

## How to promote sustainable wine tourism: Insights from Italian and French young adults

Riccardo Vecchio<sup>a</sup>, Azzurra Annunziata<sup>c</sup>, Tatiana Bouzdine-Chameeva<sup>b,\*</sup>

<sup>a</sup> Department of Agricultural Sciences, University of Naples Federico II, Italy

<sup>b</sup> Centre of Excellence "Food, Wine and Hospitality Management", Wine Tourism Institute, KEDGE Business School (Bordeaux campus), France

<sup>c</sup> Department of Economic Studies, "Parthenope" University of Naples, Italy

### ARTICLE INFO

**Editor:** Ksenia Kirillova

**Keywords:**

Intention

Attitudes

Social norms

Information framing

Cross-sectional surveys

### ABSTRACT

With over 40 million annual tourists visiting wineries, wine tourism is becoming an important source of revenue for wine businesses and local communities to preserve heritage in rural regions. It is perceived as a strategy to increase economic and social sustainability. Two cross-sectional surveys in France and Italy explored the interest of 1205 young adults and the influence of individual features on sustainable wine tourism intention. Two scenarios with differently framed environmental information were tested through a mock winery webpage. Wine involvement, environmental attitude, perceived behavioural control were identified as core traits prompting young adults to experience sustainable wine tourism. The adoption of co-compatible practices and winery commitment in preserving biodiversity emerged as more attractive than a sustainability certification.

### 1. Introduction

The global wine tourism market was valued at approximately USD 8.7 billion in 2020, and it is expected to experience a substantial growth in the coming years, probably reaching almost 29.6 billion euros by 2030 (Statista, 2023). Therefore, wine tourism has become an essential segment of the tourism industry for many wine-producing countries and an important source of business value, providing economic benefits, particularly for small wineries and the surrounding wine region (Festa, Cuomo, Foroudi, & Metallo, 2020; Festa, Shams, Metallo, & Cuomo, 2020; Santos, Ramos, Sousa, & Valeri, 2022; Sigala, 2020; Sottini et al., 2019; Sun & Drakeman, 2022). According to Hall, Cambourne, Macionis, and Johnson (1997), 'wine tourism can be defined as a visitation to vineyards, wineries, wine festivals and wine shows for which grape wine tasting and/or experiencing the attributes of a grape wine region are the prime motivating factor for visitors'. Wine tourism can highlight the value of the material, immaterial and natural heritage of a region, thereby promoting cultural identity, quality of life and the socio-economic development of the population (Santos, Ramos, Almeida, & Santos-Pavón, 2019). In this perspective, wine tourism is recognised as an important tool for sustainable development (Montella, 2017; Sun & Drakeman, 2022; Trigo & Silva, 2022) as it is expected to promote the

economic well-being of local wine producers without compromising the integrity and quality of the natural environment (Sigala & Robertson, 2018; Trigo & Silva, 2022).

Indeed, according to the World Tourism Organisation Georgia Declaration, wine tourism is an effective approach to achieving sustainable development, particularly for rural regions (UNWTO, 2016). Wine regions adopting an eco-friendly approach are more likely to attract visitors with ethical and environmental concerns (Santini, Cavicchi, & Casini, 2013), and the proportion of such tourists is constantly increasing (Nave, & do Paço, A., 2021). Researchers have observed the limited availability of a commonly accepted definition of sustainable wine tourism as well as a scant scholar attention to conceptual frameworks capable of comprehending the various aspects surrounding sustainable wine tourism (Duarte Alonso & Liu, 2012; Montella, 2017; Trigo & Silva, 2022).

In this regard, Poitras and Donald (2006) suggested that sustainable wine tourism mainly depends on a general approach to tourism development based on three pillars: economic, environmental and social sustainability. In a recent research, Nave, and do Paço, A. (2021) pointed out that from the aspect of wine tourism management, sustainability is perceived as a set of practices aiming to conserve the environment and value the social dimension. As a consequence,

\* Corresponding author.

