

Jorge, Elói; Lopez-Valeiras, Ernesto; Gonzalez-Sanchez, Maria Beatriz

## Article

# Millennial university students' valuation of traditional wine: Evidence from an experimental auction

Wine Economics and Policy

## Provided in Cooperation with:

UniCeSV - Centro Universitario di Ricerca per lo Sviluppo Competitivo del Settore Vitivinicolo,  
University of Florence

*Suggested Citation:* Jorge, Elói; Lopez-Valeiras, Ernesto; Gonzalez-Sanchez, Maria Beatriz (2021) :  
Millennial university students' valuation of traditional wine: Evidence from an experimental auction,  
Wine Economics and Policy, ISSN 2212-9774, Firenze University Press, Florence, Vol. 10, Iss. 1, pp.  
133-145,  
<https://doi.org/10.36253/wep-9878>

This Version is available at:

<https://hdl.handle.net/10419/284512>

## Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

## Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>



**Citation:** Elói Jorge, Ernesto Lopez-Valeiras, Maria Beatriz Gonzalez-Sanchez (2021) Millennial university students' valuation of traditional wine: Evidence from an experimental auction. *Wine Economics and Policy* 10(1): 133-145. doi: 10.36253/wep-9878

**Copyright:** © 2021 Elói Jorge, Ernesto Lopez-Valeiras, Maria Beatriz Gonzalez-Sanchez. This is an open access, peer-reviewed article published by Firenze University Press (<http://www.fupress.com/wep>) and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Data Availability Statement:** All relevant data are within the paper and its Supporting Information files.

**Competing Interests:** The Author(s) declare(s) no conflict of interest.

## Millennial university students' valuation of traditional wine: Evidence from an experimental auction

ELÓI JORGE<sup>1,\*</sup>, ERNESTO LOPEZ-VALEIRAS<sup>2</sup>, MARIA BEATRIZ GONZALEZ-SANCHEZ<sup>1</sup>

<sup>1</sup> ECOBAS, Universidade de Vigo, RGEAF, Facultade de CC Económicas e Empresariais, 36310 Vigo, Spain. E-mail: edias@uvigo.es; bgonzale@uvigo.es

<sup>2</sup> ECOBAS, Universidade de Vigo, RGEAF, Departamento de Economía Financeira e Contabilidade, Facultade de CC Empresariais e Turismo, 32004 Ourense, Spain. E-mail: elvalleiras@uvigo.es

\*Corresponding author.

**Abstract.** This paper analyzes whether the perception of traditional wine brings value to millennials. Based on survey data and experimental auctions (165 participants), this study identifies the main factors affecting this consumer groups' willingness to pay for traditional wine through a Tobit model methodology. The results suggest that millennials are willing to pay a higher price depending on demographic factors such as monthly disposable income, on wine involvement variables such as consumption frequency, and on nourishing and health aspects and product availability at points of sale, both of which are wine purchase decision criteria. The investigation has significant marketing and policy implications.

**Keywords:** traditional wine, millennials, willingness to pay, purchase decision variables, experimental auction.

### 1. INTRODUCTION

Traditional food products have been described as those produced with assured authentic receipt, raw material, and production processes and that have been commercially available for over 50 years [1]. Traditional winemaking is often linked to a wine produced in limited quantities using autochthonous grape varieties with minimal chemical-physical and technological intervention methods and using techniques of processing and conservation consolidated by time, in opposition to more modern, standardized, commercially oriented and large-scale wine production [2,3].<sup>1</sup> Although often related

<sup>1</sup> Admittedly, to be consistent with prior literature, the labels "traditional", "typical" [4], and "terroir" [5] may overlap in some dimensions. "Typical" and "terroir", in particular, are commonly employed in the wine literature when examining the sensory typicality of a wine [4,6]. All these traits point to the distinctive characteristics of a wine, linked to the combination of natural and

to a remainder category and left out of the mainstream wine groups, the traditional wine concept is attracting increasing interest among consumers from the 'Old World' and is found in many of the leading wine-producing countries (e.g., France, Spain, Italy, and Portugal) with strong links to regional/local identity. In Burgundy, France, this concept is closely related to practices developed by *vignerons*, including small French artisan producers [7]. In the autonomous region of Galicia (Spain), Decree 174/2019 regulates the production and marketing of traditional wine. In the same line, traditional wine is officially regulated in the autonomous regions of Trento and of Bolzano (Italy) (Law n. 238/2016) and Portugal (article 3 of the Legislative Order 38/2008).

For consumers in general, the attribute 'traditional' is consistently associated with the concept of natural food products [9]. This claim is commonly linked to 'old-style family-farm food' production [10], which is capable of better preserving food naturalness [11] and authenticity [12]. However, recent studies focusing on the millennial generation have shown evidence that such consumers do not necessarily link traditional food products with natural food products [13]. This previous evidence raises questions about the importance these consumers place on the specific case of traditional wine and conditions for attracting wine interest.

Drawing on previous literature on millennials' attitudes and wine purchasing behaviors (e.g., [14-16]), the aim of this paper is to analyze whether the concept of traditional wine brings value to millennial university students. Consumers' purchase decisions rely on several factors that can potentially influence their choices. Specifically, this research examines the influence of individual factors (i.e., demographic characteristics, self-reported wine knowledge and consumption frequency, and wine purchase criteria) on the willingness to pay (WTP) for a wine. In line with this objective, this investigation combines a wine experimental auction along with the self-administration of a questionnaire. The experimental auction was designed to compare the WTP for a traditional wine with the WTP for three other wines (non-organic wine protected with a designation of origin (hereafter PDO), organic wine with PDO (hereafter, PDO+Organic), and organic wine without PDO (hereafter organic)). All four wines had the same basic characteristics, namely, color, region, vintage, and grape variety. The setting used was a convenience sample of 165 university students.

The findings suggest that millennial university students are willing to pay a higher price for traditional

wine only under certain circumstances. In particular, we found that consumers' demographic characteristics, self-reported consumption frequency, and wine purchase criteria can act as driving factors influencing WTP for a traditional wine. This evidence highlights the importance of behavioral factors in wine choice behavior. Therefore, our investigation has major implications for wine business practitioners when targeting specific marketing audiences.

This paper is structured as follows. Section two reviews the literature and introduces the theoretical framework. Section three describes the research methods (experimental auction and self-administered questionnaire). The fourth and fifth sections introduce and discuss the empirical findings. Finally, the last section presents the main conclusions, limitations, and lines of future research.

## 2. BACKGROUND

### 2.1 *Certifications, regulations and market trends in the wine industry*

The wine sector is regulated by multiple legislations and quality schemes frequently associated with certifications of specific production processes and geographical origin. Certification bodies are organizations that ensure compliance and verify that the standards disclosed through mandatory or voluntary norms are met. In the last decades, the main regulations and certifications have been pushed to respond to the dynamics of the international wine industry market. In this regard, a trade-off arises between the forces that lead to the standardization of productions and those in favor of maintaining the traditions and preserving the ties with the territory and the reflection of its unique characteristics on a specific wine [17].

