

Article

Consumers' Attitudes for Sustainable Mountain Cheese

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Abstract: The shift towards more sustainable consumptions and habits have had tangible impacts on food markets, which have accepted this challenge by offering a variety of certification systems to pull consumers aside. However, food purchasing choices are also guided by ethical, environmental and cultural motivations, functioning as drivers of food acquiring. This study aimed at assessing the influence of consumers' attitudes in purchasing an Alpine cheese labelled with a food sustainability logo, as the mountain product brand, following a two-step approach. We estimated the consumers' preferences for some sustainable labels by using Choice Experiments (CE), followed by a Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to assess the influence of three attitudinal scales on the consumers' behavior. The main results show the influence of green consumers' values on the mountain product brand choice, and a strong relationship between green consumers' and animal well-being values. In the conclusions, some policy indications are provided.

Keywords: consumers' attitudes; sustainable mountain productions; mountain agriculture; Partial Least Squares model



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1. Introduction

In the last twenty years, food consumers have become more and more interested in the sustainability of food production [1], food process and food sales [2]. Recent food scandals (i.e., mad cow, swine disease) have contributed to raising consumers' awareness about food production. Moreover, the food system globalization has led to homogeneity in the crop and livestock types employed, leading consumers to be suspicious and doubt the quality of industrial food products. Thus, driven by the increase of consumers' environmental sensitivity and the emerging demand for environmental-friendly food products, agri-food producers have embarked on a path of sustainable techniques implementation for their productions, together with the communication of these new strategies to their consumers [2]. The communication of sustainability is a key asset for success in the global market [3] and consumers' sensitivity to environmental issues has become strategical in producers' choices to increase their prices, reputation and to differentiate productions [4–8].

The shift towards more sustainable consumptions and habits have had tangible impacts on the food market, which has accepted this challenge by offering a variety of certification systems to pull consumers aside, in order to satisfy their desire of sustainable food [9]. According to Ruggeri [1], certification labels foster the market diffusion of typical food products, improving the territorial development and supporting sustainable producers. Although food certifications focused on sustainability usually help consumers in their purchasing actions, food purchasing choices are also guided by ethical, environmental and cultural motivations, functioning as drivers of food acquiring [10]. In qualitative surveys, participants are often encouraged to indicate their attitudes towards ethical and environmental issues, by using attitudinal scales. Several researches have recently employed these models in assessing food purchasing drivers, for example, investigating local products purchase motivations [11], assessing personality traits influence in food purchasing [12], estimating environmental-friendly motivations in food choices [13].

Although there are a number of studies on sustainable food labels and on the role of consumers' attitudes and credence in influencing purchasing choice, to the best of our knowledge, there are few studies [14] that jointly investigate the issue of consumers' attitudes for sustainable products by means of these two approaches. Moreover, the sustainability of food productions also involves territorial development strategies: certification labels may contribute to the local economy of territories, as occurs with labels concerning the geographical origin of food (we referred to Protected Designation of Origin (PDO) and the Protected Geographical Indication (PGI) brands) [15,16]. For this purpose, the European Union introduced the "mountain product" quality label with EU regulations 665/2014 and EU 1151/2012 to foster the mountain economic systems sustainable development. In order to investigate the impact of the mountain product label on consumers' choice purchasing and to jointly consider their ethical, environmental and cultural motivations, the study proposes an innovative methodological approach based both on hypothetical Choice Experiments (CEs) and on attitudinal scales analysis. More in detail, our work aims at assessing the influence of consumers' attitudes in purchasing an Alpine cheese branded with food sustainability labels, following a two-step approach. In the first step, we estimated the consumers' preferences for the "mountain product" label, "organic" label and "animal welfare" issue of the Alpine cheese by using CEs. In the second step, we employed three attitudinal scales to assess their influence in the consumers' behavior of choosing the Alpine cheese, by means of a Partial Least Squares Structural Equation Modeling (PLS-SEM) approach.

Section 1.2 presents the literature about the consumers' pro-environment behavior in food choices using attitudinal scale. Section 2 explains the methodology and data collection. Results are presented in Section 3 and discussed in Section 4. Conclusions are drawn in Section 5.

1.1. Sustainable Certification Systems and Choice Experiments

The literature of sustainable certification systems analyzed by means of CEs approaches is rich. According to Asioli et al. [17], sustainable labels contribute to address four main consumer concerns: the first is providing consumers with accessible information during their bargain, shortening the asymmetry information gap between consumers and producers [18]; the second issue regards the quickly comprehensible information that labels can provide for consumers. Third, labels can become a credence quality signal, instilling consumers' confidence and leading them to express a willingness to pay for some characteristics of the good. Finally, consumers are able to make their choice decisions according to their ethics and credence, thanks to the values expressed by sustainable labels, becoming active and no longer passive players, within the food chain [17].

In particular, sustainable labels refer to environmental, ethical and social issues [19] embracing all these contexts and influencing consumers' behavior. CEs have been hugely employed for investigating consumers' behavior in purchasing choice, assessing the Willingness to Pay (WTP) for a given asset and for valuing the consumer's preferred characteristics of food products [1]. By means of this methodological approach, several researches have been realized to investigate consumers' food preferences for environmental labels, ethical-related issues, and social certifications.

Environmental-friendly labels literature based on CEs approach includes a huge number of studies related to the numerous certifications in the food market; among them, the water-saving production certification [20], carbon footprint label (CF) [21–24], biodiversity label [18], and the most famous organic label [1,25–27].

