



# The Value of Organic plus. Analysing Consumers' Preference for Additional Ethical Attributes of Organic food Products

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## Abstract

Organic Plus attributes strengthen the sustainability of the organic products and differentiate them from the 'conventionalized' organic ones. Products with Organic Plus attributes seem appreciated by organic consumers. However, research on consumers' preference for Organic Plus is still scarce, leaving gaps in the understanding of the consumers' characteristics of organic products with Plus attributes. In order to enrich the knowledge of consumers' preference for organic products with Plus attributes, the present study aims to achieve three Objectives: (1) identifying which Plus attributes, among fair prices to local farmers, integration of people with disabilities and eco-friendliness, are most sought after among Italian consumers of organic products (2) measuring, through the willingness to pay elicitation techniques, the level of preference for the various plus attributes; (3) determine which psychological, socio-demographic and contextual factors influence the purchasing choice of organic consumers for the three Plus attributes. Better knowledge of consumers' preference for organic Plus attributes, as well as the psychological and socio-demographic characteristic can provide useful indications to better-tailored marketing strategies on specific consumers' profiles.

**Keywords** Eco-friendliness · Experimental auctions · Organic eggs · Local farmers · Sustainability

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## 1 Introduction

The increasing interest of consumers in sustainable food products has stimulated rapid growth of the organic market, especially in European countries and the United States (Lamonaca et al., 2022; Wilke et al., 2021). According to the latest available data, the global organic food market has shown its highest growth ever in 2020, exceeding 120 billion euros, with a total increase of 14 billion euros compared to the previous year (FiBL, 2022). The United States continues to be the largest market (49.5 billion euros), followed by Germany (15.0 billion euros) and France (12.7 billion euros). This market trend was certainly encouraged by the entry into the market of large-scale distribution chains through which it was possible to easily reach an increasingly wide range of consumers, thus promoting greater accessibility (Best, 2008). This has offered new market opportunities especially to larger farms size which, while remaining within the strict boundaries of the regulation governing organic production, tend to propose the approach of conventional agriculture, giving rise to the phenomenon that the scientific literature calls ‘conventionalisation’ of organic agriculture (Darnhofer et al., 2010; Tovey, 1997). Padel (2008), summarizing the dynamics of this phenomenon, stated that the participation of large companies has led to a lowering of organic standards. In fact, these firms, while complying with organic regulations, use more intensive and industrialized approaches to productions that minimize the differences between organic and conventional farms. In terms of structure, the conventionalization of organic food production and market is characterized by an increase in farm size, structural changes, and processes of intensification, and globalization (Darnhofer et al., 2010; Padel, 2008).

In response to the conventionalization phenomenon, within the organic sector there are various approaches of implementing production methods which follow even higher sustainability standards than those of the current organic farming regulation (Zander & Hamm, 2010, 2012). These approaches give rise to organic food products with additional ethical attributes, recognized by the literature with the term ‘organic plus’ (Harrison, 2008). Organic food with plus attributes is produced through more stringent standards than those required by EU legislation and, therefore, more oriented towards enhancing the environmental, social and economic sustainability of agriculture. Thus, the plus attributes strengthen the ethicality of the organic products and differentiate them from the conventionalized organic ones. In the literature, to date, few studies have dealt with understanding how organic products with plus attributes are perceived by consumers (Migliore et al., 2022; Yue & Tong, 2009; Howard & Allen, 2006). Among these studies, the local origin of organic foods was the most studied plus on the topic. In detail, Yue and Tong (2009), by combining choice experiments in both hypothetical and non-hypothetical environments on a sample of 365 Americans, highlighted that consumers in both experiments showed a willingness to pay (WTP) for fresh organic food with the local plus attribute on average higher than the corresponding organic products. Similarly, Howard and Allen (2006), in a study conducted in California on 1000 participants, highlighted that among the most preferred plus attributes by consumers were the local origin, animal welfare and economic support for the workers involved in the production. With regard to studies conducted on European consumers, only Zander and Hamm (2010) have analysed consumer preferences for several plus attributes in organic products, highlighting that animal welfare, the local origin of organic products and fair prices for farmers are considered the most preferred plus attributes by consumers. However, although these previous studies have well-investigated consumer preference for organic

plus attributes, to date, it is still unclear what psychological, socio-demographic, and contextual factors drive organic consumers' intentions for different plus attributes. The current study tries to fill this gap by analysing which factors may influence consumer behaviour for organic plus. A better understanding of consumers' psychological and socio-demographic characteristics and their preferences for different attributes may provide useful knowledge for more targeted marketing strategies on specific consumer profiles. Finally, expanding knowledge on this topic could help policy-makers design specific policies to favour the production and purchase of organic food with plus attributes, pursuing benefits in terms of environmental, economic, and social sustainability.