On the one hand, most wine producers have tried to adapt their wines to the dynamics of the international market by producing more commercial and industrial-based products [18], and by adopting technology-driven winemaking techniques (e.g., micro-oxygenation and mechanical filtration [19], or commercial yeast [20]). "In a world characterized by a significant evolution in wine consumption, PDOs have constituted a valid strategy of marketing and competitiveness for producers" ([21], pp. 140). Together with PDOs, organic certification is another main officially regulated production system that is playing a key role in the current scenario. Organic production is a reactive movement looking for ecological alternatives to conventional producing systems, generated by modern consumption patterns [22]. To

---

human factors in a certain territory [4-6]. Terroir and typical wines, in contrast to traditional wine, are frequently used to refer wines that also certificated with PDO or PGI [4,7,8].

certify their wines as organic, companies not just have to respect the ecological procedures of organic farming (e.g., avoid synthetic chemicals) but also regard the established rules on the use of certain products or practices during the oenological process [23]. The responses to attend to market demands and international dynamics moved the production of most wines away from the features of traditional wines [24].

On the other hand, relatively few wine producers, usually small-scale peasants from "Old World" wine regions, struggled to maintain the uniqueness and traditional way of producing wine in their area. The concept of 'traditional wines' is something that goes beyond PDO or organic certifications. These wines are known since the old days and, although they are subjected to specific regulations in some regions (e.g., Galicia-Spain), they are rarely attached to an official certification.

## 2.2 Traditional food products

Traditional food products were defined by Guerrero et al. [12], as 'a product frequently consumed or associated with specific celebrations and/or seasons, normally transmitted from one generation to another, made accurately in a specific way according to the gastronomic heritage, distinguished and known because of its sensory properties and associated with a certain local, region or country' (pp. 348). Traditional food products are normally associated with small-scale peasant production systems oriented towards artisanal and old-fashioned elaboration methods reflecting the soil, the environment, and the culture of one region [18,25] as opposed to industrialized manufacturing [11].

In the specific case of wine, this follows the same principles of the abovementioned products in relation to its production process, i.e., small-scale, made exclusively in the rural properties of the peasant farmers, ancestral know-how linked to common cultural roots, the environmental and social characteristics of a certain territory [26,27]. In addition, it is also characterized by the employment of minimal mechanical operations and limited chemical intervention during the winemaking process [2,3]. As a result of its production process, one of the most valued aspects of traditional wines is its ability to better express the terroir [5,6], being its commercialization carried out mainly in a cellar door concept, directly with the final consumer, at the head of the rural property where it was produced [28]. In contrast to PDO and organic products, traditional wine is not associated with an official certification scheme.

The previous literature on consumer behavior suggests that the acceptance of traditional food products

could be more linked with middle-aged consumers than with younger generations [29]. Nevertheless, millennials' attitudes and purchasing behaviors in relation to traditional wine remains underexplored.

## 2.3 Millennial wine consumption habits

The concept 'millennials' applies to people who reached adulthood around the beginning of the 21st century. Accurate delimitation varies from one source to another, but the prevailing threshold encompasses those born between 1982 and 2000 [30]. The use of information and technology in almost every aspect of their lives is a distinctive feature of this consumer segment [31]. Their behavior might dictate present and future consumption tendencies [30]. Therefore, the understanding of millennial behavior has become an important issue not only for academics but also for managers.

The millennial generation shows specific features relevant for the analysis of food purchasing habits. These differences place this generation apart from others and establish the segment as one of the most attractive for food businesses across the globe [32]. Millennials have higher acceptance of natural product claims [33] and show a high knowledge level regarding the value and quality of products [31]. Moreover, they are highly aware of their eating habits [33] and their health implications [15], and have a stronger interest in sustainability aspects [34]. Millennials are more likely to come across an innovative food product on the market [35]. They have more interest in a greater diversity of flavors and/or textures and usually show interest in non-traditional foods [29]. Millennials tend to be early adopters of new food products [35]. This consumer group tends to use price as a quality indicator [36].

Regarding habits related to wine, frequent wine consumers appear to be declining among millennials [34]. This can be associated with the evidence that suggests that millennials are willing to pay less for a bottle of wine than older generations [31]. By contrast, the number of occasional consumers is increasing [16]. Millennials drink wine in more varied contexts than previous generations, with wine being one of the favorite drinks of millennials in social settings [14,31]. In addition to traditional places such as home and restaurants, consumption habits are shifting to other places such as bars and outdoor spaces [37,38]. Wine is primarily consumed in groups and takes its roots in the millennial generation's lifestyle [16].

Consumer's price behavior has been linked with price elasticity [36]. On the one hand, price is more inelastic for younger consumers than for older consumers, i.e.,

one may expect that millennials would be less responsive to price modifications than older consumers [39]. On the other hand, previous research suggests that the price elasticity of wine for the lower end of the market is higher than for the middle and upper ranges [40-42]. Therefore, the WTP for wine varies slightly depending on the age of the consumer and the wine price point. Surprisingly, limited evidence can be found in the literature about millennials' WTP for wines in different price brackets.

Previous studies of millennials confirm that wine labels have a relevant influence when choosing a bottle of wine [43], as they facilitate risk reduction in decision-making [34]. Furthermore, through the label, the sustainable attributes of the wine are communicated, which play a relevant role in the millennial wine purchase decision-making process [31,34]. Furthermore, wine business research suggests that the importance attached to price by this consumer group is directly correlated, among others, to their country of origin [37], the wine production system [34] or wine type [44].

### 3. METHODOLOGY

#### 3.1 Sampling and data collection

Two different methods were conducted: a quantitative research survey and an experimental auction. The survey was distributed among millennial students from a public university in Spain. The first part of the questionnaire was answered before the experiment, and the second was answered during the experiment [45]. We followed the methodology of similar experimental studies (e.g., [34]) that used convenience sampling of potential respondents. The chosen sample for the present study is supported by Allen and Spialeks' [30] definition of millennials, comprising individuals born between 1982 and 2000. Along with statistical demographic data, among other information, participants were asked to indicate the importance of a number of established product characteristics when buying a wine. Additionally, an experimental auction was conducted to analyze the willingness to pay for wine (e.g., [46]). This procedure is developed in depth below in subsection 3.2.

To address the issue of common method bias and following Conway and Lance's [47] recommendations, some procedures were employed before collecting the data. Two pretests with three academics with experience in the wine field ensured anonymity and confidentiality of the respondents and presented all information and data to facilitate the completion of the survey [48].

All the information-gathering work was performed between November 2017 and March 2018. The sam-

**Table 1.** Descriptive statistics of the participants in the sample ( $N = 165$ ).

| Variable name                            | Variable coding          | Frequency | Percentage |
|--|--------------------------|-----------|------------|
| Gender                                   | Male                     | 73        | 44.2       |
|  | Female                   | 92        | 55.8       |
| Age                                      | 18-21                    | 82        | 49.7       |
|  | 22-25                    | 62        | 37.6       |
|  | 26-35                    | 21        | 12.7       |
| Monthly disposable income (€)            | =< 1000                  | 31        | 18.8       |
|  | 1001-2000                | 60        | 36.4       |
|  | 2001-3000                | 38        | 23.0       |
|  | 3001-4000                | 20        | 12.1       |
|  | >4000                    | 10        | 6.1        |
|  | Not declared             | 6         | 3.6        |
| Wine consumption frequency               | Never                    | 7         | 4.2        |
|  | Several times a year     | 51        | 30.9       |
|  | Less than once per month | 18        | 10.9       |
|  | 1-3 times per month      | 36        | 21.8       |
|  | Once a week              | 33        | 20.1       |
|  | More than a once a week  | 18        | 10.9       |
|  | Daily                    | 2         | 1.2        |
| Self-reported knowledge of wine products | Absolutely no knowledge  | 40        | 24.4       |
|  | Some knowledge           | 106       | 64.6       |
|  | Good knowledge           | 17        | 10.4       |
|  | Not declared             | 2         | 0.6        |
| Consumption by wine type <sup>a</sup>    | Red                      | 102       | 61.8       |
|  | White                    | 102       | 61.8       |
|  | Rosé                     | 28        | 16.9       |
|  | Sweet                    | 19        | 11.5       |
|  | Sparkling                | 29        | 17.5       |

<sup>a</sup> Participants could choose more than one option.

ple for this study consisted of 165 respondents. The age of the respondents at the time of the survey ranged between 18 and 35 years<sup>2</sup> (see Table 1 for demographics). The use of university students is common in recent experimental auctions involving wine (e.g., [16,46]).

