

Article

Pre- and during COVID-19: Households' Willingness to Pay for Local Organic Food in Italy

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Abstract: Food demand and food supply have been heavily affected by the COVID-19 pandemic. To understand changes in households' behavior related to the pandemic, we investigated the willingness to pay for local organic apples before and during the COVID-19 pandemic. We assessed the changes that occurred within families, estimating separate models for the two members of a couple. Our findings show that respondents have a positive price premium for local organic apples, whose consumption helps reduce the environmental costs associated with food production. The median estimated values during the pandemic ranged from 34% to 250%. Overall, respondents show a positive mean willingness to pay, which increased with the pandemic. The socio-economic variables are the most important in explaining the willingness to pay, while the behavioral variables have more heterogeneous results, even if lifestyle and the request for information through the label are also important variables. The pandemic tended to narrow the gaps in preferences between members of a couple. In conclusion, the local and organic dimensions are embodied in the short chain, in which knowledge and trust in the producer are crucial elements in the consumer's choices.

Keywords: COVID-19; local and organic food; households' decisions; contingent valuation; willingness to pay



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1. Introduction

The food supply has been heavily affected by COVID-19, stressing the importance of how trust influences perceived risks and benefits associated with food products, and collaboration among the stakeholders along the supply chain. Additionally, the pandemic crisis has highlighted that short value chains represent a possible solution among several food systems [1]. Cost reductions and scale return have been the rationales for food supply organizations' decisions for a long time, often without considering supply chain risk. This has changed in the wake of the pandemic as a consequence of the disruption of the long supply chain [2]. The vulnerability of the food sector due to lockdown effects has emerged [3], along with the new challenges involving the food system and eating habits, such as health, climate change, and local dimensions. A new way to face these challenges could be represented by the deployment of local organic food (LOF), which, through its short supply chain, has positive environmental impacts, socio-economic benefits, and nutritional aspects. Sustainability goals can be achieved by favoring local food (LF) (The LF term is associated with being produced in the locality in which the final product is sold (e.g., [4])). Determinants such as taste, high quality, and trust in the food supply are the key drivers for consuming LF [5], even if social and altruistic features play an important role in supporting LF farmers. In general, ref. [6] underlines the growing relevance of environmental quality attributes in food-related rural enterprise performance) and for small farmers connected to organic food (OF) production. This also requires a shift in consumers' purchasing decisions toward such products [7]. LOF systems can have positive impacts on

local economies and allow the exploitation of synergies with other economic sectors [8]. In the past, the concept of LF has often been associated with organic production [9], given that the OF was initially associated with promoting a close and direct relationship between farmers and consumers, together with the balanced management of natural resources [10].

Several studies comparing OF and LF (e.g., [4,11]) have observed that consumers may perceive the “organic” and “local” concepts as partially overlapping (e.g., [9]). Thus, OF and LF might assume a holistic dimension, mainly due to their several overlapping characteristics.

According to [12], LF and OF productions can support each other consumers’ choices. The willingness to pay (WTP) estimations show that consumers are interested in LF production, especially when it interacts with OF production. Ref. [13] investigated the differences in attitudes and WTP between German consumers who consider the OF production important, and those who consider it less important, showing that a great number of consumers would prefer LF with OF attributes, meaning that LO food and OF complement each other. The highest WTP values emerge when food is both local and organic [14]. Literature also shows that health attributes are one of the main factors influencing WTP for the OF. The higher consumers’ concern about health, the greater their WTP for OF [15]. Ref. [16] investigated Mid-Atlantic consumers preferences and WTP for the attributes of organic, natural, and locally grown food, finding that consumers do not have a full understanding of the meanings of such terms. Thus, educational activities integrated into their promotional activities should be supported by producers and marketers to gain a price premium for such products. Ref. [17] showed that the local origin of food is very important for organic consumers in Germany, and they are willing to pay premiums for LOF.

With reference to demographic characteristics and WTP for food, in the case of the age of respondents, different results emerged. According to some literature (see, among others, [18]), the younger generation has higher WTP values for sustainable food products, while it also emerges that older people tend to buy OF regularly [19]. Such differences might be related to the fact that younger consumers consider OF to be environmentally friendly and older ones to be healthy [20]. From a gender point of view, [21] evaluated the effects of social influence on the WTP for LF for men and women, finding that men’s WTP for LF products is lower compared to women’s WTP. So, it would seem that men and women have different sensitivity to social issues, with men tending to be less sensitive to social issues than women [22–24]. However, although women have a more favorable attitude toward the consumption of OF than men, men are willing to pay a higher increase in price than women [25].

The COVID-19 pandemic has also accelerated the transformation of society and of people’s daily lives with changes to one’s eating habits in favor of both more virtuous behaviors and healthier choices. Italians have also changed their habits [26]. The deployment of smart work has allowed for more time to produce and consume food at home, providing households with health benefits such as fewer calories and higher nutrients. Making actual decisions about food choices in households is complex, and the pandemic has stressed it (e.g., [27]). The pandemic has created unprecedented disruptions in the supply of goods and services, including food. Food supply chains have been disrupted, creating food shortages, and these phenomena have created high levels of food anxiety within families. The families therefore had to turn to LF producers, which made it possible to alleviate the families’ anxiety. Food anxiety related to food insecurity is heterogeneously distributed within families. Also, food anxiety hasn’t diminished during the COVID-19 when supermarket shelves filled up again [22,23].

Food choice and consumption are dynamic and complex. Ref. [24] highlights the importance of analyzing consumers’ WTP for essential food products, such as vegetables and meat, during the COVID-19. The pandemic has impacted on respondents’ attitude toward OF, meaning that food anxiety and health considerations caused by the pandemic crisis can change consumers’ belief about food [25]. The results from [26] shows that the COVID-19 pandemic might increase the consumption of LF because of consumers’ food safety concerns. The pandemic crisis has shown that an organized distribution of

LF ensures a continuous supply of food, compared to supermarkets which source from non-local producers [27]. Ref. [28] shows that the stress and anxiety caused by COVID-19 have sparked an increased interest in healthy food among English consumers, especially LF, while the appeal towards OF has not increased. This result could be related to the fact that OF is generally more expensive than conventional food, and therefore in times of crisis, despite the benefits of OF towards health and the environment, families have other priorities. There are also differences in household attitudes both in the transnational and intersocial levels towards healthy foods. Also, Ref. [29] shows that the attention of Italian consumers to food safety has increased during a COVID-19 pandemic, with consumers aiming to get fresh food and LF for their families.

