Eliciting Willingness to Pay for Fairtrade Products with Information

Keywords

Fairtrade, Ethical certifications, Experimental auction, information

Abstract

Since its foundation, Fairtrade certification has successfully entered the mainstream market in most developed countries, and certified products can be found on the shelves of the most famous retailers. However, using labels to inform consumers about the ethical sustainability of products does not imply that they will read or use them at the time of purchase, and providing additional information has been identified as a viable method to increase the pool of buyers of certified products. Using Becker-Degroot-Marschak experimental auction and white refined cane sugar packs, we elicit the homegrown value that consumers in Milan (Italy) associate with Fairtrade certification, and we investigate the effect of providing additional information about Fairtrade on their willingness to pay. Our results show that consumers positively evaluate the presence of the certification on the products as they are willing to pay a premium for the certified products, and the premium increases when consumers are exposed to additional information regarding the Fairtrade system. Furthermore, combining the results of the auction with data collected through questionnaires, we analyze consumers' profiles concerning their attitude towards Fairtrade certification and response to information.

1. Introduction

In the contemporary panoramas of sustainable food certifications within the globalized market, Fairtrade (FT) has one of the most ambitious objectives, namely, to help producers in developing countries achieve better trading conditions (Naylor, 2014; Raynolds et al., 2007). FT certified products are niche products that have successfully entered the mainstream distribution channels in most developed countries and are now sold on the shelves of the most famous supermarket chains (Raynolds, 2017).

When consumers buy a product bearing the FT label, they have the guarantee that the product has been manufactured in compliance with the FT standards, a set of rules that regulate the entire supply chain from the production to the commercialization. These ethical standards stipulate that farmers receive fair pay for their products, that they have a voice and vote in the decision-making process of the organizations and other benefits meant to build resilient and inclusive organizations and improve their performance (Fairtrade International, 2011; Raynolds et al., 2007).

However, using labels to inform consumers about the ethical sustainability of products does not imply that they will read or use them at the time of purchase (J. A. Caswell, 1998). Since the beginning of this century, several studies have found that consumers are willing to pay a price premium for FT certified food products (Arnot, Boxall, & Cash, 2006; Basu & Hicks, 2008; Cranfield, Henson, Northey, & Masakure, 2010; Darian, Tucci, Newman, & Naylor, 2015; De Pelsmacker, Driesen, & Rayp, 2005; Henle et al., 2008; Konuk, 2019; Loureiro & Lotade, 2005; Rousseau, 2015; Rousu & Corrigan, 2008; Trudel & Cotte, 2009). However, evidence shows that sustainability labels, including ethical certifications like FT, currently do not play a significant role in food choices for the majority of consumers (Carrigan and Attala, 2001; Grunert et al., 2014).

At the same time, there is extensive literature on ethical consumption in general and a large number of empirical studies which use different methodologies to identify those attitudes and triggering factors that are associated with intention to buy and willingness to pay more for ethically certified products (Oke, Ladas, & Bailey, 2019; Ozcaglar-Toulouse, Shiu, & Shaw, 2006; Sudbury-Riley & Kohlbacher, 2016).

The first prerequisite for consumers to form intentions of purchasing ethically certified products is that they need to know about them (Fridell, 2007; Hudson and Hudson, 2003; O'Connor et al., 2017; Rees et al., 2019), and studies show that the recognition of sustainability labels varies considerably between countries and is generally low (Grunert et al., 2014; Nicholls & Opal, 2005; Raynolds et al., 2007; Zepeda & Deal, 2009).

The effect and acceptance by consumers of additional information on the products they buy depend on their relative transaction costs for becoming informed and how they receive the messages (Vecchio & Annunziata, 2015). Using information imposes costs upon consumers, and some of them may attach little value to some quality attributes and therefore may choose to ignore such information (Barnett, Cloke, Clarke, & Malpass, 2010; Julie A. Caswell, 1998). Some consumers may also be sceptical of ethical certification systems and therefore decide not to trust specific certified products, due to controversies and criticisms regarding their effectiveness in tackling poverty in producer countries (Akoyi & Maertens, 2018; Maertens, 2019; Meemken, Sellare, Kouame, & Qaim, 2019). Moreover, the presence of a label on a product does not imply that consumers will be able to understand its meaning and qualities at first impact. Even the consumer most sensitive to social aspects and attentive to labels may find it challenging to interpret sustainability labels (Annunziata et al., 2011) and to understand the information they are meant to convey.

Hence, the lack of awareness and information regarding ethical certifications on food products are considered limiting factors for the purchase of FT products (Fridell, 2007; Pedregal and Ozcaglar-Toulouse, 2011; Pelsmacker et al., 2006), suggesting that the ability

of the labels to communicate the message may have been overestimated and that providing additional information might be more effective in increasing the consumer base of FT certified products (Vecchio and Annunziata, 2015). The introduction of a more complete, easily-interpretable and standardized eco-friendly label within an experimental food market in Belgium was able to increase eco-friendly consumption (Vlaeminck, Jiang, & Vranken, 2014). Similarly, Becchetti (Becchetti, Salustri, & Scaramozzino, 2019) found that providing proper information on the corporate social and environmental responsibility of different companies at the entrance of supermarkets increased the market share of the top ranked firms by 6%.

To our knowledge, no previous study has examined the effect of providing additional information about FT in a non-hypothetical setting directly at the place of purchase on consumers' willingness to pay (WTP) for FT certified products. Studies that investigated the effect of additional information on consumers' WTP for ethically certified products used non-incentive-compatible experiments (Basu and Hicks, 2008; Didier and Lucie, 2008) or within-sample designs, progressively providing more information about FT and recording differences in the biddings (Hustvedt and Bernard, 2010; Lange et al., 2015; Lusk et al., 2001; Rousu and Corrigan, 2008). By using a within-sample design, it can be difficult to disentangle the causal effect of additional information because the consecutive rounds could create an exposure bias or carryover effects that could confound the impact of each treatment round (Canavari, Drichoutis, Lusk, & Nayga, 2019; Charness, Gneezy, & Kuhn, 2012).

We designed an incentive-compatible experiment that we carried out in a supermarket using the Becker-Degroot-Marschak (BDM) experimental auction (Becker et al., 1964) to elicit the homegrown value (Smith, 1976) that consumers associate with the FT certification in a real - albeit experimental - purchasing situation of a common food product. Thus, to estimate

heterogeneity in the impact of information on WTP values, a between-sample design was used with two treatments: without and with FT information.

