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## Article

# Consumer Willingness to Pay for Sustainable Wine—The Chilean Case

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**Abstract:** Sustainability in production and consumption is increasing in importance in many diverse industries worldwide. The wine industry is no exception. There are many wine-related eco-certifications that incorporate sustainability concepts; however, it is unknown to what extent wine consumers value such certifications in wine-producing countries such as Chile. An online survey was conducted in which 526 Chilean wine consumers were asked about their attitudes towards and willingness to pay for sustainably produced wines. Statistical analysis was undertaken using multiple linear regression. It is notable that 76% of respondents had previously purchased eco-certified wines (fairtrade, biodynamic, organic, natural, and sustainable), and there was an evident willingness to buy eco-certified wines in the future—78% expressed a willingness to buy organic wines, and 77% sustainable wines. Furthermore, we asked how much more willing the respondents would be to pay for wines with eco-certification; 22% indicated that they would be willing to pay a premium price, ranging from USD 5 to USD 16 more, for organic wines, while 19% expressed a willingness to pay the same price premium for sustainable wines.

**Keywords:** sustainability; willingness to pay; eco-certification; environment; Chile



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## 1. Introduction

The importance of sustainability is increasing rapidly, especially in the food industry. This is reflected through increasingly empowered and demanding consumers who take into consideration the inputs that go into the manufacturing of the products they consume, the labor standards of employees, and the environmental impacts of production [1–4]. Along with these higher demands, there are added sustainability considerations in the wine industry: climate change, water scarcity, energy and agriculture input usage and exposure to chemicals [5]. These issues translate into increased pressure from consumers and regulators on grape growing and wine-producing companies to evaluate the sustainability of their production processes, reduce their environmental impacts and report on their environmental and social performance [6]. Companies have, therefore, had to incorporate sustainability considerations [7] into their management practices.

There are hundreds of definitions of sustainability; however, the one that generates the greatest consensus was posited by [8] as the “triple bottom line”: profit, people, and the planet. This means that sustainability centers on delivering value in economic, social, and environmental terms. It is a contemporary concept that propounds environmental concerns,

ethical considerations, and social issues such as recycling, waste reduction, resources, savings, social justice, and human rights. Today these themes are driving consumer behavior in their preferences to buy certain products or to even boycott others [9,10].

From the viti/viniculture industry perspective, sustainability can be understood as wine production that tries to preserve or enhance natural resources (soil, water, and air) for future generations. Furthermore, it requires that the industry continues to search for optimal methods to exert the least possible impact on the environment from wine production and consumption.

From the consumer's perspective, sustainable production methods are associated with positive externalities and better health outcomes [11,12], which could influence their behavior. Consumers attribute greater value to the sustainable product and are willing to pay a premium price for sustainably produced products [13,14]. The wine industry is becoming increasingly aware of the rise in consumer interest in the environmental and social sustainability of its product [15,16]. This, in turn, is influencing production practices that respect the environment and minimize impacts on it [17–19]. To this end, wine sustainability assessment frameworks have been developed in many countries with the intent to encourage efforts to reduce the impact of wine production on the environment. These frameworks have various aims, including reducing natural resource usage or tackling social imbalance along the production chain. Many different countries (e.g., the USA, South Africa, Chile, New Zealand, and France) have developed frameworks as a means of demonstrating their commitment to reducing the environmental impacts of wine production.

According to [20,21], most wine sustainability frameworks result in some form of certification and labeling on the product/bottle to indicate to consumers its environmental providence. These eco-certifications are widely used to signal to consumers the environmental attributes of a product [22]. Aspects include programs managing operations and mitigating the impacts of winegrowing activities. Both studies stressed that certification bodies should develop a more strategic approach to their sustainability programs. The goal of eco-labels is to provide credible and unambiguous information about a product's reduced environmental impact, thereby eliciting increased demand for products perceived as environmentally friendly [23]. Most eco-labels consist of certification of standardized sustainable practices by an independent organization through a label placed on the product.

The most prevalent wine eco-certifications are biodynamic, fair trade, organic, natural, and sustainable. Amongst those, the most ubiquitous certifications are sustainable and organic, whilst the biodynamic and fairtrade labels tend to be geographically oriented. Surprisingly, the natural certification has the least amount of information available [24].