E-mail addresses: [riccardo.vecchio@unina.it](mailto:riccardo.vecchio@unina.it) (R. Vecchio), [azzurra.annunziata@uniparthenope.it](mailto:azzurra.annunziata@uniparthenope.it) (A. Annunziata), [tatiana.chameeva@kedgbe.com](mailto:tatiana.chameeva@kedgbe.com) (T. Bouzdine-Chameeva).

<https://doi.org/10.1016/j.annale.2024.100137>

Received 19 October 2023; Received in revised form 15 April 2024; Accepted 17 April 2024

Available online 24 April 2024

2666-9579/© 2024 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

sustainable wine tourism is related to the identification and management of issues pertaining to the resources used (e.g. using water and energy carefully, using recyclable resources, integrating ecological practices for grape growing and wine making, reducing and separating waste), the specific forms of wine tourism development (e.g. visitor facilities and events at wineries) and the specific impacts caused by wine-related tourism (Poitras & Donald, 2006). However, the rapid growth of wine tourism in recent years, particularly in Europe, has raised concerns about its potential long-term negative effects on natural resources, cultural heritage, the landscape and local communities, prompting policymakers and wineries to dedicate their efforts to the promotion of sustainable forms of wine tourism (Lamoureux, Barbier, & Bouzdine-Chameeva, 2022). Consequently, the association between sustainability and wine tourism is a relevant issue that needs to be explored further.

In addition, consumers increasingly demand for eco-friendly products and show willingness for sustainable services in contemporary tourism (Han, 2021; Molina-Collado, Santos-Vijande, Gómez-Rico, & Madera, 2022). Recent research demonstrated that sustainability features and practices (e.g. applying ecological practices, supporting biodiversity, using green energy) are factors that increasingly affect the individual choice of wine and enogastronomic tourism (Festa, Cuomo, Genovino, Alam, & Rossi, 2023; Filopoulos & Frittella, 2019; Galati, Testa, Schifani, & Migliore, 2023; Grimstad, 2011). As a result, wineries are progressively implementing sustainable practices to minimise environmental impacts and preserving the natural environment and surrounding community to internalise sustainability principles in their business models (Flores & Medeiros, 2016; Galati et al., 2023; Trigo & Silva, 2022). However, there is a need to evaluate and monitor these sustainability initiatives to effectively determine which strategies are most suitable to satisfy the growing consumer demand for wine tourism without compromising the environment and local communities.

Although numerous studies in the past decade have explored the factors influencing visitors to travel to a winery or wine region (e.g. Montella, 2017; Nave, & do Paço, A., 2021), to the best of our knowledge, the literature on sustainable wine tourism is currently scant, and there is limited availability of conceptual frameworks to facilitate understanding of the various aspects surrounding sustainable wine tourism (Duarte Alonso & Liu, 2012). Limited research has investigated consumer perceptions of initiatives, strategies or actions implemented by wineries to make their wine tourism offer more sustainable, particularly with reference to younger generations that may represent promising segments for sustainable tourism (Montella, 2017; Schönherr & Pikkemaat, 2023). Indeed, if in the past wine tours were primarily associated with mature generations, experts and connoisseurs, in recent years, there have been a resurgence in popularity among younger adults (Stergiou, 2018; Stergiou, 2019; Stergiou, Airey, & Apostolakis, 2018; Trigo & Silva, 2022). Recent statistics in Italy and France show that individuals below 35 years old represent approximately 1/3 of the total wine tourism (Divinea, 2023; Atout France, 2022). Furthermore, younger adults in their tourism choices perceive sustainability orientations as favourable, focusing on environmental protection, resource conservation, employee well-being and community engagement (Salinero, Prayag, Gómez-Rico, & Molina-Collado, 2022; Schönherr & Pikkemaat, 2023).