In the auction, participants were asked to simultaneously report their WTP for two different 1-kilo packs of cane sugar that were virtually identical and differed only in the presence (or lack) of the FT certification. Specifically, the two auctioned products were a pack of FT certified white refined cane sugar and a pack of non-certified white refined cane sugar. Refined white cane sugar is a new product in the Italian market. Although 80% of the world sugar is produced from cane, the type of sugar traditionally sold in Italy is beet sugar (Ruggeri and Corsi, 2019). Additionally, sugar packages rarely indicate the raw material from which the sugar is extracted, and consumers commonly associate cane sugar with amber or brown sugar. A refined white cane sugar sold under this trade name, and identical from every point of view to the homologue produced from beet, is a novelty in the Italian market. Moreover, refined white sugar is traded on a large scale, used by most consumers, and has a similar and widely recognized taste. Furthermore, as a typical export product of developing countries, sugarcane production automatically brings up concerns about social and ecological sustainability and is one of the leading products certified by FT (Ruggeri and Corsi, 2019).

This study contributes to the literature in three ways: first, we estimate the WTP for a new product for the Italian market – white refined cane sugar. Second, we estimate the WTP for a FT certified white refined cane sugar, which allows us to isolate the value that consumers attribute to FT certification and some factors that are associated with higher WTP. Third, we investigate the effect of providing additional information about FT certification on consumers' WTP, and we look for any attitude emerging from the survey that could be relevant to explain subjects' behaviour and how they perceive further information.

2. Methods and design

The existing literature on the consumption of ethically certified products is primarily based on hypothetical methods of elicitation of the WTP (Andorfer and Liebe, 2012), with the majority of research focused on a limited range of products (Ruggeri et al., 2018). To differentiate between what people say they will pay from what they would actually pay, we investigate consumers' WTP for FT certified products using a non-hypothetical BDM mechanism (Lusk et al., 2001; Lusk and Shogren, 2007; Silva et al., 2007). The BDM methodology is well suited for experimental field auctions (Becker et al., 1964; Silva et al., 2007) and has been widely used by researchers in the area of consumer behaviour to elicit consumers' valuation of food attributes (Carlberg & Froehlich, 2011; Lusk et al., 2001; Rousu & Corrigan, 2008; Vassilopoulos, Drichoutis, & Nayga, 2018).

Although much remains to be done to investigate the correspondence between experimental auctions results with real-world behaviours (Canavari et al., 2019), the external validity of experimental auctions has been the object of several studies in the field of experimental economics (Brookshire, Coursey, & Schulze, 1987; Chang, Lusk, & Norwood, 2009; Ding, Grewal, & Liechty, 2005; Lusk, Pruitt, & Norwood, 2006; Lusk & Shogren, 2007; Vecchio, 2017). Brookshire et al. (1987) found a correspondence between the demand curves constructed from bids for strawberries collected in an experimental auction and the implicit demand curves from actual purchases made via door-to-door sales. Ding *et al*. (2005) found that the BDM auction mechanism outperformed other value elicitation methodologies at predicting a subsequent non-hypothetical choice of which Chinese meal to eat. Lusk and Pruitt (2006) found that the results of a framed field experiment were a reasonably accurate predictor of consumer behaviour in an actual retail setting. Given these results, there is a relative agreement that "experimental auctions are valid measurement instruments and that

the values elicited in auctions are a valid theoretical construct" (Lusk & Shogren, 2007, pp. 268).

A series of meetings with store managers preceded the experiment, during which we planned the experimental design and the subsequent activities in the supermarket (Carroll & Samek, 2018). To ensure participation and synergy with store managers, we informed them that the experiment would provide participants with a coupon that will ultimately funnel money into their store and that the results of the research would be published in an academic journal in full respect of customers' privacy. Moreover, the study was implemented exclusively by the researchers and assistants, and the store staff were not involved in any study activity to maintain greater control over the experiment (Carroll & Samek, 2018).

We collected data over three days at the entrance of a supermarket of a well-known Italian retail chain during September 2018, situated inside a large shopping mall in Milan. Respondents were randomly recruited before they entered the supermarket. To intercept a sample of consumers as varied as possible, we stayed inside the supermarket from the morning (9.30 a.m.) until the evening (7.00 p.m.). Respondents were informed that they would receive a € 5 voucher as compensation for their participation. Each participant was randomly assigned to one of the two treatments (with FT information or without FT information) and took part in the auction.

One of the main determinants of success in experimental auctions lies in the functional understanding by participants of the incentive compatibility of the auction mechanism, namely the only best strategy to use in the auction (Lusk and Shogren, 2007). Researchers have observed anomalous behaviour among subjects in some BDM studies, such as sensitivity to the distribution of draws (Mazar et al., 2014) or misunderstanding of the dominant strategy (Cason and Plott, 2014). Hence, it is essential to give participants detailed but still simple written and oral explanations supported by examples of the BDM mechanism operating procedures (Canavari et al., 2019; Carroll & Samek, 2018). During the detailed

explanation of the mechanism, current participants were encouraged to ask questions to dissipate any doubt about the process. Given the importance of this step, they were informed that it is of high importance that they fully understand the BDM mechanism. Before the actual auction, respondents participated in a training session where a random product was hypothetically auctioned to mimic the next steps and facilitate the learning process. A short questionnaire was also provided to be sure that participants understood the mechanism of the auction, and the auction began only after the respondent answered all questions correctly.

No additional information about FT was provided to the participants in the "without FT information" treatments. In the "with FT information" treatment, participants were provided with a short description of the FT certification system, saying '*The label means that the Fairtrade ingredients in the product have been produced by small-scale farmer organizations or plantations that meet Fairtrade standards. These standards include ensuring decent working conditions for producers and the payment of the Fairtrade Minimum Price and an additional Fairtrade Premium to invest in business or community projects*.'

In a "between-subject" designed experiment, each respondent is exposed to only one treatment, which is meant to counteract possible order effects and minimize the learning and transfer across conditions while allowing for shorter sessions as each respondent participates only in one session. On the other side, between-subject designs require more participants, they depend on the successful randomization of participants to control and treated groups, and their results have substantial noise, meaning that they may miss relevant and real patterns (Canavari et al., 2019; Charness et al., 2012). Charness et al. refer to between-designs to be a more conservative and more cautious approach than within design to estimate treatment/causal effect, as long as the randomization to control and treated groups are guaranteed. In all treatments, once participants inspected the products, they were asked to indicate how much they would be willing to pay for each of the two packs

of white refined cane sugar. Participants were informed that it is possible to bid € 0.00 if they did not want to buy either of the products. Participants were also told that one of the products would be randomly chosen as the binding product to minimize wealth effects. Hence, at the end of the auction, one of the two products was randomly selected as the binding product. A participant purchased the product if their bid for that specific product was higher than the predetermined price contained in a sealed envelope. All respondents were informed of the average price of a package of (non-FT certified) white refined sugar made from beet, equal to €0.90, to provide a common reference price for the product. In a typical BDM auction, the participant places a bid for the auctioned product and then draws a random price. If the randomly drawn price is higher than the bid, the participant does not "win" the product and pays nothing. If the randomly drawn price is below the bid, the participant "wins" the product and pays the randomly drawn price. To facilitate our experiment in the retail store, we used a predetermined randomly chosen price for the auctioned good, in line with Lusk et al. (2001). The price was changed about every 15 minutes by drawing it out of a range from €0.40 to €2.00 in €0.10 increments. The predetermined price was revealed to subjects whose bid exceeded it. However, participants were not informed of the price distribution from which this predetermined price was randomly drawn.