Knowledge about wine plays an important role in the consumer decision-making process [25]. Higher knowledge of wine increases the probability of paying more for an organic wine with no added sulphites [26,27]. Higher levels of consumer knowledge about certifications could enable producers to increase the price they charge for these products [13]. High levels of education and wine knowledge have been found to positively influence consumer attitudes toward purchasing and consuming certain wines [28,29]. Another element that influences consumer preference for organic wines is their knowledge of environmentally friendly production methods [30]. It has been observed that more informed consumers show more positive perceptions and higher preferences for organic wines than less informed ones [31].

Other consumer characteristics, such as age and gender, may have an effect on consumption [32]. Sustainable certification research has found that the consumer's age, whether they live in an urban area, and their gender does affect their willingness to pay (WTP) [15]. This is consistent with results showing a reduced likelihood of buying eco-certified wine as people age [33]. These findings are also in line with other studies, such as by [34], who identified a decrease in WTP as consumers age. In an Italian study, estimates show that living in an urban area and being female and aged 27 to 35 significantly increases the probability of buying sustainable wines [15].

Meanwhile, other studies have found a positive correlation between millennials, women, unmarried individuals, those who regularly purchase eco-certified foods, low-income individuals, and those looking to celebrate a special occasion as having a higher WTP for eco-certified wines [24]. Interestingly, getting married in France leads to more wine drinking—especially one year before and four years after the wedding [35].

There are a variety of perceptions concerning eco-certified wine. For instance, some consumers prioritize health issues. Ref. [36] found that organic wine was perceived to be healthier than conventional wine, mainly due to the absence of synthetic pesticides and additives in the winemaking process. United States consumers' perceptions of the environmental benefits of the product and of sustainable practices of organic wine producers had a positive effect on behavioral intentions towards organic wine [37]. However, [38] indicates that even if organic wines are viewed as healthier than conventional wines, most consumers still perceive environmentally friendly products as too expensive and with a lower sensorial quality image.

There is overwhelming evidence in the literature regarding consumer WTP as a premium for sustainably produced wines. Studies performed in different countries have indicated that most survey respondents expressed a positive intention to pay more for a wine produced either sustainably or organically [24,31,39–48].

On the contrary, there are studies that show that consumers are not willing to pay more for sustainable wines. One Swiss study indicated that most consumers preferred conventional rather than organic wine [49]. Similarly, [50] found that the probability of purchasing and having a higher WTP for Burgundy wine was not significantly influenced by an organic label. Ref. [51] found that consumers in some European countries, as well as North America, were unwilling to pay a higher price for wine that had sustainable characteristics.

In Chile, there has been a national push to modernize the wine industry and strengthen its international market share through innovative strategies, technological modernization, and product standardization [52]. Consumers in Chile are known to have strong wine brand loyalty [53], but there is little understanding of the relationship between socio-demographics and preferences for wine [54]. Only a couple of works were found to examine wine purchase behavior and consumption habits. Ref. [55] segmented their sample by age, concluding that there is a difference in preferences and wine purchasing behavior between young and older consumers. Ref. [56] analyzed the factors involved in the frequency of wine consumption, with price being the main factor influencing the decision to buy wine.

The Chilean wine industry has been pushing strongly for sustainability over the past decade. In 2011, they created a national certification system that has seen very rapid enrolment by vineyards and wineries [21]. However, there is little or no information on Chilean consumers' WTP for sustainably produced wines. The main objective of this study is to obtain estimates of Chilean consumers' WTP for sustainably produced wines, specifically wines that have any one of five eco-certifications (biodynamic, fairtrade, organic, natural, sustainable). A second objective is to test if monthly consumption by wine consumers is affected by eco-certification.

## 2. Material and Methods

A cross-sectional study design was used to investigate the factors influencing Chilean wine consumers in their purchases of five types of sustainably produced wines. The primary data source was a consumer survey. How the sample was collected, and the methods for the statistical analysis of the data are outlined below.

### 2.1. Survey Design

An online survey was designed to obtain information on consumer WTP for sustainable wines. Six researchers worked for three months to pilot, revise, and improve the survey questions. The result was a final survey consisting of 27 questions in three sections.