The aim of this paper is to evaluate how the pandemic has influenced household purchasing decisions with respect to food. We have considered apples which usually enters the diet of families, and they have a relatively low price which allows families to choose between the various types, such as, for example, LO apples. We have extended a research begun in the period prior to the pandemic, estimating the WTP for LO apples of households pre- and during COVID-19. We focus on health, local development and climate change as the main determinants of respondents' preferences. We have implemented a contingent valuation (CV) approach, which is a recognized tool for estimating monetary non-market values.

This paper contributes to the literature on consumers' WTP for LOF in different ways. First, to the best of our knowledge, studies investigating WTP for LOF are rather few. Instead, such information, focusing on the demand side for food, might help policy makers to mitigate supply chain ruptures. Second, no previous study has empirically explored health, environmental, and social characteristics associated with LOF during a pandemic context such as the COVID-19. Indeed, it is important to analyze consumers' preferences in a pandemic context, because it provides information about consumers' WTP and attitudes for food during health crisis. Such information may support policy makers to take action and prepare a resilience plan to face future emergencies. Third, there is still a lack of understanding of the term LOF of the literature. We attempt to explain the relationship between LF and OF and whether consumers' preference for LOF can be perceived as sustainable practices. Fourth, combining data from separate and joint interviews among household members contributes to the existing literature on preference heterogeneity, in that the purchase decision is complex, and interviewing wives and husbands allows to have greater awareness of the purchase choices that will make the family.

Thus, our paper contributes with a special emphasis to the literature by analyzing and describing how COVID-19 has affected food decision processes within households.

The paper is structured as follows. In Section 2, we describe material and methods, and in Section 3, we illustrate the results of the analysis. Section 4 presents the discussion, and, finally, in Section 5, we draw conclusions.

2. Material and Methods

2.1. Survey Design and Data

The survey approach involves two sequential steps. The first one has been conducted in Perugia in the pre-COVID-19 period, using a face-to-face survey; the second one has been conducted during the COVID-19 pandemic, using an online "face to face" approach. In the first survey, the interviews have been conducted in the two main hypermarkets. Couples (Within the family we restricted our sample to the wife and husband because they are primarily responsible for food shopping) were identified randomly as they entered the hypermarkets. We have initially intercepted 350 couples, and the final sample sizes turned out to be 327 couples (resulting in 981 interviews). The partners have been first interviewed separately, and then together, to determine their WTP for LO apples. In the second survey, we have contacted by email the 327 couples, sending them both new questionnaire and links for different online platforms. Participants have been helped to complete the survey first

separately and then jointly: 248 couples agreed to complete the questionnaire (around 75%), resulting in 744 interviews.

Operatively, the respondents were always asked some preliminary questions to check if they were aware of LOF and then the interviewer has read a brief informative text on LOF. The questionnaire (To develop an original and functional questionnaire, we have pre-tested our draft questionnaire through a consumers focus group consisting in 15 couples, so as to assess whether it was necessary to modify the questionnaire, to properly estimate the WTP. The pre-test allows to avoid problems related to misunderstanding and semantic and measurement problems) was divided into five sections. The first one refers to standard demographic variables to outline the profile of the respondent. The second investigates specific household's features to get a more accurate picture of the characteristics of each household emerges. The third section refers to the knowledge respondents have about LOF, trust on suppliers and related certification bodies, LO product categories purchased. The fourth section consists of two sub-sections. First, we propose a set of choices to the respondents for each of the three determinants related to the WTP: local economic development, personal health, and climate change mitigation. Respondents were asked to randomly order their preferences for local economic development versus personal health, local economic development versus climate change mitigation, and personal health towards climate change, assigning to each feature of each couple a score in terms of preferences from 0 to 100. Second, we propose the WTP-related questions to seek respondents' WTP for LOF, resulting in a final price for one kilogram of LO apples of €0.8, €1, €1.3, €1.8, €2.5, €3.5, €5 and €7. CV questions regarding WTP for LO apples were asked using a dichotomous choice format. The fifth part of the questionnaire is concerned with individual and household lifestyle and habits. Finally, the questionnaire used in the second survey included a set of new demands to analyze the impact of the COVID-19, and of the associated lockdown, on the households.

2.2. Modelling Framework

Consumers may associate some features with LF as with OF, providing a holistic perception of LOF among consumers (Scholars have investigated several types of relationships among local and organic characteristics. Ref. [30], focusing on eggs, found that local and organic claims are complements even if the preferences for organic and locally produced food vary among consumers [31]. This underlines the existence of heterogeneity in consumer preference and WTP for different attributes across product local and organic products [32]). According to [33], this is one out of three criteria in order to choose between CV and choice experiment technique. Indeed, given that consumers mainly perceive both LF and OF holistically, then “...attribute framing might be inconsistent with this perspective of the change being valued” [33] (p. 20). Consequently, representing the good into its single attributes could be insufficient in order to capture the comprehensive value that respondents associate to the change proposed. In this case, CV methods such as Open Ended, Single Bounded or Double Bounded Dichotomous Choice format, might be useful employed to evaluate multi-attribute variation, even if the results suggest that CV methods tend to give more conservative estimates for the WTP in comparison with others approaches (e.g., [34,35]). Among these methods, we apply the Single Bounded Dichotomous Choice (SBDC). It is both more desirable from a theoretical point of view and incentive compatible, showing the advantages of including cognitive simplicity for respondents and reducing incentives for strategic behavior [36]. However, the SBDC approach has some limitations both in terms of statistical efficiency and limited information provided in relation to respondents' true WTP (e.g., [37]). Thus, a rule of theoretical decision that favors one of the contingent dichotomous valuation formats is not reached.

