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Is social sustainability relevant for food consumers? Evidence from Chile

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Abstract

Aim of study: To examine consumer preferences in Chile, an emerging market, for cheese that emphasizes social sustainability features.

Area of study: Chilean consumers.

Material and methods: Three characteristics were included in the choice experiment: price, social sustainability (adherence to labor laws), and cheese type (Gouda, Chanco, and Artisanal cheese), each with three levels. A face-to-face questionnaire was administered to a representative sample of Chilean customers in order to collect data. To evaluate the effect, relevance, and main determinants of choice, a conditional logit model was employed.

Main results: The more attributes are at their most desirable levels, the more likely the cheese will be chosen. Therefore, the most sought-after cheese is that which is inexpensive, conforms to all labor laws, and is of the Chanco variety. When one or more of these three attributes are not at their most desirable level, then price (the lowest) is the attribute that governs the choice, followed by the social sustainability attribute (higher levels of compliance with labor legislation) and, finally, the type of cheese. In terms of socioeconomic variables, older consumers and those with higher education explain a greater preference for the social sustainability attribute over the type of cheese.

Research highlights: These results highlight the importance that social sustainability can have on companies to make their products preferred by consumers. This is the first study to examine the Chilean food industry's social sustainability attribute.

Additional keywords: choice experiment; conditional logit; cheese.

Abbreviations used: CE (choice experiment); CLM (conditional logit model); CLP (Chilean pesos); SS (social sustainability); WTP (willingness to pay).

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Introduction

Sustainability is defined as meeting the needs of the present without compromising the needs of future generations and involves three dimensional aspects: economic, environmental, and social (Brundtland Commission, 1987). These dimensions are expressed in attributes commonly used in marketing and commercial practices that seek to generate greater differentiation among products because of market orientation (Nurse Rainbolt et al., 2012; Claro et al., 2013; Fernqvist & Ekelund, 2014). Although most studies have focused on the environmental dimension, social sustainability (SS) has received special attention in recent years (Bangsa & Schlegelmilch, 2020; Waheed et al., 2020). From a commercial point of view, SS has been analyzed from two sides: the actions of companies that market sustainable products, and the consumers' behavior who buy products that highlight ethical or socially sustainable attributes (De Magistris et al., 2015; Del Giudice et al., 2018).

The predominant concept of SS used by companies is Corporate Social Responsibility (CSR), which can be understood and studied under the international guidelines of ISO 26000 (ISO-OECD, 2017). At a global level, the UN's 2030 agenda includes the promotion of sustainable development goals, which also considers a sustainable production and consumption goal (goal number 12), that encourages companies value environmental and social aspects as a key factor for competitiveness (Garcia Navarro & Granda Revilla, 2020). Social sustainability is therefore a broad concept that affects all stakeholders of the organization, including customers, suppliers, workers and the entire community (Carroll, 1999; Grunert et al., 2014), and is also very important for the food industry due to the complexity of its value chain (Fernqvist & Ekelund, 2014; Grunert et al., 2014; Vecchio & Annunziata, 2015; Wei et al., 2018).

From the consumer's point of view, SS is related to their purchasing behavior. The extrinsic aspects of food are increasingly valued, carrying out consumption practices that consider attributes that exceed the use value of the product, which is known as practicing ethical consumption (Sacchi, 2018). Following the definition of Long & Murray (2012), this is "the act of purchasing products that have additional attributes (e.g., social, environmental, political, health, etc.) in addition to their immediate use value, to signify commitment to their values and/or to support changes to unjust market practices."

These additional attributes can be presented on food products as labels that refer to SS and that constitute credence attributes in the consumer's purchase decision (Onozaka & McFadden, 2011; Vecchio & Annunziata, 2015; Wirth et al., 2016; Aoki et al., 2017; Tait et al., 2018). Credibility attributes are used to assess consumers' preferences about the sustainability characteristics of food, so they cannot be assessed through consumption, but mainly through the labels of the products that certify them (Wirth et al., 2016). SS attributes conveyed through labels make it possible to reduce information asymmetry between consumers and producers and also to achieve more sustainable consumption (Asioli et al., 2020; Bastounis et al., 2021). In general, the use of labels with social and environmental sustainability attributes generates among consumers a positive opinion and attitude towards these foods (Tobi et al., 2019). SS has been related to health, nutrition, organic production, and origin of the product (Fernqvist & Ekelund, 2014), and several studies have reported that consumers consider it positively in their food purchase decision (Pomarici & Vecchio, 2014; Vecchio & Annunziata, 2015; Ghvanidze et al., 2017). Specifically, there is a wide variety of labels applied in the market to distinguish SS attributes. These include those related to aspects of local production, fair trade and other credibility attributes (Ghvanidze et al., 2017; Tebbe & von Blanckenburg, 2018; Tait et al., 2019).

