Decoding Asian consumers' willingness to pay for organic food product: a configurational-based approach

Veronica Marozzo, Alessandra Costa, Antonio Crupi and Tindara Abbate

Department of Economics, Universita degli Studi di Messina, Messina, Italy

Received 27 October 2022
Revised 6 February 2023
Accepted 5 April 2023

Abstract

Purpose – This study aims to examine the most influential drivers, both product-specific and consumer-specific, affecting Asian consumers' willingness to pay (WTP) for organic olive oil.

Design/methodology/approach – To individuate the most influential drivers of WTP for organic products and to assess their effect, in terms of configurational paths and consumer profiles, this study sequentially employs explorative factor analysis approach and a fuzzy-set qualitative comparative analysis method. The survey is carried out in different areas of Asia (e.g. Pakistan, Vietnam and China).

Findings – The results suggest that Asian consumers' WTP for organic products is described by consumer-specific drivers (gender, occupation and household size) as well as product-specific drivers (product authenticity and sustainability, consumer ethnocentrism and food fraud risk perception).

Originality/value – The findings of the study permit the identification of different drivers that move consumers' WTP for organic olive oil. The study contributes to setting the ground for companies to propose and implement efficacious marketing strategies for organic olive oil in importing countries, such as Asia.

Keywords Consumers' willingness to pay, Factor analysis, Fuzzy-set qualitative comparative analysis, Organic olive oil, Asia

Paper type Research paper

Introduction

In the last years, the international food system has increasingly changed (Krystallis *et al.*, 2006), triggering a significant change in consumer behavior. Specifically, consumers have increased awareness of the relationship between nutrition and health (Brown *et al.*, 2011), the consciousness of food quality features (Ergönül, 2013), as well as the relationships between food security and sustainability (Berry *et al.*, 2015). Additionally, the consumers' easy access to information on new production methods and processing technologies (Meijer *et al.*, 2021) has resulted in a constantly increasing demand for food quality (Sadilek, 2019) and organic food (Stubbs *et al.*, 2018). Consequently, there has been a consistent growth in the world market for the production and consumption of organic products in the last thirty years (Willer and Lernoud, 2018). According to the Research Institute of Organic Agriculture (FiBL, 2021), the organic cultivation state-of-the-art shows that 2020 was a good year for global organic

Conflict of interest: The authors declare that there is no conflict of interest in this work.

European Journal of Innovation Management
Vol. 26 No. 7, 2023
pp. 353-384
Emerald Publishing Limited
1460-1060
DOI 10.1108/EJIM-10-2022-0591

agriculture [1]. Although recent research claims that the global size of the organic food market is expected to grow from $227.19bn in 2021 to $259.06bn in 2022 at a compound annual growth rate (CAGR) of 14.0%, predicting further growth in the coming years ($437.36bn in 2026 with a CAGR of 14.0%) [2], the previous scenario was not so promising. Prior studies highlighted that market shares of organic food, in previous years, were quite small compared with the conventional ones (e.g. Jonas and Roosen, 2005; Van Doorn and Verhoef, 2011). Frequently, the high prices of organic products seem to be the main limitation of organic consumption (e.g. Rodríguez *et al.*, 2007; Hasselbach and Roosen, 2015a, b). Several studies have pointed out that the consumers' income plays a significant role in explaining organic food purchases in Europe (e.g. Denver *et al.*, 2007; Aschemann-Witzel and Zielke, 2017). Kenanoglu and Karahan (2002) have provided evidence that the restricted sales of organic products are principally due to the average low income of people and the substantial premium price for organic products.

The willingness to pay (WTP) for an organic product refers to the additional price a consumer is inclined to pay compared to the requesting price for a similar conventional product (Kalogeras *et al.*, 2009). These additional prices (i.e. premiums price) may be good indicators of consumers' demand for the organic product (e.g. Tranter *et al.*, 2009; Hamzaoui-Essoussi and Zahaf, 2012). Therefore, the relationship between the premium price required for organic products and the consumers' WTP for these types of products is critical to understanding the consumers' approach to organic production. This is even more relevant when considering organic olive oil as witnessed by numerous studies that investigated the consumers' WTP for this foodstuff in different countries, such as the Netherlands (Kalogeras *et al.*, 2009), Greece (Krystallis *et al.*, 2006) or Tunisia (Ghali, 2020). Moreover, according to the Centre for the Promotion of Imports from developing countries, organic olive oil consumption is growing and is expected to increase in the short term. Asian countries, especially China, are considered the most dynamic and growing economies, and they have immense potential in terms of the commercialization of olive oil, although this product counted in 2020 for less than 1% of the total consumption of edible oil. Olive oil, especially in China, is mainly imported due to the absence of the adequate geographic and climate conditions needed for extensive production for mass commercialization. The interest in Asia is corroborated by the fact that only China imports (mainly from Spain, Italy and Greece) around 5.6% of world olive oil (García and Ruiz, 2021).

With this in mind, the present study aims to conduct explorative research on what drives Asian consumers' WTP for organic olive oil, by addressing the following research question:

RQ. What are the most influential drivers (both product-specific and consumer-specific) affecting Asian consumers' WTP for organic olive oil?

To achieve this goal, the study applies a mixed method approach, based on the factor analysis approach and the fuzzy-set qualitative comparative analysis (fsQCA) method. The results of this empirical analysis permit the identification of influential drivers, which can play a relevant role in the proposition and implementation of efficacious marketing strategies for organic olive oil in importing countries, such as Asia.

The paper is organized as follows. The following section focuses on the consumers' WTP for organic products, specifically olive oil. This section is followed by a description of the survey used and of the statistical specification of the methodology employed. Then, the results obtained are presented. Finally, a summary of the findings' relevance for future marketing strategies, together with conclusive remarks and both theoretical and managerial implications, are proposed.

Theoretical background

Numerous studies try to conceptualize and empirically investigate consumers' attitudes and purchasing intentions regarding organic food products (e.g. Basha *et al.*, 2015; Rana and Paul, 2017). Other studies have investigated consumers' knowledge about the "organic food" concept, motives for buying organic food and perceptions about advantages and disadvantages related to organic food product consumption (e.g. Lyons *et al.*, 2001; Hamzaoui-Essoussi and Zahaf, 2009). However, it is difficult to compare the results of these studies because of the heterogeneity of food-specific items, product categories and organic food in general. Here, we attempt to categorize the various drivers affecting consumers' WTP for organic products, especially through the lens of market trends and consumers' perceptions of organic olive oil in Asia.

In general, from the consumers' viewpoint, the feeling that organic foodstuffs have superior sensory qualities (Waldrop and McCluskey, 2019), are sustainable and more environmentally friendly (Ghvanidze *et al.*, 2016) and are healthier (Roman *et al.*, 2017) than their conventional equivalents led to a positive consumer behavior toward organic food (Jorge *et al.*, 2020). Consumers have higher WTP for organic foods than their conventional counterparts (Britwum *et al.*, 2021), and the drivers that influence WPT could be clustered into three distinct groups: consumer-related, product-related and purchasing venue-related (Katt and Meixner, 2020).

Among the product-related WTP drivers, several studies have investigated the impact of the product price by highlighting either a positive impact (e.g. Zielke, 2010) or a negative effect (e.g. Sriwaranun *et al.*, 2015) on WTP. According to Hasselbach and Roosen (2015a, b), a combination of local and organic production could be seen as a chance to protect the authenticity of the organic food and, as result, lead to a higher consumers' WTP for the product. Most studies found that an organic label positively affected WTP (e.g. Janssen and Hamm, 2012; Mohamed *et al.*, 2014). Likewise, other studies provided evidence of the positive impact of product certification on consumer WTP for organic food (e.g. Rozan *et al.*, 2004; Wang and Huo, 2016). In particular, Aye *et al.* (2019) provided evidence that Asian consumers are willing to pay a higher premium for environmentally certified foodstuff that had reduced levels of pesticides (i.e. organic food). Prior studies have shown that organic food, having characteristics that determine food sustainability such as high environmental integrity, has a positive and statistically significant impact on consumers' WTP (Vecchio and Annunziata, 2015). de-Magistris and Gracia (2016) demonstrated that consumers are willing to pay a premium price for sustainable food products, specifically organically grown production (Pucci *et al.*, 2016). Finally, other commonly studied product-related drivers are traceability (e.g. Bradu *et al.*, 2014; Wu *et al.*, 2015), food safety (e.g. Rozan *et al.*, 2004; Tait *et al.*, 2016; Zhang *et al.*, 2018), and perceived quality (e.g. Hasselbach and Roosen, 2015a, b; Bruschi *et al.*, 2015) by providing evidence of their positive effect on the WTP for organic food. Specifically, by considering the factors able to reassure the origin and content of food products, traceability is considered an essential factor for the agri-food sector (Papetti *et al.*, 2012; Costa *et al.*, 2013). According to Ampatzidis and Vougioukas (2009), foodstuff traceability involves the control of the whole chain of food production, permitting the product to be tracked through all steps of its production back to its origin. Indeed, to assure public health, foodstuff traceability represents an indispensable tool for the prevention of food adulteration, fraud and scandals (Charlebois and Haratifar, 2015). An exemplary case is the melamine milk scandal in 2008 [3], which has led Asian consumers to increase their attention to food safety certification (Wang and Huo, 2016). Therefore, Asian consumers have shown a higher WTP for ensuring food safety (Tait *et al.*, 2016) as well as for traceability information (Wu *et al.*, 2015).

Among consumer-related drivers, many studies have uncovered the relationship between sociodemographic characteristics (e.g. gender, age, education, income), their purchase

motives regarding organic food and their WTP for organic food. Even if approximately half of the studies found a significant effect of those drivers on consumers' WTP for organic food, their effects are still controversial, suggesting that consumers could not be profiled only by sociodemographic variables but rather by their consciousness and perceptions. For instance, some findings regarding the influence of consumers' education on their WTP for organic products highlighted a positive correlation between a higher education level and the tendency to buy organic products (Haest, 1990), but other studies do not support this conclusion (Thompson and Kidwell, 1998; Wier and Calverley, 2002). Conflicting views also exist about consumers' gender effect on WTP for organic food, even if some specific gender differences in both preferences and WTP for organic food have been found (Ureña *et al.*, 2008; Croson and Gneezy, 2009). Another commonly studied driver affecting the WTP for organic food is household size: across the studies, some found a significant effect on WTP (Voon *et al.*, 2011; Muhammad *et al.*, 2015; McFadden and Huffman, 2017) while others did not (Zhang *et al.*, 2018). Lastly, some studies have analyzed the effect of both age and income levels. The age factor does not seem to impact the WTP for organic food significantly. However, there have been some sporadic indications that younger consumers are more inclined to pay more for organic food due to their higher environmental consciousness and greater attention to healthier foods. Finally, a high number of studies found income to have a significant effect on WTP for organic food if it is considered a premium product compared to conventional one, but, on the other hand, some studies do not support this conclusion, showing that disposable income mainly affects the quantity of organic bought and not generally WTP for organic food. Finally, Urbonavičius *et al.* (2010) showed that consumers' ethnocentrism positively influences attitudes and intention to purchase organic foodstuff. As result, consumer WTP for these organic products might be affected by consumer ethnocentrism (Yin *et al.*, 2019).

Concerning the purchasing venue-related drivers, although the literature has not as deeply investigated the effect of these factors on the WTP of organic food consumers (e.g. Ellison *et al.*, 2016), the principal evidence has shown that the type of store had a significant effect on WTP (e.g. Gottschalk and Leistner, 2013). Store design and visual stimulus also affect consumers' WTP for organic food (e.g. Guyader *et al.*, 2017). Other studies have investigated the impact of the convenience of shopping for organic food by highlighting either a positive impact (e.g. Wu *et al.*, 2019) or a negative effect (e.g. Vecchio *et al.*, 2016) on WTP.

Several studies have provided evidence concerning consumers' WTP for organic olive oil in different countries (e.g. Marozzo *et al.*, 2021; Ghali, 2020; Rizzo *et al.*, 2020; Kalogeras *et al.*, 2009). The organic character of the olive oil (i.e. without aggressive chemical activities) leads to more significant Dutch consumers' WTP for the product (Kalogeras *et al.*, 2009). The utilitarian value of organic olive oil has a stronger influence on consumers' WTP toward the foodstuff (Ghali, 2020). Krystallis *et al.* (2006) have shown that Greek consumers declared a WTP of +58.6% for organic olive oil compared to conventional. Factors such as food safety, health and nutrition seem to influence Italian consumers' WTP toward this foodstuff (Liberatore *et al.*, 2018). Rizzo *et al.* (2020) have shown that the contribution of the health factors to determining the average premium price for organic olive oil is 78.9% of its total premium price. By investigating Spanish consumers' WTP for organic food, Soler *et al.* (2002) have provided evidence that 70% of respondents expressed a WTP as a premium for organic olive oil. Gil and Soler (2006) confirmed that consumer attitudes (e.g. toward food safety, environment and labeling) and consumers' knowledge (about organic food) influence the decision to pay a premium for organic olive oil. Kalogeras *et al.* (2009) provided evidence that consumers' WTP for organic olive oil is influenced by consumers' awareness, experience and perceptions concerning the better quality of the product and preference for the retail distribution of organic olive oil. Additionally, Marozzo *et al.* (2021) have shown that the perceived product authenticity and sustainability of the product positively affect the Spanish consumers' WTP for organic olive oil.