Descriptive statistics (Table 1) revealed that the majority of the individuals in the sample were aged between 18 and 21 years old (49.7%), mainly women (55.8%). The average monthly income ranged between

<sup>2</sup> The age 18 is the legal age for drinking and purchasing alcohol in Spain.



**Table 2.** Significant factors influencing wine purchase ( $N = 165$ ).

| Variable       | Description                            | Source references | Mean  | Std. Dev. |
|----------------|--|-------------------|-------|-----------|
| Brand          | Wine brand or producer                 | [57]              | 3.267 | 1.079     |
| Taste          | Expected taste                         | [57]              | 4.242 | 0.748     |
| Health         | Nourishing and health aspects          | [58]              | 3.327 | 0.040     |
| LabelandBottle | Visual impact of the bottle / label    | [59]              | 2.848 | 1.004     |
| Price          | Price of the product                   | [60]              | 3.897 | 0.932     |
| Availability   | Product availability at points of sale | [61]              | 3.445 | 1.078     |
| Grape          | Grape variety                          | [38]              | 3.152 | 1.142     |
| PDO            | Protected Designation of Origin        | [21]              | 3.509 | 1.007     |
| RegionalLocal  | Local or regional product              | [7]               | 3.600 | 1.049     |
| Organic        | Organic certification                  | [23]              | 3.109 | 1.117     |

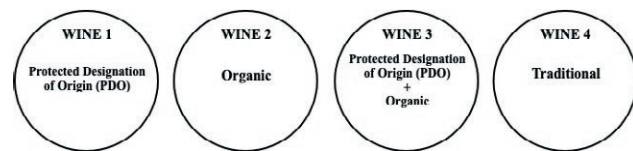
1,001.00 and 2,000.00 euros (36.4%). Over 50% of the participants reported drinking wine more than 3 times a month. Furthermore, 64.6% of the individuals considered themselves as having some knowledge about wine. It also should be noted that red and white wine were the most frequent types of wine consumed by the participants.

### 3.2 Task and procedure

Drawing on previous literature, we identified ten items influencing the wine purchase decision. Participants were required to indicate the importance of each item (see Table 2) when buying a wine. Their choices were measured by using a Likert scale, including intermediate points, where '1' denoted "not important at all" and '5' "extremely important", prompted by the question "Indicate the importance for you of each of the following characteristics when buying a wine". There is a common understanding that Likert scales are the most widely used unidimensional scaling method for attitude and opinion measures [49].<sup>3</sup>

The scale reliability was assessed using Cronbach's alpha. In an untabulated test, we obtained a score of 0.6, which according to previous studies [53,54], could be considered an acceptable value. In this regard, a lower Cronbach's alpha could be considered sufficient to indicate consistency for scales with a reduced number of items [55] or in the case of a new scale [56].

<sup>3</sup> Despite the number of possible items on a Likert scale, five and seven response categories are considered significantly more accurate than other category options [50]. Notwithstanding potential limitations, a 5-point Likert scale was found suitable for the present study proposal. This number of items has been used in recent similar wine studies [15,19,44]. It has been suggested that this number can reduce respondent's frustration [51], and is also related to an increased response rate [52].

**Figure 1.** Wine information used in the experimental auctions.

To assess participants' WTP for traditional wine, an experimental auction was conducted. The experimental auction included four wines (see Fig. 1)<sup>4</sup>, two organic and two conventional:

- (1) Wine 1 (PDO): with Protected Designation of Origin and non-organic (i.e. conventional);
- (2) Wine 2 (organic): produced according to European Commission (EC) regulation no. 203/2012;
- (3) Wine 3 (PDO+Organic): with a Protected Designation of Origin and produced according to European Commission (EC) regulation no. 203/2012;
- and (4) Wine 4 (Traditional): not a certified wine.

Participants were divided into two groups<sup>5</sup>, with participants submitting their set of bids according to the following scheme:

- **Group 1** - sees the label first \* then bids \* then tastes the four wines\* and then bids again.
- **Group 2** - tastes first \* then bids \* then sees the label \* and then bids again.

In both groups, WTP was measured through the overall average WTP of the participant for each of the four wines considered.

The experiment consisted of a pen and paper auction that included the following steps [46]. First, with participants allocated randomly and separated from each other,

<sup>4</sup> Wines were provided by three wineries. All the wines chosen were collected directly from the pallets stored in the wineries' warehouses.

<sup>5</sup> Group 1 and group 2 comprised eighty-five and eighty individuals, respectively.

**Table 3.** The wine production process as explained to the participants.

|                    | Wine 1  | Wine 2  | Wine 3  | Wine 4  |
|--------------------|---|---|---|---|
| Production System  | PDO<br>Conventional   | Organic<br>Organic  | PDO+Organic<br>Organic  | Traditional<br>Conventional   |
| Production process | This wine has been produced following PDO regulations (e.g., being officially approved by the DO) | This wine has been produced following European Union rules for organic production (e.g., the avoidance of any chemical interventions) | This wine has been produced following PDO regulations and European Union rules for organic production | This wine has been produced in small-scale, manufactured at the rural property of peasant farmers employing traditional practices; it has no certifications |

they received an ID number. Then, participants were placed at a visually isolated table with four wine samples with numbered codes in a different random order specific to each subject. The sessions started by providing written and verbal instructions, as well as a thorough briefing about the production process (see Table 3) of each wine in the auction. The participants were subsequently informed that the four wines had the same general characteristics: wine region,<sup>6</sup> varietal grapes (Mencía) and type (young red). Following Vecchio's [16] experiment, no additional information on brand, sensory characteristics and, to avoid any influences on bid values, no reference price was given to respondents. In line with other studies with similar characteristics (e.g., [46]), the information on alcohol content was not provided to the participants. This is because once the auctioned wine samples have all the same alcohol content, this information has no influence on the results. Attendants were instructed to eat a piece of cracker and rinse their mouth with water to clear their palate between tastings.

The methodology employed is based on the sealed bid method (first-price). This methodology has been used in previous wine studies (e.g., [46]) and has been proven to be quite efficient for eliciting WTP, being one of the easiest for participants to understand; it can also increase equilibrium bids [64]. Subjects were asked to submit the maximum amount they were willing to pay for a 750-ml bottle for each of the four wine samples presented to them. The bid range was from a minimum bid of € 0.00 to a maximum of €10.00. Following Schmit et al. [46] and Vecchio [16], each participant received monetary compensation (€10.00) for completing the experiment. This monetary compensation covers the costs associated with their bids as well as the time

individuals spent in the experimental auction [65]. Participants were informed that only one of the wines auctioned would be binding to the end of the experiment. The highest bidder should buy the wine bottle, so it was in their best interest to bid their maximum WTP for each of the wines. The experiment involved a total of nine sessions.