In order to enrich the knowledge of consumers' preference for organic products with plus attributes, the present study aims to achieve three objectives: (1) identifying which plus attributes, among fair prices to local farmers, integration of people with disabilities and eco-friendliness, are most sought after among Italian consumers of organic products; (2) measuring, through the willingness to pay elicitation techniques, the level of preference for the various plus attributes; (3) determine which psychological, socio-demographic and contextual factors influence the purchasing choice of organic consumers for the three plus attributes.

In order to achieve the set objectives and obtain information about real consumer behaviour, the study will rely on data obtained from experimental auctions on organic eggs, which allow to overcome the hypothetical bias. Among possible foods, organic eggs were chosen because consumers perceive them as quality, natural, and environmentally and animal friendly products (Biemans & Tekien, 2017). This is important because, based on current consumer concerns about sustainability, production methods and food origin have also become important factors in purchasing behaviour (Mesias et al., 2011; Von Borell & Sorensen, 2004).

The remainder of this paper unfolds as follows. After this introduction, Sect. 2 outlines the theoretical background of the study; Sect. 3 shows the empirical strategy used; Sect. 4 explains the results obtained from data processing and sees a discussion of them; finally, Sect. 5 outlines our conclusions.

## 2 Conceptual Background

Organic food consumption is driven by environmental (Biswas & Roy, 2015), economic (Thøgersen, 2016; Thøgersen et al., 2016), and social (Honkanen et al., 2006) concerns. The literature explains that these three spheres are closely related to the overall values of sustainability (Alaimo et al., 2021a; 2021b; Magrini & Giambona, 2022; Tóth et al., 2020; de Groot & Steg 2010).

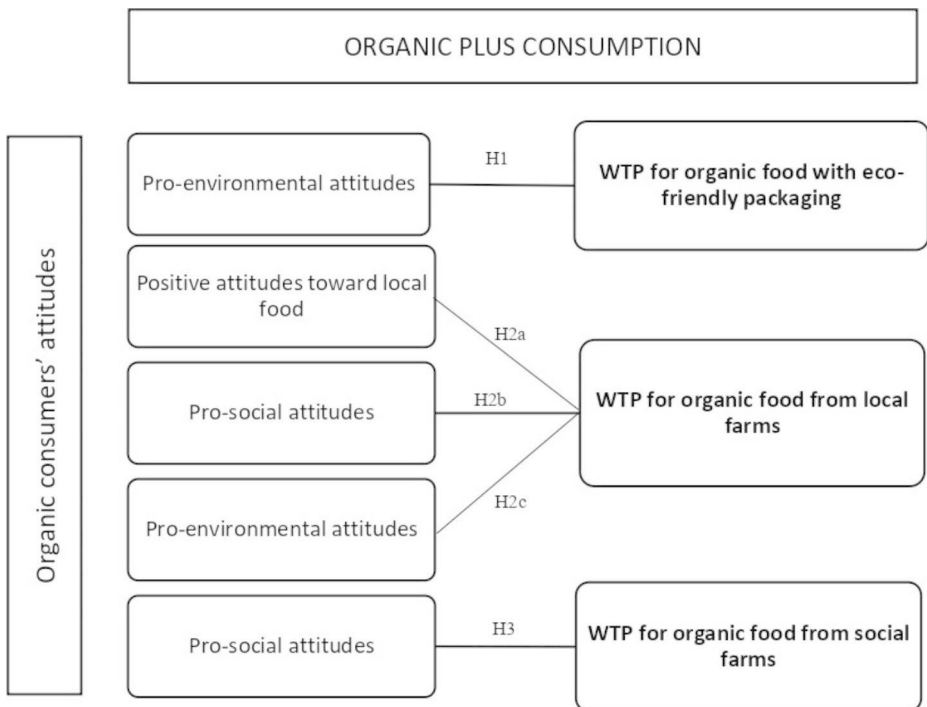
Given the strong pressure to pursue sustainable consumption practices, many studies have investigated the determinants that may lead to the execution of specific sustainable behaviours (e.g. Cheung & To 2019; Shin et al., 2017; Homer & Kahle, 1988). Among the factors influencing consumers behaviour, personal attitudes seem to play a crucial role in sustainable consumption (Shin et al., 2017; Zanoli & Naspetti, 2001).