Methodology

To address our research question, thus exploiting the most influential drivers of Asian consumers' WTP for organic olive oil, we adopt a sequential design of a quantitative method (exploratory factor analysis, hereafter EFA) and mixed method (fsQCA), among others (Akhmedova *et al.*, 2020; Olya and Altinay, 2016). In the first stage of this study, EFA was used to assess the reliability of the surveyed items and to refine the antecedent conditions as well as the outcome variable. In the second stage, the same data were analyzed using fsQCA to explore and individuate the synergic effects of the selected conditions. Both approaches are generally largely employed when dealing with small samples size, due to their ability to yield reliable results. In particular, for EFA, although there is no an established minimum sample size required, previous research has shown that for samples with N below 50, it provides reliable results (Velicer and Fava, 1998; de Winter *et al.*, 2009). More precisely, Costello and Osborne (2005) emphasized that data characteristics conditionate the sample size required, that in EFA framework means high communalities, no cross-loading factors and strong primary factor loading on the intended factor. By combing those two conclusions, together with the Bartlett' test and KMO (Kaiser, 1974; Weide and Beauducel, 2019), we concluded that the small sample size, at this stage, was sufficient for the analysis.

Similarly, the implementation of fsQCA produces valid results. It was specifically designed to examine stochastic but complex (small-n) phenomena (Greckhamer *et al.*, 2013; Rihoux *et al.*, 2013; Pappas and Woodside, 2021), and ensures robust results. Consequently, as for previous studies with comparable samples size (Olya *et al.*, 2018; Kusa *et al.*, 2021; Abadzhiev *et al.*, 2022), the use of fsQCA allows this study to explore different combinations of condition that affect Asian consumers' WTP for organic olive oil, by also considering both complementary and substitution effects between conditions.

The research framework contemplates different steps (Figure 1), including the identification of both the research goals and research methodology, the analysis of the empirical survey data and finally the combination of analytic results with theoretical knowledge to individuate the best solution for the research question.

Factor analysis (FA) was originally created to evaluate the correlation coefficient among each variable to obtain the communality of each analytical variable (Dunlap and Cornwell, 1994). FA approaches include both EFA and confirmatory factor analysis (CFA), originally developed to test the validity of each analytical variable, and both based on the common factor model. Since they are useful tools for dimensionality reduction, they can correctly reproduce the correlation structure among a set of measured variables with a small set of latent constructs, as in our case, and are useful for dealing with complex directly and indirectly influenced factors. Specifically, EFA allows all factors to relate to all measured variables, while CFA restricts such relationships to those specified by the analyst (Widaman, 2012). Moreover, some argue that the purpose of EFA is to identify the latent constructs and/or to generate hypotheses about their structure, while the purpose of CFA is to test the hypothesized structure of latent constructs. Then, to individuate what could be the potential pathways of combinations among all the evaluated elements, the qualitative comparative analysis (QCA) approach was implemented. QCA is specifically designed for the qualitative analysis of small samples that do not require representativeness (Pappas and Woodside, 2021), and it allows to individuate the condition or some useful combinations of conditions able to explain the presence of an outcome or the occurrence of a particular final state, following different pathways (Fiss, 2011; Schneider and Wagemann, 2012). The aim of QCA is not to demonstrate the existence and the magnitude of a causal relationship between two variables, but to individuate some patterns supporting the existence of such relationship.

A specific QCA technique, the fsQCA was employed: it is still based on the Boolean algebra theory (Mott, 1962) but with a fuzzy calibration of the data, meaning that instead of a binary categorization of the data, membership scores range from 0 (fully out membership) to

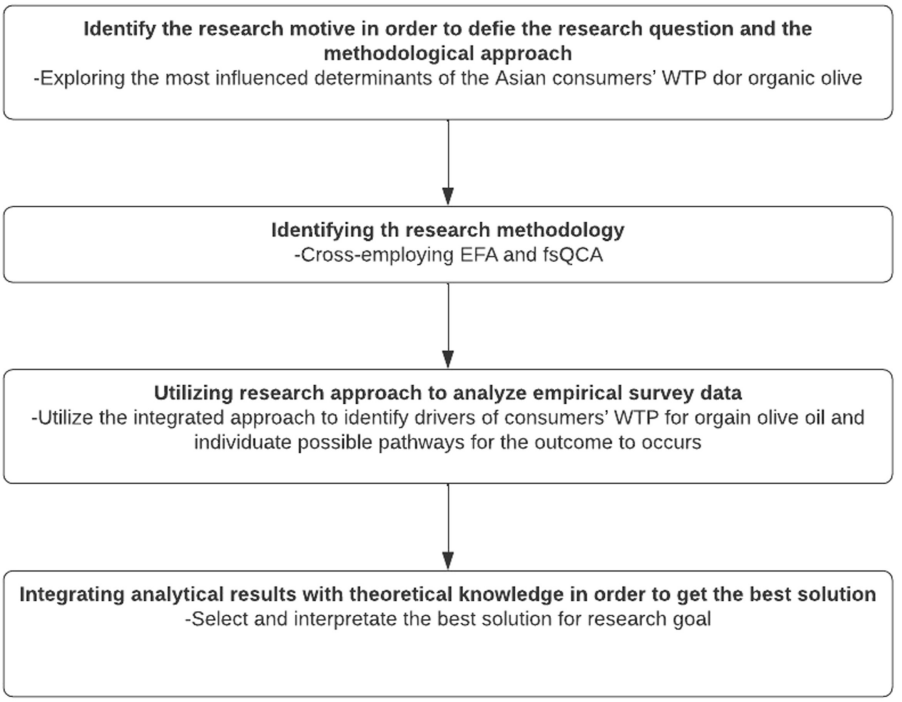


Figure 1.
Research strategy

Source(s): Authors' own creation

1 (fully in membership), with 0.5 as the crossover point, and they can take any values, according to the calibration method adopted (Ragin, 2008). According to Ragin (2008), fsQCA involves different steps: after the preliminary step related to the construction of a truth table with a list of all possible combinations (including cases for which there is no empirical evidence), the second step consists in reducing the rows of the truth table by applying both frequency and consistent thresholds (Ragin, 2008). Furthermore, sufficient and necessary analyses are conducted, via both inclusion/consistency and coverage scores. The analysis of necessary conditions individuates what conditions may result in the outcome condition, while sufficiency condition analysis shows both individual and combination of conditions that are necessary for the occurrence of the outcome variable.

In our study, the analysis was performed through the Quine-McCluskey algorithm, which is based on a counterfactual analysis of causal conditions. By using easy or difficult counterfactuals (Ragin, 2008), the algorithm results in three different solutions: a parsimonious, an intermediate and a complex solution. Results are based on and interpreted with respect to the intermediate solution, obtained by formulating specific directional expectations about the relationship between conditions and the outcome.

Data collection

Quantitative data were collected from a sample of the Asian population with an online survey built on the Qualtrics software platform. The questionnaire link was spread through the Internet and diffused by e-mails, websites and pages on social networks. The survey was advertised through a convenience sample, which is a kind of nonrandom sampling in which

members of the target population are selected for the study's purpose if they meet specific practical criteria, such as geographical proximity, availability at a specific time, easy accessibility or the willingness to volunteer (Dörnyei and Taguchi, 2009). Specifically, the starting point was Asian students of a master class majoring at the Department of Economics of a large European University. Then, using a virtual snowball sampling technique, a non-probability sampling technique where research participants recruit other participants, it was possible to reach the broadest public. Although this survey method was used for its time and cost advantages, it is opportune to consider that it conveys some limitations, such as the risk of multiple responses by the same person (e.g. Konstan *et al.*, 2005) or the respondents' misrepresentation of their age, gender, level of education or other sociodemographic variables (e.g. Dillman, 2011).

The questionnaire was constructed using well-established and adapted scales with 7-point Likert scale items, asking the respondents to indicate the extent to which they agree or disagree (1 = strongly disagree, 7 = strongly agree) with the statements (Table S1 of Supplementary material). The administrated survey covers different factors, ranging from products' sustainability, authenticity and traceability to food fraud risk reduction perceptions. The WTP for organic olive oil was measured using an adapted three-item scale from Ghali (2020). The concept of product sustainability was measured through three-item scale by Carter (2014), while the concept of product authenticity was captured by nine items adapted from established previous scales (Fuchs *et al.*, 2015; Marozzo *et al.*, 2021). Through this nine-item scale, we were able to exploit consumers' perception of product authenticity, in terms of both product-country matches and product ethnicity (country of origin, typical product, etc.) and benefits of self-authentication. The perception of food fraud risks associated with the product characteristics was exploited through a three-item scale, respectively, by "Buying authentic/organic/sustainable products reduces the risk of food fraud." Traceability was measured via two-item scale (Verbeke and Ward, 2006) to capture the consumers' perceptions mainly related to food safety (van Rijswijk and Frewer, 2006) and quality (van Rijswijk and Frewer, 2008), and to the consumers' knowledge about the production system. Moreover, consumer ethnocentrism was measured via 10-item scale, adapting the original 17 items CETSCALE of Shimp and Sharma (1987), to capture the belief of Asian consumers about the appropriateness of purchasing foreign-made products. Finally, the survey includes sociodemographic characteristics. Respondents were asked to indicate their gender, year of birth, educational level, current occupation and household size. This is in line with some previous studies uncovering the relationship between consumers' sociodemographic characteristics and their purchase motives regarding organic food (e.g. Stolz *et al.*, 2011; Kalogeras *et al.*, 2009).

Analysis and results

Data were collected from a sample of the Asian population through an online questionnaire on Qualtrics software platform. Among 137 respondents, 63 questionnaires were without missing and incomplete data, and among them, two were discarded, due to their non-Asian origin, resulting in a final sample of 61 respondents. The final sample (see Table 1) consisted of 26.2% of men, 68.9% of women and 4.9% of other. In terms of age, it varies between 18–61 years, with 67.2% aged less than 25. Regarding the occupation, 47.5% of respondents were students, 45.9% were employees, 4.9% declared to have another type of occupation and only one was self-employed (1.6%). Finally, regarding the household size, 32.9% of respondents had a household size of four, followed by 24.6% with a three-sized household and 19.7% with more than four-sized households. The remaining 22.9% declared to have a smaller-sized household (13.1% of one and 9.8% of two).

Questionnaire items	Questionnaire statistic description	N	%
Gender	Male	16	26.2
	Female	42	68.9
	Other	3	4.9
Age	≤25	41	67.2
	>25	20	32.8
Occupation	Employed	28	45.9
	Self-employed	1	1.6
	Student	29	47.5
	Other	3	4.9
Household size	1	8	13.1
	2	6	9.8
	3	15	24.6
	4	20	32.9
	More than 4	12	19.7
Nationality	Chinese	10	16.4
	Mongolian	1	1.6
	Pakistani	2	3.3
	Vietnamese	45	73.8
	Other	3	4.9

Source(s): Authors' own creation

Table 1. Questionnaire statistic description

The general Cronbach's alpha (α) of validity test results of the surveyed questionnaire was 0.907, much higher than 0.7, confirming the validity of the questions. As for characteristics of research methodology, FA measurements and fsQCA assessments are two decisive analytical steps.

All the analyses were performed in RStudio software. FA was computed through the combined use of psych (Revelle, 2021), paran (Dinno, 2018) and EGA (Golino *et al.*, 2021) packages, while fsQCA was performed with the QA package of Dusa (2019).

First step: FA measurement

As a consequence of the overall reflection of items of interest included in the survey, an FA was decisive. After a preliminary analysis of variables to include and a data screening procedure, Table 2 points out the appropriateness of applying FA to the survey data matrix, after eliminating the item, "The organic olive oil is a genuine product," whose MSA coefficient was low (<0.5). Bartlett's test of sphericity on the final dataset of 26 items was statistically significant ($\chi^2 = 1150.2$; $p < 0.001$), and the final overall MSA of Kaiser-Meyer-Olkin (KMO) test was sufficiently high (0.77), highlighting the appropriateness of FA and its ability to evaluate research data.