To ensure statistical reliability of the WTP estimation, at least 600 and 400 samples are needed for the single-bounded and double-bounded method, respectively [38]. Furthermore, for a medium sample size of 250–400, both single- and double-bounded models perform well in estimating WTP, meaning that the minor efficiency associated with this

method can be mitigated [39]. It has been recently suggested that the single- and double-bound CVM models yield similarly efficient point estimates when the sample size is large and when the former is informed by a pre-test conducted on a small population (e.g., [40,41]). Referring to the intra-household preferences, we have analyzed both differences in household member preferences and the way member preferences are aggregate, testing whether the common preference model approach can be rejected. The utility function (U) of each n th respondent [husband (h), wife (w)] by purchasing food that embodies environmental attributes (z_{nj}) linked to organic production and origin, is a function of the indirect utility (V):

$$U_{nj} = V(p_j, I_n, z_{nj}; \beta_j) \quad (1)$$

p_j is the price of the j th food, I_n is the income (Apples are a low-cost commodity; thus, it is not reasonable to think that the marginal utility of income might vary with the income of respondents. According to [42] (pp. 46–47), we have expressed the income in categories, allowing coefficients to vary by income categories) of each n th respondent and β_j is a vector of parameters to be estimated. The structural probit model as a latent variable model is:

$$y_{nj}^* = \beta_j z_{nj} + \varepsilon_n \quad (2)$$

where $y_{nj} = 1$ if $y_{nj}^* \geq 0$ or the disturbance, $\varepsilon_n \geq -\beta_j z_{nj}$, and 0 otherwise. The purchasing decision of the j th food for which the n th respondent expresses WTP is given by:

$$p[V_n^* = k_i] = \frac{e^{\lambda_n} \lambda_n^k}{k_i!} \quad (3)$$

where $\lambda_n = e^{\beta_j z_{nj} + \varepsilon_n}$ is a function of β_j and z_{nj} . We have estimated the models taking into account the order of preferences stated by respondents, to assess whether there are statistically significant differences in terms of WTP, in relation to the impacts of the three features considered in this paper. We implement the Seemingly Unrelated Regression—SUR estimator [43] to take into account for possible correlation between the wives and husbands' responses, given that they buy food for the family. The null hypotheses, following the approach put forward by [44], are the following:

$$H_0^1 : \beta_j^{Hs} = \beta_j^{Ws} \text{ et } \beta_j^{Hj} = \beta_j^{Wj} \quad (4)$$

where H and W are husband and wife respectively, and s and j are single and joint interview, respectively.

The null hypotheses tested to identify the family member with the highest relative influence are:

$$H_0^2 : \beta_j^{Hs} = \beta_j^{Hj} \text{ et } \beta_j^{Ws} = \beta_j^{Wj} \quad (5)$$

These tests have been performed to calculate the WTP bias implied by each null.

Finally, we test the common preference model formulating the null hypothesis (4) for income variable. According to the common preference model, households should respond only to changes in aggregate household income.

2.3. Theoretical Framework: The Selection of Explanatory Variables

Consumer behavior in purchasing choices is influenced by more and more variables that go beyond income and product price, and concern, for example, product quality, healthiest, convenience for the individual and the family. Even exogenous causes trigger and amplify changes in consumer behavior. The food market is therefore so complex that food suppliers have to adapt to a constantly changing environment [45].

There are many foods with information to consumers regarding the characteristics of composition, nutritional properties, and most of the things that consumers themselves require today. In this context, there is a lot of attention from consumers with respect to the production method and the place of origin, as evidenced by the existing literature that we

have reported in the Introduction. In our paper, we have focused on the LOF and we have therefore selected the variables related to them.

In order to analyze consumer demand with respect to LOF, we have considered that consumers might buy LOF mainly for health beliefs, taste, production methods that take into account animal welfare and the environment, and finally because it supports local communities from an economic point of view.

According to several scholars (see among others [46,47]), consumers have trust in the OF labels, and when the food is also locally produced, i.e., a LOF, in addition to the perceived quality of the food, consumers also give it greater values that is, sharing with local communities, with producers and farmers. Thus, the origin of food for consumers, associated with a quality label such as OF, can become increasingly important in purchasing decisions [48]. COVID-19 has strongly influenced consumer preferences towards food [49–52]. Finally, in our model, we have considered, through correlated variables, the related impact of the pandemic crisis.

3. Results

The aim of this paper is to understand to what extent the COVID-19 has changed households' preferences, investigating each member of the couple and analyzing preferences toward LOF. To consider consumers with different purchasing habits and socio-economic characteristics, we have conducted the survey both at the weekend and during the weekdays in two hypermarkets.

This form of consumer survey method has some disadvantages, e.g., they may be affected by self-selection problems, which can be mitigated by making the reliability of this method close to the reliability of the other ones. Details are provided in the Supplementary Materials.

3.1. Descriptive Analysis

Table 1 includes descriptive statistics for the sampled households, for wives and for husbands, interviewed prior to COVID-19, and during COVID-19. Household size (*fam*) consisting of three people is the most frequent within the sample. The wives interviewed have on average 48 years, and husbands have 51 years. The subjects have completed high school diploma (*educ*) and about 15% of the respondents have a degree. In our analysis, we have divided income into five groups: "Less than €10,000", "€10,000–28,000", "€28,000–55,000", "€55,000–100,000" and "More than €100,000". The average annual partner income in the third class, i.e., €28,000–55,000, (the Italian average household income in 2019 is €31,641). The rate of respondents living in municipalities with less than 10,000 inhabitants (*mun10*) is around 70%. They live in Umbria region (*resy1*) since several years, around 30 years on average. About 70% of wives and 63% of husbands have a membership in environmental and/or cultural associations (*socac*).

On average, households' monthly spending in fruits and vegetables (*purcfv*) is around €100. They are quite interested in reading labels (*lab*) of food products. Prior to COVID-19, about 30% of wives and 25% of husbands purchase at the farmers' markets over the past five years (*farmkt1*).

Descriptive statistics of the sample interviewed during COVID-19 using an online "face to face" approach, i.e., the second survey, are quite similar to those relating to the period before COVID-19. Three person household is still the most representative one. They are younger if compared with the first survey: the average age of the interviewees (*age*) is 43 years for wives and 50 years for husbands. A high level of education is confirmed among respondents. The income distribution changes in the second sample, with the average income that is a little bit lower. A high percentage of respondents live in municipalities with less than 10,000 inhabitants. Respondents exhibit a higher number of the years of residence in Umbria Region (*resy2*) compared to the first survey. The level of memberships in environmental and/or cultural associations both for wives and husbands is the same as the first survey. The monthly expenditure in fruits and vegetable has significantly increased

during the COVID-19, going from €100 to €130. Interest in reading the labels of food products is confirmed at the same level in the second survey compared to the previous one.

Table 1. Descriptive statistics of variables used in the model.