Eagly and Chaiken (1993) defined attitude as 'a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour'. Favourable attitudes toward sustainability are also described as a psychological inclination to evaluate

sustainable issues (ecological, economic, and social) with a degree of favour (Milfont & Duckitt, 2010). More specifically, an individual with a sustainable attitude is concerned about the environment and society and aims to behave in a way that favours or, at least, does not harm them (Steg & Vlek, 2009). In this regard, a person's sustainable attitude can guide his or her organic food purchasing behaviours (Shin et al., 2017). Consumers' willingness to pay for a product or service that they believe is beneficial to the attainment of sustainability indicates that they are ready to commit or sacrifice themselves to achieve a goal. In this case, consumers are inclined to pay to consume organic foods that have a positive impact on the environment and society (Fillion & Arazi, 2002).

With this in mind, this study wants to go even deeper into the issue and examine the willingness to pay a price premium for three different organic plus attributes: eco-friendliness, fair prices to local farmers, and integration of people with disabilities. These plus attributes are a valuable tool for ranking the three dimensions of sustainability because they reflect the economic, environmental, and social activities of organic farms, going beyond the requirements of European organic standards and national laws (Zander et al., 2013; Padel and Gössinger, 2008).

We hypothesize that the choice of each of these plus attributes can be influenced by multiple types of consumers attitudes Fig. 1 shows our conceptual framework and hypotheses.



**Fig. 1** Conceptual framework

## 2.1 Eco-friendliness of Organic Products

Positive attitudes toward environmental issues can be positively correlated with the purchase of organic food and the frequency of this behaviour (Santos et al., 2021; Zanolì & Naspetti, 2001). Indeed, several studies showed that consumers perceive organic products as more environmentally friendly than conventional ones because they do not contain chemicals, preserving soil and biodiversity (Becker et al., 2015; Lee & Yun, 2015; Hughner et al., 2007). Following in this wake, it is possible that consumers with a pro-environmental attitude are not only interested in the production stage of organic food, but also in the other stages of the supply chain, including packaging, which is considered the leading cause of pollution (Lindh et al., 2016). For example, Santos et al. (2021) found that pro-environmental attitudes are significantly related to consumers' intention to purchase organic food in sustainable packaging. Undeniably, if organic farming aims to create an environmentally sustainable product, its packaging should also be biodegradable (Vlahovic et al., 2011). Instead, throughout Europe, organic products are often offered in plastic packaging, which goes against the sustainable origin of organic food products (van Herpen et al., 2016). Therefore, unsustainable packaging solutions undermine the environmental sustainability potential of organic products themselves (Meherishi et al., 2019) and affect consumers with positive attitudes toward organic foods in sustainable packaging (Santos et al., 2021).

In this regard, it is hypothesized that:

**H1** Pro-environmental attitudes positively affect the choice of organic food with eco-friendly packaging.

## 2.2 Fair Prices to Local Farmers

Altruistic attitudes towards supporting the economy and the local community (Bean and Shar, 2011; Dunne et al., 2011; Zepeda & Deal, 2009) also guide the choice of organic consumers, who often identify the productions of nearby rural territories as one of the most important attributes for choosing organic products. In this regard, Berlin et al. (2009) found that consumers merged the concept of local and organic food by associating similar attitudes. Organic consumers perceive local food as better for the environment, in terms of reducing transportation distances, energy use and pollution (Migliore et al., 2015). In addition, buying local products allows consumers to build personal and social relationships based on trust with producers, ensuring the authenticity of production (Adams & Salois, 2010; Hughner et al., 2007). In this sense, consumers of organic products often demand locally produced food, associating their choice with altruistic attitudes to support small and medium-sized enterprises in the area, in an effort to contribute to the strengthening of the local economy and good working conditions (Hashem et al., 2018; Hempel & Hamm, 2016). In addition, local food is often recognized by consumers as a guarantor of high quality while promoting conservation of the environment and natural resources in general (Migliore et al., 2014; Cembalo et al., 2013). Consumers perceive buying local products as an act of responsibility toward environmental protection and sustainable land conservation (Galati et al., 2022).

Taking these premises as a starting point, it is hypothesized that:

**H2a** Attitudes toward local food such as supporting the local economy and community influence consumers to choose locally produced organic food.