Because no rule of factor extraction appears superior to all the others, none should be used alone (Coste *et al.*, 2005). Therefore, factor extraction was performed through a mixed

Kaiser–Meyer–Olkin Bartlett measure of sampling adequacy		0.77
Bartlett's test of sphericity	Approx. chi-square (325)	1150.2
	Significance	$p < 0.001$

Source(s): Authors' own creation

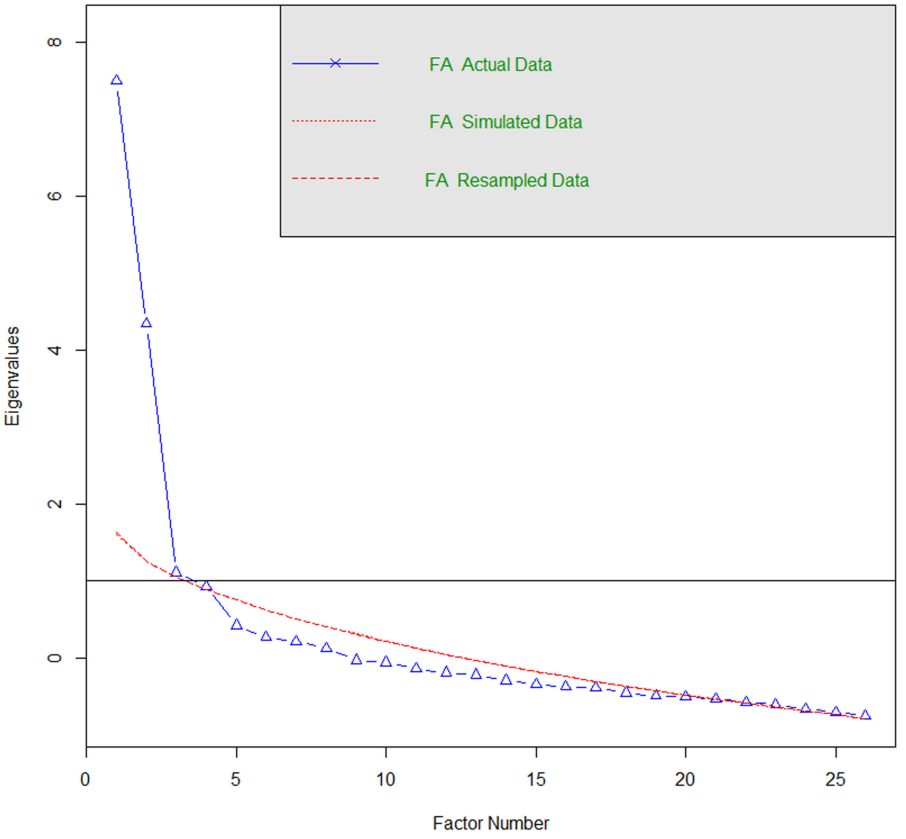
Table 2. KMO and Bartlett's test (extraction method: principal component analysis)

approach, by combining the scree plot and parallel analysis, with the principal component analysis (PCA) extraction method (Auerswald and Moshagen, 2019).

The scree plot suggested extracting four dimensions (Figure 2). In addition, applying an explorative graph analysis (EGA) to our items of interest, three dimensions were found as sufficient to extract. Moreover, Table 3, showing the results of Horn parallel analysis, the eigenvalues' methods according to four factors seem to set out a structure. The number of factors determined via the eigenvalue methods corresponds to those determined by the scree plot graphic.

FA was performed through an oblique rotation, to better account for intercorrelations among variables, and Promax rotation was employed. In succession, Table 4 reports only standardized factor loadings (FLs) of EFA whose values are ≥0.40, so that they could be considered stable (Guadagnoli and Velicer, 1988; Hair *et al.*, 2010) and without cross-loadings across factors (Costello and Osborne, 2005; Howard, 2015).

We retained all satisfactory variables that (1) load onto their primary factor above 0.40; (2) load onto alternative factors below 0.30 and (3) demonstrate a difference of 0.20 between their primary and alternative FLs. In addition, according to Esquivel *et al.* (2013), all communalities



Source(s): Authors' own creation

Figure 2.
Scree plot

Factor	*Adjusted eigenvalue*	*Unadjusted eigenvalue*	*Estimated bias*
1	*5.9875*	7.8899	1.9024
2	*3.1936*	4.8246	1.6310
3	*0.2031*	1.6397	1.3660
4	*0.1731*	1.4430	1.2699
5	−0.2960	0.8286	1.1246
6	−0.2443	0.7501	0.9944
7	−0.2308	0.6439	0.8747
8	−0.1832	0.5811	0.7643
9	−0.1996	0.4619	0.6615
10	−0.2845	0.2787	0.5632
11	−0.2028	0.2691	0.4720
12	−0.1738	0.2107	0.3845
13	−0.1042	0.1996	0.3038
14	−0.1222	0.1063	0.2285
15	−0.0723	0.0839	0.1562
16	−0.0580	0.0295	0.0875
17	−0.0272	−0.0039	0.0233
18	0.0187	−0.0184	−0.0371
19	0.0373	−0.0561	−0.0934
20	0.0773	−0.0686	−0.1459
21	0.1077	−0.0869	−0.1947
22	0.1354	−0.1035	−0.2389
23	0.1544	−0.1257	−0.2801
24	0.1782	−0.1400	−0.3181
25	0.1859	−0.1667	−0.3527
26	0.1989	−0.1885	−0.3874

Note(s): Adjusted eigenvalues >0 indicate dimensions to retain (4 factors retained)
Source(s): Authors' own creation

Table 3.
Results of Horn's parallel analysis for factor retention (paran package)

(h2) meet the requirements of validity. Over-factoring was also assessed by looking at inter-factor correlations: all coefficients were less than 0.06, thus no specific problem arose.

Particularly, the first common explained factor covers all ten items referring to CETSCALE (FLs ranging between 0.48 and 0.95), and the second common explained factor covers eight items referring to product authenticity (whose FLs range from 0.44 to 0.71). Consecutively, third common explained factor covers three items referring to product sustainability and additional two items related to product traceability ("To what extent do you pay attention to the traceability of the product when buying organic olive oil?" and "To what extent is the traceability of the product important to you when you buy organic olive oil?"). If, from a customer perspective, sustainability is an informational aspect of the product that describes the product's relation with the three main components of sustainability (ecological, societal and economic), the concept of sustainability goes beyond the common boundaries of a firm dedicated to the food production and embraces all the entire network of stakeholders and supplier involved in the supply chain (Germani *et al.*, 2015), from actors dealing with components and raw materials (Abeyratne and Monfared, 2016) to the other ones dedicated to the final product delivery. Hence, because a supply chain is required to incorporate all the sustainable practices across the entire supply chain (Faisal, 2010), the relevant traceability information acts as an integral part of sustainability (Hastig and Sodhi, 2020) and all the product-related data needed to be delivered to make a claim of sustainability. Finally, the fourth common explained factor contains two items related to food fraud: respectively, "Buying organic olive oil reduces the risk of food fraud" (0.89) and "Buying a sustainable product reduces the risk of food fraud" (0.78).

	ML2	ML4	ML3	ML1	h2	u2	com
PDTSusta_1	0.00	0.35	*0.51*	0.03	0.59	0.41	1.8
PDTSusta_2	−0.07	0.21	*0.60*	0.10	0.59	0.41	1.3
PDTSusta_3	−0.12	0.30	*0.45*	0.11	0.47	0.53	2.1
PDTAuth_1	−0.03	*0.71*	−0.01	−0.01	0.48	0.52	1.0
PDTAuth_2	−0.02	*0.69*	−0.25	0.11	0.40	0.60	1.3
PDTAuth_3	0.01	*0.64*	0.08	0.03	0.49	0.51	1.0
PDTAuth_4	−0.19	*0.61*	0.12	−0.14	0.40	0.60	1.4
PDTAuth_5	0.10	*0.69*	−0.06	0.06	0.51	0.49	1.1
PDTAuth_6	0.17	*0.56*	−0.03	0.09	0.42	0.58	1.2
PDTAuth_7	−0.02	*0.44*	0.09	0.22	0.37	0.63	1.6
PDTAuth_8	0.09	*0.54*	−0.03	−0.15	0.27	0.73	1.2
Fraud_2	−0.07	0.03	0.12	*0.89*	0.84	0.16	1.0
Fraud_3	0.08	0.04	0.02	*0.78*	0.68	0.32	1.0
Trace_1	0.16	−0.12	*0.86*	−0.07	0.66	0.34	1.1
Trace_2	−0.04	−0.21	*0.95*	0.09	0.77	0.23	1.1
CETScale_1	*0.57*	−0.01	−0.10	0.19	0.41	0.59	1.3
CETScale_2	*0.48*	−0.11	0.13	0.20	0.32	0.68	1.6
CETScale_3	*0.81*	−0.09	0.07	0.00	0.63	0.37	1.0
CETScale_4	*0.85*	−0.07	−0.19	0.19	0.81	0.19	1.2
CETScale_5	*0.92*	0.01	−0.07	−0.02	0.83	0.17	1.0
CETScale_6	*0.95*	0.00	−0.04	0.00	0.90	0.10	1.0
CETScale_7	*0.90*	0.04	−0.10	−0.10	0.78	0.22	1.1
CETScale_8	*0.78*	0.06	0.21	−0.22	0.64	0.36	1.3
CETScale_9	*0.74*	0.07	0.28	−0.14	0.65	0.35	1.4
CETScale_10	*0.80*	0.25	−0.08	−0.09	0.74	0.26	1.3

Note(s): Goodness of fit indexes: $\chi^2(206) = 285.983$, $p = 0.00019$; mean item complexity = 1.3; SRMR = 0.06; RMSEA = 0.078
Source(s): Authors' own creation

Table 4. Standardized loadings (pattern matrix) based upon correlation matrix

The goodness-of-model fit, the chi-squared, the root-mean-square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) indices were used. The chi-squared statistic is not significant (9.645924e^-05), while RMSEA and SRMR are acceptable (0.078 and 0.06, respectively). Moreover, the robustness of the results across rotation methods was assessed by running EFA with both varimax and oblimin rotation methods. Results were consistent across all the specifications.

Based on the literature review about WTP and consumers' behavior, we defined the following items: *1)* consumer ethnocentrism (*CET*) able to capture consumers' ethnocentric tendencies related to purchasing foreign versus home-made products, consisting of 10 items; *2)* product authenticity (*Auth*) that regards genuineness, related to the place of production, country of origin and handmade production process (Marozzo *et al.*, 2021), captured through eight items; *3)* sustainability and traceability (*Sust*), that consists of 5 items able to capture both environmental and social-related aspects of organic olive oil and traceability as an indicator of safety perceptions; *4)* food fraud (fraud), in terms of perceptions of food fraud reductions, summarized through two items.

Cronbach's alpha coefficients are reported in Table 5 and meet the requirements validity.

The four extracted items (*CET, Auth, Sust, Fraud*) were used as driver conditions for fsQCA and WTP as the outcome, together with sociodemographic variables.

Second step: fsQCA assessment

Fuzzy-set qualitative comparative analysis is further employed to individuate which combinations of conditions cause Asian consumers to have the WTP for organic olive oil.

EFA weight-measures about consumers' behavior (consumer ethnocentrism, authenticity, sustainability and food fraud perceptions), together with sociodemographic variable, represent the input for the fsQCA approach. In addition, WTP measure was obtained by averaging the related multi-item scales of the survey.

Each of these quantitative variables was transformed through a process of calibration into a categorical variable (fuzzy set) that is used to indicate the degree of membership of a case into a set. We followed Ragin (2008) and graded the membership of each causal condition between 0 and 1 by choosing each calibration threshold through the percentile method (Greckhamer, 2016; Greckhamer *et al.*, 2018).

For main driver conditions (*WTP, CET, Auth, Sust and Fraud*), we used a four-membership values scale (Van Meerkerk *et al.*, 2018; Hagen *et al.*, 2021) to assign scores, ranging from zero to one (with increments of 0.33), that indicate:

(1) 1 = a case is a full member of a set, showing a high degree of a particular condition;

(2) 0.67 = a case is more in than out of a set, showing a moderate degree of a particular condition;

(3) 0.33 = a case is more out than in the set, showing a partial (but not full) absence of a particular condition;

(4) 0 = a case is fully out of the set, showing the absence or an exceptionally low degree of a particular condition.

The occupation of each participant (hereafter, *Occup*) was calibrated through the same four-values scale: 1 - employees and self-employed, 0.67 - unemployed and homemaker, 0.33 - students and retired, 0 - other. For gender variable (*Gender*) and household size (*Household_Size*), we employed a different fuzzification method, based on a three-values scale, corresponding to full membership, the crossover point and full non-membership. More precisely, *Gender* assumes values of 0 for men, 1 for women and 0.5 for other gender, while for the household size we distinguished between household size less than 3 (membership score of 0) and household size more than 3 (membership score of 1), using the three-sized household as breaking point (fuzzy score of 0.5).

Finally, to avoid theoretical difficulties in the point of maximum ambiguity (0.5), we added a small constant of 0.001 in all conditions after the calibration was performed, in accordance with established practices (Fiss, 2011; Ragin, 2008). Fuzzification thresholds are reported in Table 6.

Preliminary, fsQCA required the built of a 2^k row truth table matrix, with k the number of driver conditions that lists all the possible combinations, including cases for which there is no empirical evidence.

Following standard procedures and good practices in QCA, before the analysis of sufficient conditions, we tested the necessity of each condition.