After the auction, participants completed a short questionnaire collecting demographic data and information about their purchases and consumption habits. Lastly, respondents completed the Ethically minded consumer behaviour (EMCB) questionnaire (Sudbury-Riley & Kohlbacher, 2016), which is structured to obtain information about the principles that guide consumers' choices and their actual behaviours (rather than focusing only on intentions or attitude) towards ethical consumption. The EMCB questionnaire covers all the main aspects of sustainable consumption as it is comprised of a series of 10 choices relevant to environmental issues and corporate social responsibility (CSR). The first two questions refer to the deliberate selection of environmentally friendly products (ECOBUY), questions 3 and

4 refer to the refusal to purchase a product based on environmental issues (ECOBOYCOTT), items 5 and 6 refer to specific recycling issues (RECYCLE), questions 7 and 8 deal with the refusal to buy products based on social and ethical issues (CSRBOYCOTT), and the last two questions address the willingness to pay for sustainable products (PAYMORE). The scale uses Roberts' original scoring method composed of 1 = never true, 2 = rarely true, 3 = sometimes true, 4=mostly true, and 5=always true; higher scores denote a greater level of reported ethically-minded consumer behaviour.

The entire procedure, including the oral and written explanation of the auction mechanism, was carried out using paper and pencil and took each participant about 10–15 minutes to complete.

In the data analysis, we first analyzed consumers' knowledge of different logos of various certification schemes in use in Europe and the scores obtained through the EMCB scale for each respondent. Next, we estimated the value that consumers attribute to the new product, namely refined white cane sugar, as well as the price differential associated with the presence of the FT certification on the packaging of the same product. We then estimated the correlation with 'providing additional information on consumers' WTP for FT certified sugar using between-subject analyses. We used the Mann –Whitney two-sample statistic test and to assess whether participants' bids differ based on the information treatment. Given the presence of zero bids, we estimated Tobit regression models using the Tobit package of Stata 16 to analyze the effect of the attitudes outlined from the EMCB scale, knowledge about FT certification, socio-demographic traits and additional information on participants' bids. To avoid multicollinearity between the different items of the EMCB, following Alhusseini and Odah (2016), the scores of the dominant components obtained from a Principal Component Analysis (PCA) were included in the regression instead of the single scores.

3. Descriptive statistics

Table 1 summarises the socio-demographic data. In total, 196 participants completed the survey. Most respondents were female (57%), worked full time (39%), their families earned between € 20,000 and € 29,000 per year (33%), and they had completed either some high school (54%) or university (24%). The over-representation of female respondents was expected, as women are usually in charge of household food purchasing in Italy.

Table 1: socio-demographic characteristics of the sample (N=196)

	Pooled sample		Information treatment		No information treatment	
	Freq.	%	Freq.	%	Freq.	%
Gender						
male	85	43.4%	44	44%	41	42%
female	111	56.6%	55	56%	56	58%
Age						
from 18 to 24	32	16.3%	17	17%	15	15%
from 25 to 34	35	17.9%	20	20%	15	15%
from 35 to 44	33	16.8%	17	17%	16	16%
from 45 to 54	31	15.8%	15	15%	16	16%
from 55 to 64	30	15.3%	15	15%	15	15%
65 or older	35	17.9%	15	15%	20	21%
School						
elementary	5	2.5%	2	2%	3	3%
middle school	36	18.4%	15	15%	21	22%

high school	107	54.6%	59	60%	48	49%
graduate	48	24.5%	23	23%	25	26%
Income						
less than €10,000	20	10.2%	9	9%	11	11%
€10,000 – 19,000	40	20.4%	21	21%	19	20%
€20,000 – 29,000	65	33.2%	32	32%	33	34%
€30,000 – 39,000	40	20.4%	21	21%	19	20%
€40,000 – 49,000	16	8.2%	7	7%	9	9%
more than €50000	15	7.7%	9	9%	6	6%
Job						
student	28	14.3%	15	15%	13	13%
part time	30	15.3%	17	17%	13	13%
full time	76	38.8%	38	38%	38	39%
retired	43	21.9%	20	20%	23	24%
housewife	7	3.6%	4	4%	3	3%
unemployed	12	6.1%	5	5%	7	7%
Have you ever bought FT certified products?						
Yes, I usually buy FT products	5	2.6%	3	3%	2	2%
Yes, it happened on many occasions	19	9.7%	11	11%	8	8%
Yes, it happened on a few occasions	34	17.3%	18	18%	16	16%
No, never/Does not know	138	70%	67	68%	71	73%

Questions regarding participants' knowledge of FT and their purchase habits show that the majority of respondents do not recognize the FT logo (70%), only 30% of the sample claims to have purchased an FT certified product in the past, and less than 3% of the sample declares to purchase FT certified products regularly.

Participants were randomly assigned to one of the two treatment groups. Concerning the demographic variables, there is no significant difference between treatment for gender (Pearson's $chi^2 = 1.22$, $Pr = 0.75$), age (Pearson $chi^2(5) = 7.46$, $Pr = 0.19$), education (Pearson $chi^2(3) = 8.07$, $Pr = 0.14$), and income (Pearson $chi^2(5) = 4.42$, $Pr = 0.49$). We also find no difference between treatments regarding the knowledge of FT certification (Pearson $chi^2(2) = 4.32$, $Pr = 0.19$), purchase frequency of FT certified products (Pearson $chi^2(3) = 1.4947$, $Pr = 0.68$), and purchase frequency of sugar (Pearson $chi^2(4) = 2.1856$ $Pr = 0.70$). Finally, we checked whether the responses to the EMCB scale were different between the samples of the two treatments (Information and No information treatments) using the T-

test (Hamilton, 2013) and found no statistically significant difference within the 95% confidence interval.

4. Results

Participants were asked to indicate which of the labels, exhibited in Figure 1, they were able to recognize to estimate consumers' knowledge and attitudes towards sustainable labels. In addition to the FT logo, we included the European Union (EU) organic logo, the EU ecolabel logo, the PEFC logo and the Demeter biodynamic certification logo. While FT, organic and Demeter labels are applied mainly on food products, ecolabel and PEFC are respectively a voluntary eco-label scheme established in 1992 by the European Commission that covers a wide range of products and a certification of sustainable forest management for wooden products. Demeter is the largest certification organization for biodynamic agriculture, and its logo is used in over 50 countries to certify the fulfilment of the biodynamic international standards in production and processing.