**H2b** Prosocial attitudes positively influence consumers to choose locally produced organic food.

**H2c** Pro-environmental attitudes positively affect the choice of locally produced organic food.

## 2.3 Integration of People with Disabilities

Attitudes toward social aspects positively influence the behaviour of consumers of social agriculture products because they want to ensure therapeutic practices for people from vulnerable groups (Nassivera et al., 2017). In doing so, consumers with high social attitudes are willing to pay a price premium for products made by people with disabilities (Torquati et al., 2019). In fact, the more important consumers consider social welfare over personal welfare, the more likely they are to have favourable behaviour toward ethical consumption (Oh & Yoon, 2014). In this sense, prosocial attitudes could be defined as a predictor of organic consumption with additional ethical attributes as social aspects behind agricultural production represent an organic plus strictly associated with social sustainability (Beldad et al., 2018; Long & Murray 2013). In fact, organic farming may prove to be particularly important because the use of chemicals can limit the activities of the people involved. In contrast, the ability to use organic farming techniques preserves contact with toxic substances and provides better human-plant interaction and simplified management of agronomic practices than conventional methods (Muganu et al., 2009). By engaging in these activities, people in need re-establish contact with both the working world and the natural environment, which helps improve their health, facilitates learning, increases self-esteem and encourages participation in the life of society (Uliano et al., 2021).

This lays the foundation for the following hypothesis:

**H3** Prosocial attitudes positively influence consumers to choose organic products from social activities.

## 3 Materials and methods

### 3.1 Experimental Auctions

The use of experimental auctions (e.g., Lusk et al., 2004) is a central component of the empirical strategy of this study. The auction advantage is that the estimated WTP is the best approximation of the true preferences corresponding to actual payments in stores (de Magistris & Gracia 2016). Therefore, experimental auctions mitigate hypothetical and social desirability compared to stated preference methods (Lusk and Shogren, 2008). In fact, real products and money are used in it, and rules are established to determine, based on consum-

ers' bids, who are the winners of the auctioned goods and what price they will actually have to pay (Lusk and Shogren, 2008).

Specifically, the mechanism used in this study was the 'random nth-price auction' (Shogren et al., 2001), which arises from the combination of two experimental auction mechanisms, namely the Vickrey auction and the BDM mechanism (Grether & Plott, 1979). In it, the market price is extracted only after consumers have declared their willingness to pay. As a result, participants will make sincere bids because they cannot use a random market clearing price as an indicator (Shogren et al., 2001).

The experiment was conducted at the University of Palermo (Italy), in September 2019. Consumers were randomly recruited, through open invitations, by the university websites and online social platforms. The only conditions required to participate in the auctions were to have consumed eggs in the last six months and to be organic food consumers. Eleven experimental sessions of 30 min were organized, involving about ten people at a time. It was chosen eggs as an organic product because consumers perceive them as quality, natural, and animal welfare products (Biemans & Tekien, 2017).

The experiment began by asking consumers to fill out a questionnaire that collected general information about their personality and habits; each consumer also signed the receipt for the monetary compensation of € 5 in order to be repaid for the time spent. Then, the auction mechanism was explained with a practical example, using energy bars. On a black-board the bids of all consumers were transcribed, which had been previously delivered to the researchers in an anonymous format; the market value and the price that the winners of the auction would have to pay were then extracted. After the completion of the training auction, consumers were given the opportunity to ask for further clarification of the mechanism. Finally, the actual experiment was developed and in it, four types of organic eggs were presented through specific descriptions (Table 1).

All the products were packaged, four at a time, anonymously, to avoid the effects of brand and label (Rousu et al., 2017). Each participant anonymously expressed his or her WTP for each of the products presented. Finally, one type among the submitted eggs and a price (market price) were randomly drawn. Participants who outbid the auctioned eggs by more than the market price were awarded the product by paying the drawn price.

### 3.2 Questionnaire

Consumers' compilation of the questionnaire provided information about their socio-demographic, psychographic characteristics, and consumption habits. This information was selected based on previous literature on consumer behaviour and sustainable attitudes (Steg & Vlek, 2009).

Regarding socio-demographic variables, information about age, sex at birth, and education level were requested. Questions about consumption habits concerned the eggs and organic food frequency consumption. Regarding psychographic variables, two psycho-attitudinal scales were used. Specifically, the New Ecological Paradigm (NEP) scale was chosen to assess people's environmental activism and actual environmental behaviour (Dunlap et al., 2000), and the Prosocialness Scale for Adults (PSA) was selected to measure empathy and desire to help others (Caprara et al., 2005). In particular, NEP represents an ecological world view oriented relationship with human nature and it is based on the rejection human-centered perspective that defends as limitation of growth, the importance of the natural