Construct	Code	Cronbach's alpha
Willingness to pay	*WTP*	0.804
Consumer ethnocentrism	*CET*	0.939
Product authenticity	*Auth*	0.83
Sustainability and traceability	*Sust*	0.87
Food fraud	*Fraud*	0.86

Source(s): Authors' own creation

Table 5.
Internal consistency

Antecedent Condition	*N*	*Percentile* 0	33	67	1
WTP	61	1.00000	3.33	5.00000	6.8
CET	61	−1.45725	−0.58572	0.54292	2.17258
Auth	61	−2.74626	−0.46240	0.38556	2.00367
Sust	61	−2.06804	−0.56492	0.62501	1.62291
Fraud	61	−2.61039	−0.39733	0.55801	1.58228
Sociodemographic variables					
Occup	Employees and self-employed →1				
	Unemployed and homemaker →0.67				
	Students and retired →0.33				
	Other →0				
Gender	Male →0				
	Female →1				
	Other→0.50				
Household_Size	More than three family members →1				
	Three family members→0.50				
	Less than three family members→0				

Source(s): Authors' own creation

Table 6. Fuzzification thresholds

According to Schneider and Wagemann (2012), for a condition to be necessary, its consistency must be greater than 0.9; therefore, we conducted the analysis by considering a threshold of 0.965. Table 7 shows the analysis of necessary conditions considering both the presence or the absence (~) of the condition.

The results show that among all the OR-configurations, none of the conditions alone (*CET, Auth, Sust, Fraud*, *Gender*, *Occup* and *Household_Size*) was necessary to achieve the outcome of WTP. As a result, not a sole condition itself explained the WTP for organic olive oil, requiring the analysis of combinations of causal conditions.

In performing the analysis of sufficient conditions, we adopted a frequency benchmark of 1.0, and to get a valid analysis, considering that the consistency cut-off must be greater than 0.75 (Ragin, 2008), we set a higher and more robust cut-off of 0.8.

		inclN	RoN	covN
1	~*CET*	0.855	0.503	0.494
2	*CET*	0.584	0.851	0.659
3	~*Auth*	0.782	0.483	0.452
4	*Auth*	0.671	0.889	0.757
5	~*Sust*	0.782	0.483	0.452
6	*Sust*	0.642	0.877	0.725
7	~*Fraud*	0.869	0.507	0.502
8	*Fraud*	0.541	0.834	0.611
9	~*Gender*	0.351	0.824	0.467
10	*Gender*	0.678	0.387	0.363
11	~*Occup*	0.558	0.804	0.580
12	*Occup*	0.739	0.513	0.447
13	~*Household_Size*	0.449	0.782	0.487
14	*Household_Size*	0.707	0.483	0.417

Source(s): Authors' own creation

Table 7. Analysis of necessary conditions

The model used for the analysis contains seven conditions, of which four are derived from the EFA and thus related to the consumers' behavior, and three from sociodemographic variables.

The empirical model is the following:

$$WTP = f(CET, Auth, Sust, Fraud, Gender, Occupation, Household\ Size)$$

The analysis, with Quine-McCluskey algorithm, has been performed with and without simplifying assumptions regarding the logical reminders, leading to the most parsimonious solution and to a more complex one, respectively. Both solutions are available upon request.

Finally, results are based on the resulting intermediate solution of fsQCA because it is more suitable for theoretical interpretation (Fiss, 2011). It results from the reduction of the truth table after incorporating all the logical remainders that could lead to the outcome (Ragin, 2008), and it logically represents the complex solution reduced by the conditions that run counter to fundamental theoretical knowledge (Schneider and Wagemann, 2012). Results, in Table 8, suggested that multiple configurations could lead to a positive and higher WTP for organic olive oil (Pappas and Woodside, 2021).

Solution coverage and consistency comply with criteria given by Ragin (2008), according to which consistency must be greater than 0.75 and coverage greater than 0.25. Solution coverage was 0.322 and solution consistency was 0.918. In addition, the analysis reports the so-called PRI scores, which measure the proportional reduction in inconsistency, used to detect and deal with simultaneous subset relationship. Even if is not a strict criterion, the lower the PRI score, the more likely is that simultaneous subset relation is present, meaning that a particular configuration is sufficient for an outcome as it is sufficient for the negation of this outcome (Schneider and Wagemann, 2012), and a threshold of 0.5 is often used. No particular configuration had a PRI score lower than the suggested cut-off. Anyway, we also inspected the PRI scores for the negated outcome (Table S2 of Supplementary material). In all cases, neither inclusion score nor PRI score was sufficiently high to indicate that a combination may be necessary for the outcome as well as its negation.

M1: CET*Auth*Sust*~Gender*~Occup + CET*~Fraud*~Gender*~Occup*~Household_Size+
Auth*Sust*~Fraud*~Gender*~Occup + Auth*Fraud*~Gender*~Occup*~Household_Size+
CET*Auth*~Sust*Fraud*Gender*~Occup + CET*Auth*Sust*~Fraud*~Occup*~Household_Size - > WTP

	Solution #1	Solution #2	Solution #3	Solution #4	Solution #5	Solution #6
CET	•	•			•	•
Auth	•		•	•	•	•
Sust	•		•		⊗	•
Fraud		⊗	⊗	•	•	⊗
Gender	⊗	⊗	⊗	⊗	•	
Occup	⊗	⊗	⊗	⊗	⊗	⊗
Household_Size		⊗		⊗		⊗
Consistency	0.903	1	1	0.927	0.858	0.883
PRI	0.714	1	1	0.750	0.507	0.718
covS	*0.136*	0.093	*0.128*	0.093	0.085	*0.107*
Overall sol. consist	0.918					
Overall sol. PRI	0.811					
Overall sol. cover	0.332					

Note(s): Black circles (•) indicate presence; ⊗ denote negation; blank spaces denote absence. Empirical relevant configuration, with raw coverage >0.10, is highlighted in grey

Source(s): Authors' own creation

Table 8.
Intermediate solution

The fsQCA results for the target variables suggested multiple intriguing configurations, showing a positive/higher WTP for organic olive oil among Asian consumers. In particular, even if the effect of sociodemographic variables was mixed (positive contribution in some pathways and negative in other ones), there is a positive contribution of consumers' ethnocentrism (*CET*) and product authenticity (*Auth*). Moreover, also the contribution of sustainability (*Sust*) and food fraud (*Fraud*) is mixed, depending on the combination with other consumers' perceptions.

More precisely, configuration (1) is as follows:

$$CET * Auth * Sust * \sim Gender * \sim Occup$$

Configuration (1) indicates that the combination of consumer ethnocentrism, perception of product authenticity, and sustainability leads to a higher WTP for organic olive oil, particularly among male Asian consumers who are neither employed nor self-employed.

Configuration (2) is as follows:

$$CET * \sim Fraud * \sim Gender * \sim Occup * \sim Household\_Size$$

It shows that a higher WTP for organic olive oil is explained by the combination of higher ethnocentrism, higher perceptions of both product authenticity and sustainability and a lower perception of food fraud risk reduction for neither employed nor self-employed male workers, with small household size.

Configuration (3) is as follows:

$$Auth * Sust * \sim Fraud * \sim Gender * \sim Occup$$

and shows that higher levels of WTP for organic olive oil are explained by a combination of higher product authenticity and sustainability perceptions, lower perception of food fraud risk reduction, for male Asian consumers neither employed nor self-employed.

Configuration (4) is the following:

$$Auth * Fraud * \sim Gender * \sim Occup * \sim Household\_Size$$

Similar to the second configuration, it indicates that Asian consumers who are willing to pay more for organic olive oil have higher perceptions about product authenticity, are male, are neither employed nor self-employed and belong to smaller family groups. In contrast with previous findings, this configuration path also requires a higher perception of food fraud risk reduction.

Configuration (5) is as follows:

$$CET * Auth * \sim Sust * Fraud * Gender * \sim Occup$$

It includes all four variables related to consumers' behavior, meaning that higher consumer ethnocentrism, higher perceptions of product authenticity and food fraud risks reduction, lower perception of sustainability and female gender and neither being employees nor self-employees result in the WTP more for organic olive oil.

Finally, configuration (6) is as follows:

$$CET * Auth * Sust * \sim Fraud * \sim Occup * \sim Household\_Size$$

Similar to the previous one, the WTP more for organic olive oil is explained by a combination of higher consumer ethnocentrism and higher perceptions of product authenticity. In contrast, to have a higher WTP for organic olive oil, this path implies both a higher perception of product sustainability and a lower perception of food fraud risk reduction, together with the absence of dependent and self-employed work and smaller family groups.

However, following Albort-Morant and Oghazi (2016), we must evaluate the causal configurations with the greatest raw coverage. For this reason, we limit our discussions to the configurations considered empirically relevant (Ragin, 2008; Russo and Confente, 2017), whose raw coverage exceeds 0.10, which means concentrating our discussion on paths (1), (3) and (6).

Discussion and conclusion

This study aims to examine the most influential drivers, both product-specific and consumer-specific, affecting Asian consumers' WTP for organic olive oil. It implements, in a sequential design approach, EFA and fsQCA methods with the aim of research complementarity (Mertens, 2019). The two stages were linked since the results of the first method inform the second one. In the first stage, data were analyzed through EFA to individuate antecedent conditions and outcome variable. Those represent the input of fsQCA, that, in the second stage of the analysis, allowed us to test the synergic effect of different antecedents that could occur simultaneously in determining higher Asian consumers' WTP for organic olive oil. Our findings are consistent with previous studies exploring the consumer behavior in the organic food purchasing and consumption (e.g. Mohamed *et al.*, 2014; Aye *et al.*, 2019; Wu *et al.*, 2015), and make some preliminary contributions to deepen the understanding of the drivers determining the WTP for organic products in the Asian context. Firstly, despite the majority of studies being conducted in producing countries, less is known in the context of emerging countries, like Asia, where traditionally olive oil is not embedded in culinary practices (Jiménez-Guerrero *et al.*, 2012), even if it is particularly appreciated for its beneficial health effects (Gorzynik-Debicka *et al.*, 2018) and its taste, coupled with a shift in consumer demand for healthier diets. Specifically, previous scientific contributions on organic food consumption concentrated mainly in the USA and in the European continent (e.g. Murphy *et al.*, 2022; Malissiova *et al.*, 2022; Soler *et al.*, 2002), while relatively little is known about the consumers' perception of organic food in Asia (Roitner-Schobesberger *et al.*, 2008). Additionally, the existing studies analyze consumption in single Asian countries (e.g. Hoque *et al.*, 2021; Li *et al.*, 2019; Sriwaranun *et al.*, 2015). In this respect, our study concentrated on a sample of different nationality people, such as Chinese, Mongolian, Pakistani and Vietnamese, trying to obtain results that are not related to the country effect and with more universal validity.

Secondly, within the variables here examined, the different behavioral constructs are not manually operationalized, but are obtained from FA, meaning that each of them is based on a multi-scale items reflecting individual consumer's opinion. Moreover, we conceptualized product authenticity and product sustainability as quality signs in positioning organic olive oil in the segment of premium price, thus resulting in higher WTP for it. We further deepen the analysis by considering a broader concept of sustainability, not only related to human health and environmental concerns but that also embraces traceability of the supply chain (Garcia-Torres *et al.*, 2019). In fact, while previous studies separately considered sustainability and traceability (in relation to technical advances), our study is a first attempt to develop an interconnection between the economic, environmental, social and operational dimensions of the sustainability concept.

Thirdly, by cross-employing FA and fsQCA, this study explores the combined configurations of consumer behavioral variables and sociodemographics that could simultaneously boost the Asian consumers WTP for organic olive oil. This combined approach fully complies with findings of Diamantopoulos *et al.* (2003), who stated that sociodemographics alone are not sufficient to profile a consumer-type, but rather it is necessary to consider environmental consciousness.

Going deeper in the discussion, the results obtained from the FA and the fsQCA analyses are complementary to previous studies and confirmed the effect of each factor investigated,

showing a series of different configurational paths that lead to a higher WTP for organic olive oil among Asian consumers. Our analysis revealed that drivers influencing Asian consumers' WTP for organic olive oil are the same of those affecting purchasing of conventional foods, like environmental consciousness and friendliness, traceability systems and quality concerns, in general. These findings highlight how the consumers' perception of the organic olive oil is still anchored to the traditional dimensions of organic products (Klonsky and Tourte, 1998; Krystallis and Chryssohoidis, 2005; Padel and Foster, 2005) and are in line with previous studies on consumption trends in Asian countries (Roitner-Schobesberger *et al.*, 2008; Sangkumchaliang and Huang, 2012; Rezai *et al.*, 2013).

In addition, fsQCA analysis results in identification of three configuration paths related to different types of consumers' profiles willing to pay more for organic olive oil.