The first section focused on the characteristics of consumers. The goal was to understand how knowledgeable they were about wine and to ascertain their wine consumption habits. This was achieved by querying them on monthly wine consumption, their reasons for consuming wine, the grape varieties they preferred, where they most often bought wine, and the attributes they valued most when buying a bottle of wine. The second section focused on consumer's perceived value with respect to five different sustainability certifications of wines. Examples of the questions in this section include: if the respondent had previously purchased wines that had sustainable certification, how often they purchased sustainable wines, their willingness to pay a premium for sustainable wines, and how much more they would be willing to pay for a sustainable wine. Finally, the third section focused on the respondents' social profile: age, gender, income, marital status, and educational level attained. For the questions "how much more they would be willing to pay for a sustainable wine" and "how often buy sustainable wine", the ranges were taken from previous studies [24,39,43,45,46], considering five categories. However, since we did not have enough responses in each category, we combined them into two groups for the analysis.

The 27 survey questions were divided into multiple-choice (19 questions), Likert scale (2), dichotomous (3) and open-ended (3) questions.

## 2.2. Sample Selection

The convenience sampling method was used. The survey was available for one year, from June 2019 to July 2020, and was conducted online using the Qualtrics survey platform. There was a total of 526 respondents accessed through a variety of LinkedIn and Whatsapp networks. The completed surveys were reviewed, and incomplete surveys were eliminated. This left 419 surveys that were useable for analysis. The data collection procedures used in this study have been validated in previous research [24,39,43,45,46]. Even though the sampling method may introduce some bias, the large number of respondents offsets this potential problem since the regression models rest on asymptotic efficiency [57].

## 3. Statistical Analysis

The survey responses were recorded on Excel sheets. Pivot tables were then constructed, and the frequency of each response was determined for categorical variables, both binary and ordinal. Descriptive statistics were performed on continuous variables. Additionally, a Chi-square test was performed to determine whether the frequency distributions were similar between the different types of eco-certifications with respect to the price to be paid per bottle of wine. Multiple linear regression (MLR) was used to explain consumer willingness to pay for certified wines. Models were developed, and data were analyzed using Stata 16.0 software [58]. Statistical significance was considered at the  $\leq 5\%$  level. Subsequently, multicollinearity (Variance Inflation Factor, VIF) and heteroscedasticity (Breuch–Pagan, BP) tests were applied to each model. Six model types were generated, considering price and quantity of bottles consumed as dependent variables using natural logarithms, with independent variables for each model, namely:

- (1) Social Characteristic Variables: attributes that characterize the wine consumer, such as age, gender, marital status, and educational attainment.
- (2) Drivers for Wine Consumption Variables: variables representing the habits of wine consumers, such as the types of grape varieties they consume, where and how often they purchase wine, their motivations for buying wine, and the impact of different eco-certifications on demand.
- (3) Social Characteristics and Drivers for Wine Consumption Variables: representing a mix of social characteristics and wine consumption variables.

The MLR models had the following structure:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \dots + \beta_kx_k + \varepsilon \quad (1)$$

where  $y$ : dependent variable;  $x(1-k)$ : independent variables (Social Characteristics, Drivers for Wine Consumption).

Two hypotheses were tested. One, the price consumers were willing to pay was affected by the eco-certification of the wine. Two, monthly wine consumption was affected by the eco-certification of the wine.

## 4. Results

### 4.1. Descriptive Statistics

Table 1 shows the frequency analysis of the categorical variables of the 419 respondents. The principal findings indicate that 75% of the respondents were males with an average age range of 35 to 44 years. Regarding annual income per household, 35% of the sample had an income ranging from USD 80,000 to USD 140,000. The majority (66%) were married or in a domestic relationship. With respect to educational attainment, 48% of respondents held a professional degree, 49% had completed post-graduate studies, and only 3% did not have a degree.