In the specific case of cheese, labels are also used to highlight attributes, including sustainability attributes, so research has begun to be conducted in this regard (Kos et al., 2018; Echeverría et al., 2022; Mazzocchi & Sali, 2022). The price attribute is often included to assess consumer preferences in market situations, as well as a way to assess willingness to pay (WTP) for each attribute (Echeverría et al., 2022; Mazzocchi & Sali, 2022). Price has been found to be the most important factor in consumer preferences for cheese (Kos et al., 2018; Menozzi et al., 2022). In the case of SS, Mazzocchi & Sali (2022) studied the 'mountain product label' (which includes SS aspects) promoted by the European Union. They found that cheeses with this attribute have a higher price. According to another study related to this concept, consumers are willing to pay more for organic and mountain cheese (Stiletto & Trestini, 2022b). Regarding other attributes, studies have found that nutritional aspects of cheese are positively perceived by consumers (Stiletto & Trestini, 2022a), as well as characteristics that account for cheese quality (Menozzi et al., 2022).

Studies on SS food consumption have been mainly conducted in developed countries, predominating studies in Europe and the United States, where there is a high consumer preference for SS products (Miller et al., 2017; Schäufele & Hamm, 2017). As the trend to consume SS foods spreads around the world, a deeper understanding of consumer responses to these products needs to be extended to emerging markets (Schäufele & Hamm, 2017; Bangsa & Schlegelmilch, 2020). Given that its income has increased by 46% (from 10,200 to 14,900 US$ per capita) over the past ten years, Chile is a good example of a rising nation that merits more research (World-Bank, 2019).

The cheese market in Chile has an industry that strongly concentrates the reception of milk (as of 2022, 75.2% was received by only 4 companies), which translates into a dominant purchasing power of these companies (Peña-Torres & Dosque, 2019; Peralta & Fuentes, 2023). On the other hand, among the main dairy products produced by these companies are cheeses (about 119,000 tons representing about 90% of the national total); the difference is produced by smaller companies (Fernandez & Farías, 2019). Additionally, 55,000 tons of cheeses were imported in 2022, which are mostly marketed by these large companies (Peña-Torres & Dosque, 2019; ODEPA, 2023; Peralta & Fuentes, 2023). This means that the cheese market is dominated by a few large companies, so it is important to create competitive strategies so that smaller companies can succeed in the market. In this sense, sustainability, and in particular SS, can be an option for these smaller companies to have an advantage in the cheese consumption market.

Among food products, cheese has been widely studied for the opportunity to create differentiation through several attributes such as origin type of milk, type of cheese and packaging, among others (Pilone et al., 2015; Imami et al., 2016; O'Callaghan & Kerry, 2016), but despite its market importance at a world level, there are no studies that have evaluated the SS attribute. In this regard, the study's objective was to examine consumers' preferences for cheese that emphasizes SS characteristics in Chile, representing a growing market. Furthermore, this study is the first to examine the SS trait in the context of the Chilean food sector.

Material and methods

Data collection

A survey was conducted through face-to-face interviews with consumers from supermarkets, specialty shops, fairs and public squares. The survey was aimed at adult cheese consumers (older than 18 years old). The selection of the interviewees was carried out at random in two cities, Valdivia (representing a small urban area and located in a dairy producing region) and Santiago (a large metropolitan area), during the summer of 2017. First, respondents were presented with the definition of the attributes to be evaluated and their corresponding levels, each one with a description of what it implied to avoid misinterpretations. Next, choice sets were presented to each individual.

Finally, socioeconomic data were collected to determine the characteristics that explain the consumer preferences analyzed in the choice experiment (CE), such as income level, education, gender and age, among others. The sample size was calculated with a 95% confidence level, a sampling error of 5% and a proportion of 30% (Louviere et al., 2000). As a result, a sample of 204 people was interviewed. Respondents did not receive a gift for participating.

Table 1 shows the socioeconomic characteristics of the sample separated by cities, where 63.2% of the respondents were from Santiago and 36.8% from Valdivia. Most of the respondents were between 25 and 40 years old (53%), with a family group made up of three to four members (54%), and in terms of employment status, 70% declared to be salaried. Family income showed that 54% of respondents received an income that ranged from CLP$250,000 to CLP $750,000 (US$378.11-1,134.32). Regarding educational level, 35% said they had a secondary education, followed by 28% who had university studies and 25% who had technical studies.