The results in Figure 1 reveal that most participants highly recognized logos dealing with environmental sustainability aspects; the most recognized is the organic certification label, followed by the EU ecolabel. Both certification systems have long been in existence and are present on a vast array of products for everyday use. The third most recognized logo is FT. A small minority of respondents recognized the last two labels (the Demeter biodynamic certification logo and the PEFC logo).

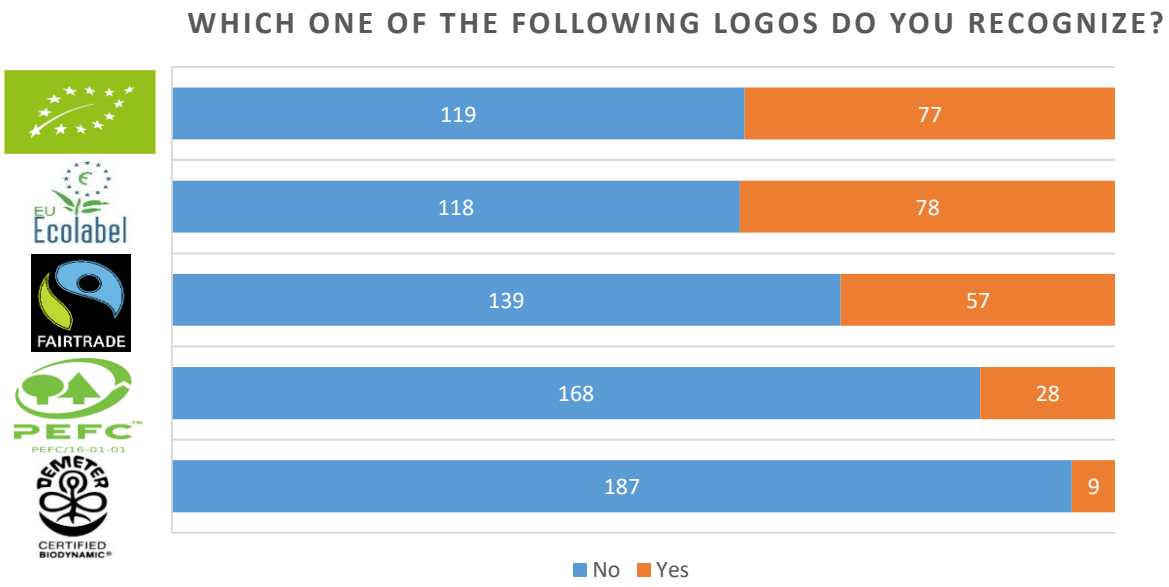

Figure 1: the recognition of different types of logos by the participants in the experiment.

Table 2 and Figure 2 illustrate the results from the EMCB scale. For each group, the scores of the two items are highly correlated, but there are some differences when the question concerns the current behaviour rather than the principles that guide the consumer in the choice of purchase. When the item is about real behaviour (ECOBUY_2 and ECOBOYCOTT_2) and not intentions, the answers reflect a less "sustainable" profile of respondents. In contrast, when the questions investigate the attitude towards sustainability aspects (ECOBUY_1 and ECOBOYCOTT_1), the answers shift towards sustainable consumption. In general, respondents show a marked interest in sustainability issues and a propensity to change their consumption habits due to environmental and social aspects of firms (ECOBOYCOTT_1 and CSRBOYCOTT_1). We further noted a low familiarity with the purchase of products with social or ecological sustainability attributes (PAYMORE_1 and PAYMORE_2). When comparing our results to those of Sudbury-Riley and Kohlbacher (2016), our average values align with those from the UK, are higher than those from Hungary, and lower than those from Germany. In particular, the data we collected in Italy

presents the lowest scores for answers related to the habit of buying environmentally friendly products (ECOBUY).

Table 2: mean EMCB item scores by country. NB: data for other countries taken from Sudbury-Riley and Kohlbacher (2016).

	Italy		UK		Germany		Hungary		Japan	
Item	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ECOBUY_1	3.16	0.85	3.17	0.92	3.58	0.95	3.47	1.09	3.51	0.72
ECOBUY_2	2.62	0.99	2.86	1.03	3.2	1.11	3.1	1.13	3.17	0.77
ECOBOYCOTT_1	3.6	1.11	3.47	1.06	3.96	1.15	3.52	1.11	3.9	0.93
ECOBOYCOTT_2	3.24	1.05	3.25	1.02	3.6	1.01	3.22	1.19	3.79	0.94
RECYCLE_1	3.46	1.12	3.48	1.07	3.85	0.95	3.38	1.04	3.61	0.89
RECYCLE_2	3.12	1.18	3.22	1.17	3.56	1.07	3.26	1.13	3.67	1
CSRBOYCOTT_1	3.53	1.28	3.54	1.17	3.83	1.07	3.15	1.17	3.64	0.94
CSRBOYCOTT_2	3.57	1.24	3.59	1.23	4.28	1.01	3.34	1.29	3.75	1.05
PAYMORE_1	3.18	0.89	3.08	1.07	3.53	1.01	2.96	1.16	3.18	0.93
PAYMORE_2	3.13	0.91	3.07	1.07	3.42	0.96	2.89	1.15	3.04	0.93