In group 1, the glasses were labeled with the information of each wine. Participants submitted their bids for each of the four wine samples. Later, they were allowed to assess the overall likeability and the attributes of bitterness, sweetness, and fruitiness (see Appendix1). This assessment was followed by a second set of bids [46]. In group 2, participants were invited to perform a blind tasting of each of the four wines. This sensory assessment was followed by a first set of bids. Afterwards, the conductors of the experiment uncovered the label for each wine. At that point, participants presented the second set of bids.

### 3.3 Data analysis

Tobit models, also commonly designated censored regression models, are widely used in academic research. Such models are also adapted to the study of consumers' response to food labels (e.g., [16,46]). Given the nature of the data, the Tobit model is recognized as one of the most appropriate methods to model the factors affecting bidding behavior [66].<sup>7</sup> In particular, the methods employed ensured that the data were left-censored at 0, since WTP cannot be negative. According to Tobin [66], the Tobit model, compared with other statistical techniques, ensures more consistent estimates. Furthermore, it facilitates the inclusion of additional information. Statistical analysis was performed using R 3.6.1 GUI 1.70 statistical package Rcmdr Version 2.6-0. The censReg,

<sup>6</sup> All the wines in the experiment were produced in Ribeiro wine region, (province of Ourense, Galicia), where red wines assume a relevant presence [62]. Ribeiro is one of the oldest Denominations of Origin (PDO) in Spain (1932). It is also one of the most outstanding in terms of sales and knowledge awareness among Spanish consumers [63].

<sup>7</sup> In this research the dependent variable is a continuous variable in a finite interval.

summarytools, and maxLik packages were used to compute censored regression analysis and other statistical analyses [67].

#### 4. RESULTS

##### 4.1 Average willingness to pay bids for each of the four wines

The main aim of this study is to analyze whether the concept of traditional wine brings value to millennial university students. For that purpose, we examined whether information revelation affected participants' WTP. Using data from group 1, this assessment adopted a one-way analysis of variance (ANOVA) along with the Tukey test [68]. The preliminary assessment confirmed the influence of information cues. The WTP reached an average of €2.13 for the traditional wine (Table 4). Additionally, the average bid for this wine was lower than for other wines.

Table 5 shows the results for group 2. After the blind test, the average bid for traditional wine was €3.67. Next, the information about the wines was presented to the participants. The following average bid for this wine decreased by €1.21. This represents a reduction of 32.97% compared to the average bid obtained in the blind tasting. By contrast, the average WTP bids for the remaining wines increased when information was disclosed after the sensory evaluation.

**Table 4.** Average willingness to pay (€)\* bids displaying information first (group 1).

| Wine        | Information first |
|-------------|-------------------|
| PDO         | 3.76              |
| Organic     | 3.93              |
| PDO+Organic | 5.18              |
| Traditional | 2.13              |

**Table 5.** Average willingness to pay (€)\* bids displaying sensory evaluation first (group 2).

| Wine        | Blind taste (A) | Information after blind taste (B) | Difference (B-A) |
|-------------|-----------------|-----------------------------------|------------------|
| PDO         | 2.84            | 3.04                              | +0.20            |
| Organic     | 2.64            | 2.75                              | +0.11            |
| PDO+Organic | 2.79            | 3.71                              | +0.92            |
| Traditional | 3.67            | 2.46                              | -1.21            |

\*Significant at:  $p < 0.01$  (one-way ANOVA).

**Table 6.** Average overall likeability.

|             | Information first (group 1) | Sensorial first (group 2) | Difference (group 2-group 1) |
|-------------|-----------------------------|---------------------------|------------------------------|
| PDO         | 3.40                        | 2.88                      | -0.52                        |
| Organic     | 2.91                        | 2.66                      | -0.25                        |
| PDO+Organic | 3.02                        | 2.84                      | -0.18                        |
| Traditional | 3.14                        | 3.48                      | +0.34                        |

Many experimental auction studies conducted on agricultural and processed food products have highlighted the importance of introducing sensory cues when evaluating consumers' WTP (e.g., [69]). Therefore, in line with those works, a complementary analysis was performed. The new analysis was designed to assess the participants' overall likeability towards intrinsic wine quality (5-point Likert scale where 1 denoted 'Don't like it at all' and 5 denoted 'Like it a lot'). The findings presented in Table 6 suggest that sensory responses to traditional wine are stronger when sensory evaluation precedes the disclosure of information.

##### 4.2 Variables influencing the purchase of traditional wine

The participants' demographics, self-reported wine knowledge, consumption frequency, and purchase decision criteria were analyzed as variables potentially influencing the purchase of traditional wine. This analysis was performed with data from group 1 because the steps followed by this group were closer to a real market scenario, although we acknowledge the limitation that it does not consider the influence of the 'context' and the 'situation' of purchase. Table 7 provides a summary of the results. The relevant role of some sociodemographic variables is suggested here. A significant positive relationship was identified between monthly disposable income and the WTP for traditional wine, as expected (e.g., [70]). The frequency of wine consumption was also found to have a significant positive relationship, confirming previous findings associating frequency of consumption with a high acceptance of certain products (e.g., [57,71]). The findings also suggested a meaningful effect of the variables in the wine purchase decision. Here, the t-value confirmed the statistical significance of the variable health. The results also suggest that the availability of the product has a negative relationship with WTP.

To further explore the participants' behavior toward the traditional wine, we applied ordinary least squares (OLS) regression to understand the factors underlying



**Table 7.** Tobit regression results on bids for the traditional wine auctioned in group 1 (information disclosed first)<sup>a</sup>.

| Variable          | PDO               | Organic             | PDO+<br>Organic     | Traditional               |
|-------------------|-------------------|---------------------|---------------------|---------------------------|
| Gender            | -0.044<br>(0.556) | 0.100<br>(0.515)    | 0.899<br>(0.623)    | 0.517<br>(0.472)          |
| Income            | -0.187<br>(0.216) | -0.750<br>(0.202)   | 0.187<br>(0.244)    | <b>2.001**</b><br>(0.182) |
| Product knowledge | -1.432<br>(0.525) | -1.302<br>(0.487)   | -0.904<br>(0.589)   | -1.325<br>(0.445)         |
| Consume frequency | 0.985<br>(0.176)  | 0.997<br>(0.164)    | 0.759<br>(0.198)    | <b>1.826*</b><br>(0.148)  |
| Brand             | 0.014<br>(0.249)  | 0.185<br>(0.230)    | 0.040<br>(0.279)    | -0.146<br>(0.210)         |
| Taste             | -0.462<br>(0.312) | 0.100<br>(0.289)    | 0.388<br>(0.349)    | 0.163<br>(0.264)          |
| Health            | 1.381<br>(0.269)  | 1.924*<br>(0.249)   | 1.792*<br>(0.302)   | <b>2.207**</b><br>(0.232) |
| LabelandBottle    | -0.170<br>(0.240) | -0.628<br>(0.222)   | -0.692<br>(0.269)   | -0.419<br>(0.205)         |
| Price             | -0.364<br>(0.275) | -2.249**<br>(0.255) | -1.349<br>(0.308)   | -0.248<br>(0.233)         |
| Availability      | -1.639<br>(0.224) | -0.663<br>(0.208)   | -2.089**<br>(0.252) | <b>-1.950*</b><br>(0.192) |
| Grape             | 0.774<br>(0.218)  | 1.749*<br>(0.202)   | 0.835<br>(0.244)    | 0.647<br>(0.186)          |
| PDO               | -0.156<br>(0.295) | -0.160<br>(0.274)   | 0.051<br>(0.331)    | -0.083<br>(0.248)         |
| RegionalLocal     | 0.060<br>(0.262)  | -0.394<br>(0.243)   | -0.445<br>(0.294)   | -0.073<br>(0.222)         |
| Organic           | -0.321<br>(0.276) | -0.671<br>(0.256)   | 0.510<br>(0.309)    | -0.738<br>(0.234)         |
| Constant          | 2.584<br>(2.436)  | 2.768<br>(2.258)    | 2.005<br>(2.731)    | 0.599<br>(2.042)          |
| Log-likelihood    | -163.254          | -157.455            | -172.260            | -141.264                  |
| N                 | 85                | 85                  | 85                  | 85                        |

<sup>a</sup> Standard error is reported in parentheses.