					First Survey (1)—327 Couples				Second Survey (2)—248 Couples			
Variables ^(a)					Wife (w)		Husband (h)		Wife (w)		Husband (h)	
Acronym ^(c)	Type	Description	Unit	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	
resp[k]_[z]s resp[k]_[z]j	dummy	LHS										
		responses: Pr (Yes = 1)	#	0.526	0.499	0.563	0.497	0.665	0.473	0.605	0.490	
bid_LO[k] fam[k] age[k]_[z] educ[k]_[z] income[k] mun[k] resy[k]_[z] socac[k]_[z] purcfv[k] lab[k]_[z] farmkt[k]_[z] orlochea[k]_[z]s orlochea[k]_[z]j orloccli[k]_[z]s orloccli[k]_[z]j orheaccli[k]_[z]s orheaccli[k]_[z]j leis_var2_[z] ^(b) incomf_var2 ^(b) covid2_[z] ^(b) hmfd2_[z] ^(b)	cont. cont. cont. scale dummy cont. dummy scale scale dummy cont. cont. cont. scale scale ordinal dummy	RHS ^(d)										
		Bid	euro (€)	2.866	2.052	2.866	2.052	2.823	2.169	2.823	2.169	
		household components	nr.	3.333	1.244	3.333	1.244	3.508	1.260	3.508	1.260	
		age of respondents	nr.	48.535	12.483	50.771	14.478	48.535	12.483	50.771	14.478	
		years of education	nr.	15.245	3.114	14.520	3.446	15.258	3.314	14.855	3.385	
		income level (1–8; 8 = max)	#	4.183	1.684	4.183	1.684	4.556	1.581	4.556	1.581	
		municipality < 10,000 res. (1 = yes)	#	0.324	0.469	0.324	0.469	0.359	0.481	0.359	0.481	
		families' years of residence (ancestors included)	nr.	31.471	14.889	33.113	17.464	31.471	14.889	33.113	17.464	
		social activities (1 = yes)	#	0.697	0.460	0.621	0.486	0.706	0.457	0.637	0.457	
		monthly expenditure in fruit vegetables (1–5; 5 = max)	#	3.003	0.805	3.003	0.805	3.100	0.811	3.100	0.811	
		interested in reading labels (1–10; 10 = max)	#	5.287	3.170	4.544	3.199	5.501	3.003	4.427	3.163	
		shop at farmers' market (1 = yes)	#	0.269	0.444	0.248	0.432	0.314	0.465	0.278	0.449	
		order: local development vs. healthy food	%	46.300	22.810	46.330	21.564	43.548	22.359	46.129	21.865	
		order: local development vs. climate change	%	61.957	22.081	38.226	20.632	59.556	23.209	38.992	21.412	
		order: healthy food vs. climate change	%	61.957	22.081	38.226	20.632	58.831	23.496	38.992	21.412	
		43.150	17.814	38.840	17.440	65.968	17.993	61.290	17.678			
43.150	17.814	38.840	17.440	65.968	17.993	61.290	17.678					
	#					3.085	1.189	2.923	1.196			
	#					0.319	1.316	0.319	1.316			
	#					0.544	0.850	0.464	0.725			
	#					0.452	0.500	0.391	0.489			

^(a) Each variable can refer to single (s) (wife (w) and husband (h)) or jointly (j) interview and (except variables ^(b) to the 1st or 2nd survey. ^(c) In the manuscript the acronym used is var[k]_[z][x] where k refers to the survey (k = 1, 2) z refers to the member of the couple (z = h, w) and x refers to the type of the interview (x = j, s). For example, resp1_hj refers to the responses of the husband to the jointly interview in the first survey; age2_w refers to wife age in the second survey. ^(d) Of course, many RHS variables might do not change referring to s or j interview and/or to w or h and/or to 1st or 2nd survey. In these cases, possible irrelevant subscripts are omitted.

Focusing on the specific questions asked only in the second survey, on average, the sample in the second survey has a significant increase in family income. In the case of family income variation (*leis_var2*), it is similar in the two members of the couple, even if the wives recorded a slight increase compared to that of the husband.

According to *incomf_var2*, 10% of the sample state a moderate loss of household's income, while 7% of the sample declares a significant loss. Around 58% of the sample did not register appreciable changes in family income, while 20% recorded a significant increase in their income.

With regard to the involvement of interviewees in COVID-19 events (*covid2*), with regard to women, about 87 registered an infection among their relatives, which required hospitalization in only 53 cases and in about 10 cases it resulted in the death of the relative.

In the case of men, although the number of infections is almost the same, i.e., 85, hospital admissions are 22, and deaths among relatives amount to 4.

Finally, a similar result is obtained in relation to the production of domestic food (*hmfd2*), during COVID-19. Again, as expected, wives are more involved in this practice, although the difference with husbands is not particularly marked. As for free time, this increases for both, and more consistently for women. For both, the pandemic and the lockdown have led to an increase in the production of homemade food.

The orderings choices among wives and husbands towards local economic development, personal health and climate change related to the consumption of local organic food are listed in Table 2. The data refer to the first and second surveys. In the first survey, both wives and husbands prefer healthy food to local development (*orlochea*), and this preference is even more pronounced in the second survey. When considering local economic development and climate change (*orloccli*), the differences occur within the couples, both in the first and in the second survey. In particular, prior to COVID-19, and during COVID-19, husbands prefer climate change to local economic development, while wives prefer local economic development to climate change. With reference to healthy food and climate change (*orheaccli*), in the first survey, wives and husbands prefer climate change to healthy food, but in the second survey respondents prefer healthy food to climate change, with the result reversed. Thus, it would seem that the advent of COVID-19 has shifted respondents' attention from climate issues to health.

Table 2. Descriptive statistics-ordering choices towards local economic development, personal health and climate change.

Variables	First Survey (1)				Second Survey (2)			
	Wife [w]		Husband [h]		Wife [w]		Husband [h]	
	s	j	s	j	s	j	s	J
orlochea *								
Local < 50%	0.50	0.50	0.46	0.47	0.54	0.53	0.48	0.48
Local = 50% (Healthy = 50%)	0.13	0.13	0.20	0.20	0.13	0.13	0.18	0.18
Local > 50%	0.37	0.37	0.34	0.33	0.33	0.34	0.35	0.35
orloccli **								
Local < 50%	0.20	0.20	0.65	0.65	0.25	0.26	0.63	0.63
Local = 50% (Climate = 50%)	0.13	0.13	0.14	0.14	0.13	0.13	0.13	0.13
Local > 50%	0.67	0.67	0.22	0.22	0.62	0.61	0.24	0.24
orheaccli ***								
Healthy < 50%	0.56	0.56	0.64	0.64	0.15	0.15	0.14	0.14
Healthy = 50% (Climate = 50%)	0.25	0.25	0.22	0.22	0.13	0.13	0.23	0.23
Healthy > 50%	0.19	0.19	0.13	0.13	0.72	0.72	0.63	0.63

* Local development vs. Healthy food; ** Local development vs. Climate change; *** Healthy food vs. Climate change.