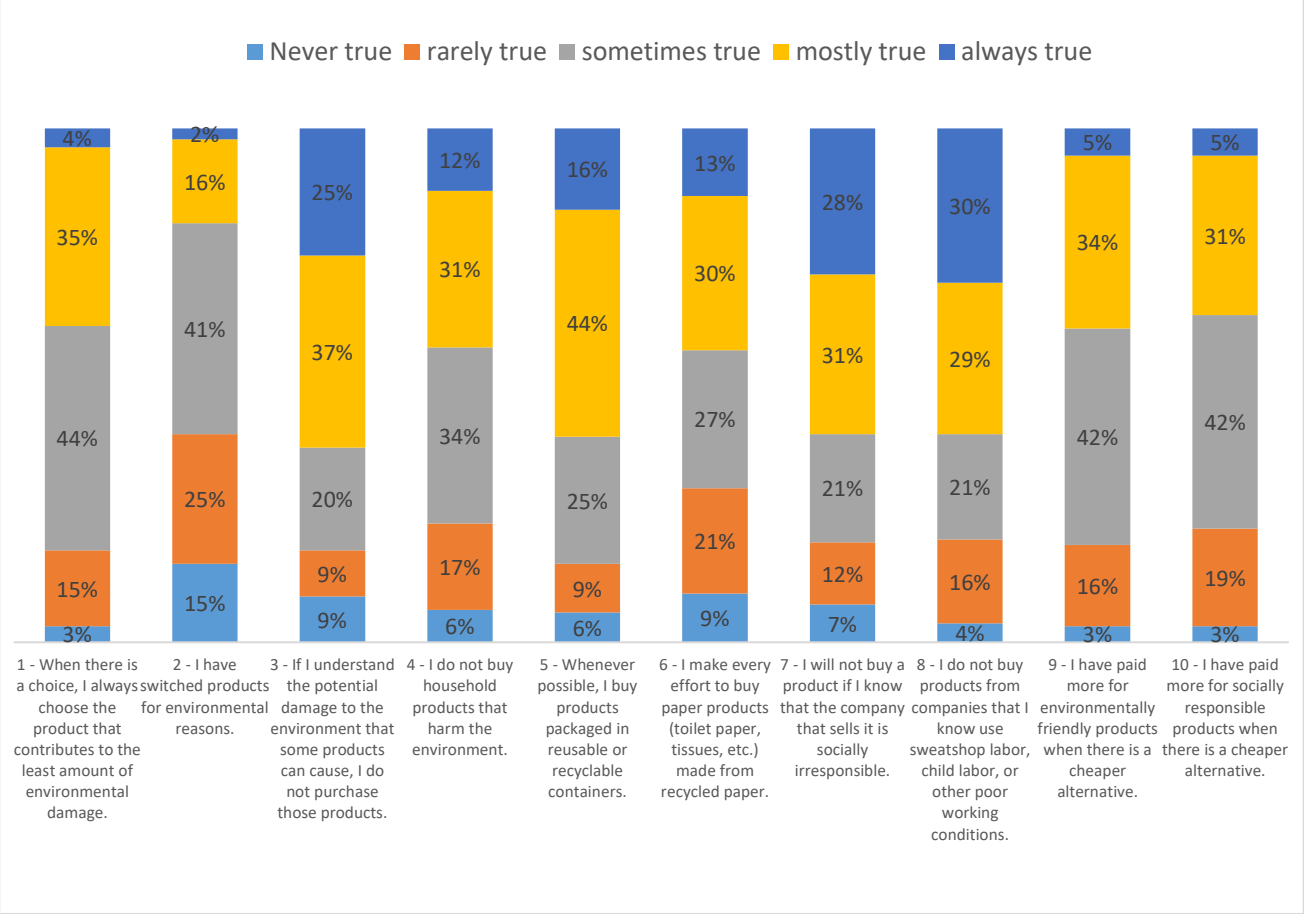

Figure 2: EMCB items and frequencies of answers on a scale from 1 (never true) to 5 (always true)

To include the information collected with the EMCB scale in the regression model while avoiding multicollinearity problems, the data retrieved from the EMCB were analyzed through PCA. This algorithm summarizes the information contained in large data tables in a smaller number of dimensions while maintaining most of the relevant information. Results of the PCA are presented in table 3. According to Alhusseini and Odah (2016), only the scores of the three dominant components with an eigenvalue greater than 1, which altogether explain 66 per cent of the total variance, were selected and included in the following regression. From the analysis of the main dimensions identified through the PCA, it is possible to draw some indications and relationships between the various items of the scale and therefore between different attitudes towards the purchase of ethical products.

Table 3: eigenvalues and eigenvector for principal component

	Comp1	Comp2	Comp3	
	Eigenvalue λ			
	4.04	1.32	1.18	
	Difference			
	2.72	0.14	0.37	
	Reduction of variance (%)			
	0.40	0.13	0.12	
	Cumulative variance (%)			
	0.40	0.54	0.66	
	Eigenvectors			**KMO**
ECOBUY_1	0.336	-0.260	-0.219	0.82
ECOBUY_2	0.331	-0.287	-0.115	0.85
ECOBOYCOTT_1	0.216	0.16	0.657	0.79
ECOBOYCOTT_2	0.296	-0.018	0.473	0.81
RECYCLE_1	0.258	0.335	-0.380	0.82
RECYCLE_2	0.320	0.029	-0.356	0.85
CSRBOYCOTT_1	0.327	0.49	-0.002	0.75
CSRBOYCOTT_2	0.320	0.468	-0.004	0.75
PAYMORE_1	0.345	-0.389	0.096	0.75
PAYMORE_2	0.377	-0.314	0.027	0.77
Kaiser-Meyer-Olkin Measure of Sampling Adequacy				
Overall kmo		0.80		
Bartlett test of sphericity				
Chi-square		700.63		
Degrees of freedom		45		
p-value		0.000		

The first component, which explains most of the variance of the sample, identifies the profile of consumers that reveal a high score for all the EMCB items, that is, consumers with greater attention and WTP towards the environmental and ethical aspects of the products they buy. The other two components are more heterogeneous and oppose different items of the scale. The second principal component opposes respondents who are willing to boycott specific firms or products due to corporate social responsibility reasons and care about recycling to respondents who regularly purchase eco-friendly products and are willing to pay more for products with greater ethical and environmental content. The third component shows positive values for the boycott under environmental reasons and negative scores for recycling and eco-friendly purchasing.

Table 4 summarises the number of respondents, the mean and standard deviation for the bids in the two treatments and the pooled sample. The results from the pairwise comparisons reported in table 4 reveal a statistically significant difference among the treatments for the bids for the FT certified sugar. The effect of the FT information on respondents' WTP is evident by analyzing the averages of the bids in the two treatments. The group of respondents that were provided with additional information provided higher WTP for the certified product compared to other respondents.

Table 4: overview of auction bids (€ per pack of 1 kg of sugar).

	Non-certified sugar			**Certified sugar**		
	No information	**Information**	**Non certified Pooled**	**No information**	**Information**	**Certified Pooled**
mean	0.85	0.84	0.85	1.09	1.19	1.13
sd	0.21	0.25	0.23	0.28	0.32	0.31
frequency	97	99	196	97	99	196
Mann-Whitney U		19008			16404	
Wilcoxon W		38709			35319	
Z		-.179			-2.524	
p-value		.858			.012	
Exact prob		.858			.011	