The first profile (quality premium searchers) portrayed the central role of consumers' attitudes toward product authenticity and sustainability, together with the high preference for domestic organic olive oil (higher ethnocentrism). Differently, the consumer perception about food fraud risks reduction was absent, emphasizing the role of the quality concerns and environmental consciousness-related elements as drivers for higher levels of WTP for organic olive oil. These findings also confirm the existence, for Asian consumers too, of a new profile of consumers as "quality conscious" (Arvanitoyannis *et al.*, 2004; Kalogeras *et al.*, 2009). Among Asian consumers, where the olive oil consumption driver is not related to tradition, it is reasonable to suppose that the WTP more for a product is related to ecological and health-related concerns, meaning that consumers pay attention to some product characteristics, like sustainability and authenticity, to assure organic olive oil superior quality. Moreover, this configurational path highlights the importance of the origin of the olive oil, as in Schjøll (2017), by showing that for Asian consumers the WTP more for organic olive oil is influenced by their perception about the appropriateness and morality of purchasing foreign goods and by their preference for purchasing domestic product (Nguyen and Pham, 2021) either as a way to preserve the domestic economy or as a response to social and behavioral pressures (Ajzen, 1988; Nguyen and Tran, 2018). It is interesting to underline how the mean score of the 10-items CET scale does not show a prominent ethnocentrism attitude, since it is not higher than the midpoint of the scale ($3.43 < 3.5$). Moreover, it is noteworthy that the variables CET1 (only those products that are unavailable in my country should be imported), CET2 (my own country products, first, last and foremost), CET8 (it may cost me in the long run but I prefer to support my own country products) and CET9 (we should buy from foreign countries only those products that we cannot obtain within our own country) have higher mean values. These values show a certain feeling of patriotism in Asian consumers (Ishii, 2009) that consequently is reflected both in consumption habits and in their WTP for organic olive oil, while in those items that mention foreign products in a more direct way, Asian consumers present lower evaluation scores. Moreover, focusing on the sociodemographic variables, and contrary to the main results in literature that highlight a more positive female attitude toward organic food and their WTP, our results suggest that men have higher levels of WTP for organic olive oil (Roitner-Schobesberger *et al.*, 2008; Ureña *et al.*, 2008). Finally, this path includes being neither employed nor self-employed. It is important to notice that this configuration contemplates only consumers that indicated "students or retired" as occupational status, and since all the consumers in our sample have the highest level of education, this seems to suggest that the WTP a premium price for organic olive oil reflects a more educated and conscious consumer.

The second profile (reassurance searchers) shows a different combination of factors configuring a higher WTP for organic olive oil. It considers a combination of higher sensitivity to product's authenticity and sustainability, together with a lower perception of food fraud risk reduction. Product authenticity and sustainability are sufficient for assuring high quality to the organic olive oil with respect to its conventional counterparts and for

increasing trust levels of consumers. Deepening the analysis, our results point out that Asian consumers of organic olive oil with higher levels of WTP have a lower perception of food fraud risk reduction. This result can be interpreted in the light of the more prominent preference of Asian consumers for government certification of food safety, instead of for private sector assurance programs. In the context of a lack of trust in the safety of food supply chains (Liu and Niyongira, 2017), our results underline that Asian consumers do not fully trust or have sufficient confidence in the safety assurance program of organic olive oil, due to the cumulative food incidents that still occur, which in the eyes of consumers are connected to control leakages over food products (Al-Tal, 2012). And this obviously impacts organic purchasing behavior (Liu and Zheng, 2019).

In addition, as stated in Shamsi *et al.* (2020), consumers do not have adequate access to food safety information, resulting in low level of safety cognition. In this spirit, and because the food fraud construct is composed of two items ("Buying organic olive oil reduces the risk of food fraud" and "Buying a sustainable product reduces the risk of food fraud"), it is possible to argue that Asian consumers still do not consider food safety as a quality dimension of (organic) food. Consequently, the organic attribute and the assurance of the sustainability of the product do not immediately translate in the assurance of food safety that, instead, requires a more direct intervention on external stimuli for consumers, modeling the existing information asymmetry.

Finally, similarly to the previous configuration, this path includes males who are neither employed nor self-employed.

The third profile (quality and reassurance searchers) combines the two previous profiles. Specifically, it highlights the central role of the consumer behavior in determining the WTP as a premium price for organic olive oil, by requiring a higher level of ethnocentrism, higher sensitivities to the concepts of products' authenticity and sustainability and a lower perception of food fraud risk reduction. Moreover, among the sociodemographic characteristics, this configuration suggests that neither being employed nor self-employed and living in small family groups affect the WTP for organic olive oil. This makes Asian consumers' behavior complex and unique and worthy of further explorations. In particular, health and environmental concerns, which include the support to local economies, are considered the main drivers affecting the purchase of organic food (Tung *et al.*, 2012; Hsu *et al.*, 2016), and organic food production is the only one that absolutely prohibits the use of chemical synthesis and genetic modification. Therefore, organic food is perceived as being of higher quality and more environmentally friendly than conventional food. Since quality matters, and both product's authenticity and sustainability are quality characteristics, these perceived superior qualities result in a higher WTP for organic olive oil. In addition, similarly to the second configuration, since Asian consumers still experience food safety incidents (Qing *et al.*, 2006), risks associated with organic products and the perception of the related health damages negatively impact their WTP. This pattern is exacerbated by the low level of knowledge in terms of concept of food safety, identification and ranking, meaning that even if Asian consumers have a positive attitude toward safe food, their knowledge about it is still a barrier to purchasing behavior, affecting their ability to attribute a true monetary value to the organic feature of olive oil.

Analyzing the overall three profiles here identified, consistent with previous studies (e.g. Marozzo *et al.*, 2021), it emerges that product authenticity and sustainability are appreciated by Asian consumers of organic olive oil, thus translating in a higher WTP for it. Our results are also in line with existing literature, showing that the more respondents perceived quality and health benefits from organic products, the more likely they were willing to pay more for their purchase, thus recognizing additional monetary value to a healthier and more environmentally friendly product. In addition, and consistent with studies referring to the traditional extra-virgin oil (e.g. Blazquez-Resino *et al.*, 2021), results of fsQCA highlight the effect of ethnocentrism of Asian consumers that positively contributes to determining their

WTP for organic olive oil (e.g. Urbonavičius *et al.*, 2010; Yin *et al.*, 2019), passing through a certain feeling of patriotism (Shimp and Sharma, 1987) that supports the development of local economies. Moreover, our analysis shows a lower consumers' attention to food fraud risks, meaning that Asian consumers pay less attention to the food safety in their consumption and purchasing choices, even if there is a more positive attitude toward assurance safety food programs. This apparently contradictory result could be explained by arguing that the high number of food safety incidents have caused Asian consumers to doubt the safety of processed organic food, even if a higher quality is assured, and this implies that many of them do not necessarily want to pay a premium or pursue organic food. Thus, it could be argued that the lack of trust is responsible for the inconsistency between respondents' attitudes and behaviors toward organic olive oil in the Asian market. This conclusion, however, should be treated with caution and not easily generalized to other product types or countries, without cross-countries analyses.

Moreover, when analyzing the reduction of food fraud risks perceived by Asian consumers, it is necessary to prescribe which is the role played by the concept of traceability. Previous studies have shown that foodstuff traceability is indispensable for preventing food adulteration, fraud and scandals (Charlebois and Haratifar, 2015). In our results, food traceability is encapsulated in the sustainability concept, meaning that Asian consumers are willing to pay more for a combination of food traceability and other safety assurances deriving from a better-quality food product, rather than for food traceability alone (Wu *et al.*, 2012). The intersection of consumers' perceptions about sustainability and traceability is coherent with the study of Garcia-Torres *et al.* (2019) and their concept of traceability for sustainability (TfS), as a comprehensive framework including not only economic and operational efficiency aspects related to traceability systems, but also social and environmental implications about product health and safety concerns.

Consequently, it is possible to implicitly derive a positive attitude toward food fraud risks reduction looking at Asian consumers perception about product sustainability. Finally, to understand Asian consumers' WTP for the proposed type of olive oil, the use of sociodemographic characteristics as driver conditions of fsQCA, allowed us to better profile consumers more willing to pay a premium for organic olive oil, by deriving that, in general, they are men, not-employed or self-employed workers and belong to small family groups.

Theoretical and managerial implications

The theoretical implications of this study are different. First, it contributes to the existing literature focused on consumers' attitudes and purchase intentions toward organic food by examining the main drivers, both product-specific and consumer-specific, that lead to a greater WTP for organic food products. The results of the empirical analysis reveal that perceptions about the higher product authenticity and sustainability, the higher level of ethnocentrism and the lower perception of food fraud risks reduction affect Asian consumers' WTP more for organic olive oil. The attention toward the authenticity and sustainability concepts underlines that Asian consumers are actively trying to consider and improve their health, and their impact on the environmental and social conditions, by underlining the consumers' propensity about health in terms of their personal well-being as well as the planet. On the other hand, among demographic characteristics, only the male gender and being neither employed nor self-employed workers seem to translate into an additional premium for buying organic olive oil. The results of our research, similarly to the traditional literature (Katt and Meixner, 2020; Krystallis *et al.*, 2006), indicate that the quality dimensions are the most important aspects that affect any food product consumption and behaviors, including organic food: attitudes toward organic food are on average positive (Saba and Messina, 2003) in the Asian market, which is experiencing a rapid development, as a combination of

health-conscious culture, repeated food safety issues and industrialization processes. Secondly, this study contributes to the existing literature by underlining and concretely defining three distinct consumer profiles - quality premium searchers, reassurance searchers and quality and reassurance searchers - willing to pay more for organic olive oil. By empirical analysis, the identification of these distinct profiles with their different characteristics and their different consumer behaviors permits to have a clear understanding of Asian consumer perception of organic food products and fills the emerging gap represented by the scarcity of scientific contributions focused on consumers' perception of organic food in emerging countries. Finally, this study provides insights regarding the use of two methodological approaches by confirming the complementarity between qualitative-quantitative analyses.

From a managerial point of view, this study offers suggestions to both policymakers and firms, which can be used as references for acting on organic food consumers' behavior and for boosting the development of the organic food industry. Our study focuses on a particular type of olive oil, supposed to have a higher quality, and to assure more attention to environment and health. Since in recent years, food safety incidents have occurred frequently, and consumers are more aware of food safety and health consciousness, in the context of Asian regulation, our results suggest policymakers to carefully assess how to protect consumers from product adulteration, thus decreasing the chance of consumers to suffer health damages due to poor food quality. At the same time, it should be taken into consideration the necessity to invest more in organic traceability systems. Considering the importance of the concepts of authenticity and sustainability for Asian consumers and the corresponding increased WTP for products with these characteristics, companies should position their offers in this direction. An accurate traceability system could increase consumer reassurance regarding food safety. In this perspective, policymakers could promote state-certified systems and revisit organic regulation, thus increasing the availability and the credibility of information about organic olive oil, improving traceability technologies and labeling and packaging information to achieve higher traceability technical standards of quality and safety. By strengthening quality and safety systems, firms that operate or wish to operate in the Asian market should formulate a precise management strategy able to assure the authenticity of the product and of all the phases of its production systems and to raise public awareness of organic olive oil. Traditionally, firms, to emphasize the organic characteristics of their products, were used to highlight the negative effect of pesticides and other chemicals to raise consumer concerns and to encourage them to buy organic foods, as "healthier and chemicals-free" alternatives. Our results suggest a revision of this strategy. We are aware that our analysis did not allow to reach certain conclusion about causality, meaning that it is not possible to definitively conclude that the more authentic and sustainable the organic olive oil, the higher is the Asian consumers' WTP for it. A kind of skepticism over the truthfulness of organic products persists. Thus, to enhance consumers trust in Asia, one solution could be implementing more transparent practices by all organic-food stakeholders, including farmers and supply-chain members.

With this in mind, companies should improve consumers' perceptions of the quality and the benefits related to the organic olive oil through marketing strategies that act not only on the consumers' familiarity with organic products but also on the consumers' attitudes toward product authenticity and sustainability, thus reinforcing the positive perception of nutrition and food safety attributes of the organic olive oil when compared with its conventional counterparts. In the same way, the promotional campaigns for attracting new buyer and for leveraging the WTP of consumers who already buy organic olive oil should emphasize the environmental benefits of their organic products and inform consumers that the organic production of olive oil is the only one that could conserve natural resources and prevent food frauds. Moreover, the supervision of all certification processes (both public and private) should be reinforced too. Furthermore, policymakers could influence the development of the entire organic food industry by acting on the macro environmental context (in particular legislation), with obviously affects

the price differential between conventional and organic olive oil. In addition, since our study also involves consumers' ethnocentrism among driver conditions of fsQCA, and the results show a more prominent preference for domestic olive oil, strategic policies should promote more the national dimension of olive oil brands and resources, and the policymakers should also be able to strengthen the supervision of the overall organic olive oil supply chain.

Some limitations characterize this research. The first limitation regards the sample size that is limited especially if compared with the extensiveness of Asia. Indeed, a larger sample might offer a more comprehensive and exhaustive analysis, especially if linked with further qualitative explorations in terms of interviews. In fact, the validation of some measures of attitudinal dimensions could be improved (e.g. for food fraud construct there were only two items) and refined. Second, the current study did not analyze the WTP of the Asian consumer who are not willing to pay more for organic olive oil to avoid biases in the analysis, and, in addition, other information related to WTP could have been requested. Third, Asian countries are very different, and diverse behaviors and beliefs drive consumers in terms of food. A more focused analysis may depict a more precise picture of consumers' preferences at the country level, offering companies more focused information on their strategies' settings. Fourth, we carried out our analysis to identify the main drivers able to describe the different paths of the Asian consumers' WTP for organic olive oil, but we did not verify for causality conditions and did not properly perform a market segmentation (like Ben Ali *et al.*, 2022). Finally, as it is critical to understand the relationship between organic olive oil price premiums and Asian consumers' WTP for its successful launch in markets around the world, and as an avenue for future research, we can also suggest exploring the effect of Asian consumers' previous shopping experiences (Naspetti and Zanoli, 2009) and controlling for the price of organic olive oil (Aschemann-Witzel and Zielke, 2017).