In the last years, one of the most interesting environmental-friendly certifications that has been studied is the water footprint label [18,22,28]. In CEs investigating the WTP for water-saving labels, the amount that consumers are willing to pay often depends on the typology of food. As an example, consumers are willing to pay a premium price for vegetables with a water-saving approach in the production process, as assessed by Krovetz [29], while in the wine sector some authors [20] estimated a consumer's preference for more

general issues and less for water footprint in food production. Indeed, Grebitus et al. [28] found that the higher the water usage and the carbon emissions in the production process, the less the consumers accept the product, while Pomarici et al. [20] argued that the preference for water-saving labelled products are also dependent from sociodemographic characteristics in terms of age, gender, pro-environmental attitude of respondents.

As for carbon footprint label in food markets, a consumer's interest seems to exist [20], although, only for a niche of consumers, particularly depending from credence attributes [21,24]. According to some authors [21,23], consumers showed their interest in CF, especially on low price products by people that declared to give importance to low-impact environment production, in order to decrease GHG emissions. A weak interest of consumers for this certification is indeed the results published in a study by Lampert et al. [30] on vegetable products in Germany, while in the research by Apostolidis and McLeay [24], authors found a difference of carbon footprint label impact on diverse groups of meaters, where only people who would like to reduce beef in their diet affirmed to be interested in carbon footprint labelled beef to reduce the environmental impact of their purchasing choice.

Among environment-friendly food labels studies, the issue of biodiversity is rarely proposed, because to our knowledge, a label does not yet exist; but some authors [1,18] have employed CEs to investigate the consumers' WTP for wines with a hypothetical certification of agricultural practices protecting biodiversity in the vineyard, assessing a consumer's willingness to pay both for low-cost and in high-cost wines.

Literature on consumers' perception of organic product is wide [1,25,26]. The willingness to pay a premium price for organic products is well documented, and the excellent sale performance of organic food in Europe confirms this trend. De Magistris and Gracia [27] argued that preferences for organic almond are related to the GHG emissions reduction, although the consumers' interest was found to be related to their sociodemographic characteristics. Other researches have focused on organic meat products [26], identifying, among the most important drivers for consumers' purchases, a more environmental-friendly way of production. Anyway, literature investigated also the collective imaginary around the term "organic", exploring the healthy [31], the natural [32], the ethical [25] values of organic products.

Ethical and social issues in sustainable food labels mainly regard animal well-being [30,33–36] and fair-trade certification [37,38]. Nowadays, livestock production techniques are mainly based on intensive practices, and in recent years the rising consumers' awareness about food production process has led to a growing interest in food produced respecting animal well-being [33]. Feelings as sensitivity to animals and empathy or credence based on ethic values have guided consumers to purchase food with animal welfare characteristics and several scholars focused their study on this issue. As an example, Cembalo et al. [34] investigated differences in personal values influencing the attitudes of individuals towards animal well-being, finding significant differences across European States. The majority of the studies addressing consumers' WTP for animal welfare issues are based on CEs approach [26,33,39] and found a willingness to pay for this attribute.

1.2. Consumers' Pro-Environment Behavior in Food Choices with Attitudinal Scale

Values, beliefs and moral norms guide the individuals' behavior towards environment issues, as demonstrated by Stern et al. [40]. This complex of values orientation allows to analyze behavioral intentions that reflect consumers' purchasing choices [41]. According to Stern et al. [40], values orientation stimulates people to be worried about the consequences of their actions on the issue they care about. Attitude is shaped by individuals' beliefs and morals and represents the assessment that a person can express of a specific behavior, both negative and positive [42,43]. The environmental attitude is a construct widely treated in literature [42,44] by estimating perceptions of or beliefs regarding the natural environment, eventually including factors compromising its quality [42]. According to Kataria et al. [45], attitudes are proxy of purchasing behavior, giving data on the consumers' intentions.

Several studies [46,47] found a relationship between green consumption behavior and individual attitudes, although some authors specified that only if all the factors influencing the purchasing conditions are favorable, the two factors will be related [48].

Attitudinal scales have often been employed in order to assess individuals' attitudes towards the environment [10,13,49,50], exploring different issues. In this sense, one of the most popular item scales is the Natural Environment Paradigm (NEP) [10,49,51] and its revision in the 2000s, but many others have been built to better analyze attitudes and intents [42]. Another example is the 2-MEV (2 Major Environmental Values) scale [52] based on two main constructs: the Preservation and the Utilization of the environment [53]. The scale included 21 items, among which: "Intent of Support", "Care with resources", "Enjoyment of nature" for Preservation construct and "Human Dominance" or "Altering Nature" for the Utilization construct. The 2-MEV scale has been employed in several researches with different interpretations and models [54]. Concerning the consumers' attitudes for green purchases, Hawks et al. [13] developed a one-factor model, based on six-item measure, the "GREEN scale". They based their work on existing literature, for example the Socially Responsible Consumption Behavior (SRCB) scale proposed by Antil in 1984 [55] or the Lastovicka et al. [56] frugality scale, in order to capture green consumption values. According to the authors, "green consumption values are part of a larger nomological network associated with conservation of not just environmental resources but also personal financial and physical resources" (p. 337). That is, consumers who collected a high score in the scale values are usually addressed to protect natural resources both at the environmental and personal level.

One of the most common themes treated in literature as a driver of green consumption behavior is the attitude towards protecting the environment [42,57,58]. The empathy with nature, its appreciation by individuals, may lead to a good disposition to enjoy experiences of nature in natural settings, putting individuals in a positive emotional state towards "green" purchases. Thus, in a first bunch of studies, the power of emotion in having a nature-protective behavior was investigated [59], overtaking the idea that it is only guided by rational decisions [50]. A number of studies have been conducted by using the responsibility-related perspective, that is, the idea that personal waivers with the aim to protect natural resources are led by people's social responsibility [60]. Kals et al. [50] claimed the predictive power of emotional affinity toward nature in understanding pro-environment behavior of individuals, proposing a measurement scale based on two constructs, as the indignation about insufficient nature protection and the interest in nature and in the nature-based experience. Emotional affinity toward nature is explained as a feeling expressing a closeness to nature linked to the love of nature, that is, feeling good and safe in a natural setting [50].