Previous scholars have explicitly called for further research into the characteristics and behaviour of younger generations with reference to wine tourists (Carlsen, Getz, & Willcock, 2006; Getz & Carlsen, 2008), highlighting that this segment has not received sufficient attention, particularly within European countries (Stergiou, 2019). In addition, many of the existing wine tourism studies focus on vineyard visitors rather than wine consumers in general, hence our limited understanding of the potential for sustainable wine tourism among wine consumers, particularly in the Old World (Alebaiki, Menexes, & Koutsouris, 2015; Charters & Menival, 2011).

In view of these knowledge gaps, the current study aimed to improve the limited understanding of this growing segment through an

experimental survey that investigates the overall interest of Italian and French young adults (18–32 years old) in sustainable wine tourism. Furthermore, this study aimed to explore the general interest of young adults in sustainable wine tourism and identify the main attitudinal, behavioural and demographic factors affecting their intention to perform a wine tour. While previous studies in wineries in New Zealand (Baird, Hall, & Castka, 2018), Portugal (Nave, & do Paço, A., and Duarte, P., 2021), South Africa (Mihailescu, 2018), Greece (Karagiannis & Metaxas, 2020) or Germany (Szolnoki & Tafel, 2022) have outlined the impact of winery green orientation on increasing the intention to visit, our study focused more on individual characteristics and sustainability information framings.

Moreover, most studies have been conducted by exploring consumers' preferences at the cellar door, whereas most young adults are characterised by a tendency towards technologically mediated services, choosing their travel destinations mainly online (Leighann & Judith, 2014; Schönherr & Pikkemaat, 2023). Therefore, the present study used mock webpages replicating winery sites to mimic young individuals' real touristic choice procedures.

Italy and France were chosen as reference countries as they share a long tradition of wine consumption and production and their consumers generally show high involvement with wine (Iazzi, Scorrano, Rosato, & Grandhi, 2019). According to the International Organisation of Vine and Wine (OIV, 2023), Italy and France account together for about 40% of all the wine produced in the world. Moreover, both countries have focused on organic wine production and the sustainable development of the sector (e.g. Bouzdine-Chameeva & Krzywoszynska, 2011; Broccardo & Zicari, 2020; Lichy, Kachour, & Stokes, 2023). Also, both countries are characterised by the complexity of the sector's structure based on a large number of small wineries, with more than 300 wine appellations in each country (FranceAgriMer, 2023; Istat, 2023). Finally, Italy welcomes 15 million wine tourists per year (Garibaldi, 2021), and France estimates 10 million annual visitors in its vineyards (Atout France, 2022).

The findings of this study could help identify which aspects of sustainability are more important in influencing young adults' intentions to choose a sustainable wine experience and provide practical insights into wineries and policymakers interested in monitoring these variables and to develop effective destination strategies fostering sustainability among wineries and wine regions. The remainder of the paper is organised as follows: the next section presents a brief literature review of the different factors affecting individuals' intention to perform wine tourism; subsequently, the materials and methods applied are described; then, the results are presented; and finally, discussion and conclusions are provided.

## 2. Literature review

Wine tourism experience goes beyond the mere desire to taste wine and visit the territory where the wine is produced (Bruwer & Leschaeve, 2012; Cohen & Ben-Nun, 2009), encompassing many dimensions related to economic, social and cultural values (Charters & Ali-Knight, 2000, 2002). Sustainable wine tourism encompasses the links created between the winery and its surrounding elements, products, brands and winery visitors, including through the appreciation of and respect for the landscape (Duarte Alonso, Kok, & O'Brien, 2020). The literature highlights the multi-dimensionality of the wine tourism experience and the existence of diverse factors affecting individuals' intention to have a wine tourism experience (Alebaiki et al., 2015).

Regarding motivations, Afonso, Silva, Gonçalves, and Duarte (2018) distinguished primary motivation, which is wine-centred and related to an interest in tasting and purchasing wine (Alant & Bruwer, 2004; Alebaiki et al., 2015; Charters & Ali-Knight, 2002) from secondary motivation, which is mainly linked to socialisation, participation in wine events, educational experience and the attractiveness of the destination (Alebaiki et al., 2015; Altschwager, Conduit, Bouzdine Chameeva, & Goodman, 2017). Other scholars suggest that wine tourism motivation

incorporates a bundle of benefits linked not only to intrinsic customer needs (e.g. escape, relaxation or prestige) but also to particular attributes that draw visitors to the winery or wine region, such as impressive landscapes, wine events and festivals (Mitchell & Hall, 2001; Quintal, Thomas, & Phau, 2015).