Notes

1. https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022.pdf
2. https://www.thebusinessresearchcompany.com/report/organic-food-global-market-report
3. https://www.fao.org/newsroom/detail/Melamine-milk-crisis/en

References

Abadzhiev, A., Sukhov, A., Sihvonen, A. and Johnson, M. (2022), "Managing the complexity of green innovation", *European Journal of Innovation Management*, Vol. 25 No. 6, pp. 850-866.

Abeyratne, S.A. and Monfared, R.P. (2016), "Blockchain ready manufacturing supply chain using distributed ledger", *International Journal of Research in Engineering and Technology*, Vol. 5 No. 9, pp. 1-10.

Ajzen, I. (1988), *Attitudes, Personality, and Behavior*, Open University Press, Buckingham.

Akhmedova, A., Marimon, F. and Mas-Machuca, M. (2020), "Winning strategies for customer loyalty in the sharing economy: a mixed-methods study", *Journal of Business Research*, Vol. 112, pp. 33-44.

Albort-Morant, G. and Oghazi, P. (2016), "How useful are incubators for new entrepreneurs?", *Journal of Business Research*, Vol. 69 No. 6, pp. 2125-2129.

Al-Tal, S.M.S. (2012), "Modeling information asymmetry mitigation through food traceability systems using partial least squares", *Electronic Journal of Applied Statistical Analysis*, Vol. 5 No. 2, pp. 237-255.

Ampatzidis, Y.G. and Vougioukas, S.G. (2009), "Field experiments for evaluating the incorporation of RFID and barcode registration and digital weighing technologies in manual fruit harvesting", *Computers and Electronics in Agriculture*, Vol. 66 No. 2, pp. 166-172.

Arvanitoyannis, I.S., Krystallis, A. and Krystallis, A. (2004), "Health and environmental consciousness: Greek consumers' attitudes toward the organic, HACCP and ISO14000 certifications on food", *Journal of International Food and Agribusiness Marketing*, Vol. 15 Nos 1-2, pp. 93-136.

Aschemann-Witzel, J. and Zielke, S. (2017), "Can't buy me green? A review of consumer perceptions of and behavior toward the price of organic food", *Journal of Consumer Affairs*, Vol. 51 No. 1, pp. 211-251.

Auerswald, M. and Moshagen, M. (2019), "How to determine the number of factors to retain in exploratory factor analysis: a comparison of extraction methods under realistic conditions", *Psychological Methods*, Vol. 24, pp. 468-491.

Aye, M.S., Takahashi, Y. and Yabe, M. (2019), "Effects of consumer preferences on environmentally friendly tomatoes in Myanmar", *Journal of Agricultural Science*, Vol. 11 No. 13, p. 29.

Basha, M.B., Mason, C., Shamsudin, M.F., Hussain, H.I. and Salem, M.A. (2015), "Consumers attitude towards organic food", *Procedia Economics and Finance*, Vol. 31, pp. 444-452.

Ben Ali, S., Ben Hassine, K. and Mtimet, N. (2022), "Market segmentation using intrinsic product attributes: evidence from the Tunisian olive oil market", *Journal of International Food and Agribusiness Marketing*, pp. 1-21.

Berry, E.M., Dernini, S., Burlingame, B., Meybeck, A. and Conforti, P. (2015), "Food security and sustainability: can one exist without the other?", *Public Health Nutrition*, Vol. 18 No. 13, pp. 2293-2302.

Blazquez-Resino, J.J., Gutierrez-Broncano, S., Jimenez-Estevez, P. and Perez-Jimenez, I.R. (2021), "The effect of ethnocentrism on product evaluation and purchase intention: the case of extra virgin olive oil (EVOO)", *Sustainability*, Vol. 13 No. 9, p. 4744.

Bradu, C., Orquin, J.L. and Thøgersen, J. (2014), "The mediated influence of a traceability label on consumer's willingness to buy the labelled product", *Journal of Business Ethics*, Vol. 124 No. 2, pp. 283-295.

Britwum, K., Bernard, J.C. and Albrecht, S.E. (2021), "Does importance influence confidence in organic food attributes?", *Food Quality and Preference*, Vol. 87, 104056.

Brown, K.A., Timotijevic, L., Barnett, J., Shepherd, R., Lähteenmäki, L. and Raats, M.M. (2011), "A review of consumer awareness, understanding and use of food-based dietary guidelines", *British Journal of Nutrition*, Vol. 106 No. 1, pp. 15-26.

Bruschi, V., Shershneva, K., Dolgopolova, I., Canavari, M. and Teuber, R. (2015), "Consumer perception of organic food in emerging markets: evidence from Saint Petersburg, Russia", *Agribusiness*, Vol. 31 No. 3, pp. 414-432.

Carter, K. (2014), "Product and consumer characteristics as moderators of consumer response to sustainable products", available at: https://scholarcommons.sc.edu/etd/2978

Charlebois, S. and Haratifar, S. (2015), "The perceived value of dairy product traceability in modern society: an exploratory study", *Journal of Dairy Science*, Vol. 98 No. 5, pp. 3514-3525.

Costa, C., Antonucci, F., Pallottino, F., Aguzzi, J., Sarriá, D. and Menesatti, P. (2013), "A review on agri-food supply chain traceability by means of RFID technology", *Food and Bioprocess Technology*, Vol. 6 No. 2, pp. 353-366.

Coste, J.S., Bouée, S., Ecosse, E., Leplège, A. and Pouchot, J. (2005), "Methodological issues in determining the dimensionality of composite health measures using principal component analysis: case illustration and suggestions for practice", *Quality of Life Research*, Vol. 14 No. 3, pp. 641-654.

Costello, A.B. and Osborne, J.W. (2005), "Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis", *Practical Assessment, Research, and Evaluation*, Vol. 10 No. 1, p. 7.

Croson, R. and Gneezy, U. (2009), "Gender differences in preferences", *Journal of Economic Literature*, Vol. 47 No. 2, pp. 448-474.

de-Magistris, T. and Gracia, A. (2016), "Consumers' willingness to pay for light, organic and PDO cheese", *British Food Journal*, Vol. 118 No. 3, pp. 560-571.

de Winter, J.C., Dodou, D. and Wieringa, P.A. (2009), "Exploratory factor analysis with small sample sizes", *Multivariate Behavioral Research*, Vol. 44 No. 2, pp. 147-181.

Denver, S., Christensen, T. and Krarup, S. (2007), "How vulnerable is organic consumption to information?", *paper presented at Nordic Consumer Policy Research Conference towards a New Consumer? Towards a New Policy?*, Helsinki.

Diamantopoulos, A., Schlegelmilch, B.B., Sinkovics, R.R. and Bohlen, G.M. (2003), "Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation", *Journal of Business Research*, Vol. 56 No. 6, pp. 465-480.

Dillman, D.A. (2011), *Mail and Internet Surveys: The Tailored Design Method–2007 Update with New Internet, Visual, and Mixed-Mode Guide*, John Wiley & Sons, Washington, DC.

Dinno, A. (2018), "Paran: horn's test of principal components/factors", available at: https://CRAN.R-project.org/package=paran

Dörnyei, Z. and Taguchi, T. (2009), *Questionnaires in Second Language Research: Construction, Administration, and Processing*, 2nd ed., Routledge, New York.

Dunlap, W.P. and Cornwell, J.M. (1994), "Factor analysis of ipsative measures", *Multivariate Behavioral Research*, Vol. 29 No. 1, pp. 115-126.

Dusa, A. (2019), *QCA with R. A Comprehensive Resource*, Springer International Publishing, Cham.

Ellison, B., Bernard, J.C., Paukett, M. and Toensmeyer, U.C. (2016), "The influence of retail outlet and FSMA information on consumer perceptions of and willingness to pay for organic grape tomatoes", *Journal of Economic Psychology*, Vol. 55, pp. 109-119.

Ergönül, B. (2013), "Consumer awareness and perception to food safety: a consumer analysis", *Food Control*, Vol. 32 No. 2, pp. 461-471.

Esquivel, S.L., Beavers, A.S., Lounsbury, J.W., Richards, J.K., Huck, S.W. and Skolits, G.J. (2013), "Practical considerations for using exploratory factor analysis in educational research", *Practical Assessment, Research and Evaluation*, Vol. 18, pp. 1-13.

Faisal, M.N. (2010), "Sustainable supply chains: a study of interaction among the enablers", *Business Process Management Journal*, Vol. 16 No. 3, pp. 508-529.

FiBL (2021), available at: https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022.pdf

Fiss, P.C. (2011), "Building better causal theories: a fuzzy set approach to typologies in organization research", *Academy of Management Journal*, Vol. 54 No. 2, pp. 393-420.

Fuchs, C., Schreier, M. and Van Osselaer, S.M. (2015), "The handmade effect: what's love got to do with it?", *Journal of Marketing*, Vol. 79 No. 2, pp. 98-110.

García, J.A. and Ruiz, B. (2021), "Spain's reputation in China: analysing its effects on attitudes towards Spanish olive oil", *British Food Journal*, Vol. 123 No. 11, pp. 3536-3556.

Garcia-Torres, S., Albareda, L., Rey-Garcia, M. and Seuring, S. (2019), "Traceability for sustainability–literature review and conceptual framework", *Supply Chain Management: An International Journal*, Vol. 24 No. 1, pp. 85-106.

Germani, M., Mandolini, M., Marconi, M., Marilungo, E. and Papetti, A. (2015), "A system to increase the sustainability and traceability of supply chains", *Procedia CIRP*, Vol. 29, pp. 227-232.

Ghali, Z.Z. (2020), "Effect of utilitarian and hedonic values on consumer willingness to buy and to pay for organic olive oil in Tunisia", *British Food Journal*, Vol. 122 No. 4, pp. 1013-1026.

Ghvanidze, S., Velikova, N., Dodd, T.H. and Oldewage-Theron, W. (2016), "Consumers' environmental and ethical consciousness and the use of the related food products information: the role of perceived consumer effectiveness", *Appetite*, Vol. 107, pp. 311-322.

Gil, J.M. and Soler, F. (2006), "Knowledge and willingness to pay for organic food in Spain: evidence from experimental auctions", *Acta Agriculturae Scand Section C*, Vol. 3 Nos 3-4, pp. 109-124.

Golino, H., Christensen, A.P. and Moulder, R. (2020), "EGAnet: exploratory graph analysis: a framework for estimating the number of dimensions in multivariate data using network psychometrics", R package version 0.9, 5.

Gorzynik-Debicka, M., Przychodzen, P., Cappello, F., Kuban-Jankowska, A., Marino Gammazza, A., Knap, N., Wozniak, M. and Gorska-Ponikowska, M. (2018), "Potential health benefits of olive oil and plant polyphenols", *International Journal of Molecular Sciences*, Vol. 19 No. 3, p. 686.

Gottschalk, I. and Leistner, T. (2013), "Consumer reactions to the availability of organic food in discount supermarkets", *International Journal of Consumer Studies*, Vol. 37 No. 2, pp. 136-142.

Greckhamer, T. (2016), "CEO compensation in relation to worker compensation across countries: the configurational impact of country-level institutions", *Strategic Management Journal*, Vol. 37 No. 4, pp. 793-815.

Greckhamer, T., Misangyi, V.F. and Fiss, P.C. (2013), "Chapter 3 the two qcas: from a small-n to a large-n set theoretic approach", in *Configurational Theory and Methods in Organizational Research*, Emerald Group Publishing, Bingley, pp. 49-75.

Greckhamer, T., Furnari, S., Fiss, P.C. and Aguilera, R.V. (2018), "Studying configurations with qualitative comparative analysis: best practices in strategy and organization research", *Strategic Organization*, Vol. 16 No. 4, pp. 482-495.

Guadagnoli, E. and Velicer, W.F. (1988), "Relation of sample size to the stability of component patterns", *Psychological Bulletin*, Vol. 103 No. 2, pp. 265-275.

Guyader, H., Ottosson, M. and Witell, L. (2017), "You can't buy what you can't see: retailer practices to increase the green premium", *Journal of Retailing and Consumer Services*, Vol. 34, pp. 319-325.

Haest, C. (1990), "From farmer to shelf: trade of organically grown products", *Ecology and Farming*, Vol. 1 No. 1, pp. 9-11.

Hagen, L., Molenveld, A., Voorberg, W. and Van Buuren, A. (2021), "A qualitative comparative analysis of collaborative governance structures as applied in urban gardens", *Public Management Review*, Vol. 23 No. 11, pp. 1683-1704.

Hair, J., Black, W. and Babin, B.J. (2010), *Multivariate Data Analysis*, 7th ed., Pearson, New York.

Hamzaoui Essoussi, L. and Zahaf, M. (2009), "Exploring the decision-making process of Canadian organic food consumers", *Qualitative Market Research: An International Journal*, Vol. 12 No. 4, pp. 443-459.

Hamzaoui-Essoussi, L. and Zahaf, M. (2012), "Canadian organic food consumers' profile and their willingness to pay premium prices", *Journal of International Food and Agribusiness Marketing*, Vol. 24 No. 1, pp. 1-21.