Choice experiment (CE)

Choice experiments are derived from both Lancaster's (1966) and random utility theories, according to which a good is defined as a set of attributes and not as a single product. Random utility theory states that the overall utility U_{ij} can be expressed as the sum of a systematic (deterministic) component V_{ij}, which is expressed as a function of the attributes presented (SS levels, type of cheese and price in our study), and a random (stochastic) component e_{ij}.

In the CE, individuals must select from a range of options that vary in attributes and levels. The attributes that were assessed in this instance were the type of cheese, price, and SS.

Table 1. Socioeconomic characteristics of the sample (in percentage).

Variable	Composition	Total (N=204)	Santiago (N=129)	Valdivia (N=75)
Gender	Woman	52	48	53
	Man	48	52	47
Age	18-24 years	9	11	5
	25-40 years	53	50	59
	41-55 years	25	25	25
	more 55 years	13	14	10
Family group	1-2 members	26	19	39
	3-4 members	54	55	53
	5 or more members	19	26	8
Residence	Urban	93	98	84
	Rural	7	2	16
Work status	Salaried	70.6	77	60
	Independent	26.5		37
	Pensioner	3.0	23	2
Income level (× 1000 CLP)	< 250	18	15	24
	250-750	54	52	57
	751-1500	21	26	12
	1501-3000	5	7	3
	> 3000	2	0	4
Educational level	Secondary or less	42.2	39	49
	Technical	25.0	27	21
	University	32.8	35	30

The sample was stratified by population size in each city. CLP: Chilean pesos

Social sustainability (SS). The present study focuses solely on the ISO 26000 guidelines, specifically referencing the Rule of Law principle (out of seven). This principle emphasizes that "an organization should accept that respect for the rule of law is mandatory; the rule of law refers to the supremacy of law and, in particular, to the idea that no individual or organization stands above the law and that the government is also subject to the law." This is due to the numerous aspects that consider the SS attribute. Although the complaint of this principle might be obvious to some countries, especially developed countries, it is not so obvious in some developing countries. For example, although the Chilean law establishes that all workers must have a written contract, only 85% comply with this law at the national level, and in some regions 20.1% of employees have only a word agreement. Besides, Chile's local cheese production is called to operate in the context of SS proposed by the Dairy Sustainability Framework in the agreement established with the Ministry of Agriculture and the Chilean Dairy Consortium, which states that workers must operate in a safe environment in the value chain of dairy products, and their rights must be respected and promoted (ODEPA, 2017). Thus, SS can focus on compliance with labor standards, which is a fundamental and preliminary step to work on more elaborate aspects of SS. In this case, it refers to: a) timely payment of wages, b) respect for a 45-hour work week, c) existence of legal rest and d) signing of a labor contract. Thus, the SS attribute was presented with three levels: fully complies (complies with all aspects of labor standards), partially complies (only complies with two aspects of labor standards) and does not comply (does not comply with any aspect of labor standards). In a real commercial context, this SS attribute could be presented on the cheese label, as is done with other attributes that show some aspects of sustainability (e.g. the Fairtrade label).

Price. The levels were determined based on the average cheese prices of 1 kg for the year 2015-2016 for the three types of cheese. These price levels were $6,300 Chilean pesos (CLP) (US$9.53), $7,100 CLP (US$10.74), and $7,400 CLP (US$11.2). This information was obtained from the Office of Agricultural Studies and Policies (ODEPA, 2017).

Type of cheese. The three types of cheese were selected based on the National Consumer Service statistics, which indicated that Gouda, Chanco and Artisanal cheese exhibit the highest sales in the Chilean market (SERNAC, 2015; ODEPA, 2017), which is why they were chosen as the three levels of this attribute. Gouda is a semi-hard yellow cheese, sliceable and soft, without skin and with few holes; Chanco is a buttery and semi-soft ripened cheese, with firm and dry skin; Artisanal is a cheese made by certified small producers, with sanitary resolution and up-to-date tax situation.

Conditional logit model (CLM)

A CLM was chosen because it is flexible in the specification of the conditional utility function. This allows modelling nonlinear and complex relationships between attributes and choice probabilities. The estimated coefficients have simple interpretations in terms of choice probabilities, which facilitates the interpretation of the individual's preferences.

