base behaviour when purchasing olive oil.

Second, scholars who analyse other agri-food products find different purchasing behaviour depending on consumers' country of origin (Arvola et al., 2008; Guido, Prete, Peluso, Maloumby-Baka, & Buffa, 2010). Scarpa and del Giudice (2004) and Di Vita, D'Amico, La Via, and Caniglia (2013) report that EVOO attributes are of different utility to Italian consumers, depending on whether they are from an olive-producing or a metropolitan area, and also according to the proximity of their city to olive-growing areas. However, the absence of heterogeneity linked to the proximity of producing areas can be explained by the fact that having an olive-growing culture in a region, with its high social and economic importance (MECD, 2017), does not necessarily imply a greater attachment to a certain type of olive oil, even if it is of superior objective quality. Thus, the behaviour of the urban consumer does not seem to be significantly affected by the presence of olive groves in their home area, since it has been observed that this may not result in direct contact with the culture and the sector.

6. Conclusions

This study attempts to gain a more in-depth understanding of consumer behaviour in olive oil markets through an empirical application in Spain, to the world's leading olive oil-producing region and another non-producing region. The theoretical model designed is based on actual consumption, attitudes, person-related and environmental factors.

It is concluded that the effect exerted by attitudes is key to explaining consumption, with the influence of attitude towards each corresponding product alternative clearly relevant. Similarly, the results provide evidence on the role played by the feelings aroused by the potential anticipated consequences of using the product, healthy shopping habits, perceived value of private brands and perceived taste.

However, it must be taken into account that the research was performed in two specific areas in Spain. The transferability of the results, therefore, is arguable, although urban consumers were selected in the analysis to increase the comparability of the results with other studies. In addition, further empirical research is required on EVOO and ROO as product alternatives in order to further confirm the relevance of including both products in analyses of olive oil markets. Of course, that can be extended to other agri-food products as well. The same is applicable to the moderating variables, namely taste preferences and proximity to producing areas, given the specificities of the olive oil sector in Spain.

In any case, given that in recent decades the olive oil sector has shown a greater commitment to quality, it would be well advised not to settle simply for the opportunities offered by labelling as a way of reaching the consumer. Rather, this tool should act as a support for more comprehensive consumer education, which aims to familiarize them with the exclusive characteristics of EVOO, refute false beliefs and promote its healthy aspects. Consumers should be made aware of differences between olive oils, in order to properly evaluate and appreciate higher quality products, thereby enabling them to differentiate between EVOO and ROO. Indeed, there is also a wide scope for using health claims about EVOO, and even potential to start distinguishing between quality parameters (e.g., polyphenols contain and acidity levels) within this category. Therefore, it is fundamental for small and medium enterprises to undertake effective marketing strategies in order to highlight the added value of their products. This initiative should not be considered exclusively the task of official bodies, since it is also up to the cooperative companies to ensure that the benefits of their own products are conveyed to consumers. In this regard, the major challenge is to set up joint investments in the cooperative sector in order to gain competitive advantages.

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Appendix A

Table A1
Measurement model: Indicators' loadings or weights and construct reliability.

C_i/X_i	Loadings (λ)/weights (w)[a]	ρ_A	AVE
General model			
EVOO consumption, ECO[b,c]			
Eco_1	0.416		
Eco_2	0.662		
ROO consumption, RCO[b,c]			
Rco_3	0.512		
Rco_4	0.535		
Attitude towards EVOO, AE[c]		0.845	0.555
Ae_5	0.639		
Ae_6	0.893		
Ae_7	0.736		
Ae_8	0.701		
Attitude towards ROO, AR[c]		0.910	0.709
Ar_9	0.860		
Ar_{10}	0.908		
Ar_{11}	0.779		
Ar_{12}	0.815		
Anticipated consequences, AC[b,d]			
Ac_{13}	0.598		
Ac_{14}	$0.135^{n.s.}$		
Ac_{15}	0.267		
Ac_{16}	0.305		
Healthy habits in shopping, HS[b,d]			
Hs_{17}	0.410		
Hs_{18}	0.551		
Hs_{19}	0.569		
Perceived value private brands, Pv[d]		0.938	0.775
Pv_{20}	0.884		
Pv_{21}	0.903		
Pv_{22}	0.958		
Pv_{23}	0.763		