Table 3 shows the distributions of separate and joint responses of husbands and wives to WTP questions for LO apples, in the first survey (a) and in the second survey (b). According to our results, “yes” responses decrease as the price bid goes up in all the distributions, that is the percentage of those willing to pay a higher price for LO apples decreases as the price increases. In the pre COVID-19 period, respondents state a positive WTP for LO apples whose consumption helps reducing the environmental costs associated with food production.

Focusing on WTP distributions in the first survey, 90.0% of husbands interviewed separately are willing to pay the final price of €0.8 for one kilogram of LO apples, and this percentage decreases to 9.8% when asked to pay €7 for one kilogram of LO apples. In the case of wives interviewed separately, 78.1% are willing to pay €0.8 for one kilogram of LO apples, and only 12.2% are willing to pay a price per kilogram of €7 on LO apples. In joint interviews, results change. In particular, it increases the percentage of husbands willing to pay from €0.8 up to €3.5 for one kilogram of LO apples, while in the case of wives, it increases the percentage of those willing to pay from €0.8 up to €2.5 for one kilogram of LO apples.

Table 3. WTP distributions (a) first survey, (b) second survey.

(a) WTP	hs				hj				ws				wj			
	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum
0.8	4	37	90.24%	0.20	1	40	97.56%	0.20	9	32	78.05%	0.19	6	35	85.37%	0.20
1	12	29	70.73%	0.36	8	33	80.49%	0.37	9	32	78.05%	0.37	7	34	82.93%	0.40
1.3	10	31	75.61%	0.53	9	32	78.05%	0.53	16	25	60.98%	0.52	11	30	73.17%	0.57
1.8	17	23	57.50%	0.65	13	27	67.50%	0.67	12	28	70.00%	0.68	10	30	75.00%	0.74
2.5	15	26	63.41%	0.79	15	26	63.41%	0.80	19	22	53.66%	0.81	18	23	56.10%	0.87
3.5	20	21	51.22%	0.91	18	23	56.10%	0.92	30	11	26.83%	0.87	31	10	24.39%	0.93
5	28	13	31.71%	0.98	29	12	29.27%	0.98	24	17	41.46%	0.97	33	8	19.51%	0.98
7	37	4	9.76%	1.00	37	4	9.76%	1.00	36	5	12.20%	1.00	37	4	9.76%	1.00
(b) WTP	hs				hj				ws				wj			
	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum	No	Yes	P (Yes)	Cum
0.8	4	33	89.19%	0.22	1	36	97.30%	0.22	6	31	83.78%	0.19	3	34	91.89%	0.20
1	10	27	72.97%	0.40	6	31	83.78%	0.41	5	32	86.49%	0.38	3	34	91.89%	0.41
1.3	7	25	78.13%	0.57	6	26	81.25%	0.57	8	24	75.00%	0.53	5	27	84.38%	0.57
1.8	11	20	64.52%	0.70	7	24	77.42%	0.72	4	27	87.10%	0.69	2	29	93.55%	0.74
2.5	8	18	69.23%	0.82	6	20	76.92%	0.84	5	21	80.77%	0.82	4	22	84.62%	0.87
3.5	6	10	62.50%	0.89	5	11	68.75%	0.91	6	10	62.50%	0.88	7	9	56.25%	0.93
5	21	13	38.24%	0.97	22	12	35.29%	0.98	17	17	50.00%	0.98	26	8	23.53%	0.98
7	31	4	11.43%	1.00	32	3	8.57%	1.00	32	3	8.57%	1.00	31	4	11.43%	1.00

hs = husband single; ws = wife single; hj = husband joint; wj = wife joint.

Focusing on WTP distributions in the second survey, it emerges that the COVID-19 pandemic has affected the “yes/no” responses’ distributions, increasing the percentages of *yes* for each bid. Around 89.2% of husbands interviewed separately are willing to pay the final price of €0.8 for one kilogram of LO apples, and this percentage is reduced to 11.4% for a price of €7. In the case of the joint interviews, the percentage of husbands willing to pay in the price range from €0.8 to €3.5 increases. With reference to wives, when they are interviewed separately from their husbands, the percentage varies from 83.8% willing to pay €0.8 for one kilogram of LO apples, to around 8.6% of respondents willing to pay €7. In the case of joint interviews, in correspondence with all the bids proposed, the share of wives willing to pay for the LO apples increases. Overall, in the survey conducted during COVID-19, the percentages of wives and husbands in relation to the proposed bids differ, but these differences tend to narrow compared to the first survey. It is also interesting to note that in the second survey, the percentage of wives willing to pay for the proposed bids is higher, in correspondence with all the bids, than in the first survey.

3.2. Econometric Results

Regressions, reported in Tables 4 and 5 have been running for husbands interviewed separately, wives interviewed separately, husbands and wives interviewed jointly. Both first and second surveys are included. All the estimates of the bivariate probit model show that the likelihood-ratio tests for $\rho = 0$ (correlation coefficient between the residuals of each of the two models) for the joint models are always highly significant. So, we can reject the null hypothesis that the decisions among household members are correlated. Consequently, each of the four models in Equation (2) should not be estimated using separate univariate probit models. In the first survey, examining the results for the variables affecting respondents’ WTP, they have the same effect both for the husbands and wives when they were interviewed separately and jointly.

Table 4. Seemingly unrelated probit model—1st survey.