Hasselbach, J.L. and Roosen, J. (2015a), "Consumer heterogeneity in the willingness to pay for local and organic food", *Journal of Food Products Marketing*, Vol. 21 No. 6, pp. 608-625.

Hasselbach, J.L. and Roosen, J. (2015b), "Motivations behind preferences for local or organic food", *Journal of International Consumer Marketing*, Vol. 27 No. 4, pp. 295-306.

Hastig, G.M. and Sodhi, M.S. (2020), "Blockchain for supply chain traceability: business requirements and critical success factors", *Production and Operations Management*, Vol. 29 No. 4, pp. 935-954.

Hoque, M.Z., Akhter, N. and Mawa, Z. (2021), "Consumers' willingness to pay (WTP) for organically farmed fish in Bangladesh", *Journal of Agricultural and Applied Economics*, Vol. 53 No. 4, pp. 482-509.

Howard, M.C. (2015), "A review of exploratory factor analysis (EFA) decisions and overview of current practices: what we are doing and how can we improve?", *International Journal of Human-Computer Interaction*, Vol. 32 No. 1, pp. 51-62.

Hsu, S.Y., Chang, C.C. and Lin, T.T. (2016), "An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modeling", *British Food Journal*, Vol. 118 No. 1, pp. 200-216.

Ishii, K. (2009), "Nationalistic sentiments of Chinese consumers: the effects and determinants of animosity and consumer ethnocentrism", *Journal of International Consumer Marketing*, Vol. 21 No. 4, pp. 299-308.

Janssen, M. and Hamm, U. (2012), "Product labelling in the market for organic food: consumer preferences and willingness-to-pay for different organic certification logos", *Food Quality and Preference*, Vol. 25 No. 1, pp. 9-22.

Jiménez-Guerrero, J.F., Gázquez-Abad, J.C., Mondéjar-Jiménez, J.A. and Huertas-García, R. (2012), "Consumer preferences for olive-oil attributes: a review of the empirical literature using a conjoint approach", in *Olive Oil-Constituents, Quality, Health Properties and Bioconversions*, InTech Europe, Croatia, pp. 233-247.

Jonas, A. and Roosen, J. (2005), "Private labels for premium products – the example of organic food", *International Journal of Retail and Distribution Management*, Vol. 33 No. 8, pp. 636-653.

Jorge, E., Lopez-Valeiras, E. and Gonzalez-Sanchez, M.B. (2020), "The importance given to food naturalness attributes by millennial university students", *Sustainability*, Vol. 12 No. 2, p. 728.

Kaiser, H.F. (1974), "An index of factorial simplicity", *Psychometrika*, Vol. 39 No. 1, pp. 31-36.

Kalogeras, N., Valchovska, S., Baourakis, G. and Kalaitzis, P. (2009), "Dutch consumers' willingness to pay for organic olive oil", *Journal of International Food and Agribusiness Marketing*, Vol. 21 No. 4, pp. 286-311.

Katt, F. and Meixner, O. (2020), "A systematic review of drivers influencing consumer willingness to pay for organic food", *Trends in Food Science and Technology*, Vol. 100, pp. 374-388.

Kenanoglu, Z. and Karahan, O. (2002), "Policy implementations for organic agriculture in Turkey", *British Food Journal*, Vol. 104 Nos 3-4-5, pp. 300-318.

Klonsky, K. and Tourte, L. (1998), "Organic agricultural production in the United States: debates and directions", *American Journal of Agricultural Economics*, Vol. 80 No. 5, pp. 1119-1124.

Konstan, J.A., Simon Rosser, B.R., Ross, M.W., Stanton, J. and Edwards, W.M. (2005), "The story of subject naught: a cautionary but optimistic tale of Internet survey research", *Journal of Computer-Mediated Communication*, Vol. 10 No. 2, p. 00.

Krystallis, A. and Chryssohoidis, G. (2005), "Consumers' willingness to pay for organic food: factors that affect it and variation per organic product type", *British Food Journal*, Vol. 107 No. 5, pp. 320-343.

Krystallis, A., Fotopoulos, C. and Zotos, Y. (2006), "Organic consumers' profile and their willingness to pay (WTP) for selected organic food products in Greece", *Journal of International Consumer Marketing*, Vol. 19 No. 1, pp. 81-106.

Kusa, R., Duda, J. and Suder, M. (2021), "Explaining SME performance with fsQCA: the role of entrepreneurial orientation, entrepreneur motivation, and opportunity perception", *Journal of Innovation and Knowledge*, Vol. 6 No. 4, pp. 234-245.

Li, R., Lee, H.Y., Lin, Y.T., Liu, C.W. and Tsai, P.F. (2019), "Consumers' willingness to pay for organic foods in China: bibliometric review for an emerging literature", *International Journal of Environmental Research and Public Health*, Vol. 16 No. 10, p. 1713.

Liberatore, L., Casolani, N. and Murmura, F. (2018), "What's behind organic certification of extra-virgin olive oil? A response from Italian consumers", *Journal of Food Products Marketing*, Vol. 24 No. 8, pp. 946-959.

Liu, A. and Niyongira, R. (2017), "Chinese consumers food purchasing behaviors and awareness of food safety", *Food Control*, Vol. 79, pp. 185-191.

Liu, C. and Zheng, Y. (2019), "The predictors of consumer behavior in relation to organic food in the context of food safety incidents: advancing hyper attention theory within an stimulus-organism-response model", *Frontiers in Psychology*, Vol. 10, p. 2512.

Lyons, K., Lockie, S. and Lawrence, G. (2001), "Consuming 'green': the symbolic construction of organic foods", *Rural Society*, Vol. 11 No. 3, pp. 197-210.

Malissiova, E., Tsokana, K., Soultani, G., Alexandraki, M., Katsioulis, A. and Manouras, A. (2022), "Organic food: a Study of consumer perception and preferences in Greece", *Applied Food Research*, Vol. 2 No. 1, p. 100129.

Marozzo, V., Vargas-Sánchez, A., Abbate, T., D'Amico, A. and La Rocca, E.T. (2021), *Perceptions and Implications of Product Sustainability and Product Authenticity in the Agri-Food Sector: The Case of Organic Olive Oil in Spain*, Micro ad Macro Marketing, Rivista quadrimestrale, pp. 113-140.

McFadden, J.R. and Huffman, W.E. (2017), "Willingness-to-pay for natural, organic, and conventional foods: the effects of information and meaningful labels", *Food Policy*, Vol. 68, pp. 214-232.

Meijer, G.W., Lähteenmäki, L., Stadler, R.H. and Weiss, J. (2021), "Issues surrounding consumer trust and acceptance of existing and emerging food processing technologies", *Critical Reviews in Food Science and Nutrition*, Vol. 61 No. 1, pp. 97-115.

Mertens, D.M. (2019), *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods*, Sage Publications, Thousand Oaks, CA.

Mohamed, Z., Kit Teng, P., Rezai, G. and Sharifuddin, J. (2014), "Malaysian consumers' willingness-to-pay toward eco-labeled food products in Klang Valley", *Journal of Food Products Marketing*, Vol. 20 sup1, pp. 63-74.

Mott, T.H. (1962), "Applied Boolean algebra. An elementary introduction", *Journal of Symbolic Logic*, Vol. 27 No. 1, pp. 104-106.

Muhammad, S., Fathelrahman, E. and Ullah, R.U.T. (2015), "Factors affecting consumers' willingness to pay for certified organic food products in United Arab Emirates", *Journal of Food Distribution Research*, Vol. 46 No. 1, pp. 37-45.

Murphy, B., Martini, M., Fedi, A., Loera, B.L., Elliott, C.T. and Dean, M. (2022), "Consumer trust in organic food and organic certifications in four European countries", *Food Control*, Vol. 133, 108484.

Naspetti, S. and Zanoli, R. (2009), "Organic food quality and safety perception throughout Europe", *Journal of Food Products Marketing*, Vol. 15 No. 3, pp. 249-266.

Nguyen, N.T. and Pham, T.N. (2021), "Consumer attitudinal dispositions: a missing link between socio-cultural phenomenon and purchase intention of foreign products: an empirical research on young Vietnamese consumers", *Cogent Business and Management*, Vol. 8 No. 1, 1884345.

Nguyen, N.T. and Tran, T.T. (2018), "A study of the strategic alliance for Vietnam domestic pharmaceutical industry: a dynamic integration of A hybrid DEA and GM (1, 1) approach", *Journal of Grey System*, Vol. 30 No. 4, pp. 134-151.

Olya, H.G. and Altinay, L. (2016), "Asymmetric modeling of intention to purchase tourism weather insurance and loyalty", *Journal of Business Research*, Vol. 69 No. 8, pp. 2791-2800.

Olya, H.G., Altinay Gazi, Z., Altinay Aksal, F. and Altinay, M. (2018), "Behavioral intentions of disabled tourists for the use of peer-to-peer accommodations: an application of fsQCA", *International Journal of Contemporary Hospitality Management*, Vol. 30 No. 1, pp. 436-454.

Padel, S. and Foster, C. (2005), "Exploring the gap between attitudes and behaviour: understanding why consumers buy or do not buy organic food", *British Food Journal*, Vol. 107 No. 8, pp. 606-625.

Papetti, P., Costa, C., Antonucci, F., Figorilli, S., Solaini, S. and Menesatti, P. (2012), "A RFID web-based infotracing system for the artisanal Italian cheese quality traceability", *Food Control*, Vol. 27 No. 1, pp. 234-241.

Pappas, I.O. and Woodside, A.G. (2021), "Fuzzy-set qualitative comparative analysis (fsQCA): guidelines for research practice in information systems and marketing", *International Journal of Information Management*, Vol. 58, 102310.

Pucci, T., Faraoni, M., Rabino, S. and Zanni, L. (2016), "Willingness to pay for a regional wine brand", *Micro and Macro Marketing*, Vol. 25 No. 1, pp. 39-54.

Qing, P., Yan, F.X. and Wang, M.D. (2006), "Consumer behaviour to green vegetable", *Issues in Agricultural Economy*, Vol. 6 No. 2, pp. 73-78.

Ragin, C. (2008), *Redesigning Social Inquiry: Fuzzy Sets and beyond*, University of Chicago Press, Chicago.

Rana, J. and Paul, J. (2017), "Consumer behavior and purchase intention for organic food: a review and research agenda", *Journal of Retailing and Consumer Services*, Vol. 38, pp. 157-165.

Revelle, W. (2021), "Psych: procedures for psychological, psychometric, and personality research", available at: https://CRAN.R-project.org/package=psych

Rezai, G., Kit Teng, P., Mohamed, Z. and Shamsudin, M.N. (2013), "Consumer willingness to pay for green food in Malaysia", *Journal of International Food and Agribusiness Marketing*, Vol. 25 sup1, pp. 1-18.

Rihoux, B., Álamos-Concha, P., Bol, D., Marx, A. and Rezsöhazy, I. (2013), "From niche to mainstream method? A comprehensive mapping of QCA applications in journal articles from 1984 to 2011", *Political Research Quarterly*, Vol. 66 No. 1, pp. 175-184.

Rizzo, G., Borrello, M., Dara Guccione, G., Schifani, G. and Cembalo, L. (2020), "Organic food consumption: the relevance of the health attribute", *Sustainability*, Vol. 12 No. 2, p. 595.

Rodríguez, E., Lacaze, V. and Lupín, B. (2007), "Willingness to pay for organic food in Argentina: evidence from a consumer survey", *International Marketing and Trade of Quality Food Products*, p. 297.

Roitner-Schobesberger, B., Darnhofer, I., Somsook, S. and Vogl, C.R. (2008), "Consumer perceptions of organic foods in Bangkok, Thailand", *Food Policy*, Vol. 33 No. 2, pp. 112-121.

Roman, S., Sánchez-Siles, L.M. and Siegrist, M. (2017), "The importance of food naturalness for consumers: results of a systematic review", *Trends in Food Science and Technology*, Vol. 67, pp. 44-57.

Rozan, A., Stenger, A. and Willinger, M. (2004), "Willingness-to-pay for food safety: an experimental investigation of quality certification on bidding behaviour", *European Review of Agricultural Economics*, Vol. 31 No. 4, pp. 409-425.

Russo, I. and Confente, I. (2017), *Customer Loyalty and Supply Chain Management*, Routledge, New York.

Saba, A. and Messina, F. (2003), "Attitudes towards organic foods and risk/benefit perception associated with pesticides", *Food Quality and Preference*, Vol. 14 No. 8, pp. 637-645.

Sadilek, T. (2019), "Perception of food quality by consumers: literature review", *European Research Studies Journal*, Vol. 22 No. 1, pp. 57-67.

Sangkumchaliang, P. and Huang, W.C. (2012), "Consumers' perceptions and attitudes of organic food products in Northern Thailand", *International Food and Agribusiness Management Review*, Vol. 15 Nos 1030-2016-82915, pp. 87-102.

Schjøll, A. (2017), "Country-of-origin preferences for organic food", *Organic Agriculture*, Vol. 7 No. 3, pp. 315-327.

Schneider, C.Q. and Wagemann, C. (2012), *Set-theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*, Cambridge University Press, New York.

Shamsi, H.R., Najafabadi, M.O. and Hosseini, S.J.F. (2020), "Designing a three-phase pattern of organic product consumption behaviour", *Food Quality and Preference*, Vol. 79, 103743.