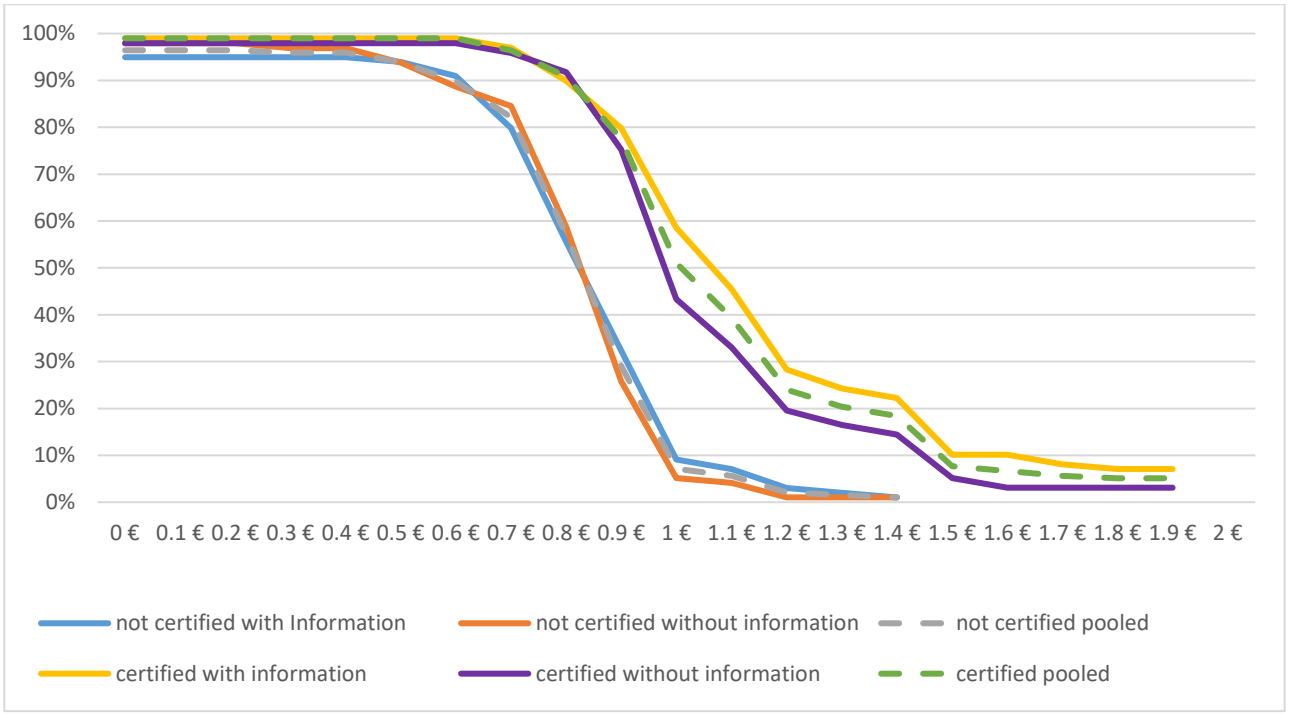

Figure 3: distribution of the bids for the two auctioned products.

Figure 3 shows the cumulative distribution of the bids rounded to increases of € 0.10. Given that participants were provided with a reference price as preliminary information before the auction, i.e., the price of a 1 kg pack of beet sugar (€0.90), the analysis of the bids allows us to deduce some information about how respondents perceive this new product (refined cane sugar) in comparison to the "regular" sugar. Although the average of the bids for the non-certified product is lower than the reference price of the beet sugar, the analysis of the distribution of bids and modes shows that most of the participants valued the non-certified white refined cane sugar as having the same price as the refined white beet sugar (mean € 0.87, median € 0.90). In contrast, most respondents valued more the FT certified product, as reflected in a difference in the reference price of €0.23 (mean € 1.13, median € 1.1).

The Tobit equation is structured as $WTP_i=\beta 0+ \beta 1X_i+\varepsilon_i$, where the subscript i represents individual respondent characteristics, WTP is the respondent's willingness to pay, X is a vector of socio-demographic, lifestyle, attitudes towards the environment, society, food consumption, and use of labelling. In detail, WTP is modelled as

WTP_i = f (*age, gender, household income, recognition of the organic label, recognition of the FT label, frequency of purchase of FT products, scores from the EMCB scale, information, Interactions*).

Table 5 lists the parameter estimates. In total, results from five Tobit models are reported: the first one ("Pooled") considers the bids for both products, certified and not certified, with two dummy variables indicating the FT certification and the information treatment. The second column ("Pooled PCA") of the results adds the eigenvectors of the principal components with an eigenvalue greater than 1 to the first model. The subsequent models consider the bids for the certified product only, first using the scores from the EMCB scale ("Certified") and then with the eigenvectors from the PCA ("Certified PCA"). The last model ("Certified PCA + interactions") adds the interaction terms better to investigate the role of information on consumers WTP. These last three models allow us to highlight the heterogeneity of the effect of providing additional information regarding the certification on respondent's WTP. The interactions between information and the EMCB items were performed by re-encoding the EMCB's responses into a dummy variable that assumes the value of 1 if the score chosen by the respondent is greater than 3 (out of 5).

Table 5: Tobit marginal effects

Variable	Pooled	Pooled PCA	Certified	Certified PCA	Certified PCA + interactions
Age					
18 - 24	(base)	(base)	(base)	(base)	(base)
25 - 34	0.111**	0.111**	0.092	0.097	0.133**
35 - 44	0.072*	0.081*	0.078	0.082	0.104
45 - 54	0.011	0.018	-0.054	-0.047	-0.041
55 - 64	0.038	0.038	0.019	0.020	0.033
65 or older	0.130***	0.142***	0.129*	0.130*	0.143*
Income					
less than €10,000	0.037	0.034	0.053	0.047	0.035
€10,000 – 19,000	-0.079**	-0.078**	-0.071	-0.072	-0.068
€20,000 – 29,000	(base)	(base)	(base)	(base)	(base)
€30,000 – 39,000	0.042	0.056	0.072	0.092*	0.101*
€40,000 – 49,000	0.041	0.042	0.019	0.028	0.037
more than €50000	0.050	0.044	0.090	0.082	0.075
School					
elementary	-0.115	-0.148	-0.173	-0.195	-0.213
middle school	(base)	(base)	(base)	(base)	(base)
high school	0.015	0.013	0.042	0.039	0.038
graduate	0.024	0.021	0.033	0.026	0.005
Gender (0-1=female)	0.071***	0.068**	0.085**	0.083**	0.085**
Purchase of FT products (0-1)	-0.074**	-0.077**	-0.105**	-0.107**	-0.104**
FT certification (0-1)	0.251***	0.253***			
InfoXft (information x ft)	0.80**	0.82***.			
Information treatment (0-1)			0.076**	0.076**	0.077
Logobio (0-1=knows organic logo)	0.066**	0.068**	0.091**	0.093**	0.093***
Logoft (0-1=knows FT logo)	0.080*	0.084**	0.122**	0.131**	0.133***
EMCB scale items					
Ecobuy	0.048*		0.064**		
Ecoboycott	-0.035**		-0.024		
Recycle	0.077***		0.067***		
CSRboycott	0.061***		0.065***		
Paymore	-0.026		-0.035		
PCA eigenvalues					
Component 1		0.044***		0.050***	0.053***
Component 2		0.051***		0.048***	0.051***
Component 3		-0.064***		-0.057***	-0.064***
Interactions					
Info x Ecobuy					-0.083
Info x Ecoboycott					0.124**
Info x Recycle					-0.013
Info x Csrboycott					-0.106
Info x Paymore					0.057
_cons	0.407***	0.787***	0.490***	0.930***	0.906***
Statistics					
N	388	388	194	194	194
ll (model)	-8.82	-8.23	-3.11	-4.19	-0.56
ll(null)	-112.38	-112.38	-51.50	-51.50	-51.50
Pseudo R2	0.92	0.93	0.94	0.92	0.99
McFadden(adjusted)	0.70	0.72	0.45	0.47	0.45
df	25.00	23.00	25.00	23.00	28.00
aic	67.64	62.45	56.22	54.38	57.12
bic	166.67	153.56	137.91	129.54	148.62