Significance codes: ‘\*’, ‘\*\*’, and ‘\*\*\*’ denote significance at the 10%, 5%, and 1% levels, respectively.

the difference in prices assigned to these products. Interestingly, as shown in Table 8, income was statistically significant for Traditional-PDO and Traditional-Organic but not for Traditional-PDO+Organic. The variable price only impacted Traditional-EURO LEAF. In particular, the estimated coefficients for income show that participants with higher income tended to bid higher in the significant relationships.

**Table 8.** OLS regression results for the price difference in bids for the traditional wine auctioned in group 1 (information disclosed first)<sup>a</sup>.

| Variable          | PDO     | Organic  | PDO+Organic |
|-------------------|---------|----------|-------------|
| Gender            | 0.577   | 0.389    | -0.618      |
| Income            | 2.246** | 2.797*** | 1.531       |
| Product knowledge | 0.472   | 0.187    | -0.034      |
| Consume frequency | 0.585   | 0.647    | 0.650       |
| Brand             | -0.316  | -0.487   | -0.309      |
| Taste             | 0.805   | 0.118    | -0.255      |
| Health            | 0.159   | -0.325   | -0.531      |
| LabelandBottle    | -0.050  | 0.437    | 0.603       |
| Price             | 0.234   | 2.288**  | 1.426       |
| Availability      | 0.156   | -1.064   | 0.882       |
| Grape             | -0.235  | -1.255   | -0.375      |
| PDO               | 0.293   | 0.271    | 0.151       |
| RegionalLocal     | -0.392  | -0.126   | 0.254       |
| Organic           | -0.208  | 0.156    | -1.132      |
| Constant          | -2.497  | -2.410   | -1.814      |
| R <sup>2</sup>    | 0.138   | 0.196    | 0.192       |
| N                 | 85      | 85       | 85          |

<sup>a</sup> Standard error is reported in parentheses.

Significance codes: ‘\*’, ‘\*\*’, and ‘\*\*\*’ denote significance at the 10%, 5%, and 1% levels, respectively.

## 5. DISCUSSION

Wine is one of the most differentiated products in the food market [72]. The aim of this paper is to analyze whether the perception of traditional wine adds value for millennial university students. New emerging consumer groups are increasingly concerned about differentiated food products [73]. Based on the combination of dynamics in food and beverage markets [74], consumers’ preferences, and the need to differentiate themselves from their competition [70], managers have explored new production techniques and developed innovative products, and such changes have impacted traditional attributes and uniqueness [12,29]. Despite market dynamics and innovation changes, it appears that a substantial untapped market exists for traditional wines.

The Tobit model indicated that variables affecting WTP for traditional wine vary depending on monthly disposable income, frequency of wine consumption, health-related issues, and availability at sales points. Although ‘traditional’ is an attribute excluded from what millennial university students consider to be a ‘natural product’ [13], surprisingly, the results show that fulfilling certain conditions can contribute to increasing preferences towards such products with respect to wine.

The driving factors of wine purchase create a unique level playing field for traditional wines and a distinctive market niche far from large-scale, streamlined industrial wine production. First, the health-enhancing aspects of wine – a niche closely associated with organic products – are a driver of product differentiation and new marketing channels. The previous literature has acknowledged that the expected enhanced health benefits derived from wine consumption are also related to the WTP (for example, those employing organic production methods [43] that do not contain certain specific additives, such as sulfites [75]). Thus, these factors lead to the assumption that the health-enhancing aspects of traditional wines may be related to their less-processed nature and the avoidance of chemical interventions during the winemaking process [2,3], which lead consumers to be willing to pay more for such products.<sup>8</sup> Second, smaller availability at the point of sale may act as a promoter of family traditional small-scale production and as a driver of wine tourism development. Recent empirical investigations suggest that limited availability of a product may be seen as a barrier affecting consumers' purchase decisions [61]. In some cases, limited availability can also relate to a niche market [77].

Despite the limited evidence in the previous literature of millennials' WTP for wines in different price ranges, some conclusions can be mentioned in this regard from our findings. On the one hand, according to previous research, the price elasticity of traditional wine, often related to a remainder category, may have the equivalent behavior as basic priced wines, consistent with high price elasticity (e.g., [36,41,42]). However, on the other hand, a different scenario could be possible. The WTP for traditional wine is related to its smaller availability at the point of sale, which can lead to the assumption that traditional wine could follow the same assessment of premium wines, meaning that they are more inelastic. Additionally, the more frequently the individual consumes wine, the higher the WTP for traditional wine. In this regard, previous studies (e.g., [78]) suggest that participants with a higher frequency of wine consumption are less price sensitive, in both on- and off-premise wine sale outlets. Furthermore, considering the common features shared with more differentiated products, significant substitution effects may not be expected for traditional wine. Although the elasticity and substitutability of traditional wines in a millennial setting are very interesting discussion issues, caution must be applied to previous discussions as this is not our study focus. There is abundant room for further progress on

these issues. Studies specifically oriented and drawing on specific theories (e.g., auction theory [79]) could extend our knowledge about elasticity and substitutability at different price ranges in a millennial context.

Finally, positive externalities can arise from the fact that traditional wine purchases are often related to a 'cellar door' experience, which is habitually linked to the oldest consumer segment [70] and *per se* represents an authentic experience of place. Such an experience creates a close relationship with the seller, facilitating consumer loyalty and contributing to increased sales in the long term and preventing consumers' perception of traditional wines as a low-quality wine class. This is confirmed by Famularo et al.'s [80] assumptions that a greater understanding of a wine's region results from consumers' knowledge and involvement with wine products, which together contribute to their decision-making process.

## 6. CONCLUSIONS

In view of the above considerations, there seems to be an alternative path for small traditional wine producers. Such wine producers are completely different from more technology-oriented producers. These two realities could, and should, coexist in the market landscape for mutual benefit. Nevertheless, traditional products, when compared to other niche market products, suffer from a lack of decoded information and clear labeling. The presence on the label of a protected designation of origin reference [43,57] or organic certification [43] has proven to be a quality indicator. Thus, our findings confirm previous studies (e.g., [8,59]) on the use of information cues as an important focus for assisting consumers in decision-making related to the quality of the product. Such information is required given the impossibility of tasting the wine before purchase. Therefore, wine producers should provide detailed and valuable cues to market traditional wine. Furthermore, the sustainable aspects of traditional wine, namely, aspects related to the practices employed for its production, the promotion of the cultural and artisanal heritage of its region of origin, and economic profitability for many small producers, should be enhanced.

The present study has limitations, which offer ample opportunities for future research. First, although the research model provided some novel insights into the evaluation of traditional wine in the millennial context, data collection involved only millennial students from a public university in Spain. Second, the geographical area in which the auctions were performed has a long winemaking tradition, and wine is present in daily life.

<sup>8</sup> In this regard, conflicts of interest in research related to the health benefits of wine should be acknowledged (e.g., [58,76]).