As explained before, green consumption attitudes can be based on moral norms and beliefs that can influence the purchasing actions; among these convictions is a place for the respect for animal welfare [61]. In fact, the animal welfare concept includes societal and personal values and ethical beliefs [35] and can lead purchasing choices. Moreover, intensive livestock systems have impacted consumer sensitivity, contributing to change consumption habits [35]. In explaining individuals' motivations in purchasing choices related to animal well-being, scholars have different opinions, among which involve people, social structural positions, structural population characteristics as age [62] and gender [63], or healthy beliefs [64], or ethnicity [62].

2. Materials and Methods

This study was developed on a two-step approach: a CE model and a PLS-SEM model, both based on direct survey. The questionnaire addressed the sociodemographic characteristics (I), the CE choice tasks (II), and the attitudinal scales (III). In literature, attitudinal scales have usually been employed to study pro-environmental behavior by using Principal Component Analysis (PCA) to extract latent factor, followed by clusterization [14,65]. The innovative approach that we proposed is a PLS-SEM model that allows us to estimate

models with many variables and to hypothesize a causal path without imposing rigid assumptions on the distribution of data [66], and using a sample of small sizes [67].

CEs are survey-based methods and are commonly used to estimate consumers' WTP for a given product and to test which characteristics of the good under estimation have the most influence on consumers' choices. In this analysis, we employed CE to estimate the WTP for an Alpine cheese and to obtain data for implementing a PLS-SEM approach, with the aim to understand the influence of ethical, environmental and cultural motivations on consumers' purchasing behavior. The first step is the CE, based on four attributes: absence/presence of the mountain product label; absence/presence of the organic label; the influence of the animal welfare on the WTP by presenting different typology of cattle breeding; different levels of price (Table 1).

Table 1. CE (choice experiments) attributes and levels.

Attribute	Levels			
	no	Yes		
Presence of mountain product label (MPL)				
Presence of organic label (OL)	no	Yes		
Animal welfare practices (AWP)	cattle to the chain	cattle in stable	cattle in stable with external paddock	grazing cattle
Price (for 200g slice of cheese) (PRICE)	3.00	5.00	7.00	9.00

Data used to implement the PLS-SEM come from the results of CE attributes and the attitudinal scales variables. Participants self-reported their attitudes towards the environment-friendly purchasing choices, using the "Green Consumer" scale [13] to reliably capture green consumption values. We employed the "Emotional Affinity toward Nature" scale [50], to collect data about feeling with nature. Following Marescotti et al. [65], the third scale proposed is the "Animal Welfare" scale, an eight-item scale by Kendall et al. [10] taking into account ethical issues of animal productions. PLS-SEM has been implemented using as dependent variables the mountain product label (MPL) and the organic label (OL) beta coefficients of each respondents obtained from CEs, and as independent variables the factors obtained by the three diverse attitudinal scales (green consumer, feeling with nature and animal welfare) included in the questionnaire, to assess their influence in the consumers' purchasing preferences. In the following paragraphs, the two-step model has been better described.

2.1. Choice Experiment Model

2.1.1. Selection of Attributes and Experimental Design

The survey is divided into sets of alternatives (choice set) consisting of two purchasing options and the no-buy option. Consumers choose which alternative product they would buy within each choice set, revealing their preference for specific attributes or levels and their relative importance [68]. Choices are repeated to obtain a more consistent estimation of respondents' preferences. The following attributes were included in the design of the CE: animal welfare practices (four levels), organic label (binary), mountain product label (binary), and price (four levels). They are shown in Table 1.

Price is included as an attribute; the levels were indicated in local currency based on realistic average prices in the market.

The importance of "country of origin" labels is related to the consumers' trust in local and domestic "country of origin" productions intended as quality factors guaranteed by PDO/PGI brands [16]. However, some products do not fall within the areas covered by specifications and especially in disadvantageous areas as the mountains, many small agri-food producers prefer not to adhere to geographical certifications, due to the high cost associated with PDO and PGI brands [69]. Thus, the European Union introduced

the “mountain product” quality label with EU regulations 665/2014 and EU 1151/2012 to foster the mountain economic systems sustainable development. The “mountain product” label is a registered trademark according to the Italian DM 2/08/2018 and it regulates production from animals reared for at least two-thirds of their life in mountain areas and from transhumant animals raised for at least one-quarter of their life in transhumance grazing in mountain areas and transformed in these areas.

The most common sustainability claim on the food market is the organic food label [26], in Europe the EU organic logo (EC 834/2007; EC 889/2008).

Another category of sustainability claim includes ethical claims related to farming systems such as free range and animal welfare labels [26]. In our study, the “animal welfare practices” attribute is composed by four levels corresponding to four types of cattle breeding. The cow can be bred in fixed housing linked to the chain (1), can move in the stable (2), can move both in the stable and in an external paddock (3), or can be pasturing (4). A number of studies found a consumers’ preferences for products that respect the animal welfare [25] and, more in detail, the practices that care for animal welfare in breeding.

The first part of the questionnaire addressed the personal characteristics of the respondents, respondents’ consumption habits about cheese and their knowledge concerning mountains; the second part of the questionnaire is focused on CE choice tasks. The last part of the questionnaire presented attitudinal scales related to consumers’ ethical and environmental beliefs.