Single Interview			Joint Interview		
Husband			Husband		
bidLo1	−0.341 (0.072)	***	bidLo1	−0.523 (0.105)	***
income1	0.171 (0.094)	*	income1	0.339 (0.114)	***
mun1	0.325 (0.245)		mun1	0.443 (0.316)	
fam1	0.316 (0.114)	***	fam1	0.664 (0.159)	***
resy1_h	0.009 (0.007)		resy1_h	0.030 (0.009)	***
age1_h	0.017 (0.009)	*	age1_h	0.005 (0.011)	
edu1_h	0.118 (0.037)	***	edu1_h	0.113 (0.045)	**
lab1_h	0.088 (0.037)	**	lab1_h	0.167 (0.049)	***
famrkt1_h	1.163 (0.352)	***	famrkt1_h	1.424 (0.473)	***
socac1_h	0.935 (0.244)	***	socac1_h	0.345 (0.326)	
orlochea1_hs	0.011 (0.005)	*	orlochea1_hj	0.003 (0.006)	
orloccli1_hs	0.016 (0.006)	**	orloccli1_hj	0.024 (0.008)	***
orheaccli1_hs	−0.011 (0.006)	*	orheaccli1_hj	−0.019 (0.008)	**
purcfv1	0.401 (0.192)	**	purcfv1	0.332 (0.233)	
_cons	−6.740 (1.198)	***	_cons	−6.978 (1.473)	***
Wife			Wife		
bidLo1	−0.269 (0.068)	***	bidLo1	−0.689 (0.105)	***
income1	0.272 (0.086)	***	income1	0.401 (0.112)	***
mun1	0.887 (0.264)	***	mun1	0.735 (0.320)	**
fam1	0.449 (0.116)	***	fam1	0.444 (0.133)	***
resy1_w	0.029 (0.008)	***	resy1_w	0.027 (0.010)	***
age1_w	−0.011 (0.009)		age1_w	−0.006 (0.012)	
edu1_w	−0.007 (0.042)		edu1_w	0.108 (0.051)	**
lab1_w	0.069 (0.037)	*	lab1_w	0.107 (0.049)	**
famrkt1_w	0.805 (0.313)	***	famrkt1_w	0.819 (0.381)	**
socac1_w	0.467 (0.245)	*	socac1_w	0.146 (0.308)	
orlochea1_ws	−0.011 (0.005)	**	orlochea1_wj	−0.014 (0.006)	**
orloccli1_ws	0.001 (0.005)		orloccli1_wj	−0.003 (0.006)	
orheaccli1_ws	0.048 (0.008)	***	orheaccli1_wj	0.033 (0.009)	***

Table 4. *Cont.*

Single Interview			Joint Interview		
purcfv1	0.195 (0.167)		purcfv1	0.752 (0.228)	***
_cons	−5.417 (1.194)	***	_cons	−7.342 (1.660)	***
Rho	−10.368 (36.040)		rho	−0.111 (0.333)	
obs.	327		obs.	327	
Wald χ^2 (28)	178.34		Wald χ^2 (28)	143.4	
LL	−144.79		LL	−112.397	
LR χ^2 (1) rho	25.409		LR χ^2 (1) rho	0.109	

Figures in brackets are standard errors. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. LHS: 1 = Yes; 0 = No.

Table 5. Seemingly unrelated probit model—2nd survey.

Single Interview			Joint Interview		
Husband			Husband		
bidLo2	−0.465 (0.117)	***	bidLo2	−0.782 (0.259)	***
income2	0.488 (0.167)	***	income2	0.947 (0.313)	***
incomf_var2	0.377 (0.183)	**	incomf_var2	1.274 (0.431)	***
mun2	0.267 (0.383)		mun2	0.459 (0.615)	
fam2	0.133 (0.166)		fam2	0.918 (0.363)	**
resy2_h	0.025 (0.010)	**	resy2_h	0.086 (0.027)	***
age2_h	0.016 (0.012)		age2_h	−0.015 (0.022)	
edu2_h	0.157 (0.057)	***	edu2_h	0.238 (0.116)	**
lab2_h	0.067 (0.052)		lab2_h	0.211 (0.097)	**
famrkt2_h	1.682 (0.565)	***	famrkt2_h	2.021 (0.966)	**
socac2_h	1.658 (0.472)	***	socac2_h	1.367 (0.731)	*
orlochea2_hs	−0.016 (0.009)	*	orlochea2_hj	−0.029 (0.014)	**
orloccli2_hs	0.038 (0.010)	***	orloccli2_hj	0.055 (0.018)	***
orheaccli2_hs	0.018 (0.010)	*	orheaccli2_hj	0.034 (0.017)	**
purcfv2	0.272 (0.285)		purcfv2	0.210 (0.610)	
leis_var2_h	−0.228 (0.163)		leis_var2_h	0.281 (0.343)	
covid2_h	0.097 (0.274)		covid2_h	0.730 (0.440)	*
hmfd2_h	1.171 (0.413)	***	hmfd2_h	1.323 (0.660)	**
_cons	−9.138 (2.127)	***	_cons	−16.551 (5.534)	***

Table 5. Cont.

Single Interview			Joint Interview		
Wife			Wife		
bidLo2	−0.260 (0.083)	***	bidLo2	−1.046 (0.384)	***
incomf2	0.157 (0.132)		incomf2	1.154 (0.486)	**
incomf_var2	0.385 (0.168)	**	incomf_var2	0.053 (0.376)	
mun2	0.519 (0.334)		mun2	1.631 (0.947)	*
fam2	0.814 (0.261)	***	fam_2	1.128 (0.592)	*
resy2_w	0.015 (0.010)		resy2_w	0.060 (0.030)	**
age2_w	−0.007 (0.011)		age2_w	−0.035 (0.031)	
edu2_w	0.094 (0.057)	*	edu2_w	0.132 (0.167)	
lab2_w	0.012 (0.057)		lab2_w	0.051 (0.119)	
famrkt2_w	0.487 (0.376)		famrkt2_w	2.343 (1.074)	**
socac2_w	0.801 (0.332)	**	socac2_w	2.396 (1.141)	**
orlochea2_ws	−0.012 (0.006)	*	orlochea2_wj	−0.035 (0.018)	*
orloccli2_ws	0.012 (0.006)	*	orloccli2_wj	0.029 (0.016)	*
orheaccli2_ws	0.031 (0.010)	***	orheaccli2_wj	0.040 (0.022)	*
purcfv2	0.262 (0.233)		purcfv2	1.781 (0.701)	**
leis_var2_w	−0.519 (0.231)	**	leis_var2_w	−0.295 (0.402)	
covid2_w	−0.218 (0.190)		covid2_w	−0.017 (0.424)	
hmfd2_w	0.308 (0.357)		hmfd2_w	−2.809 (1.144)	**
_cons	−6.040 (2.045)	***	_cons	−15.920 (6.486)	**
Rho	−0.466 (0.286)		Rho	−128.133 (958.71)	
obs.	248		obs.	248	
Wald $\chi^2_{(36)}$	95.89		Wald $\chi^2_{(36)}$	40.89	
LL	−91.011		LL	−36.483	
LR $\chi^2_{(1)} \rho$	2.168		LR $\chi^2_{(1)} \rho$	2.499	

Figures in brackets are standard errors. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. LHS: 1 = Yes; 0 = No.