**Table 1.** Frequency distribution—dependent variables (n = 419).

Variables	Type *	1	2	3	4	5	6
Age—3 categories 1: 18–34 years old 2: 35–44 years old 3: >45 years old	S	104 (25%)	226 (54%)	89 (21%)			
Gender—2 categories 1: Male; 2: Female	S	313 (75%)	106 (25%)				
Income: (1 = 0–79,999, 2 = 80,000–140,000 USD/year)	S	273 (65%)	146 (35%)				
Marital status—3 categories 1: Married or in a domestic partnership 2: Single (never married) 3: Other	S	278 (66%)	110 (26%)	30 (8%)			
Education level—3 categories 1: Some college, no degree 2: Professional degree 3: Masters or PhD degree	S	12 (3%)	201 (48%)	206 (49%)			
Wine knowledge—4 categories 1: Basic knowledge 2: I can pair wine and food and know some culture of wine 3: I can navigate a restaurant wine list 4: I consider myself an expert	C	161 (38%)	113 (27%)	95 (23%)	49 (12%)		
Primary reason to drink wine—6 categories 1: Goes well with food 2: To socialize with friends 3: I like the taste 4: To socialize with family 5: It helps me relax 6: Other reasons	C	139 (33%)	94 (22%)	83 (20%)	64 (15%)	17 (4%)	22 (6%)
Have you bought eco-certified wine? (yes = 1, no = 2)	C	319 (76%)	100 (24%)				
When do you most often buy these wines? 1: Special event or occasion 2: For regular consumption 3: In restaurants or other	C	161 (38%)	82 (20%)	176 (42%)			
Willingness to buy biodynamic wine (yes = 1, no = 2)	C	149 (36%)	270 (64%)				
Willingness to buy fairtrade wine (yes = 1, no = 2)	C	306 (73%)	113 (27%)				
Willingness to buy organic wine (yes = 1, no = 2)	C	326 (78%)	93 (22%)				
Willingness to buy natural wine (yes = 1, no = 2)	C	274 (65%)	145 (35%)				
Willingness to buy sustainable wine (yes = 1, no = 2)	C	322 (77%)	97 (23%)				
Purchase place—4 categories 1: Wine Store 2: Internet 3: Wineries 4: Other	C	96 (23%)	28 (7%)	20 (5%)	275 (65%)		



**Table 1.** *Cont.*

Variables	Type *	1	2	3	4	5	6
How often buy sustainable wine—2 categories 1: Sometimes (Often, very often, always) 2: Rarely or never	C	249 (75%)	83 (25%)				
How much more WTP for biodynamic wine—2 categories 1: Up to 5 USD 2: 5–16 USD	C	371 (88%)	48 (12%)				
How much more WTP for fairtrade wine—2 categories 1: Up to 5 USD 2: 5–16 USD	C	359 (85%)	60 (15%)				
How much more WTP for organic wine—2 categories 1: Up to 5 USD 2: 5–16 USD	C	327 (78%)	92 (22%)				
How much more WTP for natural wine—2 categories 1: Up to 5 USD 2: 5–16 USD	C	345 (82%)	74 (18%)				
How much more WTP for sustainable wine—2 categories 1: Up to 5 USD 2: 5–16 USD	C	340 (81%)	79 (19%)				

\*: S: Social; C: Drivers for Wine Consumption.

Based on the analysis of these results, the collected sample is composed of a large proportion of males with high levels of educational attainment, who use social media, are conscious consumers of wine, and are more knowledgeable about wines than the general population. Thus, 76% of the respondents had purchased wines with eco-certification (fair-trade, biodynamic, natural, organic, and sustainable), and of these, 78% were most inclined to purchase organic wines, while 77% had a greater preference for buying sustainable wines. Finally, the Chi-square test yielded significant differences ( $p < 0.001$ ) in purchase price frequencies among the different certification types. Thus, for example, for organic and sustainable wines, 22% of the respondents and 19% of the respondents, respectively, said they would be willing to pay between USD 5 and USD 16 more per bottle of wine.

The analysis of the continuous variables obtained from the sample is presented in Table 2, which shows that the average rate of consumption per month of bottles of wine is 4.34 bottles, with an average purchase price per bottle of USD 7.81.

**Table 2.** Descriptive statistics for continuous variables (n = 419).

Variables	Category	Mean	Std. Dev.	Min	Max
Winery visits per year	I	0.90	1.49	0	15
Number of bottles per month	I	4.34	3.63	1	36
Price per bottle	I	7.81	3.64	2.75	37.5

I: Wine Consumption.

Next is an analysis of the different models classified according to the independent variables: (1) social, (2) drivers for wine consumption and (3) a mix of both types of variables. The idea was to explore if the elasticity of wine price or consumption changed when considering the different groups of variables.