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Table A1 (*continued*)

C_i/X_i	Loadings (λ)/weights (w)[a]	ρ_A	AVE
General model			
Taste preferences, TP[b,d]			
Tp_{24}	0.385		
Tp_{25}	0.398		
Tp_{26}	0.432		

C_i/X_i	λ/w[a]	ρ_A	AVE	λ/w[a]	ρ_A	AVE
Level of education						
	NHE			HE		
ECO[b,c]						
Eco_1	0.448			0.583		
Eco_2	0.628			0.505		
RCO[b,c]						
Rco_3	0.568			0.523		
Rco_4	0.479			0.522		
AE[c]		0.829	0.550		0.827	0.550
Ae_5	0.685			0.604		
Ae_5	0.857			0.890		
Ae_5	0.748			0.748		
Ae_5	0.669			0.695		
AR[c]		0.903	0.700		0.910	0.719
Ar_9	0.856			0.876		
Ar_{10}	0.900			0.950		
Ar_{11}	0.760			0.775		
Ar_{12}	0.825			0.777		
AC[b,d]						
Ac_{13}	0.545			0.522		
Ac_{14}	0.206			-0.037[n.s.]		
Ac_{15}	0.276			0.426		
Ac_{16}	0.307			0.376		
HS[b,d]						
Hs_{17}	0.416			0.433		
Hs_{18}	0.561			0.458		
Hs_{19}	0.569			0.605		
Pv[d]		0.933	0.778		0.927	0.763
Pv_{20}	0.839			0.827		
Pv_{21}	0.898			0.973		
Pv_{22}	0.948			0.934		
Pv_{23}	0.838			0.741		
TP[b,d]						
Tp_{24}	0.318			0.411		
Tp_{25}	0.440			0.399		
Tp_{26}	0.463			0.403		

C_i/X_i	λ/w[a]	ρ_A	AVE	λ/w[a]	ρ_A	AVE	λ/w[a]	ρ_A	AVE
Proximity to production areas									
	BtP			CtP			FP		
ECO[b,c]									
Eco_1	0.602			0.320			0.572		
Eco_2	0.478			0.738			0.538		
RCO[b,c]									
Rco_3	0.528			0.526			0.722		
Rco_4	0.512			0.520			0.320		
AE[c]		0.832	0.560		0.826	0.550		0.803	0.507

(*continued on next page*)

Table A1 (*continued*)

C_i/X_i	λ/w[a]	ρ_A	AVE	λ/w[a]	ρ_A	AVE	λ/w[a]	ρ_A	AVE
Proximity to production areas									
	BtP			CtP			FP		
Ae_5	0.600			0.642			0.704		
Ae_6	0.879			0.929			0.769		
Ae_7	0.829			0.692			0.734		
Ae_8	0.662			0.666			0.632		
AR[c]		0.897	0.688		0.913	0.727		0.907	0.711
Ar_9	0.813			0.933			0.933		
Ar_{10}	0.954			0.917			0.910		
Ar_{10}	0.954			0.917			0.910		
Ar_{11}	0.719			0.750			0.803		
Ar_{12}	0.814			0.795			0.824		
AC[b,d]									
Ac_{13}	0.639			0.594			0.475		
Ac_{14}	0.080[n.s.]			0.006[n.s.]			0.245		
Ac_{15}	0.345			0.294			0.377		
Ac_{16}	0.256			0.373			0.268		
HS[b,d]									
Hs_{17}	0.252			0.520			0.479		
Hs_{18}	0.725			0.407			0.518		
Hs_{19}	0.528			0.580			0.527		
Pv[d]		0.799	0.677		0.816	0.691		0.831	0.714
Pv_{20}	0.616			0.899			0.925		
Pv_{21}	n.a.			n.a.			n.a.		
Pv_{22}	n.a.			n.a.			n.a.		
Pv_{23}	0.987			0.756			0.755		
TP[b,d]									
Tp_{24}	0.479			0.362			0.114[n.s.]		
Tp_{25}	0.443			0.447			0.418		
Tp_{26}	0.306			0.447			0.639		