In the questionnaire, a description of the attributes with logos and a cheap talk script, a brief text to motivate consumers to reveal their real preferences [70], are placed before the CE.

A Bayesian approach to design our survey has been employed; we assume a prior distribution of likely parameter values, optimizing the design over this distribution, without assuming fixed priors for the attributes [71]. A D-Optimal design was generated and used for the pilot survey on a sample of 40 respondents, using a Multinomial Logit Model (MNL) to analyze pilot data. To generate the final Db-optimal design [72], we used the coefficients estimates and variances as priors, analyzing it with Mixed Logit Model (MXL).

A random blocking was used to reduce the number of questions for each respondent, resulting in four blocks (A, B, C and D). Each respondent was randomly assigned to one of the blocks and had to make 12 choices between three alternatives, for a total of 36 product alternatives, one of which is the no-buy option. The analysis has been performed by direct interviews with consumers outside supermarkets in Milan, in Italy. Data collection took place from February to September 2018; 197 complete questionnaires were collected.

2.1.2. Econometric Model

CE is based on the utility model, which combines the attributes and the level of attributes of a certain product to create a hypothetical market and to analyze consumer choices, deriving the individual’s marginal utility by examining the trade-off between the chosen attributes and levels. In this approach, the consumer’s choice is based on the selection of the best alternatives maximizing utility. CE can be used to estimate the willingness to pay for each attribute.

The respondents’ utility is measured on an ordinary scale, and it is an expression of the preference of each individual for each attribute presented in the CE survey. The utility function of an individual is expressed as:

$$U_{njt} = -\alpha_n \text{Price}_{njt} + \beta'_n X_{njt} + \varepsilon_{njt} \quad (1)$$

where: “n” is the individual, “j” is the alternative, “t” is the choice occasion. In order to account for preference heterogeneity, a “ β_n ” vector representing individual-specific characteristics is considered to be random and included in Equation (1), where “X” represents the non-price attributes, thus MPL, OL, AWP (with the levels 1, 3, 4). All non-price parameters are modeled to be random, at the contrary the price attribute “p”, which is assumed to be fixed, in order to avoid a negative sign of this variable.

We use a mixed logit model (MXL). We calculate the main effects of the attributes and levels of CE:

$$U_{nj} = -\alpha_n * Price_{njt} + \beta_0 * NoBuy_{njt} + \beta_1 * MPL_{njt} + \beta_2 * OL_{njt} + \beta_3 * AWP1_{njt} + \beta_4 * AWP3_{njt} + \beta_5 * AWP4_{njt} + \varepsilon_{njt} \quad (2)$$

The respondents' sample is represented by "n" (1, . . . , n), while the occasions of choice are included in the equation as "t" (number). The alternative options (option 1, option 2, no-buy option) are described by "j", where the no-buy option "NoBuy" is an alternative-specific variable (dummy = 1 for the no-buy alternative, = 0 for all other alternatives). The price is the continuous variable "Price" in Equation (1). The mountain product logo (MPL_{njt}) and the Organic logo (OL_{njt}) are described by " = 1": logo, " = 0": no logo. In (2), AWP is a discrete variable with the three levels "1, 3, 4" representing the animal welfare issue (for each levels, " = 1": the level has been chosen by the respondent; " = 0": the level has not been chosen by the respondent). The level 2 of AWP (AWP2) is the base level attribute, not included in the utility function. ε_{njt} is the unobserved random error term.

We employ the MXL model in order to account for heterogeneity in individual preferences, using the Stata 14 command `mixlogit`.

2.2. Partial Least Squares Structural Equation Modeling

For decades, covariance-based structural equation modeling (CB-SEM) was the main methodology for exploring complex relationships between observed and latent variables. Since 2015, conversely, PLS-based methods increased considerably with respect to CB-SEM [73].

Actually, PLS-SEM is largely used in many published articles in the management and marketing field (e.g., [57,73–75]). The most relevant advantage of PLS-SEM is that this methodology allows researchers and practitioners to estimate complex models with many constructs, variables, and paths without imposing rigid assumptions on the distribution of data that are hard to meet in real life, especially for non-experimental data [66].

PLS-SEM does not rely on the classic inferential tradition, but this does not mean that PLS-SEM lacks a solid and robust statistical basis. To evaluate how closely a PLS-SEM model fits the data, the approach uses prediction error as the measure of prediction accuracy, and resampling (bootstrapping) methods for inference purposes.

Moreover, PLS-SEM estimate solutions with samples of small sizes when models include many constructs and a high items number [67].

In light of the previous PLS-SEM advantages, we have decided to use a PLS approach, because our sample is relatively small in size and we are not sure about the distribution of the collected data through surveys.

In order to obtain the dependent variables data for PLS-SEM models (1, 2), that is, the MPL (i) and the OL (ii) beta coefficients of each respondents, the matrix of individual parameter estimates β_n has been extracted from the MXL model by using the command `mxlbeta` in Stata 14. The data are assumed to be independently normal distributed. The matrix of individual parameter estimates β_n extracted from the MXL model analysis are organized with respondents as rows.

In Tables 4 and 5, we reported the description and the descriptive statistics of the observed variables.

In Table 6, we showed the structure of the latent variables measurement model. We used the most common type of measurement that is the reflective mode. In this case, the latent variable is considered as the cause of the manifest variables. The reflective measurement model is assessed on its internal consistency reliability and validity. The specific measures include the composite reliability (as a means to assess the internal consistency reliability), convergent validity, and discriminant validity.