The traditional attribute may perform differently in areas where traditional is associated with greater exclusivity and high standing. Therefore, future research extending this analysis to more diverse samples and other geographical locations is recommended. Studies in diverse cultural settings may confirm (or not) our findings. Third, as the minimum bid of 0.00€, it could not be determined whether a person would have a negative bid (that is, actually pay to avoid drinking the wine). Fourth, the limitation of using a single product in the analysis should also be considered. Fifth, the research model does not consider the influence of the 'context' and the 'situation' of purchase. For that reason, generalization of the results to real market transactions should proceed with caution. Finally, the analysis was carried out using entry-level wines; thus, extrapolation of the results related to price elasticity and substitutability for the lower end of the market to the middle and upper ranges may not be possible. Future research could extend the analysis by integrating different price points (basic, premium, super premium, ultra-premium and luxury).

#### ACKNOWLEDGMENTS

The paper is derived from data collected for the first author's thesis at Universidade de Vigo. We thank the detailed suggestions of Francisco Campos, Alfredo Coelho, the Editor and the anonymous reviewers for their careful reading and comments that helped improve previous versions of the paper. This research was partially funded by Diputacion de Ourense (INOUE 17-10) and RGEAF-ECOBAS.

#### REFERENCES

- [1] Gellynck, X., Kühne, B., 2008. Innovation and collaboration in traditional food chain networks. *J. Chain Netw. Sci.*, 8 (2), 121-129. <https://doi.org/10.3920/JCNS2008.x094>.
- [2] Antonelli A., Arfelli G., Masino F., Sartini E., 2010. Comparison of traditional and reductive winemaking: influence on some fixed components and sensorial characteristics. *Eur. Food Res. Technol.*, 231 (1), 85-91. <https://doi.org/10.1007/s00217-010-1250-6>.
- [3] Fuentes, J. M., Gallego, E., García, A. I., Ayuga, F., 2010. New uses for old traditional farm buildings: The case of the underground wine cellars in Spain. *Land use Policy*, 27 (3), 738-748. <https://doi.org/10.1016/j.landusepol.2009.10.002>.
- [4] Maitre, I., Symoneaux, R., Jourjon, F., Mehinagic, E., 2010. Sensory typicality of wines: How scientists have recently dealt with this subject, *Food Qual. Prefer.*, 21 (7), 726-731. <https://doi.org/10.1016/j.foodqual.2010.06.003>.
- [5] Charters, S., 2010. Marketing Terroir: A conceptual approach. Refereed paper, 5th International Academy of Wine Business Research Conference, 8-10 February 2010, Auckland, New Zealand.
- [6] Francesca, N., Gaglio, R., Alfonso, A., Settanni, L., Corona, O., Mazzei, P., Romano, R., Piccolo, A., Moschetti, G., 2016. The Wine: Typicality or Mere Diversity? The Effect of Spontaneous Fermentations and Biotic Factors on the Characteristics of Wine. *Agric. Agric. Sci.*, 8, 769-773. <https://doi.org/10.1016/j.aaspro.2016.02.064>.
- [7] González, P. A., Dans, E. P., 2018. The 'terroirist' social movement: The reawakening of wine culture in Spain. *J. Rural Stud.*, 61, 184-196. <https://doi.org/10.1016/j.jrurstud.2018.04.014>.
- [8] Spielmann, N., 2015. Anything but typical: how consumers evaluate origin products based on their cues. *Int. J. Wine Bus. Res.*, 27 (1), 23-39. <https://doi.org/10.1108/IJWBR-07-2014-0031>.
- [9] Michel, F., Siegrist, M., 2019. How should importance of naturalness be measured? A comparison of different scales. *Appetite*, 140, 298-304. <https://doi.org/10.1016/j.appet.2019.05.019>.
- [10] Thøgersen, J., de Barcellos, M.D., Perin, M.G., Zhou, Y., 2015. Consumer buying motives and attitudes towards organic food in two emerging markets. *Int. Mark. Rev.*, 32, 389-413. <https://doi.org/10.1108/IMR-06-2013-0123>.
- [11] Hemmerling, S., Hamm, U., Spiller, A., 2015. Consumption behaviour regarding organic food from a marketing perspective—A literature review. *Org. Agric.*, 5, 277-313. <https://doi.org/10.1007/s13165-015-0109-3>.
- [12] Guerrero, L., Guàrdia, M. D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., ..., Scalvedi, M. L., 2009. Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite*, 52 (2), 345-354. <http://dx.doi.org/10.1016/j.appet.2008.11.008>.
- [13] Jorge, E., Lopez-Valeiras, E., Gonzalez-Sanchez, M. B., 2020. The Importance Given to Food Naturalness Attributes by Millennial University Students. *Sustainability*, 12 (2), 728. <https://doi.org/10.3390/su12020728>.
- [14] Castellini, A., Samoggia, A., 2018. Millennial consumers' wine consumption and purchasing hab-