#### 4.2. Regression Models with Social Variables

Two models that met the requirements were defined. One of them was used to explain the price of the bottle of wine, and the other one explained monthly wine consumption. Table 3 presents the model that uses the logarithm of price ( $\ln(\text{price})$ ) as the dependent variable. In relation to the price-consumption elasticity, for each additional 1% of wine consumed, there was a negative willingness to pay of  $-0.0826\%$ , which suggests a low elasticity, but it was highly significant between price and consumption. In the age analysis, the oldest consumers are willing to pay up to 11.62% less (exact percentage) for eco-certified wine compared to those aged 18 to 34 years. Finally, in relation to knowledgeability about

wines, those consumers who consider themselves to be experts had a willingness to pay 40% higher (exact percentage) per bottle of wine than consumers who consider themselves to possess low levels of wine knowledge.

**Table 3.** Regression model to explain  $\ln$ price based on social variables.

Variables	Model	
	Coef. (Std. Err.)	<i>p</i>
Ln (Number of bottles per month)	−0.08259 (0.02656)	0.002
Age range		
2	−0.1069 (0.0440)	0.016
3	−0.1235 (0.0458)	0.007
Wine Knowledge		
2	0.2412 (0.0482)	<0.001
3	0.1112 (0.0481)	0.021
4	0.3366 (0.0628)	<0.001
Intercept	8.6826 (0.0425)	<0.001
R-squared		0.1078
Adj R-squared		0.0948
n		419
Mean VIF		1.26
Breusch–Pagan test for heteroskedasticity		<i>p</i> = 0.24

Table 4 presents the results from a model whose dependent variable is the logarithm of the number of bottles ( $\ln$ bottles) consumed per month. In relation to the price paid per bottle, for each 1% percent price increase, consumption decreases by 0.2626%. With respect to wine knowledge, those who consider themselves to be experts consume 116% (exact percentage) more bottles of wine per month than those who consider their wine knowledge as basic. Finally, single people consume 19.74% (exact percentage) less wine than married consumers.

**Table 4.** Regression model with dependent variable  $\ln$ bottles to analyze social variables.

Variables	Model 1	
	Coef. (Std. Err.)	<i>p</i>
Lnprice	−0.2626 (0.088)	0.003
Wine Knowledge		
2	0.6672 (0.085)	<0.001
3	0.2981 (0.0873)	0.001
4	0.7693 (0.1115)	<0.001
Marital status		
2	−0.2199 (0.07630)	0.004



Table 4. Cont.

Variables	Model 1	
	Coef. (Std. Err.)	<i>p</i>
Intercept	3.1956 (0.7587)	<0.001
R-squared		0.1989
Adj R-squared		0.1872
n		418
Mean VIF		1.17
Breusch–Pagan test for heteroskedasticity		<i>p</i> = 0.259

#### 4.3. Regression Models with Drivers for Wine Consumption Variables

Table 5 presents the best of the seven models with the best adjusted R-squared for the *lnprice* analysis. In relation to the number of bottles consumed, for each additional 1% of wine consumed, there is a negative willingness-to-pay of  $-0.0515\%$ , which suggests a low elasticity between price and demand for wine. Furthermore, when wine is bought from nonspecialized sources (other than a wine store, winery or the internet), consumers are willing to pay 20.04% (exact percentage) less.

Table 5. Regression model with dependent variable *lnprice* to analyze wine consumption variables.

Variables	Model	
	Coef. (Std. Err.)	<i>p</i>
Ln (Number of bottles per month)	$-0.0515$ (0.0252)	0.041
Store		
4	$-0.2236$ (0.0445)	<0.001
Intercept	8.930 (0.0744)	<0.001
R-squared		0.229
Adj R-squared		0.125
n		243
Mean VIF		1.74
Breusch–Pagan test for heteroskedasticity		<i>p</i> = 0.3137

Table 6 shows the regression model that addresses wine consumption variables, *lnbottles* being the dependent variable. Based on this model, it can be concluded that, in relation to the price paid per bottle, for a 1% price increase, consumption decreases by 0.264%. Furthermore, with respect to winery visits, for each additional day of visits to a winery per year, demand increases by 42.03% (exact percentage). With respect to the location where wine is purchased, consumers who buy wine in other places (not a wine store, winery or internet) consume 33.04% (exact percentage) less than when they buy from a wine store. Finally, in relation to the variable “when do you most often buy wine”, consumption increases 26.1% (exact percentage) for regular consumption with respect to those who buy wine for special events.