Following Aoki et al. (2017), the conditional probability that individual q chooses alternative i can be expressed as:

$$P_{iqt}\left(\beta'_q\right) = \frac{exp\left(\beta'_q X_{iqt}\right)}{\sum_{j=1}^{J} exp\left(\beta'_q X_{jqt}\right)} \quad (1)$$

where β is a vector of parameters; X_{jqt} is the matrix of alternatives *j=1...J* that individual *q* must choose among *t* choice sets.

Table 2. Results of the conditional logit model as odd ratios

	Price			SS			Type of cheese		
	$6,300	**$7,100**	**$7,400**	**No**	**Partial**	**Full**	**Gouda**	**Chanco**	**Artisanal**
$6,300		0.94^{ns}	0.67***						
$7,100	1.06^{ns}		0.71***						
$7,400	1.48***	1.39***							
No SS					1.07^{ns}	2.03***			
Partial SS				0.93^{ns}		1.89***			
Full SS				0.49***	0.53***				
Gouda								2.42***	1.98***
Chanco							0.42***		0.82*
Artisanal							0.50***	1.22*	
Log likelihood = - 847.09374			Number of obs = 1,835						
		LR chi2 (6)	= 112.77						
		Prob > chi2	= 0.0000						
		Pseudo R^2	= 0.0624						

SS: social sustainability. Prices in Chilean pesos. ns: not significant. *p<0.10; **p<0.05; ***p<0.01.

Table 3. WTP of attributes (by levels)

	WTP	Confidence interval	
		Lower level	Upper level
Partial SS (relative to No SS)	218	-670	1,106
Full SS (relative to No SS)	2,449	546	4,351
Partial SS (relative to Full SS)	2,231	439	4,023
Chanco (relative to Gouda)	3,049	760	5,338
Artisanal (relative to Gouda)	2,398	502	4,293
Chanco (relative to Artisanal)	651	-242	1,545

SS: social sustainability. WTP: willingness to pay.

Table 4. Preferred choice alternatives (combination of attributes and levels).

Choice alternatives			Predominant attribute	Odds ratio	SE
Price	SS	Cheese type			
1 lower	full complaint	Chanco	Price, SS, Cheese type	5.56***	1.51
2 lower	full complaint	Artisanal	Price, SS	2.57***	0.64
3 lower	partially complaint	Chanco	Price, Cheese type	1.99***	0.51
4 higher	full complaint	Chanco	SS, Cheese type	1.98***	0.49
5 higher	full complaint	Artisanal	SS		
Log likelihood = - 848.11801			Number of obs = 1,835		
			LR chi2 (6) = 110.73		
			Prob > chi2 = 0.0000		
			Pseudo R^2 = 0.0613		

SE: standard error. LR: logistic regression. *p<0.10; **p<0.05; ***p<0.01.

The CLM of equation (1) evaluates 3 attributes with 3 levels each, which provides a full factorial design of 3^3, (j=1...27). To facilitate the choice process, through a randomized process the 27 alternatives were reduced to 9 (Louviere et al., 2010). As a result, three choice sets, each including three possibilities, were made and presented to each person in turn (Fig. 1 illustrates a choice set). As each person had to select 1 alternative (i) from each choice set (t), 1836 observations were generated (3 alternatives that 204 individuals choose 3 times). The Krinsky and Robb method (Haab & McConnell, 2002) was used to estimate the confidence intervals for willingness to pay. The statistical program STATA IC version 14 was used. Specifically, IBM SPSS Statistics software version 23 was used for designing the CE.

Results

Conditional logit model estimation

Table 2 shows the odds ratios in order to provide information on the relative magnitude of choice, where a value greater than 1 reflects the probability of choosing one level over the other (the reverse analysis is performed when the odds ratios are less than 1 because they are reciprocal).

In terms of price, consumers did not prefer the highest price over the other prices (there was no statistical difference between the lowest and middle price levels). The price at the $7,400 (US$11.95) level is 1.48 times less preferred than the $6,300 (US$9.53) level and 1.39 times less preferred than the $7,100 (US$11.47) level. For the SS attribute, consumers preferred a "fully complies" cheese over the other two levels, which showed no statistical differences. The "fully compliant" level is 1.89 times more preferred than "partially compliant" and 2.03 times more preferred than "non-compliant". As for the type of cheese, the Chanco type is 1.22 times more preferred than Artesanal and 2.42 times more preferred than Gouda.