- its and attitude towards wine innovation. *Wine Econ. Policy*, 7 (2), Issue 2, 128-139. <https://doi.org/10.1016/j.wep.2018.11.001>.
- [15] Chang, K. J., Liz Thach, M. W., Olsen, J., 2016. Wine and health perceptions: Exploring the impact of gender, age and ethnicity on consumer perceptions of wine and health. *Wine Econ. Policy*, 5 (2), 105-113. <https://doi.org/10.1016/j.wep.2016.09.001>.
- [16] Vecchio, R., 2013. Determinants of willingness-to-pay for sustainable wine: Evidence from experimental auctions. *Wine Econ. Policy*, 2 (2), 85-92. <https://doi.org/10.1016/j.wep.2013.11.002>.
- [17] Heil, M., 2014. PIERRE MORA: Wine Business Case Studies: Thirteen Cases from the Real World of Wine Business Management. Wine Appreciation Guild, San Francisco, 2014, 300 pp., ISBN 978-1935879718, \$30.00 (paperback). *J. Wine Econ.*, 9 (3), 351-358. <https://doi.org/10.1017/jwe.2014.34>.
- [18] Pozo-Bayón, M. A., Martínez-Rodríguez, A., Pueyo, E., Moreno-Arribas, M. V., 2009. Chemical and biochemical features involved in sparkling wine production: from a traditional to an improved winemaking technology. *Trends Food Sci. Technol.*, 20 (6-7), 289-299. <https://doi.org/10.1016/j.tifs.2009.03.011>.
- [19] Staub, C., Michel, F., Bucher, T., Siegrist, M., 2020. How do you perceive this wine? Comparing naturalness perceptions of Swiss and Australian consumers. *Food Qual. Prefer.*, 79, 2020, 103752. <https://doi.org/10.1016/j.foodqual.2019.103752>.
- [20] Soto Vázquez, E., Río Segade, S., Orriols Fernández, I., 2010. Effect of the winemaking technique on phenolic composition and chromatic characteristics in young red wines. *Eur. Food Res. Technol.*, 231, 789-802. <https://doi.org/10.1007/s00217-010-1332-5>.
- [21] Scozzafava, G., Gerini, F., Dominici, A., Contini, C., Casini, L., 2018. Reach for the stars: The impact on consumer preferences of introducing a new top-tier typology into a PDO wine, *Wine Econ. Policy*, 7 (2), 140-152. <https://doi.org/10.1016/j.wep.2018.09.001>.
- [22] Forbes, S.L., Cohen, D.A., Cullen, R., Wratten, S.D., Fountain, J., 2009. Consumer attitudes regarding environmentally sustainable wine: an exploratory study of the New Zealand marketplace. *J. Clean. Prod.*, 17 (13), 1195e1199. <https://doi.org/10.1016/j.jclepro.2009.04.008>.
- [23] Jorge, E., Lopez-Valeiras, E., and Gonzalez-Sanchez, M. B., 2020. The role of attitudes and tolerance of ambiguity in explaining consumers' willingness to pay for organic wine, *J. Clean Prod.*, 257. <https://doi.org/10.1016/j.jclepro.2020.120601>.
- [24] Jordana, J., 2000. Traditional foods: Challenges facing the European food industry. *Food Res. Int.*, 33 (3-4), 147-152. [https://doi.org/10.1016/S0963-9969\(00\)00028-4](https://doi.org/10.1016/S0963-9969(00)00028-4).
- [25] Chikhi, K., Martine P., 2014. L'alimentation en Algérie: quelles formes de modernité? *New Medit.*, 13, 50-58. hal-02163637.
- [26] Reay, T., Jaskiewicz, P., Hinings, C., 2015. How Family, Business, and Community Logics Shape Family Firm Behavior and "Rules of the Game" in an Organizational Field. *Fam. Bus. Rev.*, 28. <https://doi.org/10.1177/0894486515577513>.
- [27] Remmers, G. G. A., 1993. Agricultura tradicional y agricultura ecológica: vecinos distantes. *Agricultura y sociedad: revista ed. por la Secretaría General Técnica del Ministerio de Agricultura*. Madrid. pp. 201-220.
- [28] Gere, A., Radványi, D., Moskowicz, H., 2019. Chapter 3 - Consumer Perspectives About Innovations in Traditional Foods, Editor(s): Charis M. Galanakis, *Innovations in Traditional Foods*, Woodhead Publishing, 53-84. <https://doi.org/10.1016/B978-0-12-814887-7.00003-4>.
- [29] Vanhonacker, F., Lengard, V., Hersleth, M., Verbeke, W., 2010. Profiling European traditional food consumers. *Br. Food J.*, 112, 871-886. <https://doi.org/10.1108/00070701011067479>.
- [30] Allen, M.W., Spialek, M.L., 2017. Young millennials, environmental orientation, food company sustainability, and green word-of-mouth recommendations. *J. Food Prod. Mark.*, 24, 803-839. <https://doi.org/10.1080/10454446.2017.1415827>.
- [31] Atkin, A.T., Thach, L., 2012. Millennial wine consumers: Risk perception and information search. *Wine Econ. Policy*, 1, 54-62. <https://doi.org/10.1016/j.wep.2012.08.002>.
- [32] Bollani, L., Bonadonna, A., Peira, G., 2019. The Millennials' Concept of Sustainability in the Food Sector. *Sustainability*, 11 (10), 2984. <https://doi.org/10.3390/su11102984>.
- [33] Murley, T., Chambers, E., IV., 2019. The influence of colorants, flavorants and product identity on perceptions of naturalness. *Foods*, 8, 317. <https://doi.org/10.3390/foods8080317>.
- [34] Pomarici, E., Vecchio, R., 2014. Millennial generation attitudes to sustainable wine: an exploratory study on Italian consumers. *J. Clean. Prod.*, 66, 537-545. <https://doi.org/10.1016/j.jclepro.2013.10.058>.
- [35] Cavallo, C., Materia, V.C., 2018. Insects or not insects? Dilemmas or attraction for young generations: A case in Italy. *Int. J. Food Syst. Dyn.*, 9 (3), 226-239. <https://doi.org/10.18461/ijfsd.v9i3.932>.



- [36] Schäufele, I., Hamm, U., 2020. Wine consumers' reaction to prices, organic production and origins at the point of sale: an analysis of household panel data. *Renew. Agric. and Food Syst.*, 35, 261–273. <https://doi.org/10.1017/S174217051800056X>.
- [37] Teagle, J., Mueller, S., Lockshin, L., 2010. How do millennials' wine attitudes and behaviour differ from other generations? Proceedings 5th International Academy of Wine Business Research Conference. Auckland, New Zealand.
- [38] Agnoli, L., Begalli, D., Capitello, R., 2011. Generation Y's perception of wine and consumption situations in a traditional wine-producing region. *Int. J. Wine Bus. Res.*, 176–192. <https://doi.org/10.1108/17511061111143025>.
- [39] Gallet, C.A., 2007. The demand for alcohol: a meta-analysis of elasticities. *Aust. J. Agri. Resour. Econ.*, 51: 121–135. <https://doi.org/10.1111/j.1467-8489.2007.00365.x>
- [40] Sellers, R., 2016. Would you pay a price premium for a sustainable wine? the voice of the spanish consumer. *Agric. Agric. Sci. Procedia*, 8, 10–16. <https://doi.org/10.1016/j.aaspro.2016.02.003>.
- [41] Stasi, A., Nardone, G., Viscecchia, R., Seccia, A., 2011. Italian wine demand and differentiation effect of geographical indications. *Int. J. Wine Bus. Res.*, 23 (1), 49–61. <https://doi.org/10.1108/17511061111121407>.
- [42] Subbaraman, M. S., Mulia, N., Kerr, W. C., Patterson, D., Karriker-Jaffe, K. J., Greenfield, T. K., 2020. Relationships between US state alcohol policies and alcohol outcomes: differences by gender and race/ethnicity. *Addiction*, 115, 1285–1294. <https://doi.org/10.1111/add.14937>.
- [43] Troiano, S., Marangon, F., Tempesta, T., Vecchiato, D., 2016. Organic vs local claims: substitutes or complements for wine consumers? A marketing analysis with a discrete choice experiment. *New Medit*, 15 (2), 14–21
- [44] Iazzi A., Scorrano P., Pierfelice R., Balakrishna G., 2019. Millennial generation preferences for rosé wine: An exploratory study of the Italian and French wines, *Br. Food J.*, 122 (8), pp. 2443–2461. <https://doi.org/10.1108/BFJ-07-2019-0478>.
- [45] Creswell, J. W., 2009. Research design: Qualitative, quantitative, and mixed methods approaches. Los Angeles: Sage.
- [46] Schmit, T. M., Rickard, B. J., Taber, J., 2013. Consumer valuation of environmentally friendly production practices in wines, considering asymmetric information and sensory effects. *Journal of Agri.c Econ.*, 64 (2), 483–504. <https://doi.org/10.1111/1477-9552.12001>.
- [47] Conway, J.M., Lance, C.E., 2010. What reviewers should expect from authors regarding common method bias in organizational research. *J. Bus. Psychol.*, 25, 325–344. <https://doi.org/10.1007/s10869-010-9181-6>.
- [48] Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. Podsakoff, N. P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88 (5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>.
- [49] Preston, C. C., Colman, A. M., 2000. Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica*, 104 (1), 1–15. [https://doi.org/10.1016/S0001-6918\(99\)00050-5](https://doi.org/10.1016/S0001-6918(99)00050-5).
- [50] Colman, A. M., Norris, C. E., Preston, C. C., 1997. Comparing rating scales of different lengths: Equivalence of scores from 5-point and 7-point scales. *Psychol. Rep.*, 80, 355–362. <https://doi.org/10.2466/pr0.1997.80.2.355>.
- [51] Sachdev, S. B., Verma, H. V., 2004. Relative importance of service quality. *J. Serv. Res.*, 4(1), 93–116.
- [52] Buttle, F., 1996. SERVQUAL: review, critique, research agenda. *Eur. J. Mark.*, 30. 8–32. <https://doi.org/10.1108/03090569610105762>.
- [53] Itani L, Chatila H, Dimassi H, El Sahn F., 2017. Development and validation of an Arabic questionnaire to assess psychosocial determinants of eating behavior among adolescents: a cross-sectional study. *J Health Popul Nutr.*, 36 (1). <https://doi.org/10.1186/s41043-017-0086-0>.
- [54] Taber, K. S., 2018. The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Res. Sci. Educ.*, 48, 1273–1296. <https://doi.org/10.1007/s11165-016-9602-2>.
- [55] Cortina, J. M., 1993. What is coefficient alpha? An examination of theory and applications. *J Appl Psychol.*, 78 (1), 98–104. <https://doi.org/10.1037/0021-9010.78.1.98>.
- [56] Goetzke, B., Nitzko, S., Spiller, A., 2014. Consumption of organic and functional food. A matter of well-being and health?. *Appetite*, 77, 96–105. <https://doi.org/10.1016/j.appet.2014.02.012>.
- [57] Corduas, M., Cinquanta, L., Ievoli, C., 2013. The importance of wine attributes for purchase decisions: A study of Italian consumers' perception. *Food Qual. Prefer.*, 28 (2), 407–418. <https://doi.org/10.1016/j.foodqual.2012.11.007>.
- [58] Higgins, L.M., Llanos, E., 2015. A healthy indulgence? wine consumers and the health benefits of