**Table 6.** Regression model with dependent variable *lnbottles* to analyze wine driver for consumption variables.

Variables	Model	
	Coef. (Std. Err.)	<i>p</i>
Lnprice	−0.264 (0.1114)	0.018
Visits		
2	0.3509 (0.1184)	0.003
Store		
4	−0.4011 (0.0981)	<0.001
When do you most often buy		
2	0.2319 (0.0941)	0.014
Intercept	3.698 (0.9786)	<0.001
R-squared	0.1931	
Adj R-squared	0.1476	
n	282	
Mean VIF	1.14	
Breusch–Pagan test for heteroskedasticity	<i>p</i> = 0.2755	

#### 4.4. Regression Models with Social and Driver for Consumption Variables

A total of 22 MLR models were defined, of which 16 were generated with the *lnprice* dependent variable and six with the *lnbottles* dependent variable. In Table 7, the best model whose dependent variable is *lnprice* is shown. The analysis of the location where wine is purchased indicated that when wine is bought in other places (not a wine store, winery or the internet), consumers are willing to pay 14.48% (exact percentage) less than when they buy from a wine store. Regarding the main reason for consuming wine, individuals who “socialize with friends” were willing to pay 16.40% (exact percentage) more than those who said “It goes well with meals”. The desire of the respondents to pay an extra 1% for sustainable wine translates into an additional 0.0831% in the price of a bottle of wine. On the other hand, respondents that have bought wine with a sustainable certificate are willing to pay an additional 13.77% (exact percentage). Finally, in relation to age, consumers aged 35 to 44 years had a willingness to pay of 12.76% (exact percentage) less than consumers aged 18 to 34 years.

In Table 8, the last analysis using the MLR model is a mixture of social and consumption variables, with *lnbottles* being the dependent variable. Consumers who buy from other places (not a wine store, winery or the internet) consume 27.84% (exact percentage) less than those who buy from wine stores.

**Table 7.** Regression model with dependent variable  $\ln price$  to analyze mixed variables.

Variables	Model	
	Coef. (Std. Err.)	<i>p</i>
Store		
4	−0.1564 (0.0456)	0.001
Reason 1		
2	0.1519 (0.0504)	0.003
Ln how much more for sustainable	0.0831 (0.02020)	<0.001
Sustainable	0.1290 (0.0458)	0.005
Age range		
2	−0.1365 (0.0443)	0.002
Intercept	7.9778 (0.1702)	<0.001
R-squared		0.165
Adj R-squared		0.1346
n		342
Mean VIF		1.2
Breusch–Pagan test for heteroskedasticity		<i>p</i> = 0.3340

**Table 8.** Regression model with dependent variable  $\ln bottles$  to analyze mixed variables.

Variables	Model	
	Coef. (Std. Err.)	<i>p</i>
Store		
4	−0.3263 (0.0982)	0.001
Ln how much more for sustainable	−0.0795 (0.042)	0.05
Visit		
2	0.3960 (0.1214)	0.001
4	0.8116 (0.3527)	0.022
5	1.1435 (0.5002)	0.023
Age range		
2	−0.1872 (0.0904)	0.039
Intercept	1.9538 (0.3462)	<0.001
R-squared		0.1741
Adj R-squared		0.127
n		333
Mean VIF		1.15
Breusch–Pagan test for heteroskedasticity		<i>p</i> = 0.1438

Regarding willingness to pay for sustainable wine, for each additional dollar charged, consumption decreased by 0.0795%. With respect to winery visits, when the number of visits per year increases, the number of bottles consumed per month also increases; for example, respondents that visit wineries at least five days per year consume 213.77%

(exact percentage) more than people who do not visit wineries. Finally, with respect to age, consumers between the ages of 35 and 44 years consume 17.07% (exact percentage) less than those consumers between the ages of 18 and 34.