Table 3 complements the previous information by showing the WTP (and its confidence interval) that consumers give to each attribute and their levels as a function of the price vector. It is observed that consumers are willing to pay $2,449 for the "fully compliant" level instead of the "partially compliant" level and $2,231 for the same level (fully compliant) instead of the "non-compliant" level. The low WTP between "partially compliant" and

Table 5. Most preferred choice alternatives and consumer socioeconomic variables.

	1. Price: lower, SS: full complaint, Cheese type: Chanco	**2. Price: lower, SS: full complaint, Cheese type: Artisanal**	**3. Price: lower, SS: partially complaint, Cheese type: Chanco**
Age (years)	1.02 (0.01)	1.04 (0.01) ***	1.04 (0.01) ***
Gender (Female=0; Male=1)	3.74 (2.22) **	1.55 (0.71)	0.82 (0.37)
Superior education (No=0; Yes=1)	1.68 (0.87)	2.58 (1.16) **	1.83 (0.97)
Income (>750,000 CLP=0; Otherwise=1)	1.05 (0.57)	1.44 (0.61)	2.41 (0.95) **
Location (Valdivia=0; Santiago=1)	1.28 (0.68)	0.88 (0.40)	1.30 (0.60)
	Log likelihood = - 881.80379	Log likelihood = - 879.08315	Log likelihood = - 877.72786
	Number of obs = 1,835	Number of obs = 1,835	Number of obs = 1,835
	LR chi2 (6) = 43.35	LR chi2 (6) = 48.80	LR chi2 (6) = 51.51
	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000
	Pseudo R^2 = 0.0240	Pseudo R^2 = 0.0270	Pseudo R^2 = 0.0285

** p<0.05; ***p<0.01

"non-compliant" ($218) is due to the fact that this value is not statistically significant. Furthermore, as for the type of cheese, the highest WTP is for a Chanco type cheese instead of a Gouda type cheese, with a value of $3,049. As can be seen, the odds ratios in Table 2 had a direct relationship with these WTP values.

The above analysis shows the preferred levels for each attribute individually, so the following is the joint analysis of the three attributes with their different levels. For simplicity, only the extreme values of the price were used (the two lowest price levels were not different); the type of cheese was considered in its two most preferred levels (Chanco and Artisanal); and the SS attribute was analyzed in its three levels because it is the main object of study. This generated 12 alternative options and the CLM indicated that only five were statistically significant. Table 4 shows the most preferred alternatives in the form of odds ratios. The odds ratios indicate the number of times the alternative analyzed is more preferred than the next most preferred alternative. For alternative #5, no odds ratios are presented since this value is compared to alternatives that were not significant.

Table 4 also shows that the most preferred choice alternative is the lowest priced, SS at fully compliant level, and Chanco type (#1). As expected, this is the mixture of the three attributes at their most preferred levels individually and their odd ratio indicates that is 5.56 times more preferred than the next (most preferred) combination of attributes. In alternatives #2 and #3 the low price is maintained, but the attributes SS and type of cheese are no longer at their highest levels. It is observed that the most preferred alternative is #2, being 2.57 times more preferred than alternative #3. In other words, when the price is low, consumers prioritize SS over cheese type. In alternatives #4 and #5 price is at its least desired level. In the most preferred alternative (#4), SS and cheese type are at their most desired levels and this alternative is preferred to the one in which only SS is at its most desired level (alternative #5). The odds ratios indicate that alternative #4 is 1.98 times more preferred than alternative #5. That is, when prices are high, consumers prefer SS and the type of cheese at their highest levels. Importantly, alternative #5 indicates that, when the other attributes are no longer at their most desired levels, consumers prefer the alternative that maintains SS at its most desired level. In other words, consumers value SS highly.

To determine the characteristics of consumers who chose the most preferred alternative, interactions with sociodemographic variables were included in the conditional logit. Only the lowest-priced alternatives were included to determine the importance of SS in a more realistic choice scenario. The variables included in the analysis were grouped in such a way that some statistical significance was found. Thus, gender, education (with or without university studies), family income (low or above the average of 750,000 pesos), age and geographic location or city of the consumers surveyed were included (Table 5).

The consumer characteristic that explains the most preferred choice (#1) was gender alone. Male consumers were 3.74 times more likely to choose the most preferred alternative over the others. But this alternative did not allow discriminating the importance of SS, since it is an ideal product (it has all attributes at more preferred levels). Along these lines, alternative #2 makes this analysis possible since in this one the consumer chooses to maintain SS over the type of cheese. In this case, older and university-educated people were determinant in the choice.