In Model 1 (Table 6), we have hypothesized a positive influence of the three latent factors `green.cons`, `feel.nat`, `anim.welf` that we have obtained from the results of the attitudinal scales "Green Consumer", "Emotional Affinity toward Nature", "Animal Welfare" on the choice of mountain product label as an attribute of the Alpine cheese. Moreover, we have

tried to assess the influence of green.cons, that is, the factor related to the consumers' attitudes in purchasing environmental-friendly food products, on the feel.nat and anim.welf factors. In Model 2 (Table 7), we have tested the same relationships, using the choice of products with the organic label as dependent variable (OL). Lastly, we have tested the influence of some socioeconomic variables, specifically the age of the respondents (Age), the level of education (Schooling) and the gender (Gender), on MLP and OL. According to this conceptual path, we have applied PLS-SEM to assess complex the cause-effects relationship with both latent and observed variables.

The models were analyzed using the semPLS package in R software version 4.0.3 (10 October 2020). PLS-SEM models are carried out by measuring various parameters which include item loadings, reliability measures, and validity tests. It involves a two-step process as suggested by Hair et al. [73], which involves calculating PLS model parameters separately by solving out the blocks of the measurement model (Table 5) and then estimating the path coefficients of a structural model. (Tables 6 and 7). Finally, the overall models are validated by goodness-of-fit test.

3. Results

Summary statistics are shown in Table 2.

Table 2. Descriptive statistics.

		Frequency	%
Gender (SEX)	female	105	53.03
	male	92	46.07
Age (A1, A2, A3, A4, A5)	18–24	41	20.81
	25–34	61	30.96
	35–49	28	14.21
	50–64	41	20.81
	over 65	26	13.20
Schooling (SCH1, SCH2, SCH3, SCH4, SCH5)	PhD	14	7.11
	degree	72	36.55
	diploma	84	42.64
	middle school	25	7.78
	primary school	2	1.02
Mountain visits—frequency (VIS1, VIS2, VIS3, VIS4)	never	12	6.09
	once a year	81	41.12
	once a year up to once a month	84	42.64
	more than once a month	20	10.15
Knowledge of mountain logo (MPLK)	no	155	78.68
	yes	42	21.32
Knowledge of organic logo (OLK)	no	55	27.92
	yes	142	72.08
Place where you usually buy cheese (PLACE)	supermarket	141	71.57
	specific shops	25	12.69
	producers' direct sale	27	13.71
	other (online shops, EPGs, etc. ...)	4	2.03
How much do you usually spend to buy cheese? (PRI1, PRI2, PRI3, PRI4)	<10€/Kg	52	26.40
	10 € > x > 15 €/Kg	96	48.73
	16 € > x > 22 €/Kg	44	22.34
	20 € > x > 30 €/Kg	5	2.54

Gender and age variables are both balanced in the sample. Respondents generally have a high educational level; the majority of them have a degree (36%) or a high school diploma (42%). More than 50% of the sample declares that they go frequently to the mountains. Most of the respondents usually buy cheese at the supermarket (72%) and spend between €10 and €15/kg to purchase it (48%). Concerning the knowledge of the mountain product brand, very few people have seen the logo before (21%); on the other hand, quite obviously the majority of respondents are familiar with the organic logo (72%).

3.1. CEs Results

CEs results are shown in Table 3.

Table 3. MXL model results.

Variables	Main Effects
No-buy option	−2.56 *** (0.20)
Mountain product label (MPL)	1.43 *** (0.13)
Organic label (OL)	0.89 *** (0.12)
Animal welfare practices 1 (AWP1)	−2.84 *** (0.30)
Animal welfare practices 3 (AWP 3)	1.77 *** (0.17)
Animal welfare practices 4 (AWP 4)	2.78 *** (0.26)
Price (P)	−0.49 *** (0.04)
Number of obs	7.092
Log-likelihood	−1660.80
AIC	3377.61

*** $p < 0.001$; Standard errors in parentheses.

All attributes coefficients (main effects) are significant at least at 99%, confirming the attributes choice, the experimental design and the sample size, with small standard errors. Our a priori expectations have been confirmed, looking at coefficient signs. In fact, the attributes MPL, OL and AWP2, AWP3, AWP4 result in a positive coefficient, meaning that they contribute to increasing consumers' utility. As expected, AWP1, representing livestock with cattle tied to the chain, shows a negative coefficient, so that respondents prefer not to choose it. Similarly, the no-buy option and the price coefficients have a negative sign, as they are not preferred choices.

3.2. PLS Results

Table 4 reports the description of the latent/independent variables.

Table 4. Description of the Latent Variables in PLS-SEM.

Latent Variables	Observed Items	Scale
Green Consumer	GREEN.CON1: I consider the potential environmental impact of my actions when I make many of my decisions.	1—Strongly disagree. 2—Disagree.
	GREEN.CON2: My buying habits are influenced by my concern about the potential environmental damage of productions.	3—Neither disagree neither agree. 4—Agree.
	GREEN.CON3: I'm worried about wasting our planet's resources.	5—Strongly agree.
Feeling with Nature	FEEL.NAT1: When I spend time in nature, I feel free and peaceful.	1—Strongly disagree. 2—Disagree.
	FEEL.NAT2: I feel relaxed and have a pleasant feeling of intimacy when I am immersed in nature.	3—Neither disagree neither agree. 4—Agree.
	FEEL.NAT3: Sometimes, when I feel unhappy, I find comfort in nature.	5—Strongly agree.
Animal Welfare	ANIM.WELF1: It is important that the food I eat is not usually produced by hurting the animals.	1—Strongly disagree. 2—Disagree.
	ANIM.WELF2: It is important that the food I usually eat has been produced in a way that respects animal rights.	3—Neither disagree neither agree. 4—Agree.
	ANIM.WELF3: More regulation is needed on how to treat animals in agriculture.	5—Strongly agree.