Source: Authors' elaboration.

[a] All the loadings and weights are significant at least on a 5% level ($p < .05$), except those indicated by n.s. which means non-significant – based on the standard normal distribution. The standard errors (in brackets) are calculated based on the bootstrap samples (4999). The indication n.a. means non applicable given that those indicators were removed from the multigroup model linked to proximity to production areas because of a Heywood case in the BtP group.

[b] Variance Inflation Factors (VIF) are below 5 for composites (Diamantopoulos & Siguaw, 2006).

[c] Endogenous Construct.

[d] Exogenous Construct.

References

Amirante, P., Clodoveo, M. L., Leone, A., Tamborrino, A., & Patel, V. B. (2012). Influence of different centrifugal extraction systems on antioxidant content and stability of virgin olive oil. *Olives and Olive Oil in Health and Disease Prevention,* 85–93.

Amirante, P., Clodoveo, M. L., Tamborrino, A., Leone, A., & Paice, A. G. (2010). Influence of the crushing system: Phenol content in virgin olive oil produced from whole and de-stoned pastes. In V. Preedy, & R. Watson (Eds.). *Olives and olive oil in health and disease prevention* (pp. 69–76). London: Academic Press.

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. *Appetite, 50*(2–3), 443–454.

Askegaard, S., & Madsen, T. K. (1995). European food cultures: An exploratory analysis of food related preferences and behaviour in European regions. *MAPP Working Paper 26*.

Assael, H. (1995). *Consumer behaviour and Marketing Action.* Cincinnati: South Western College Publishing749.

Bagozzi, R. P. (2000). The poverty of economic explanations and the action theory alternative. *Managerial and Decision Economics, 21*, 98–109.

Bagozzi, R. P., & Phillips, L. (1982). Representing and testing organizational theories: A holistic construal. *Administrative Science Quarterly, 27*(3), 459–489.

Barreiro-Hurlé, J., Gracia, A., & Magistris, T. (2010). Does nutrition information on food products lead to healthier food choices? *Food Policy, 35*(3), 221–229.

Bedbabis, S., Trigui, D., Ben Ahmed, C., Clodoveo, M. L., Camposeo, S., Vivaldi, G. A., & Ben Rouina, B. (2015). Long-terms effects of irrigation with treated municipal wastewater on soil, yield and olive oil quality. *Agricultural Water Management, 160*(1), 14–21.

Beristain, J. J., & Zorrilla, P. (2011). The relationship between store image and store brand equity: A conceptual framework and evidence from hypermarkets. *Journal of Retailing and Consumer Services, 18*(6), 562–574.

Berthon, P., Hulbert, J. M., & Pitt, L. F. (1999). Brand management prognostications. *Sloan Management Review, 40*(2), 53–65.

Bianchi, C., Drennan, J., & Proud, B. (2014). Antecedents of consumer brand loyalty in the Australian wine industry. *Journal of Wine Research, 25*(2), 91–104.

Bravo Gil, R., Fraj Andrés, E., & Martínez Salinas, E. (2007). Family as a source of consumer-based brand equity. *The Journal of Product and Brand Management, 16*(3), 188–199.

Cabrera, E. R., Arriaza, M., & Rodríguez-Entrena, M. (2015). Is the extra virgin olive oil market facing a process of differentiation? A hedonic approach to disentangle the effect of quality attributes. *Grasas y Aceites, 66*(4), 1–14.