legend: * p<.1; **p<.05; *** p<.01

Results reveal that respondents positively evaluate the presence of the FT certification, as they are willing to pay a premium equal to € 0.25 compared to non-certified sugar, and that providing additional information increased their WTP for the certified sugar by € 0.08. Gender and income exert positive and statistically significant effects on the WTP for white refined cane sugar, as female respondents are willing to pay a premium between € 0.07 to 0.08 compared to men. Similarly, the lower age category (between 18 and 24 years old) reports lower WTP values than older consumers. We do not find a clear correlation trend between income and WTP.

Knowledge of sustainability labels, represented here by the ability to recognize the organic and FT certification logos, was found to have a significantly positive effect on the bids. . Respondents who know the organic logo are willing to pay an average of € 0.09 more than those who do not recognize it, while those who claim to recognize the FT logo bid on average € 0.13 more for the certified product (Table 5, Certified models). Furthermore, respondents who regularly or occasionally purchase FT products have a lower WTP than non-buyers of FT products for the certified sugar (€ -0.07 in the Pooled model, € - 0.10 in the Certified models).

Some of the scores from the EMCB scale, like those obtained with the PCA, have a significant effect on consumers' WTP. Consumers who deliberately purchase environmentally friendly products (ECOBUY), who attempt to direct their purchases towards choices that consider environmental factors like recycling and reuse (RECYCLE), and who are willing or used to boycott firms because of ethical reasons (CSRBOYCOTT) have a higher WTP. On the contrary, respondents who declared to be willing to boycott firms because of ecological reasons (ECOBOYCOTT) have a lower WTP than the rest of the sample, due to lower WTP for the non-certified product. Respondents' bids do not reflect the EMCB question scores related to having a higher willingness to pay for products with environmental and social sustainability certifications (PAYMORE). The convergence

between ecological sentiment (ECOBUY and RECYCLE) and preferences for the two auctioned products is due to a greater WTP both for the FT certified and the non-certified products.

The analysis of the interaction terms shows that providing additional information does not have the same effect on all consumers, but that this also depends on specific characteristics related to consumers attitudes towards sustainable consumption. In detail, the effect of providing additional information on the WTP for the FT certified sugar is stronger in those individuals who are willing to boycott certain products due to environmental reasons.

5. Discussion

On average, respondents declare a value for a pack of 1 kg of refined white cane sugar that is equal to the given reference price for beet sugar and acknowledge a higher price to the FT certified product. In line with previous research results (e.g. Vecchio and Annunziata, 2015) the analysis shows that some demographic variables contribute to explaining the attitude of consumers towards FT certified products, as respondents with higher income and females are generally willing to pay more for the auctioned products.

One critical factor affecting consumer behaviour towards FT products is related to the previous knowledge that they have of the certification itself and to the attention towards food labels in general. The role of certification labels is to disclose information on the sustainability qualities of products and to create an ongoing relationship with the consumer based on trust and loyalty. Whether previous research found that the recognition of ecolabels serves as a facilitating behaviour for environmentally driven food purchase (Chekima, Syed Khalid Wafa, Igau, Chekima, & Sondoh, 2016; Darian et al., 2015; Grunert et al., 2014), Hudson et al. (2013) found that respondents who recognize the FT label have a lower stated-preference for purchasing certified products. On the contrary, our results

indicate that the recognition of each of the organic and FT labels seem to favour the consumption of ethically certified products.

However, only a minority of the consumers in our sample are aware of the existence and functioning of FT, as it is only the third among the most recognized labels preceded by the organic and the ecolabel certification labels. This result differs sharply from the findings of Rousseau (Rousseau, 2015) and Maaya et al. (Maaya, Meulders, Surmont, & Vandebroek, 2018) among consumers in Flanders (Belgium), among which the FT logo was more recognized than the organic and ecolabel logos. In Scotland, France, and Netherlands, Akaichi et al. (2016) found that the majority of their sample was aware of the FT concept. The knowledge among consumers of the FT system is very heterogeneous between different countries. In Italy, the availability and visibility of FT products, as well as awareness-raising campaigns, have been lower than in many other European countries, especially those in Northern Europe where FT is now very rooted even in discount stores (Ruggeri et al., 2018). The results obtained in other countries also suggest that the communication strategies undertaken by FT have been effective in increasing consumer awareness and knowledge about Fairtrade. We also find that consumers who regularly or occasionally purchase FT products have a WTP significantly lower than those who have never purchased a certified product. Consumers who regularly purchase FT products have a greater knowledge of the offer of certified products and their prices, so they have a more realistic and less idealized attitude when it comes to evaluating them. Similarly, this result could have depended on the type of product, which does not reflect the ethically certified product prototype and could have aroused an attitude of mistrust by frequent consumers of FT products.

By analyzing the effects of the EMCB items, we found a convergence between ecological sentiment and a higher WTP for the two auctioned products, which results in a greater WTP for both the products. This could be because white refined cane sugar is perceived by

consumers as a substantially different product than the ordinary white sugar, recalling a higher element of naturalness, but also because of the limited knowledge of consumers about the production of refined white sugar. The negative coefficients of the ECOBOYCOTT variable are stronger in the bids for non-FT sugar and indicate a lower WTP of consumers who are more prone to change their purchasing habits due to weak environmental sustainability of products. This result could denote a wary attitude towards the FT certification by consumers more actively engaged and attentive to the eco-sustainability of their purchases, rather than lack of interest for ethical issues.

When estimating the effect of providing additional FT information, the results underline the importance of information in the evaluation process of a food product. The average bids for the certified product were €1.08 when no additional information was provided, and this increased to €1.19 when respondents had access to a piece of brief information about FT. These results are in line with previous research as Lange et al. (2015) and contrast those of Hudson et al. (2013). The latter argued that increasing the amount of information available to consumers at the point of purchase would not boost ethical consumption. The analysis of the interaction terms tells us something more about the effectiveness of providing additional information to consumers to increase their WTP.