Table 5 reports the measurement model to evaluate the consistency and validity of our latent variables through items reliability (loadings), internal consistency reliability (CR and Cronbach's alpha) and convergent analysis (AVE). As shown in Table 5, observed items with loadings 0.7 or higher are considered highly satisfactory [76]. Composite reliability (CR) and Cronbach's alpha are always greater than 0.7 [77,78]. The Average Variance (AVE) is acceptable when higher than 0 [73]. All the consistency and validity tests are fully satisfactory. Finally, the overall goodness of fit is measured by the R squared test. The R squared values are higher than 0.25, which is considered an acceptable threshold by Hair et al. [73].

Table 5. Results of Reliability Measures.

Observed Items	Loadings	Average Variance (AVE)	Composite Reliability (CR)	Cronbach's Alpha
GREEN.CON1	0.83	0.67	0.86	0.74
GREEN.CON2	0.87			
GREEN.CON3	0.75			
FEEL.NAT1	0.88	0.68	0.86	0.75
FEEL.NAT2	0.88			
FEEL.NAT3	0.90			
ANIM.WELF1	0.85	0.79	0.91	0.86
ANIM.WELF2	0.88			
ANIM.WELF3	0.73			

We checked the robustness of our results by estimating a multigroup analysis, taking into account for our control variables dividing the sample using age, gender and education, but the results of the analyses were qualitatively similar to those presented in Tables 6 and 7.

Table 6. Structural parameter estimates (mountain label product).

Model 1: Mountain Label Cheese				
	Paths	Coeff.	St. Err.	t-Value
beta_1_2	green.cons -> anim.welf	0.393	0.088	4.489 ***
beta_1_5	green.cons -> feel.nat	0.175	0.108	1.617
beta_2_5	anim.welf -> feel.nat	0.171	0.106	1.612
beta_1_7	green.cons -> moun.y	0.373	0.088	4.240 ***
beta_2_7	anim.welf -> moun.y	-0.118	0.125	-0.946
beta_5_7	feel.nat -> moun.y	0.065	0.144	0.449
beta_6_7	gen -> moun.y	0.066	0.100	0.663
beta_3_7	age -> moun.y	0.224	0.100	2.243 **
beta_4_7	edu -> moun.y	0.010	0.089	0.117
	R squared	0.33		
	Bootstrapping	5000		
	Obs.	197		

Significance levels are *** $p < 0.01$, ** $p < 0.05$.

Moreover, the significance levels for each parameter in the regression model have been calculated through t-value test. The t-value test is obtained by performing a nonparametric bootstrapping method. Furthermore, Sahinler and Topuz [79] demonstrated that the bootstrap outperforms the jackknife approach in a least-squares context. Bootstrapping technique computes t-value by creating a prespecified number of samples. Streukens and Leroi-Werelds [80] showed that the number of bootstrapping replications varies tremendously in marketing and management studies (minimum 500; maximum 5000). Thus, we decided to opt for the more conservative strategy generating 5000 samples and these samples are used to compute t-values as presented in Tables 6 and 7. Moreover, we used the biased-corrected and accelerated percentile bootstrap approach, which adjusts for bias

due to nonsymmetric distribution and the shape (i.e., skewness) of the distribution as suggested by Streukens and Leroi-Werelds [80], MacKinnon, Lockwood, and Williams [81] and Williams and MacKinnon [82] for these kinds of research.

Table 7. Structural parameter estimates (organic label product).

Model 1: Organic Label Cheese				
	Paths	Coeff.	St. Err.	t-Value
beta_1_2	green.cons -> anim.welf	0.400	0.086	4.648 ***
beta_1_5	green.cons -> feel.nat	0.165	0.107	1.537
beta_2_5	anim.welf -> feel.nat	0.184	0.103	1.783 *
beta_1_7	green.cons -> org.y	0.062	0.090	0.693
beta_2_7	anim.welf -> org.y	−0.162	0.118	−1.368
beta_5_7	feel.nat -> org.y	0.123	0.073	1.680 *
beta_6_7	gen -> org.y	−0.156	0.107	−1.458
beta_3_7	age -> org.y	−0.003	0.092	−0.032
beta_4_7	edu -> org.y	−0.053	0.112	−0.473
	R squared	0.27		
	Bootstrapping	5000		
	Obs.	197		

Significance levels are *** $p < 0.01$. * $p < 0.10$

A PLS-SEM model has been implemented to assess complex cause–effects relationship with both factors and observed variables, as described in 2.2. PLS results are shown in Tables 6 and 7.

Table 6 and Figure 1 show the analysis on the influence of latent factors *green.cons*, *feel.nat* and *anim.welf* on the mountain label product preferences. In Table 7 and Figure 2, the influence of the same latent factors has been tested on the organic label product preferences. Moreover, we have assessed the contribution that some socioeconomic variables may have procured on both the two models. The results of Model 1 show that the preference for the mountain logo is positively influenced by the *green.cons*. Thus, when consumers define themselves as sensible to green issues linked to their purchasing actions, they are more inclined to choose the mountain logo on the Alpine cheese product we proposed in the Choice Experiment. Using the same procedure, we found a positive relationship between the Age variable and the *green.cons*, meaning that older people tend to choose the cheese proposed with mountain product label more than younger people. Moreover, we estimate the relationship between the loading factors deriving from the attitudinal scale coming from our PLS analysis. In Model 1, the main finding is related to the link between two of these factors: *green.cons* and the *anim.welf*. Thus, *green.cons* positively influences *anim.welf*, resulting in the highest beta coefficient of Model 1 (0.363), strongly significant. This means a sensitivity of green consumers for animal welfare issues, such as described by the “Animal Welfare” scale [10].