- wine. *Wine Econ. Policy*, 4 (1), 3e11. <https://doi.org/10.1016/j.wep.2015.01.001>.
- [59] Henley, C. D., Fowler, D. C., Yuan, J., Stout, B. L., & Goh, B. K., 2011. Label design: impact on millennials' perceptions of wine. *International Journal of Wine Business Research*, 23 (1), 7-20. <https://doi.org/10.1108/17511061111121371>.
- [60] Almenberg, J., Dreber, A., 2011. When Does the Price Affect the Taste? Results from a Wine Experiment. *J. Wine Econ.*, 6(1), 111-121. <https://doi.org/10.1017/S1931436100001085>.
- [61] Nuttavuthisit, K., Thøgersen, J., 2017. The importance of consumer trust for the emergence of a market for green products: The case of organic food. *J. Bus. Ethics*, 140 (2), 323-337. <https://doi.org/10.1007/s10551-015-2690-5>.
- [62] Rebolo, S., Peña, R. M., Latorre, M.J., García, S., Botana, A. M., Herrero, C., 2000. Characterisation of Galician (NW Spain) Ribeira Sacra wines using pattern recognition analysis. *Analytica Chimica Acta*, 417 (2), 211-220. [https://doi.org/10.1016/S0003-2670\(00\)00929-6](https://doi.org/10.1016/S0003-2670(00)00929-6).
- [63] Olmeda Fernández, M., Bernabéu Cañete, R., 2002. Estrategias del sector vinícola en Castilla-La Mancha. Cuenca: Servicio de Publicaciones de la Universidad de Castilla-La Mancha.
- [64] van Damme, E. E. C., and Börgers, T., 2004. Auction theory for auction design. In M. Janssen (Ed.), *Auctioning Public Assets. Analysis and Alternatives* (pp. 19-64). Cambridge: Cambridge University Press.
- [65] Loureiro, M. L., Umberger, W. J., Hine, S., 2003. Testing the initial endowment effect in experimental auctions. *Appl. Econ. Lett.*, 10 (5), 271-275. <https://doi.org/10.1080/1350485032000056855>.
- [66] Tobin, J., 1958. Estimation of relationships for limited dependent variables. *Econometrica*, 26 (1), 24-36. <https://doi.org/10.2307/1907382>.
- [67] Kleiber, C., Zeileis, A., 2008. Applied Econometrics with R, *Springer*, 1, 141-143. <https://doi.org/10.1007/978-0-387-77318-6>.
- [68] Hothorn T., Bretz F., Westfall P., 2008. Simultaneous Inference in General Parametric Models. *Biom. J.*, 50(3), 346-363. <https://doi.org/10.1002/bimj.200810425>.
- [69] Lewis, K.E., Grebitus, C., Nayga, R.M., Jr., 2016. The Importance of taste in experimental auctions: consumers' valuation of calorie and sweetener labeling of soft drinks. *Agric Econ.*, 47, 47-57. <https://doi.org/10.1111/agec.12208>.
- [70] Szolnoki, G., Hoffmann, D., 2014. Consumer segmentation based on usage of sales channels in the German wine market. *Int. J. Wine Bus. Res.*, 26 (1), 27-44. <https://doi.org/10.1108/IJW-BR-10-2012-0028>.
- [71] Bell R., Marshall D.W., 2003. The construct of food involvement in behavioural research: scale development and validation, *Appetite*, 40, 235-244. [https://doi.org/10.1016/S0195-6663\(03\)00009-6](https://doi.org/10.1016/S0195-6663(03)00009-6).
- [72] Schäufele, I., Hamm, U., 2017. Consumers' perceptions, preferences and willingness-to-pay for wine with sustainability characteristics: A review. *J. Clean. Prod.*, 147, 379-394. <https://doi.org/10.1016/j.jclepro.2017.01.118>.
- [73] Bach-Faig, A., Berry, E., Lairon, D., Reguant, J., Trichopoulou, A., Dernini, S., Medina, F. X., Battino, M., Belahsen, R., Miranda, G., Serra-Majem, L., 2011. Mediterranean diet pyramid today. Science and cultural updates. *Public Health Nutr.*, 14 (12A), 2274-2284. <https://doi.org/10.1017/S1368980011002515>.
- [74] Brignardello, M., 2018. Changes and continuities in agricultural work: The case of small and medium-sized vineyards in Mendoza, Argentina. *Cah. Agric.*, 27 (3). <https://doi.org/10.1051/cagri/2018025>.
- [75] Costanigro, M., Appleby, C., Menke, S. D., 2014. The wine headache: Consumer perceptions of sulfites and willingness to pay for non-sulfited wines. *Food Qual. Prefer.*, 31, 81-89. <https://doi.org/10.1016/j.foodqual.2013.08.002>.
- [76] O'Keefe, J.H., Bhatti, S.K., Bajwa, A., DiNicolantonio, J.J., Lavie, C.J., 2014. Alcohol and cardiovascular health: the dose makes the poison... or the remedy. *Mayo Clin. Proc.*, 89 (3), 382e393. <https://doi.org/10.1016/j.mayocp.2013.11.005>.
- [77] Yamoah, F. A., Acquaye, A., 2019. Unravelling the attitude-behaviour gap paradox for sustainable food consumption: Insight from the UK apple market. *J. Clean. Prod.*, (217), 172-184. <https://doi.org/10.1016/j.jclepro.2019.01.094>.
- [78] Jiang, H., Livingston, M., Room, R., Callinan, S., 2016. Price elasticity of on- and off-premises demand for alcoholic drinks: A Tobit analysis, *Drug Alcohol Depend.*, 163, 222-228. <https://doi.org/10.1016/j.drugalcdep.2016.04.026>.
- [79] Milgrom, P., Weber, R., 1982. A Theory of Auctions and Competitive Bidding. *Econometrica*, 50 (5), 1089-1122. <https://doi.org/10.2307/1911865>.
- [80] Famularo, B., Bruwer, J., Li, E., 2010. Region of origin as choice factor: wine knowledge and wine tourism involvement influence. *Int. J. Wine Bus. Res.*, 22 (4), 362-385. <https://doi.org/10.1108/17511061011092410>.