**Table 1** Script cheap talk

Product typology	Plus typology	Description
Standard organic eggs	Control	'The package of eggs that I am showing you is a certified organic product, the production method requires that natural substances and processes are used to protect the environment, human health and animal welfare'
Organic eggs with eco-friendly packaging	Eco-friendliness	'The package of eggs I am showing you is a certified organic product, however unlike the organic egg cartons you usually find in the market, this carton is made of grass fibres and 100% compostable and recyclable material. It saves 60% water in its production'
Organic eggs from local farms	Fair prices to local farmers	'The package of eggs I am showing you is a certified organic product, however unlike the organic eggs you usually find in the market, these eggs were produced in rural areas a few miles away and on small to medium-sized family farms'
Organic eggs from social farms	Integration of people with disabilities	'The package of eggs I am showing you is a certified organic product, however unlike the organic eggs you usually find in the market, these eggs were produced on social farms, which are agricultural enterprises that provide cultural, educational, welfare, training, and social-employment services for disadvantaged individuals'

balance, and rejecting the human-centered point of view that defending the existence of nature for humans (Atalay et al., 2017), while PSA provides a reliable measure of adults' prosocialness by means of the study of four fundamental aspects of prosocialness, namely, behaviors of helping, sharing, taking care of, and feeling empathic with others (Caprara et al., 2005). The two validated scales were collected via seven-point Likert scales, where value 1 indicated 'totally disagree' and value 7 indicated 'totally agree'.

Finally, in order to investigate the altruistic attitude toward local food, participants were asked for their opinion on the following sentence: 'I am glad to help local farmers in their economic activities'; again, a Likert scale was used with values from 1 to 7, that is, from completely disagree to completely agree.



### 3.3 Data Analysis

The collected data were processed using Stata 16.0 (Italy). First, a descriptive data analysis was conducted to define the socio-demographic characteristics of the sample and consumption habits. The sample consists of 110 observations, of which 55% are men and 45% are women. The average age is 40 years, with the youngest consumer being 20 years old and the oldest 76; while 61% declared having a high degree of education. 56% of the respondents regularly consume organic products, 48% reported consuming eggs frequently, while the remaining 52% only occasionally. Table 2 shows the coding of each variable used.

The three WTPs of the eggs were decoded and the three price premiums of organic eggs with additional attributes were obtained. In particular, the three price premiums represented the dependent variables and were obtained by calculating the difference between each of the three eggs typology with plus attributes and standard organic eggs:

$$\Delta WTP_{Eco-friendliness} = (WTP_{eco-friendlypackagingorganic\ eggs} - WTP_{standardorganic\ eggs})$$

$$\Delta WTP_{Local\ origin} = (WTP_{organic\ eggs\ from\ local\ farms} - WTP_{standardorganic\ eggs})$$

$$\Delta WTP_{Social\ aspects} = (WTP_{organic\ eggs\ from\ social\ farms} - WTP_{standardorganic\ eggs})$$

Subsequently, it was verified that the premiums were statistically different from each other by T-test and Wilcoxon Tests.

Then, the psycho-attitudinal scales were described and their internal consistency was tested. Finally, after excluding high correlations between variables, the Seemingly unrelated regressions (SUR) model was used (Cameron & Trivedi, 2005), to investigate factors influencing the price premium and to evaluate if the three WTP are related among them. This stochastic model may be expressed by the following relationship:

$$y = X\beta + u$$

where y and u are vectors with n elements, X is a matrix with n rows and k + 1 columns (with k the explanatory variables + 1 for the constant) and β is the vector containing k + 1 unknown coefficients.

**Table 2** Coding of control variables

Variable	Type
Sex at birth	Dummy variable (1 = male; 0 = female)
Age	Continuous variable
Education	Dummy variable (1 = graduate; 0 = not graduated)
Freq. of organic food consumption	Dummy variable (1 = regular; 0 = occasional)
Freq. of eggs consumption	Dummy variable (1 = regular; 0 = occasional)

## 4 Results

### 4.1 Willingness to pay

Participants were willing to pay significantly different premium prices for the three plusses attributes. More precisely, a WTP of €1.98 for organic eggs with eco-friendly packaging, €1.91 for organic eggs from local farms, and €1.84 for organic eggs from social farms was found (Table 3). The organic standard eggs (control product) WTP was €1.64.

T-test and Wilcoxon signed-ranked tests confirmed that the three mean WTPs were all significantly different from each other. Specifically, organic eggs with eco-friendly packaging had a significantly higher WTP value as compared to the other egg types. By comparing the WTP for organic standard eggs with organic plus eggs, three price premiums can be estimated.

In Fig. 2 the box plots provide a quick visual summary of the variability in the values of the three price premiums.