## 5. Discussion

In the past 20 or 30 years, consumers have increased their demand for products produced in a more sustainable fashion. Wine, one of the oldest products in the world, is no exception. It is within this context that the present study was developed, the main objective of which was to obtain estimates of Chilean consumers' willingness to pay more for sustainably produced wines, specifically wines that have any one of five eco-certifications (biodynamic, fairtrade, organic, natural, sustainable).

The results from the various regression models are robust and interesting. One interesting finding is that older people are willing to pay less for sustainably produced wine than younger people, which confirms previous studies [33,34].

The results largely confirm previous studies, where most respondents are willing to purchase eco-certified wines. Over 75% are willing to pay up to USD 5 more for each bottle of eco-certified wine they purchase (sustainable (75%); biodynamic (88%); fairtrade (85%); organic (78%); natural (82%)). This strong indication of consumers' interest in these types of wine is supported by [13,24], who stated that sustainability is a driver for consumers to change their behavior and attach greater value to the sustainable product. In the same line, the results here strengthen the increasing consumer interest in the environmental and social sustainability of wine [15,16].

In relation to the knowledge that people have about wine, it is evident that, as this increases, there is a greater willingness to pay more for a bottle of wine, being in line with the study of [26] and higher wine consumption [26,27,29].

When considering marital status, getting married in France leads to more wine drinking [35], which is in line with the results obtained in this study, where single people consume less wine than married consumers.

When studying the place where wine is purchased, two points of view are generated in relation to whether it has an impact on consumption habits. Ref. [59] reports no differences as far as buying wine from the mainstream distribution outlet categories is concerned (large chain stores, specialty shops, supermarkets and winery tasting rooms). However, the result of the present study shows that depending on the place where wine is purchased, in particular a nonspecialized place (a different place than wine store, wineries, and the internet), both the willingness to buy and to pay for wine decreases.

Moreover, the present study proves a greater willingness to pay more for a sustainable wine, which reinforces studies developed by various authors [24,39,41–48]. This statistically significant result shows the appreciation that Chilean consumers have for wines with sustainable certification over other eco-certifications, which can be explained by the importance that the producers themselves have given to sustainability, which is materialized in the creation in 2011 of the Sustainability Code of the Chilean Wine Industry, which to date has granted the sustainability certificate to more than 80 wineries [60].

In relation to the impact generated by this study, it can be measured from a theoretical and practical perspective. In relation to the former, the various findings obtained in this study, which involved more than 400 people, allow us to support several previous studies, identifying various factors, intrinsic (knowledge, willingness to consume or pay, etc.) and extrinsic to the person (marital status, where wine is purchased, etc.), that influence consumer behavior when buying wine. On the other hand, from a practical perspective, or rather, from a business point of view, these results are undoubtedly of great importance since they help to explain how the efforts made by the wineries to have a more sustainable production generate a favorable response from consumers. On the other hand, several factors are identified that can influence the purchase decision, such as age, knowledge, marital status, and place where the wine is purchased, which can undoubtedly help to define better marketing strategies.

Finally, we acknowledge some limitations of the study primarily related to responder bias, which is typical of self-reported data. On the other hand, the respondents were not selected randomly, and thus, it is difficult to generalize the results. Second, the results are dependent on the honesty of respondents, meaning that there is always the possibility that they answered what they thought was socially desirable instead of their real beliefs.

## 6. Conclusions

Our results show that Chilean wine consumers are willing to pay a price premium for eco-certified wines. Consumption of eco-certified wines is associated with social variables such as age and knowledge about wine and eco-certifications.

One of the main findings is that 76% of consumers surveyed had bought eco-certified wines, with 78% of them prepared to buy organic wines and 77% prepared to buy sustainable wines. When asked how much more willing they would be to pay, 22% indicated that they would be willing to pay a premium of USD 5 to USD 16 more for organic wines, while 19% expressed a willingness to pay this premium price range for sustainable wines. These findings are aligned with other studies that show widespread consumer interest in wines that are produced with consideration of the environment or with social responsibility [15,22,42,46].

This study contributes to the growing literature on consumers and their valuation of eco-certified wines (fairtrade, biodynamic, organic, natural, and sustainable). Additionally, the results should be of interest to wine companies since the consumer characteristics presented in this research will be of great importance in helping to define their business strategies. The information provided should assist companies in gaining a competitive advantage in the niche but growing market segment of sustainably produced wines.

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