The decision to buy LO apples is negatively affected by the variable price, as suggested by the economic theory and literature. Focusing on the socio-economic features of the households, it emerges that *fam1* has a significant positive effect on the WTP for both the husbands and the wives. These relationships (*fam2*) do not change with the pandemic crisis. The number of household members is positively correlated with stated household WTP, and this result is consistent with some literature (e.g., [53]). (However, there are studies that instead show a low effect of this variable on preferences or spending on environmental quality (e.g., [54]). Besides, the WTP for LO apples is positively and highly significantly

influenced by *income1* in all the models considered. Looking at the differences between the two periods, the variable *income2* confirms its significance, with the pandemic enhancing this relationship. With reference to the geographic location of the family (residents in a municipality with less than 10,000 inhabitants), it emerges that only the *mun1* variable is positively significant only for wives. Focusing on the individual features of the households, the educational level variable as WTP predictor is a finding that should be expected, as it emerges from the literature. Indeed, both pre- (*edu1_h*; *edu1_w*) and COVID-19 (*edu2_h*; *edu2_w*) results are in accordance with previous studies, suggesting that those who are more likely to mitigate climate change through changes in consumption behavior are, on average, individuals with higher education compared to the rest of the population. Respondents living in the Umbria region for longer than others (*resy_h*; *resy_w*) are more willing to pay for LO apples. This result was expected because LO food focuses also on the link to the territory, the cooperation among local producers and consumers, and the willingness to support both local producers and community. The *age* variable does not show a clear and significant relationship with the WTP for LO apples. A weak relation exists only for husbands interviewed separately. Focusing on the behavioral features, it emerges that the *purcfv1* variable is a statistically significant driver of consumer WTP for LO food. In particular, the higher is the monthly expenditure for fruits and vegetables, which are products typically purchased as local or organic, the higher is the WTP for LO apples. The increase of the demand for healthier food due to pandemic crisis has enhanced this relationship for wives, as confirmed by the magnitude of the estimate parameters. For husbands, the *purcfv1_h* variable is significant only in few models. When investigating the role of *lab*, within the first sample (*lab1_h*; *lab1_w*), the respondent who generally reads information about specific food-product attributes is more willing to pay for LO apples. Thus, consumer behavior of becoming aware of the fact that a food product contains specific attributes, such as environmental ones, start having an impact on the consumption decision. According to our results, LO food labels can positively affect consumers WTP and then their purchasing decision. Of course, the required support toward the short value chain development, identified as an objective to combat the effects of the pandemic, has reinforced the impact of this determinant on the WTP.

Both in the two surveys, the *farmkt* variable is significant for husbands and wives, meaning that individuals who shop at farmer's markets perceive protection of the environment as highly important, and they are more likely to be associated with positive WTP for LO apples that are environmentally friendly. The *socac* positively affect respondents' WTP for LO apples, and this result arises in both surveys. The positive relation between being member of environmental or cultural associations and LO food may indicate a particular attention to the development of the territory in terms of work and support of small businesses. Finally, controlling for a dichotomous choice set, estimated parameters partially confirm previous descriptive results. In the first survey, the most preferred determinant of husbands is always local economic development, affecting positively husbands' WTP, while climate change is preferred over health.

Focusing on wives, results show that the most preferred determinant is health that positively affects WTP with respect to climate change mitigation and local economic development variants, which are not significant when compared to each other. Overall, wives' WTP mainly refer to healthy factors, while husbands' WTP main determinants refer to local economic development. These results confirm the heterogeneity existing within the sampled households. This type of preferences and this type of heterogeneity are confirmed in the jointly interviews.

Focusing on the COVID-19 results (Table 5), healthiness of food gains in importance as a WTP determinant within the households. Indeed, wives confirm the importance of this determinant, while husbands change their determinants getting closer to wives' preferences. Husbands WTP for LOF is positively affected by the healthiness, whatever the alternative is. For both the partners, local development, over climate changes, positively affects their WTP, highlighting the major attention posed on the importance of reconnecting

LOF production and consumption. Summarizing, COVID-19 has enhanced the importance of the healthiness of food and of the local development, which became the first two WTP determinants towards LOF for both the members of the couple. With reference to the specific variables added in the second survey, it is noted that, the change in family income (*incomf_var2*) has a positive effect on the WTP for LO apples, confirming the positive impact of income on the WTP. The increase in free time (*leis_var2*) linked to the lockdown period appears to be of little significance on the WTP, and with an uncertain relationship. The only significant model is found for the wives interviewed individually, in which the reaction is negative, suggesting that the increase in free time acts in a reduction of the WTP for LO apples. Regarding the involvement in the pandemic (*covid2*), the relationship with the WTP is uncertain and scarcely significant. Only for husbands interviewed jointly, a weakly significant positive relationship emerges. The variable domestic food production (*hmfd2*) behaves differently for the two members of the couple. In the case of husbands, it is positively related to the WTP for LO apples in a highly significant way, while for wives it is significant only in jointly interviews in a negative way. Although it is generally reported that women have healthier eating habits than men, food choices do not always follow the typical gender pattern [55], being also conditioned by interpersonal relationships.

3.3. Households' Behavior and WTP for LO Apples

To investigate whether husbands and wives behave significantly differently from each other, we have tested for equivalence of coefficients obtained in the regressions (they are included in Supplementary Materials). Estimation results underline that we can reject the equivalence of the coefficients, mainly in the case of single interviews, with reference to *resy1*, *age1*, and *edu1*. In the case of joint interviews, the equivalence cannot be rejected for any of the socio-economic and individual variables. However, the parameters relating to the ordering of purchase determinants are systematically different, confirming the data in Table 2. Moving on to the joint interviews, the hypothesis of equivalence cannot be rejected for almost all the parameters, for both members of the couple, with the exception of *bidLo1*. Households' income parameters highlight that we cannot reject the null hypothesis, thus confirming that common model does not arise in our sample. The results are confirmed by tests we have conducted on the estimations with reference to the second survey. Given that the estimated parameters are less heterogeneous, mean equivalence of coefficients for several variables for husbands and wives could not be rejected both for separate and joint interviews. In the second survey, a less heterogeneous behavior within the couple arises. Indeed, husbands' parameters are statically different for both husbands and wives, only for the *bidLo2* and *hmfd2* parameters. Using the estimated parameters, it is also possible to calculate the mean and median WTPs per 1 kg of LO apples reported in Table 6.