### 4.2 Psycho-Attitudinal Scales

Attitudes can be used to explain consumers' food choices, by means of appropriate attitudinal scales (Tuorila, 1997). Notably, in this study, the used attitudinal scales concern attitude towards the environment (NEP) and attitude towards pro-socialness (PSA), which we have already presented in the third section. In addition, the attitude of helping local farmers was investigated by a single item. The mean and standard deviation of each follow (Table 4).

Internal consistency of the two scales was estimated by Cronbach's alpha. Results confirm a good internal consistency for the different items, as the value of Cronbach's Alpha was 0.73 for the NEP scale and 0.81 for the PSA scale.

### 4.3 Determinants of WTP for the egg Types

After verifying a low correlation ( $<0.5$ ) between all the independent variables, to understand what consumer characteristics and attitudes affect their WTP for eco-friendly, local, and social eggs, the SUR was implemented and the Breusch-Pagan Test among the three price premiums was performed to explain that the underlying processes are not independent of each-other (Table 5). As can be seen, while the control variables (socio-demographic variables and consumption habits) were investigated in each type of organic plus, the variables on attitudes were chosen based on what the literature suggested and the hypothesis (see Sect. 2).

The results show which explanatory variables influenced consumers' decision-making. It can be seen that the price premium for eco-friendly packaged organic eggs was positively

**Table 3** WTP and price premium for eggs

Egg type	WTP (mean)	Price premium for organic plus (mean)
Organic eggs	€1.64	
Eco-friendly packaged organic eggs	€1.98	+ €0.34
Organic eggs from local farms	€1.91	+ €0.27
Organic eggs from social farms	€1.84	+ €0.20



Fig. 2 Box-plot of the three price premiums

Table 4 Descriptive statistics of attitudinal variables

Variable	Mean	Standard deviation
NEP	6.507	0.913
PSA	5.663	0.899
Attitude toward local food	6.409	0.667

influenced by the variables ‘Age’ (being younger), ‘Sex at birth’ (being female), ‘Org. Consumption’ (being a regular consumer of organic food), and ‘NEP.’ Similarly, when examining the price premium for organic eggs from local farms, it can be seen that the factors that come into play in influencing consumer purchasing behaviour are ‘Education’ (have a high degree of education), ‘NEP’, ‘Attitude toward local food’, and ‘PSA’. Finally, the price premium for organic eggs from social farms is influenced, by ‘Age’ (being younger), ‘Sex at birth’ (being female), ‘Education’ (having a high degree of education), and ‘PSA’. These results confirm the hypotheses made about the role of attitudes. The psycho-attitudinal variables investigated were found to be of fundamental importance in the choice of additional ethical attributes by organic consumers. It follows that all hypotheses are accepted. Similarly, also noteworthy are the socio-demographic variables, the results of which were mostly homogeneous. In fact, it turned out that being younger, female, and highly educated represents common characteristics of consumers who want to approach organic pluses. Finally, regarding consumption habits, the frequency of consumption of organic products was found to be statistically significant only in the case of organic eggs with eco-friendly packaging.

**Table 5** Drivers behind consumers' willingness to pay

Equation	Obs	Parms	'R-sq'	p
$\Delta WTP_{Eco-friendliness}$	110	6	0.2057	0.0001
$\Delta WTP_{Localorigin}$	110	8	0.1638	0.0505
$\Delta WTP_{Socialaspects}$	110	6	0.1585	0.0031
$\Delta WTP_{Eco-friendliness}$	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;  z </b>
Age	-0.066	0.026	-2.53	0.011
Sex at birth	-0.067	0.018	-3.54	0.000
Education	-0.164	0.020	-0.79	0.432
Freq. Org. Cons.	0.090	0.033	2.67	0.008
Freq. Eggs Cons.	-0.025	0.038	-0.68	0.499
NEP	0.072	0.029	2.24	0.015
_cons	1.302	0.298	4.36	0.000
$\Delta WTP_{Localorigin}$	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;  z </b>
Age	-0.031	0.024	-1.29	0.197
Sex at birth	0.026	0.025	1.11	0.267
Education	0.021	0.040	2.33	0.003
Org. Consumption	0.017	0.027	0.64	0.522
Eggs Consumption	0.038	0.025	1.50	0.134
NEP	0.081	0.037	2.19	0.028
Attitude toward local food	0.068	0.035	1.96	0.050
PSA	0.053	0.027	1.92	0.054
_cons	0.389	0.349	1.12	0.265
$\Delta WTP_{Socialaspects}$	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;  z </b>
Age	-0.086	0.035	-2.48	0.013
Sex at birth	-0.069	0.030	-2.27	0.023
Education	0.065	0.036	1.82	0.069
Org. Consumption	-0.046	0.032	-1.45	0.148
Eggs Consumption	-0.026	0.018	-1.42	0.155
PSA	0.098	0.028	3.48	0.001
_cons	0.509	0.218	2.33	0.020