Shimp, T.A. and Sharma, S. (1987), "Consumer ethnocentrism: construction and validation of the CETSCALE", *Journal of Marketing Research*, Vol. 24 No. 3, pp. 280-289.

Soler, F., Gil, J.M. and Sanchez, M. (2002), "Consumers' acceptability of organic food in Spain: results from an experimental auction market", *British Food Journal*, Vol. 104 No. 8, pp. 670-687.

Sriwaranun, Y., Gan, C., Lee, M. and Cohen, D.A. (2015), "Consumers' willingness to pay for organic products in Thailand", *International Journal of Social Economics*, Vol. 42 No. 5, pp. 480-510.

Stolz, H., Stolze, M., Janssen, M. and Hamm, U. (2011), "Preferences and determinants for organic, conventional and conventional-plus products–The case of occasional organic consumers", *Food Quality and Preference*, Vol. 22 No. 8, pp. 772-779.

Stubbs, R.J., Scott, S.E. and Duarte, C. (2018), "Responding to food, environment and health challenges by changing meat consumption behaviors in consumers", *Nutrition Bulletin*, Vol. 43 No. 2, pp. 125-134.

Tait, P., Saunders, C., Guenther, M. and Rutherford, P. (2016), "Emerging versus developed economy consumer willingness to pay for environmentally sustainable food production: a choice experiment approach comparing Indian, Chinese and United Kingdom lamb consumers", *Journal of Cleaner Production*, Vol. 124, pp. 65-72.

Thompson, G.D. and Kidwell, J. (1998), "Explaining the choice of organic produce: cosmetic defects, prices, and consumer preferences", *American Journal of Agricultural Economics*, Vol. 80 No. 2, pp. 277-287.

Tranter, R.B., Bennett, R.M., Costa, L., Cowan, C., Holt, G.C., Jones, P.J., Miele, M., Sottomayor, M. and Vestergaard, J. (2009), "Consumers' willingness-to-pay for organic conversion-grade food: evidence from five EU countries", *Food Policy*, Vol. 34 No. 3, pp. 287-294.

Tung, S.J., Shih, C.C., Wei, S. and Chen, Y.H. (2012), "Attitudinal inconsistency toward organic food in relation to purchasing intention and behavior: an illustration of Taiwan consumers", *British Food Journal*, Vol. 114 No. 7, pp. 997-1015.

Urbonavičius, S., Dikčius, V. and Petrauskas, A. (2010), "Impact of ethnocentrism on buyer's choice of organic food products", *Paper presented at the 6th International Scientific Conference Business and Management 2010*, Vilnius.

Ureña, F., Bernabéu, R. and Olmeda, M. (2008), "Women, men and organic food: differences in their attitudes and willingness to pay. A Spanish case study", *International Journal of Consumer Studies*, Vol. 32 No. 1, pp. 18-26.

Van Doorn, J. and Verhoef, P.C. (2011), "Willingness to pay for organic products: differences between virtue and vice foods", *International Journal of Research in Marketing*, Vol. 28 No. 3, pp. 167-180.

Van Meerkerk, I., Kleinhans, R. and Molenveld, A. (2018), "Exploring the durability of community enterprises: a qualitative comparative analysis", *Public Administration*, Vol. 96 No. 4, pp. 651-667.

van Rijswijk, W. and Frewer, L. (2006), "How consumers link traceability to food quality and safety: an international investigation", *European Association of Agricultural Economists, 98th Seminar*, Chania, Crete, June 29-July 2, 2006.

van Rijswijk, W. and Frewer, L. (2008), "Consumer perceptions of food quality and safety and their relation to traceability", *British Food Journal*, Vol. 110 No. 10, pp. 1034-1046.

Vecchio, R. and Annunziata, A. (2015), "Willingness-to-pay for sustainability-labelled chocolate: an experimental auction approach", *Journal of Cleaner Production*, Vol. 86, pp. 335-342.

Vecchio, R., Van Loo, E.J. and Annunziata, A. (2016), "Consumers' willingness to pay for conventional, organic and functional yogurt: evidence from experimental auctions", *International Journal of Consumer Studies*, Vol. 40 No. 3, pp. 368-378.

Velicer, W.F. and Fava, J.L. (1998), "Effects of variable and subject sampling on factor pattern recovery", *Psychological Methods*, Vol. 3, pp. 231-251.

Verbeke, W. and Ward, R.W. (2006), "Consumer interest in beef quality and country-of-origin: an application of ordered probit models to Belgium beef labels", *Food Quality and Preference*, Vol. 17 Nos 1-2, pp. 126-131.

Voon, J.P., Ngui, K.S. and Agrawal, A. (2011), "Determinants of willingness to purchase organic food: an exploratory study using structural equation modeling", *International Food and Agribusiness Management Review*, Vol. 14 No. 2, pp. 103-120.

Waldrop, M.E. and McCluskey, J.J. (2019), "Does information about organic status affect consumer sensory liking and willingness to pay for beer?", *Agribusiness*, Vol. 35 No. 2, pp. 149-167.

Wang, L. and Huo, X. (2016), "Willingness-to-pay price premiums for certified fruits—a case of fresh apples in China", *Food Control*, Vol. 64, pp. 240-246.

Weide, A.C. and Beauducel, A. (2019), "Varimax rotation based on gradient projection is a feasible alternative to SPSS", *Frontiers in Psychology*, Vol. 10.

Widaman, K.F. (2012), in Cooper, H., Camic, P.M., Long, D.L., Panter, A.T., Rindskopf, D. and Sher, K.J. (Eds), *APA Handbook of Research Methods in Psychology*, Data Analysis and Research Publication, American Psychological Association, Washington, DC, Vol. 3, pp. 361-389.

Wier, M. and Calverley, C. (2002), "Market potential for organic foods in Europe", *British Food Journal*, Vol. 104 No. 1, pp. 45-62.

Willer, H. and Lernoud, J. (2018), "The world of organic agriculture", *Statistics and Emerging Trends 2018*, p. 25.

Wu, L., Xu, L., Zhu, D. and Wang, X. (2012), "Factors affecting consumer willingness to pay for certified traceable food in Jiangsu Province of China", *Canadian Journal of Agricultural Economics/Revue Canadienne D'agroeconomie*, Vol. 60 No. 3, pp. 317-333.

Wu, L., Wang, S., Zhu, D., Hu, W. and Wang, H. (2015), "Chinese consumers' preferences and willingness to pay for traceable food quality and safety attributes: the case of pork", *China Economic Review*, Vol. 35, pp. 121-136.

Wu, F., Swait, J. and Chen, Y. (2019), "Feature-based attributes and the roles of consumers' perception bias and inference in choice", *International Journal of Research in Marketing*, Vol. 36 No. 2, pp. 325-340.

Yin, S., Han, F., Wang, Y., Hu, W. and Lv, S. (2019), "Ethnocentrism, trust, and the willingness to pay of Chinese consumers for organic labels from different countries and certifiers", *Journal of Food Quality*, Vol. 2019, p. 13, 8173808.

Zhang, B., Fu, Z., Huang, J., Wang, J., Xu, S. and Zhang, L. (2018), "Consumers' perceptions, purchase intention, and willingness to pay a premium price for safe vegetables: a case study of Beijing, China", *Journal of Cleaner Production*, Vol. 197, pp. 1498-1507.

Zielke, S. (2010), "How price image dimensions influence shopping intentions for different store formats", *European Journal of Marketing*, Vol. 44 No. 6, pp. 748-770.

(The Appendix follows overleaf)

Table S1.
Constructs and items

Construct	Item	Scale	Ranging from - to	Reference
Willingness to pay Could you indicate the extent to which you agree or disagree with the following statements?	I am willing to spend extra money to buy organic olive oil It is acceptable to pay a premium price to purchase organic olive oil Compared to conventional olive oil, I am willing to pay more for organic olive oil	7-point Likert scale	Strongly disagree (1) Strongly agree (7)	Ghali (2020)
Product authenticity (the organic olive oil)	is a genuine product is an original product is an authentic product (not altered) is a typical product is made with the traditional method is unique reflects its place of origin is a typical Spanish product is a typical Italian product	7-point Likert scale	Strongly disagree (1) Strongly agree (7)	Fuchs *et al.* (2015) Marozzo *et al.* (2021)
Product sustainability (the organic olive oil)	an environmentally friendly product a green product a socially responsible product	7-point Likert scale	Strongly disagree (1) Strongly agree (7)	Carter (2014)
Perception of food fraud risks Could you indicate the extent to which you agree or disagree with the following statements?	Buying an authentic product reduces the risk of food fraud Buying a sustainable product reduces the risk of food fraud Buying an organic product reduces the risk of food fraud	7-point Likert scale	Strongly disagree (1) Strongly agree (7)	Authors' formulation
Product traceability	To what extent do you pay attention to the traceability of the product when buying organic olive oil? To what extent is the traceability of the product important to you when you buy organic olive oil?	7-point semantic differential scale	Very low attention (1) A lot of attention (7) Totally unimportant (1) Extremely important (7)	Verbeke and Ward (2006)

(*continued*)

Table S1.

Construct	Item	Scale	Ranging from - to	Reference
Consumer ethnocentrism Could you indicate the extent to which you agree or disagree with the following statements?	Only those products that are unavailable in my Country should be imported My own country products, first, last and foremost Purchasing foreign-made products is against my own country It is not right to purchase foreign products, because it puts people from my own country out of jobs A real consumer should always buy product made in her/his own Country We should purchase products manufactured in our country instead of letting other countries get rich off us People should not buy foreign products, because this hurts the business of their own country and causes unemployment It may cost me in the long run but I prefer to support my own country products We should buy from foreign countries only those products that we cannot obtain within our own country Consumers who purchase products made in other countries are responsible for putting their fellow out of work	7-pointLikert scale	Strongly disagree (1) Strongly agree (7)	Shimp and Sharma (1987)

Source(s): Authors' own creation

	Solution #1	Solution #2	Solution #3	Solution #4	Solution #5	Solution #6
CET	⊗				⊗	⊗
Auth	⊗	•	⊗	⊗	⊗	⊗
Sust	⊗	•	⊗		•	⊗
Fraud		⊗	•	⊗	⊗	•
Gender	•	⊗	•	•	⊗	
Occup	•	⊗	•	•	•	•
Household_Size		•		•		•
Consistency	0.391	0.388	0.390	0.389	0.392	0.386
PRI	0.172	0.175	0.174	0.175	0.179	0.170
covS	0.964	0.978	0.971	0.978	0.985	0.964
covU	0.000	0.000	0.000	0.000	0.000	0.000

Table S2. Intermediate solution for the negated outcome (~WTP)

Note(s): Black circles (•) indicate presence; ⊗ denote negation; blank spaces denote absence. "Consistency" is the consistency score, "PRI" is the proportional reduction in inconsistency, "CovS" is the raw coverage score and "CovU" is the unique coverage score

Source(s): Authors' own creation

About the authors

Veronica Marozzo is assistant professor at the University of Messina, Italy. She received a Ph.D. in economics and business management from the University of Calabria. Her main research interest is in the field of consumer behavior with a focus on product authenticity and product sustainability, consumers' willingness to pay, *au-naturel color* and packaging, product personalization, front-of-package label (FoPL), communication of the creative process, smart tourism destination and disability, as well as issues related to digital marketing, digital transformation, open innovation and co-creation, innovation in SMEs and entrepreneurship in innovative start-ups. Her studies have been published in journals and books and presented at national and international conferences.

Alessandra Costa is assistant professor at the University of Messina, Italy. She received a Ph.D. in economics, management and statistics from the University of Messina. Her main research interest is in the field of green innovation, especially in low-tech sectors and agrifood industry, with a particular focus on sustainability, green innovation, traceability, digitalization and technological innovations, entrepreneurship and consumer behavior in the lens of green transitions as well as innovation and open innovation in SMEs, strategic use of intellectual property and technology transfer. Her studies have been published in journals and books and presented at national and international conferences.

Antonio Crupi is assistant professor at the University of Messina, Italy. He is also research affiliate with the Institute of Management of Sant'Anna School of Advanced Studies, Italy, and with the Strategic and Technology Innovation Management (STIM) at the Institute of Manufacturing of the University of Cambridge, UK. His research concerns innovation, entrepreneurship and intellectual property. His current research focuses on intellectual property rights systems, strategic use of intellectual property, entrepreneurial dynamics, and university–industry interactions. His works have been published in high-quality peer-reviewed journals and presented at international conferences. Antonio Crupi is the corresponding author and can be contacted at: antcrupi@unime.it

Tindara Abbate is full professor of business economics and management, Department of Economics at the University of Messina. Her research interests refer to market orientation, open innovation and open innovation digital platforms, social innovation and digital transformation. She is the author of over 145 contributions, such as papers (e.g., *International Small Business Journal, International Journal of Entrepreneurship and Innovation Management, Business Process Management Journal, Current Issue in Tourism, International Journal of Tourism Research, International Journal of Hospitality Management, Journal of Business and Industrial Marketing, International Journal of Wine Business Research, Knowledge Management Research and Practice*), conference publications and book chapters.