Table 6. WTP computation.

Welfare	Separate Interview (1st)				Joint Interview (1st)				Separate Interview (2nd)				Joint Interview (2nd)			
Measures	ws		hs		wj		hj		ws		hs		wj		hj	
mean WTP	1.168	***	1.438	***	1.023	***	1.549	***	3.464	***	1.581	***	2.663	***	2.151	***
	(0.146)		(0.154)		(0.075)		(0.147)		(0.712)		(0.189)		(0.282)		(0.287)	
median WTP	0.675	**	1.336	***	0.906	***	0.852	***	2.466	***	1.339	***	1.927	***	1.660	***
	(0.310)		(0.382)		(0.141)		(0.173)		(0.723)		(0.402)		(0.390)		(0.572)	

*, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Values are expressed in euro (€).

It turns out that the mean value ranges from €1 to €3.50, while the median value, which is noticeably more robust, lies between around €0.70 and €2.50. While in the first survey husbands always show higher WTP than wives, in the second survey this relationship is reversed in that wives show higher WTP than husbands. Given that the average price of a conventional apple is around one € per kilogram, this means that, if we consider the average WTP, the price premium ranges from 2% to 55% in the first survey, and from 58% to 350%

in the second survey. In the case of the median, in the first survey, the WTP is found quite close to the reference price, with the exception of the WTP of the husbands interviewed separately who exhibit a price premium of around 30%. In the second survey, the price premium increased significantly in a range from 34% to 250%. Overall, therefore, the pandemic event seems to have considerably increased the price premium that households are willing to pay for LO apples. This result is consistent with the change in preferences relating to the order, in which it emerges that in the second survey, the healthiness of food becomes the most important determinant for the purchase of LO apples for both members of the couple. According to our findings, from a policy perspective, the mean WTP values obtained from the CV approach could be used to develop policies to encourage LO agriculture, considering LO farming as a viable option for sustainable development [56].

4. Discussion

The COVID-19 pandemic crisis has highly affected the food systems. Within this context, concerns have been raised for the healthiness of food. Consumers have understood the importance of adopting healthier diets [57]. So, the goal to spur LOF has become imperative.

According to our estimates, the pandemic crisis has increased the WTP for LOF, reducing the heterogeneity of behaviors between wives and husbands within the families. Consumers prioritize LOF supply chains. It seems that there is a growing interest both in healthy and food security and a desire to support local businesses, and this interest belongs both to the wives and husbands. Our results support the findings of the literature which state that COVID-19 pandemic has changed attitudes of households towards food consumption [58]. Consumers are more likely to buy LOF, and there is a strong link between their net monthly income and the likelihood to buy LOF [59].

During the COVID-19, females within the households show a higher WTP for food with sustainable attributes compared to men [60]. The local attribute is very important because it allows to increase the consumption of OF within families [61,62]. Some consumers are turning to local farmers or organic purchases [63].

Our findings, as highlighted in the results section, are coherent with the existing literature. In particular, price negatively affects the decision to buy LOF. The number of household members and income positively influence the WTP for LO apples, and the pandemic has amplified these trends [24,53,64]. Both environmental and health concerns have become more important in driven food choices toward LOF, and consumers are willing to pay a premium for these attributes [65].

The COVID-19 crisis has offered people the opportunity of spending more time at home, thus increasing interest in the consumption of domestic products, the adoption of diets and home management [66]. It is relevant to note that this change in households' behavior is an opportunity that should be seized by all the stakeholders within the LOF sector, to redirect both food production and consumption toward more sustainable paths.

5. Conclusions

The comparison of the results of two separate surveys allows to evaluate changes in the behavior in term of WTP of LO food, assessing the COVID-19 consequences. In particular, using cohabitant couples, we have focused on differences between preferences when individuals are interviewed separately and jointly, pre- and during COVID-19. To this aim, we have estimated consumers' WTP for LO apples. This study has been conducted in the city of Perugia, located in the Umbria region. Following the literature, we have elicited individual and intrahousehold decisions about food choices using a CV approach. Respondents show a positive price premium for LO apples whose consumption helps reducing the environmental costs associated with food production. The median estimated values range from 34% to 250%. Overall, respondents show a positive mean WTP which increases with the pandemic. We highlight the importance of interviewing household members separately, given that individuals within the same household can have divergent preference and objectives. In our study, wives and husbands have the opportunity to change their responses

when interviewed jointly. We find that wives' value LO apples slightly more than husbands do, and this difference in valuation is driven by differences in preferences. We show that husbands change their choices after the joint interview, with WTP higher in joint than separate interviews. It emerges that the individual level of education affects the WTP in the joint interviews, with wives' and husbands' responses moving closer. The higher level of education of the partner acts as a positive spillover within the couple, and consequently have an impact on LO food choice. Finally, our study, analyzing dissimilarities between individual and joint preferences, allows the members of the household to develop reflections on their daily consumption practices. Interactions within the household can affect lifestyle changes in terms of food consumption, which will then have to be translated into responsible choices, both at political and socio-economic levels, consisting in promoting forms of agricultural production that respect the environment.

Food demand and food supply have been heavily affected by the pandemic. On the supply side, it emerges the importance of trust and collaboration among the stakeholders along the supply chain, confirming that the short value chains, such as the local systems production, could be a viable solution to face future crisis. On the demand side, changes in households' consumption have occurred, mainly in terms of food consumption and the revolutionized daily routine. The pandemic has underlined LOF relevance both in terms of health benefits and resilience of supply food chain. Thus, public institutions should account for all these benefits, thus enhancing LOF production. Especially in Italy, given the abundance of local production, public strategies should spur the quality of food with a high added value, not only in terms of the environment and the landscape of the place of production, but also in terms of health for producers and consumers.

Our results stress the effect of the pandemic, which has consolidated some values, thus underlying the importance of the purchase of LOF products that can guarantee and reassure consumers because of their safety, quality, and security of supply. However, an interesting question could be: "Once the pandemic will be behind us, what will happen to LOF suppliers?" This is an important observation to reflect on, given that the price premium that consumers are willing to pay for LO apples has increased long during the pandemic, albeit positive already in the pre-pandemic phase.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/su151310247/s1>, Table S1. Tests for equivalence of coefficients according to the type of interview—1st survey; Table S2. Tests for equivalence of coefficients according to the type of interview—2nd survey.

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