Capon, N., & Burke, M. (1980). Individual, product class, and task-related factors in consumer information processing. *Journal of Consumer Research, 7*(3), 314–326.

Cenfetelli, R. T., & Bassellier, G. (2009). Interpretation of formative measurement in information systems research. *MIS Quartely, 33*(4), 689–707.

Chaniotakis, I. E., Lymperopoulos, C., & Soureli, M. (2010). Consumers' intentions of buying own-label premium food products. *The Journal of Product and Brand Management, 19*(5), 327–334.

Chin, W. W. (1998a). Issues and opinion on structural equation modeling. *Management Information Systems Quarterly, 22*(1), 7–15.

Chin, W. W. (1998b). The partial least squares approach for structural equation modeling. In G. A. Marcoulides (Ed.). *Modern Methods for Business Research* (pp. 295–336). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.

Chin, W. W., & Dibbern, J. (2010). An introduction to a permutation based procedure for multi-group PLS analysis: Results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA. In V. V. Esposito, W. Chin, J. Henseler, & H. Wang (Eds.). *Handbook of*

Partial Least Squares. Berlin, Heidelberg: Springer.
Chisnall, P. M. (1995). *Consumer Behaviour.* London: McGraw-Hill416.
Claxton, J. D., Fry, J. N., & Portis, B. (1974). A taxonomy of prepurchase information gathering patterns. *Journal of Consumer Research, 1*(3), 35–42.
Clodoveo, M. L., Dipalmo, T., Crupi, P., Durante, V., Pesce, V., Maiellaro, I., ... Franchini, C. (2016). Comparison between different flavored olive oil production techniques: Healthy value and process efficiency. *Plant Foods for Human Nutrition, 71*(1), 81–87.
Clodoveo, M. L., Dipalmo, T., Schiano, C., La Notte, D., & Pati, S. (2014). What's now, What's new and what's next in virgin olive oil elaboration systems? A perspective on current knowledge and future trends. *Journal of Agricultural Engineering, 45*(2), 49–59.
Clodoveo, M. L., Moramarco, V., Paduano, A., Sacchi, R., Di Palmo, T., Crupi, P., ... Amirante, R. (2017). Engineering design and prototype development of a full scale ultrasound system for virgin olive oil by means of numerical and experimental analysis. *Ultrasonics Sonochemistry, 37*, 169–181.
Contento, L. R., & Murphy, B. M. (1990). Psycho-social factors differentiating people who reported making desirable changes in their diets from those who did not. *Journal of Nutrition Education, 22*, 6–14.
Core Team, R. (2017). *R: A language and environment for statistical computing.* Viena: R Foundation for Statistical Computing. https://www.R-project.org/.
Davcik, S. N. (2013). An empirical investigation of brand equity: Drivers and their consequences. *British Food Journal, 115*(9), 1342–1360.
De Magistris, T., & Gracia, A. (2008). The decision to buy organic food products in Southern Italy. *British Food Journal, 110*(9), 929–947.
Dekhili, S., Sirieix, L., & Cohen, E. (2011). How consumers choose olive oil: The importance of origin cues. *Food Quality and Preference, 22*(8), 757–762.
Delgado, C., & Guinard, J. X. (2011). How do consumer hedonic ratings for extra virgin olive oil relate to quality ratings by experts and descriptive analysis ratings? *Food Quality and Preference, 22*(2), 213–225.
Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management, 17*(4), 263–282.
Di Vita, G., D'Amico, M., La Via, G., & Caniglia, E. (2013). Quality perception of PDO extra-virgin olive oil: Which attributes most influence Italian consumers? *Agricultural Economics Review, 14*(2), 46–58.
Dijkstra, T. K., & Henseler, J. (2015). Consistent partial least squares path modelling. *MIS Quarterly, 39*(2), 297–316.
Dijkstra, T. K., & Schermelleh-Engel, K. (2014). Consistent partial least squares for nonlinear structural equation models. *Psychometrika, 79*(4), 585–604.
Douglas, M. (1982). *Food as a system of communication.* London: Routledge & Kegan Paul.
Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). *Consumer behavior.* New York: The Dryden Press.
Erdem, T. (1998). An empirical analysis of umbrella branding. *Journal of Marketing Research, 35*(7), 339–351.
Espejel, J., Fandos, C., & Flavián, C. (2007). The role of intrinsic and extrinsic quality attributes on consumer behaviour for traditional food products. *Managing Service Quality, 17*(6), 681–701.