In Model 2, the influence of latent factors is tested on organic label preferences. The main result regards the impact of the *feel.nat* on the organic label product choice. Thus, consumers that collected a high score in the “Emotional Affinity toward Nature” attitudinal scale [50] are more prone to choose the attribute of mountain label in an Alpine cheese product, proposed in the Choice Experiment.

Concerning the relationship among latent factors, Model 2 results confirm the positive relationship between *green.cons* and *anim.welf*, showing a high coefficient of 0.400, strongly significant. However, a new finding is shown, that is, the *feel.nat* is positively influenced by *anim.welf*, with a coefficient of 0.184 (Table 7). This means that people having a high score in the values of the “Animal Welfare” attitudinal scale also collected a high rating in the “Feeling with Nature” scale, demonstrating in our analysis that those who show a sensitivity for animal welfare issues also love staying in nature and appreciate environment.

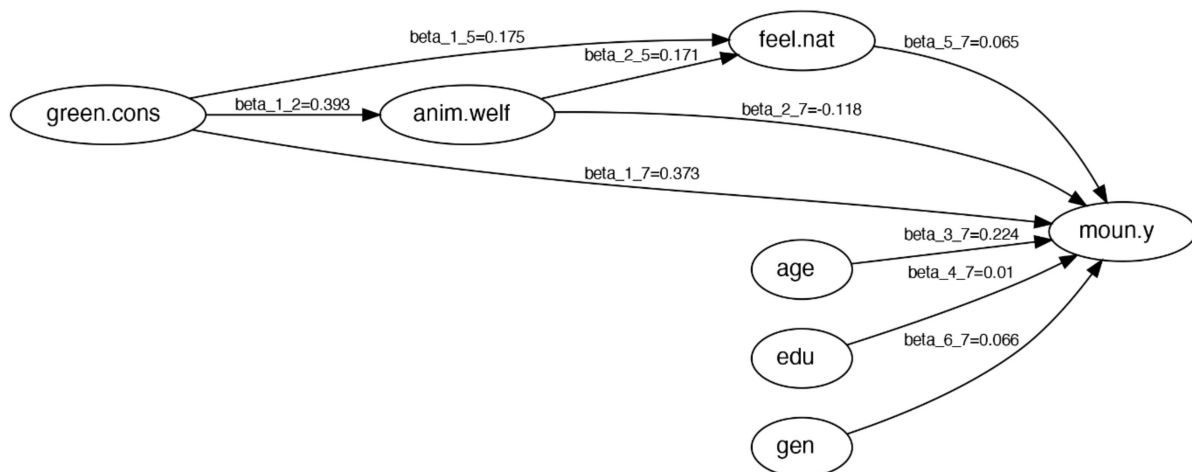


Figure 1. PLS-SEM model results on mountain label products.

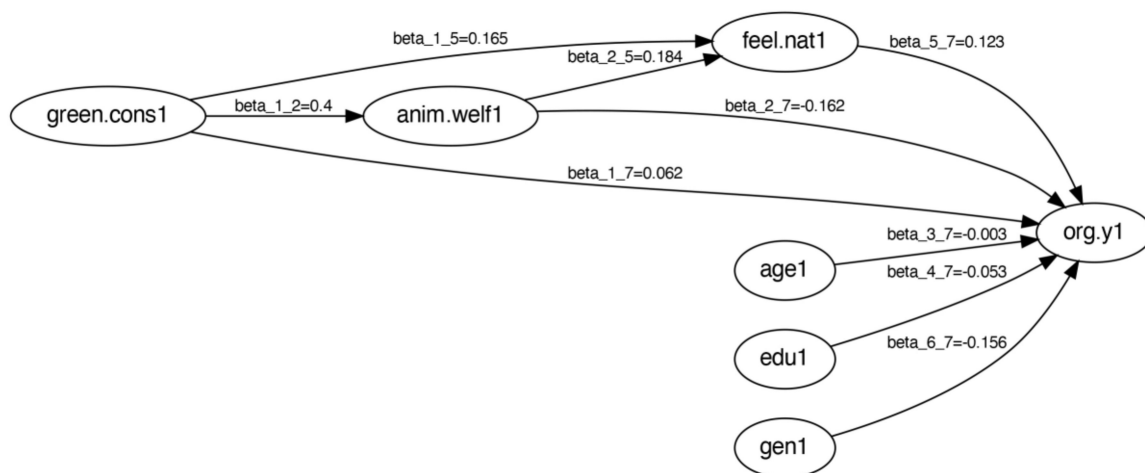


Figure 2. PLS-SEM model results on organic label products.

4. Discussion

Several considerations emerge from the results, strictly related to PLS findings.

In Model 1, the preference for the mountain logo is positively influenced by the *green.cons*. This can be explained by the fact that the arising consumers' awareness for sustainability practices in the agri-food market contributes to the interest for a mountain product brand, joined with the perception of mountains as a symbol of cultural identity, ancient rituals, rurality and traditional processing methods [78]. From the consumers' point of view, eating food produced in mountain territories seems to be a value "per se", a symbol of natural, healthy and environmental-friendly production, although the mountain product certification does not have a process specification that really guarantees environmental sustainability of the production process, as happens, for example, with an organic label. Moreover, the mountain product label is an expression of mountain agriculture that is perceived as a guardian of mountain pastures, traditions and culture [83].

The second finding is related to the Age variable, resulting in older people who seem to choose the mountain product label more than younger people. According to Yoon et al. [84], generation could regulate people's environmental awareness and attitudes in addition to the pro-environmental factors. In particular, the younger generation could be less concerned about the environment and the mountain issues, also because some of the young respondents are students, thus, they have a lower spending budget.