Which do you prefer?			
Options	Option A___	Option B___	Option C___
Price	$6,300 /kg	$7,400 /kg	$7,400 /kg
Labor Laws	✓ Contract. ✓ Remunerations and contributions payment. × 45 weekly working hours. × Legal holiday.	✓ Contract. ✓ Remunerations and contributions payment. ✓ 45 weekly working hours. ✓ Legal holiday.	✓ Contract. ✓ Remunerations and contributions payment. ✓ 45 weekly working hours. ✓ Legal holiday.
Type of cheese	Artisanal 	Chanco 	Gauda 

Figure 1. Example of choice set

Discussion

The results obtained in this study are similar to those of Ghvanidze et al. (2017), who found that conscious consumers prefer SS products. On the other hand, Miller et al. (2017) found that there is a clear trend in consumers' choice of food with SS, although this trend is stronger in people from developing countries (India and Indonesia). According to Tobi (2019), the information delivered to consumers creates in them a positive attitude towards social and environmental sustainability attributes. This positive attitude ultimately translates into consumers choosing or valuing these products, as for example in the case of cheese with a "mountain product label", where consumers express their WTP more for these attributes (Echeverría et al., 2022; Mazzocchi & Sali, 2022; Stiletto & Trestini, 2022b).

This study has also shown that the consumer always chooses a combination of attributes in which at least one of them has a higher level of preference (individually). In addition, consumers gave priority to attribute combinations that have the largest number of attributes with the highest preference levels (in this case, three attributes, then two, then one attribute). Besides, consumer choice was given in the following order: price first (lowest was most preferred), SS (fully complies was most preferred) and finally type of cheese (Chanco was most preferred).

The role of price was clear: it is the most important attribute in consumer choice. Lower cheese prices lead the choice. This is in line with other studies that have evaluated aspects of SS in cheese (Kos et al., 2018; Menozzi et al., 2022). In the same vein, but in a study on consumer preference for wine, Tait et al. (2019) found a negative relationship between consumer choice of SS products and high prices. These results are also consistent with those found by Ghvanidze et al. (2017), who showed that price influences consumers' food choice more than information about producers' social responsibility or the ecological impact of production. Although the importance of price in the selection of attributes, including SS, is to be expected, the importance of including SS in the choice is important to give weight to this attribute (Toussaint et al., 2020). Furthermore, Ross & Milne (2021) found that consumers who are more focused on maximizing their own utility value price over sustainability, and that consumers with a higher social orientation prefer sustainable products over price. This analysis of consumer choice included the attributes of quality, price, and sustainability.

The joint evaluation of cheese type with the SS attribute presented in this study indicates that, in a context of low prices, the SS attribute is more relevant to consumers than cheese type. Other studies that have included other aspects such as quality or nutritional aspects indicate that these are well valued by consumers (Menozzi et al., 2022; Stiletto & Trestini, 2022a). In particular, Ross & Milne (2021) found that quality (which could be equated to cheese type) ranks third in terms of consumer choice, which would be consistent with what was found in the present research.

With respect to consumer characteristics, the results of this research differ from those reported by other studies, which identify gender as an important characteristic of individuals who value sustainable attributes (Toppinen et al, 2013; Grankvist et al, 2019; Piracci et al, 2022). Finally, elderly and low-income people choose the third-choice option, which rewards a particular type of cheese over

SS. It can then be concluded that it is possible to segment consumers who will reward SS through the variables age and education.

One of the study's conclusions and consequences is that Chilean customers, who represent an emerging market, value SS in cheese. Although the most important attribute in consumer decision-making is price (the lowest price always dominates the choice), SS is the second most valued attribute, even more than the type of cheese, which could be considered the closest to the quality attribute. In addition, consumers who value SS are older and more educated. The results obtained in this study have valuable practical implications. Producing and marketing a SS cheese could enable companies to make their products preferred by consumers, even if they do not produce the preferred type of cheese. Therefore, cheese factories or other companies in other agri-food sectors have a market opportunity if they incorporate and declare SS attributes in their products.

Future research should include other aspects of SS considered in ISO 26000, analyze other products, include more attributes and consider a methodology that can capture the ordered process identified here and the complexity of consumer choice. It is important to note that studies that contribute to understanding the situation in other countries are essential for companies to develop marketing strategies that explore the social side of sustainability. In summary, future research could benefit from incorporating a diverse set of attributes to capture a more complete picture of consumer perceptions and preferences in the context of sustainability.

Data and code availability: The authors have full access to the data and the codes reported in the manuscript and will provide them upon request.

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