Espejel, J., Fandos, C., & Flavián, C. (2008). Consumer satisfaction: A key factor of consumer loyalty and buying intention of a PDO food product. *British Food Journal, 110*(9), 865–881.
European Commission (2012a). *Commission implementing regulation (EU) no 29/2012 of 13 January 2012 on marketing standards for olive oil*.
European Commission (2012b). *Commission regulation (EU) no 432/2012 of 16 May 2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health*.
European Commission (2013). *Commission implementing regulation (EU) no 1348/2013 of 16 December 2013 amending regulation (EEC) no 2568/91 on the characteristics of olive oil and olive-residue oil and on the relevant methods of analysis*.
Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling.* Ohio: University of Akron Press.
Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research.* Reading: Addison-Wesley.
García-Martínez, M., Aragonés, Z., & Poole, N. (2002). A repositioning strategy for olive oil in the UK market. *Agribusiness, 18*(2), 163–180.
Garvin, D. A. (1988). *Managing quality: The strategic and competitive edge.* New York: The Free Press.
Ghose, S., & Lowengart, O. (2001). Perceptual positioning of international, national and private brands in a growing international market: An empirical study. *Journal of Brand Management, 9*(1), 45–62.
González-Mieres, C., Díaz Martín, A. M., & Trespalacios Gutiérrez, J. A. (2006). Antecedents of the difference in perceived risk between store brands and national brands. *European Journal of Marketing, 40*(1/2), 61–82.
Grunert, K. G., Larsen, H. H., Madsen, T. K., & Baadsgaard, A. (1996). *Market orientation in food and agriculture.* New York: Kluwer Academic Publishers.
Guido, G., Prete, M. I., Peluso, A. M., Maloumby-Baka, R. C., & Buffa, C. (2010). The role of ethics and product personality in the intention to purchase organic food products: A structural equation modeling approach. *International Review of Economics, 57*(1), 79–102.
Hansen, T., & Thomsen, T. (2014). Consumers facing supra-complex choices in the modern marketplace. *European Scientific Journal, 1*, 302–312 Special edition.
Henseler, J. (2017). Bridging design and behavioral research with variance-based structural equation modeling. *Journal of Advertising, 46*(1), 178–192.
Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems, 116*(1), 2–20.
Hoch, S. J. (1996). How should national brands think about private labels? *Sloan Management Review, 37*(2), 89–102.
Holgado, B., Martínez-González, M. A., de Irala-Estévez, J., Gibney, M., Kearney, J., & Martínez, J. A. (2000). Sources of information about diet and health in a Mediterranean country: Comparison with other European member states. *European Journal of Public Health, 10*(3), 185–191.
Inarejos-García, A. M., Androulaki, A., Salvador, M. D., Fregapane, G., & Tsimidou, M. Z. (2009). Discussion on the objective evaluation or virgin olive oil bitterness. *Food Research International, 42*(2), 279–284.
Inarejos-García, A. M., Fregapane, G., & Salvador, M. D. (2011). Effect of crushing on olive paste and virgin olive oil minor components. *European Food Research and Technology, 232*(3), 441–445.
INE, Instituto Nacional de Estadística (2011). *Censos de población y viviendas.* Madrid: Instituto Nacional de Estadística. http://www.ine.es/censos2011_datos/cen11_datos_inicio.htm.
INE, Instituto Nacional de Estadística (2015). *Anuario estadístico de España. Agricultura, Silvicultura, Ganadería y Pesca.* Madrid: Instituto Nacional de Estadística.
IOC (2015). *World Olive Oil Figures.* International Olive Councilhttp://www.internationaloliveoil.org/estaticos/view/130-survey-and-assessment-division.
Johnson, M. D., Herrmann, A., & Huber, F. (2006). The evolution of loyalty intentions. *Journal of Marketing, 70*(2), 122–132.
Kim, R. B. (2012). Determinants of brand equity for credence goods: Consumers' preference for country origin, perceived value and food safety. *Agricultural Economics, 58*(7), 299–307.
King, S. C., & Meiselman, H. L. (2010). Development of a method to measure consumer emotions associated with foods. *Food Quality and Preferences, 21*(2), 168–177.
Kumar, M. (2011). The impact of 'brand equity' determinants on consumers' purchase decisions. A case study of the processed food sector in the national capital region of India. *Journal of Business & Retail Management Research, 6*(1), 63.