Another interesting result of Model 1 is that *green.cons* positively influences *anim.welf*.

Among the determinants of the pro-environmental behavior of green consumers, in addition to environmental awareness, education, perception regarding the credibility of green products, there is the ethical issue [85]. Thus, the consumer who is more sensitive to a pro-environmental approach, for ethical reasons, will be equally sensitive to guaranteeing a high animal well-being. Moreover, in our study, the topic of extensive mountain agriculture is also introduced, with grazing cattle, bearer of traditional values and culture, to which is added the topic of animal welfare. Finally, mountain foods are perceived as traditional products related to the cultural identity of local communities and specific cultural areas, characterized by environmental-friendly production practices [85] and animal friendly practices due to extensive, rather than intensive, agriculture typology [36]. The influence of *green.cons* on *anim.welf.* is confirmed also in Model 2 (Table 7), where the dependent variable is the organic label choice. In fact, in organic markets, the ethical belief is an issue, and a large share of consumers are willing to pay additional prices for ethical products [25]. According to Zander and Hamm [25], in many cases consumers express their ethical convictions by acquiring organic products, because of the EU Regulation 834/2007 that covers some ethical issues.

In addition, the consumers' sensitivity to animal welfare issues is highlighted in CEs with AWP4 result (Table 3), the most preferred among the attributes proposed representing the livestock based on grazing cattle, showing the highest coefficient (2.78), and by the negative value of AWP1 (cattle to the chain). The topic of animal welfare is widely known in literature and, according to Miele and Evans [86], the animal welfare issue is perceived as a "public good" by European citizens and it is considered a necessary element of sustainable animal production.

In Model 2, *feel.nat* positively influences the organic label product choice. The organic label is perceived as more natural and environment-friendly, thus people with a high score on the "Emotional Affinity with Nature" scale prefer to choose organic products, which in marketing campaigns are often presented as natural and strictly close to a natural setting, as shown in literature [1,25]. In fact, the consumers' interest for an organic label found in CEs is not surprising, resulting in several researches [18,26], strongly linked to environmental sensitivity, healthiness, freshness, taste. The characteristic of environment-friendly organic production is widely presented in literature and the organic food consumption has been considered environmentally sustainable for mitigating the environmental impacts of food production and GHG emissions [21,27]. This is strictly linked to the feeling of emotional affinity with nature, because consumers' attitude is shaped by individuals' beliefs and morals [42] and attitudes are proxies of purchasing behavior [45].

Nevertheless, in CEs results, the beta coefficient of the mountain product label is higher than the beta coefficient of the organic label (Table 3), probably because mountain cheese is already perceived as a natural and quality product; therefore, the organic brand is obscured by the effect of the mountain product certification.

The last finding of Model 2 is the positive influence of *anim.welf* on *feel.nat*. This result is quite consistent with CEs results, because people who usually buy goods produced with respect for animals also consider themselves close to nature [10]. In fact, the ethical convictions relating to the interest in animal welfare usually start from a real or presumed love for everything that is nature [65].

5. Conclusions

The study has focused on the impact of consumers' attitudes in purchasing sustainable mountain products eliciting their characteristics by using a two-step model. Several papers have been based on the determinants of consumers' environmental-friendly food choices, but the innovation of this work is the assessment of consumers' attitudes in food purchasing choices, by applying CEs and a PLS-SEM approach. Moreover, consumers' preferences of an Alpine cheese with the mountain product brand, a new European food certification, have been realized. The main results are related to the influence that credence attributes exerted on the consumers' purchasing decision process. In particular, the attitude

in believing and acting as “green consumers”, expressing values as the concern about environmental damages due to production practices and the awareness about the impact of purchasing decision on the environment, resulted in having a relationship with the choice of the mountain product label, showing a strong link between these two issues. Thus, the mountain product label can be a resource to support the mountain economy especially addressed to people sensitive to environmental concerns. This confirms the idea that mountain agricultural practices are perceived as greener and more ethical than other typologies of agriculture [36,85]. Credence attributes resulted in being important also in choosing organic-labelled products, since we have found a relation between the “feeling with nature”, as the idea to feel comfort in nature and to be free and peaceful, and the organic label. Findings are in line with literature stating the consumers’ perception of organic agriculture as more natural and presented by marketing strategies as such [25]. According to the findings, the two-step approaches have led to more integrated results and to the possibility to consider both consumers’ choice decisions and their credence attitudes. Moreover, it was possible to verify the relationships among the latent factors representing the credence attributes, highlighting a relationship between the values of green consumer, described above, and those of animal welfare, that focused on the idea that food must be produced with animal care practices, thus including the animal well-being sensitivity among the green consumers values.

Moreover, since green consumers are interested in the mountain product label, it may be useful to better communicate it, exploiting this target of consumers, really interested in this certification. In fact, according to Eurobarometer, EU consumers declared that they benefit from consumption of mountain products. In addition, a second remark is about the ethical values linked to the “Emotional feeling with nature” scale and those of “Animal welfare”, which have a high importance in the model. These issues should be effectively communicated within the food market, because consumers gave strong importance to both. Instead, despite the increasing interest among consumers, ethical issues are only rarely communicated to consumers.

Limitations of our research derived from the usual bias of the hypothetical context in which the respondents are, rather than the context in which they really make their purchasing action. In CEs, consumers reveal their preference for specific attributes as well as price range of the good, and are proposed by the researcher, helping them to express their interest.

Future research can include the consumers’ segmentation to define different groups of consumers among which to investigate the impact of their credence attributes. Furthermore, it would be interesting to test the procedure on different products and take into consideration to use Real CEs context or Real Auctions mechanisms [38] in the first step of the methodology.

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