Rousseau and Vranken (2013) investigated the heterogeneity of the effect on WTP values for organic apples of providing information regarding the environmental and health impacts of organic apple production. They found that the effect is more pronounced for certain groups of consumers such as non-vegetarians, infrequent buyers of organic products and members of a nature protection organization.

In our study, providing information on FT certification seems to be more effective on those consumers who are willing to boycott specific firms due to environmental reasons. The intention to boycott presupposes a sort of active involvement by consumers, and our results seem to demonstrate that the WTP of those consumers who are willing to boycott by virtue

of environmental aspects can be significantly increased by providing additional information. This might be because these people are more aware of the issues and negative consequences that the production of the food they consume may involve, and the simple FT logo imprinted on the packaging of the product does not seem to be attractive or convincing enough, due to a higher scepticism towards ethical certifications or simply to a prejudicial attitude (Skarmeas & Leonidou, 2013). However, these consumers are more sensitive to additional information regarding the ethical certification system as they respond to it with substantial increases in their WTP.

6. Conclusions

FT is an important institutional arrangement designed to empower farmers and workers in developing countries and improve social and environmental standards. FT proposes a redistribution of the value within the value chains along with several mechanisms to guarantee more favourable conditions for producers in developing countries. However, the success of FT depends ultimately on consumers' willingness to pay a higher price for ethically certified products. For example, in the case of FT coffee, the global offer exceeds the demand, which excludes the entry of new producers, weakens the effectiveness of the certification, and undermines its longevity. Therefore, one of the crucial aspects for FT is to increase its consumer base, to extend the benefits deriving from participation in FT to an increasing number of producers, and ways are needed to increase the number of consumers of FT certified products.

In this research, we focus on estimating the value that consumers attribute to FT certification and the effect of providing additional information on their WTP. The role of informing consumers about the ethical qualities of certified products is often delegated exclusively to the logo on the product packaging. However, consumers are not always careful or able to

understand the message that the logo embodies and providing them with additional information could be a useful tool to attract new ones.

There is scant literature, however, on the effect of providing additional information about fair trade on consumers' WTP for FT certified products in a non-hypothetical setting at the place of purchase. Understanding how information about FT would influence consumers' valuation for FT products is vital for labelling policy and in the promotion of FT products. The success of any certification system ultimately depends on consumers' willingness to buy certified products and willingness to pay a higher price than "conventional" products (Lyon, 2006; Teyssier and Combris, 2012). In turn, the credibility and trust of consumers are closely linked to their recognition, understanding, and acceptance of these labels, and their ability to process the information correctly (O'Connor et al., 2017; Vecchio and Annunziata, 2015). Our results show that in an experimental setting like that of the BDM auction, consumers positively evaluate the presence of the FT label on the products and are willing to pay a premium for the certified products; furthermore, the premium increases when consumers are subjected to brief, additional information regarding the FT system. While several studies underscore the need for information and semi-commercial communications to increase the consumer base of FT products (Carrigan and Attala, 2001; M. Hudson et al., 2013; Pelsmacker et al., 2006; Schleenbecker and Hamm, 2015), Hudson et al. (2013) conclude that information in the form of "point-of-purchase badgering" has little impact on this, but that a long-term understanding of how FT operates and what goals it pursues can instead increase the number of consumers of certified products. Our results seem to support the first hypothesis as a brief description of the FT system was sufficient to increase respondents' WTP.

Finally, the affinity between ecological sentiment and the preference for FT certified products denotes the existence of consumers careful consideration about the products they buy and the negative aspects that their purchases imply, which could open up new scenarios for

different companies trying to differentiate their product through qualities that combine sustainability in terms of both environmental and social terms. Furthermore, campaigns aimed at increasing ethical awareness could be more effective in motivating consumers to embrace the purchasing of ethically certified products by relying on the conjuncture between the interest in the environment and social values. This research should be extended to a broader and more representative sample of consumers, inspecting whether the results carry over to other regions/countries and other everyday food products, including other ethical and environmental certifications and different types of information treatments. Indeed, our research has focused on evaluating how much the simplest indication about FT can change consumer preferences, but different types of information could be tested to calibrate awareness-raising strategies better. Similarly, even if Akaichi et al. found that ethical foods (FT, carbon footprint and organic) are not generally competing against each in the current market situation, they compete with each other when the price for FT products is set higher than consumers' WTP (Akaichi et al., 2016) and this aspect should be further inspected.

Some policy and marketing implications can be drawn from our results.

Given that consumers are willing to pay a premium for ethically certified products, it follows that they recognize the importance of taking action on the inequalities that characterize the globalized food chains. Regardless of FT effectiveness in tackling poverty in producer countries, awareness about ethical implications of food consumption exists among a considerable number of consumers. In this sense, engaging FT can become part of a product differentiation strategy by companies that intend to target the consumer segments most attentive to ethical aspects. This is true not only for speciality quality products such as coffee and tea but also for a commodity product such as white sugar, which represents a strategic product for small producers in several developing countries worldwide (Ruggeri and Corsi, 2019). Based on our results, providing information about the ethical qualities of a product could enhance the interest for ethically certified products among consumers, and

this is particularly relevant in a context where the knowledge of FT is relatively low as Italy. Boosting the demand for ethically certified products could trigger increased production of certified products and convince more producers to join the FT market, thus extending the benefits of participation in FT to a higher number of producers.

However, this will depend on the type of information and the level of knowledge already available among consumers, as we may not observe any significant effect if the target population already has exposure to such information. Moreover, it is essential to consider the observed preference heterogeneity to tailor policies and communication strategies to specific consumer groups.

for

7. Limitations

Despite all our efforts to implement a non-hypothetical incentive-compatible experiment, in which a direct cost is imposed on untruthful valuations, several inherent limitations need to be mentioned. First of all, this type of research suffers an intrinsic bias caused by social desirability issues, which lead respondents to satisfy social norms or please the researchers rather than reveal their true preferences (Fisher & Katz, 2000). Second, it is important to recognize that the information treatment could trigger a priming effect that would not necessarily translate into an actual behavioural change (Lusk & Shogren, 2007). As already mentioned by other authors (Elbakidze, Nayga, & Li, 2013; Vecchio & Annunziata, 2015), respondents' bids may be more biased when aimed to cheaper foods like sugar compared to more expensive products. Furthermore, we focused only on the FT certification, not considering the numerous alternative ethical certifications that consumers can encounter when shopping. Finally, it should be acknowledged that the results presented in this research are not representative of Italian consumers in general. The experiment took place in Milan, the most developed and economically advanced city in Italy, which means that

consumers in our sample were likely to be on average more environmentally aware, educated and wealthy than consumers in the rest of the country. The choice of the supermarket could have also played a role because supermarket chains tend to attract a different profile of customers from discounts and other supermarket chains (Becchetti et al., 2019).

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