Laaksonen, H., & Reynolds, J. (1994). Own brands in food retailing across Europe. *Journal of Brand Management, 2*(1), 37–46.
Lohse, G. L., Bellman, S., & Johnson, E. J. (2000). Consumer buying behavior on the internet: Findings from panel data. *Journal of Interactive Marketing, 14*(1), 15–29.
MAGRAMA, Ministerio de Agricultura, Alimentación y Medio Ambiente (2015). *Avances de superficies y producciones de cultivos.* Madrid: Ministerio de Agricultura, Alimentación y Medio Ambiente. http://www.magrama.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/avances-superficies-producciones-agricolas.
Mahlau, M., Briz, J., & de Felipe, I. (2002). Actitud y comportamiento de consumidores alemanes respecto al aceite de oliva: un análisis de grupo objetivo. *Revista Española de Estudios Agrosociales y Pesqueros, 194*, 147–168.
Makanyeza, C. (2014). Measuring consumer attitude towards imported poultry meat products in a developing market: An assessment of reliability, validity and dimensionality of the tri-component attitude model. *Mediterranean Journal of Social Sciences, 5*(20), 874–881.
MAPAMA, Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente (Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente, 2017a). *Base de datos de consumo en hogares.* Madrid: Ministerio de Agricultura, Alimentación y Medio Ambiente.
MAPAMA, Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente (Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente, 2017b). *Encuesta sobre superficies y rendimientos cultivos (ESYRCE).* Madrid: Ministerio de Agricultura, Alimentación y Medio Ambiente.
Marano-Marcolini, C., & Torres-Ruíz, F. (2017). A consumer-oriented model for analysing the suitability of food classification systems. *Food Policy, 69*, 176–189.
Marreiros, C., & Ness, M. (2009). A conceptual framework of consumer food choice behaviour. *CEFAGE-UE Working Paper 2009/06*. Évora: Portugal.
Marshall, D. (1995). Introduction: Food choice, the food consumer and food provisioning. In D. W. Marshall (Ed.). *Food Choice and the Consumer* (pp. 3–17). Glasgow: Blackie Academic.
McCluskey, J. J., & Loureiro, M. L. (2003). Consumer preferences and willingness to pay for food labeling: A discussion of empirical studies. *Journal of Food Distribution Research, 34*(3), 95–102.
MECD, Ministerio de Educación, Cultura y Deporte (2017). *The olive grove landscapes of Andalusia.* UNESCO, Ministry of Education, Culture and Sports.
Menozzi, D., & Mora, C. (2012). Fruit consumption determinants among young adults in Italy: A case study. *LWT - Food Science and Technology, 49*(2), 298–304.
Michael, R. T., & Becker, G. S. (1973). On the new theory of consumer behaviour. *The Swedish Journal of Economics, 75*(4), 378–396.
Michaelidou, N., & Hassan, L. M. (2010). Modeling the factors affecting rural consumers' purchase of organic and free-range produce: A case study of consumers' from the Island of Arran in Scotland, UK. *Food Policy, 35*(2), 130–139.
Mili, S. (2006). Olive oil marketing on non-traditional markets: Prospects and strategies. *Mediterranean Journal of Economics, Agriculture and Environment, 5*(1), 27–37.
Mitchell, A. A., & Olson, J. C. (1977). Cognitive effects of advertising repetition. In W. D. Jr Perreault (Vol. Ed.), *NA – Advances in Consumer Research. Vol. 04. NA – Advances in Consumer Research* (pp. 213–220). Atlanta, EEUU: Association for Consumer Research.
Monroe, K. B. (1991). *Pricing – Making Profitable Decisions.* New York: McGraw-Hill.
Mtimet, N., Kashiwagi, K., Zaibet, L., & Masakazu, N. (2008, August). Exploring Japanese olive oil consumer behavior. *Communication Session Presentation at the Meeting of 12th European Association of Agricultural Economists Congress, Gent (Belgium)*.
Mtimet, N., Ujiie, K., Kashiwagi, K., Zaibet, L., & Nagaki, M. (2011, August). The effects of information and country of origin on Japanese olive oil consumer selection. *Communication Session Presentation at the Meeting of European Association of Agricultural Economists International Congress, Zurich (Switzerland)*.
Nandan, S., & Dickinson, R. (1994). Private brands: Major brand perspective. *Journal of Consumer Marketing, 11*(4), 18–28.
Nelson, P. (1970). Information and consumer behavior. *Journal of Political Economy,*