Breusch-Pagan test of independence:  $\chi^2(1)=28.328$ ,  $Pr=0.0000$

## 5 Discussion

This is the first study analysing the factors that affect consumers preference for organic product with plus attributes. Results of the present study show that consumers are willing to pay the highest price premium for organic eggs with eco-friendly packaging compared to local and social ones. This is in line with other studies (Lee & Hwang, 2016; Becker et al., 2015) that have denoted as environmental sustainability represents one of the most important organic plus for consumers inasmuch they are characterized by a high environmental as well as an ecological concern (Kushwah et al., 2019; Zander & Hamm, 2010). In addition, our findings are consistent with previous studies affirming that sustainable packaging represents an important factor for consumers (Meherishi et al., 2019; Rees et al., 2019; Lindh et al., 2016), as the reduction of packaging waste represents a key issue in order to reach a higher degree of environmental sustainability (Seyfang, 2008). In fact, consumers perceive organic products with sustainable packaging as more environmentally friendly because, in addition to being grown without the use of synthetic chemicals, they extend their sustainability to another stage, represented by the packaging, thus reducing plastic consumption (Gray & Guthrie, 1990).

Relatively to the hypotheses previously formulated, it turned out that pro-environmental attitudes play a key role in consumers' decision-making process, confirming the hypothesis H1. According to our results, in fact, the NEP scale affects the WTP of consumers towards eco-friendly packaged eggs. It confirms the results of a recent study by Santos and colleagues (2021) in which consumers' attitude towards organic food with sustainable packaging has a positive and significant impact on their purchase intention, thanks also to consumers' environmental concern and perceived environmental knowledge.

The second organic plus in terms of WTP is represented by the local origin of the product. This is in line with Howard and Allen (2006) who pointed out that the most important additional attributes for organic consumers are environmental protection and the local origin of products. For their part, Zander and Hamm (2013; 2010; 2008), affirm that one of the most important additional attributes for organic consumers is the local origin of production, together with animal welfare and fair prices. Conversely, according to some studies (Costanigro et al., 2012; Bickel et al., 2009), consumers do not consider local origin as the most important attribute, because they often consider the terms organic and local as synonymous and therefore, not are willing to recognize them a price premium.

The current study hypothesized that WTP for organic eggs produced by local farms could be influenced by three different types of attitudes. As a result, three different hypotheses (H2a, H2b e H2c) were developed in this respect. First, it resulted that the pro-environmental attitudes influence consumers' preferences, supporting the hypotheses H2c. This is in line with other studies (e.g., Gunduz & Bayramoglu 2011; Haghiri et al., 2009) in which environmental attitudes are highly associated with purchasing organic food from local farms, as consumers perceive they preserve the environment, reducing the relative climate impacts of "food-miles" (Schleenbecker & Hamm, 2013).

In addition, our study shows that also prosocial attitudes and altruistic attitudes toward local food play an important role in choosing organic eggs from local farms (both hypotheses H2a and H2b have been accepted). The localized nature of organic products implies the establishment of a relationship of trust between the producer and the consumers who, through their choices, want to support the local economy of their country (Hashem et al., 2018). In addition, consumers decide to buy a local product because are pushed by social reasonability aimed at granting farmers fair prices as well as equitable working conditions that allows them to remain in rural areas (Young, 2022).

The importance of prosocial attitudes is not only for organic eggs from local farms but it is confirmed also in consumers that are willing to pay a price premium for organic products deriving from social farms inasmuch they represent the main antecedent in their decision-making process. This led to the acceptance of hypotheses H3. Consumers that have social goodwill (i.e., the importance of giving back to society) denote a higher willingness to pay towards ethical products (Pinto et al., 2020) because they feel better when doing something for society (i.e. local or social farms), highlighting an altruistic motivation in purchasing ethical products. In particular, a recent study by Ramos-Hidalgo and colleagues (2022), affirms that a positive attitude towards ethical products affects consumers' happiness because they are satisfied by the purchase of these products, reaching a state of well-being. In addition, our results are consistent with a study by Torquati et al. (2019) who have shown that consumers who are willing to pay a price premium for organic products deriving from social farms are positively affected by attitudes towards ethical issues. This is supported by previous articles dealing with consumers' preferences towards ethical products realized by

people with disabilities showing that pro-social behaviour affects positively both consumers' purchase intention (Nassivera et al., 2017) and WTP (Uliano et al., 2021).