78(2), 311–329.
Nelson, P. (1974). Advertising as information. *Journal of Political Economy, 82*(4), 729–754.
Olimerca (2017). *Sólo el aceite de oliva virgen extra no está dominado por la marca blanca.* https://www.olimerca.com/noticiadet/solo-el-aceite-de-oliva-virgen-extra-no-esta-dominado-por-la-marca-blanca/12398ca98ac418ffcd04132ee131a878.
Oliver, L. R. (1997). *Satisfaction a behavioral perspective on the consumer.* New York: The McGraw-Hill Companies, Inc.
Rodríguez-Entrena, M., & Salazar-Ordóñez, M. (2013). Influence of scientific–technical literacy on consumers' behavioural intentions regarding new food. *Appetite, 60*, 193–202.
Rodríguez-Entrena, M., Salazar-Ordóñez, M., & Sayadi, S. (2013). Applying partial least squares to model genetically modified food purchase intentions in southern Spain consumers. *Food Policy, 40*, 44–53.
Roselli, L., Cicia, G., Cavallo, C., Del Giudice, T., Carlucci, D., Clodoveo, M. L., & De Genaro, B. C. (2018). Consumers' willingness to buy innovative traditional food products: The case of extra-virgin olive oil extracted by ultrasound. *Food Research International, 108*, 482–490.
Roselli, L., Clodoveo, M. L., Cobo, F., & De Gennaro, B. (2017). Are health claims a useful tool to segment the category of extra-virgin olive oil? Threats and opportunities for the Italian olive oil supply chain. *Trends in Food Science & Technology, 68*, 176–181.
Saba, A., & Di Natale, R. (1998). Attitudes, intention and habit: Their role in predicting actual consumption of fats and oils. *Journal of Human Nutrition and Dietetics, 11*(1), 21–32.
Salazar-Ordóñez, M., Rodríguez-Entrena, M., Cabrera, E. R., & Henseler, J. (2018). Understanding product differentiation failures: The role of product knowledge and brand credence in olive oil markets. *Food Quality and Preference, 68*, 146–155.
Sarstedt, M., Henseler, J., & Ringle, C. M. (2011). Multigroup analysis in partial least squares (PLS) path modeling: Alternative methods and empirical results. *Advances in International Marketing, 22*, 195–218.
Scarpa, R., & del Giudice, T. (2004). Market segmentation via mixed logit: Extra-virgin olive oil in urban Italy. *Journal of Agricultural and Food Industrial Organization, 2*(1), 141–160.
Schiffman, L. G., & Kanuk, L. L. (2004). *Consumer behaviour* (8th ed.). Upper Saddle River, New Jersey: Pearson Prentice Hall.
Schuberth, F., Schamberger, T., & Dijkstra, T. K. (2018). MoMpoly: Non-iterative method of moments for polynomial factor models. *R package version 0.1.5.*.
Shepherd, R. (1990). Overview of determinants of food choice and dietary change: Implications for nutrition education. *BNF Nutrition Bulletin, 15*(1), 12–30.
Shepherd, R. (2011). Determinants of food choice and dietary change: Implications for nutrition education. In I. R. Contento (Ed.). *Nutrition education: Linking research, theory and practice* (pp. 30–58). Sudbury, Massachusetts: Jones and Bartlett Publishers.
Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research, 15*(3), 325–343.
Siskos, Y., Matsatsinis, N., & Baourakis, G. (2001). Multicriteria analysis in agricultural marketing: The case of French olive oil market. *European Journal of Operational Research, 130*(2), 315–331.
Srivastava, R. K., & Shocker, A. D. (1991). Brand equity: A perspective on its meaning and measurement. *Technical Working Paper No 91–124.* Cambridge, Massachusets: Marketing Science Institute.
Stafleu, A. (1994). Family resemblance in fat intake, nutrition attitudes and beliefs: A study among three generations of women. *Dissertation.* Wageningen: Agricultural University.
Steenkamp, J. B. E. M. (1997). Dynamics in consumer behavior with respect to agricultural and food products. In B. Wierenga, A. van Tilburg, K. G. Grunert, J. B. E. M. Steenkamp, & M. Wedel (Eds.). *Agricultural marketing and consumer behavior in a changing world* (pp. 143–188). Dordrecht: Kluwer Academic Publishers.
Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Reatiling, 77*, 203–220.
Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal, 107*(10-11), 808–822.
Tellström, R., Gustafsson, I. B., & Mossberg, L. (2006). Consuming heritage: The use of local food culture in branding. *Place Branding, 2*(2), 130–143.
Thorsdottir, F., Sveinsdottir, K., Jonsson, F. H., Einarsdottir, G., Thorsdottir, I., & Martinsdottir, E. (2012). A model of fish consumption among young consumers. *Journal of Consumer Marketing, 29*(1), 4–12.
Vlontzos, G., & Duquenne, M. N. (2014). Assess the impact of subjective norms of consumers' behaviour in the Greek olive oil market. *Journal of Retailing and Consumer Services, 21*(2), 148–157.
Ward, R. W., Briz, J., & de Felipe, I. (2003). Competing supplies of olive oil in the German market: An application of multinomial logit models. *Agribusiness, 19*(3), 393–406.
Webster, F. E., Jr. (2000). Understanding the relationships among brands, consumers and resellers. *Journal of the Academy of Marketing Science, 28*(1), 17–23.
Willett, W. C., Sacks, F., Trichopoulou, A., Drescher, G., Ferro-Luzzi, A., Helsing, E., & Trichopoulos, D. (1995). Mediterranean diet pyramid: A cultural model for healthy eating. *American Journal of Clinical Nutrition, 61*(6), 1402–1406.
Wold, H. A. (1979). Estimation and evaluation of models where theoretical knowledge is scarce: An example of partial least squares. In J. Ramsey, & J. Kmenta (Eds.). *Evaluation of Econometric Models.* New York: Academic Press.
Yangui, A., Costa-Font, M., & Gil, J. M. (2016). The effect of personality traits on consumers' preferences for extra virgin olive oil. *Food Quality and Preference, 51*, 27–38.
Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing, 52*(3), 2–22.