As regards sociodemographic variables, it resulted that education level affects willingness to pay a price premium for local and social organic eggs. This is because ethical consumption mainly concerns people with a higher cultural capital that reorients them toward ethical choices (Huddart Kennedy et al., 2019) even if other studies have found that it is independent of the level of education (Schoolman, 2020; Rössel & Schenk, 2018). The age, instead, assumes a positive significant effect both for eco-friendly eggs and for those deriving from social farms, confirming that younger consumers usually have a higher interest in ethical aspects (Padel & Foster, 2005). Finally, about the variable on gender, it was significant that referred to eco-friendly and social pluses, in which organic eggs are preferred especially by females, who have higher intentions to behave ethically than males, as shown by other studies on ethical products (Shafie & Rennie, 2012; Bateman & Valentine, 2010).

Finally, like in other studies (Pino et al., 2012; Gunduz & Bayramoglu, 2011; Haghiri et al., 2009), among the main determinants that drive organic consumers, the frequency of organic food consumption as well as the purchasing regularity had a significant effect on consumers' WTP for eco-friendly eggs, highlighting how more regular organic consumers are also more careful about the waste that results from their consumption.

## 6 Conclusions

This study provides a non-hypothetical study on Italian consumers' perception towards three additional attributes of organic eggs that mostly represent the three dimensions of sustainability, such as the local origin of production, social farming, and eco-friendliness. Results show that consumers are willing to pay a price premium for all organic plus products compared to conventional organic ones, demonstrating that producing organic food with higher ethical standards is a promising strategy for farmers to differentiate their products in the organic market and to reach an increasing consumers share. In particular, experimental auctions on the one hand have shown the highest WTP for organic eggs with eco-friendly packaging, while on the other hand that consumers are mainly driven by pro-environmental and pro-social behaviors in their decision-making process.

These findings have theoretical, managerial, and policy implications. From a theoretical perspective, by studying actual purchasing behaviour through experimental auctions, this work enriches the existing literature on the consumption of organic products with plus attributes, a little-known but growing sector. Indeed, the results obtained provide insight into consumer behaviour regarding additional sustainability attributes of organic food, investigating the determinants of behaviour and the type of plus attributes most valued by consumers.

From a managerial point of view, these results can serve to design appropriate marketing strategies based on additional ethical attributes that meet consumer demand, thereby increasing farmers' competitiveness. The results obtained suggest that marketers should consider the effect of attitudes on the intention to purchase organic products. Their positive influence revealed in this study suggests that the organic food industry should aim to increase individuals' knowledge about additional ethical attributes applicable to the organic market. Increasing awareness about the potential of organic farming can help consumers

understand the costs incurred and consequently accept the increased price, which is generally a major barrier to consuming organic products (Thøgersen & Zhou, 2012; Hughner et al., 2007).

Finally, our results can help policy makers design specific policies to promote organic plus food production by farmers and purchase by consumers for their environmental, economic, and social sustainability benefits that support the achievement of the goals set by Agenda 2030 or the European Green Deal. From our perspective, the use of organic plus as a strategy to differentiate from the increasingly conventionalized organic market can be understood as an opportunity to incentivize ethical and sustainable food production and sourcing. Therefore, strategies should be activated to improve the awareness of consumers who exhibit sustainable and ethical attitudes. A direct communication strategy with consumers should be developed to engage them in a more social and political discussion about food.

However, the present study has some limitations such as the use of a non-random sample in the experimental auctions and the consideration of only consumers of Southern Italy. As a result, the resulting information represents a guideline, but cannot be extended to the entire population.

Furthermore, even though the three additions mentioned in this study may represent a specific pillar of sustainability, it is unlikely that they are each one-dimensional only because each more organic represents more than one aspect (Zander et al., 2011). Consequently, this interconnectedness creates confusion in the minds of consumers, for whom the terms local, or ecological, are often synonymous (Zander et al., 2013). Similarly, unlike in other manuscripts (Di Vita et al., 2021; Meas et al., 2015), in this study it was not possible to investigate the effect of complementarity or substitution between the plus attributes. It would be interesting to understand whether by combining the various types of plus in one product, the consumer would be willing to pay an even higher price premium. It might therefore be interesting to expand the reasoning followed in this study even further, using other products, focusing on other psychological processes that could be consumers in their ethical choices, or comparing other organic products, not in the study.

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**Data Availability** Data will be made available on request.

## Declarations

**Declaration of Interest** The authors have no relevant financial or non-financial interests to disclose.

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