Recent studies have demonstrated how wine sustainability, and the green orientation of wineries, is starting to play an increasingly important role in influencing wine tourism intentions (Montella, 2017; Nave, & do Paço, A., 2021). Smyczek, Festa, Rossi, and Monge (2020) indicated that wine tourism management should focus on improving logistics services that have an important negative externalities in terms of environmental impact.

Baird et al. (2018) stated that attracting wine tourists by promoting sustainable viticulture methods as a growth path towards competitive advantage and sustainability is driving national wine tourism in New Zealand. Barber, Taylor, and Deale (2010) reported that in the USA, wine tourists are willing to pay more for environmentally friendly wines and visit a winery or wine region engaging in the protection of the natural and cultural environment, particularly individuals with a stronger environmental attitude. Holohan and Remaud (2014) found that eco-friendly attributes of wineries positively impact wine tourists' purchasing behaviour in Bordeaux wineries. Mihailescu (2018) in South Africa observed that tourists perceive organic wineries as sustainable, which drives them to visit these wineries. Antonazzo, Fiore, La Sala, and Contò (2015), in a survey conducted in a region in the south of Italy, found that wine tourists show positive attitudes towards the consumption of tastier, healthier, safer and environmentally friendly wines and clearly perceive organic certification label as a substantial influence attribute when deciding to buy wine. The authors showed that this attribute is more important among young adults.

More recently, Karagiannis and Metaxas (2020) reported that organic certification is a discriminating factor in the choice to visit a winery, leading to the perception of a positive environmental performance.

Szolnoki and Tafel (2022) found that other factors shape the value of an organic winery from the consumer and tourist perspective, mainly connected to wine quality, authentic location and environmental aspects. Thus, for wine tourists, organic certification may not be the main reason for visiting a winery; however, the authentic characteristics of wineries play a pivotal role in the behavioural intentions of winery tourists (Bonn, Chang, & Cho, 2020; Kim & Bonn, 2016).

This mixed evidence suggests the need to further investigate the aspects of sustainability that influence the intention to have a sustainable wine tourism experience.

Previous studies also demonstrated that wine knowledge and involvement are predictors of wine tourism preferences (Alebaiki et al., 2015; Mitchell & Hall, 2001). Santos, Ramos, and Almeida (2017) indicated that wine product involvement is crucial in shaping the behavioural intentions of wine tourists, consistent with Charters and Ali-Knight (2002) and Alebaiki et al. (2015), who found that the level of wine involvement is the best predictor of visitors' motivations. Several wine tourism studies also highlighted the influence of past experience on destination choice and motivation. For example, Alebaiki et al. (2015) reported that as the number of past visits to wineries increases, individuals are less inclined to gathering knowledge about the product and more interested in other aspects of wine tourism (e.g. socialisation or interaction with the winemaker). For Santos et al. (2019) and Priilaid, Ballantyne, and Packer (2020), the winery visit experience also exerts a positive effect on recommendations and loyalty.

Other scholars instead focus on attitudinal factors that affect wine tourism intentions, showing that the preferences for sustainable wine are mainly shaped by environmental attitudes and beliefs (Barber et al., 2010; Sogari, Mora, & Menozzi, 2016; Taylor, Barber, & Deale, 2010), which are likely to influence the choice of wineries to visit (Grimstad & Burgess, 2014). According to Nave et al. (2021b), sustainability is a consumer concern reflecting greater environmental awareness and

responsible consumption. Consequently, wineries that promote a sustainable image are more likely to attract visitors with a higher environmental attitude (Montella, 2017; Santini et al., 2013). Galati et al. (2023) and Testa, Galati, Schifani, Di Trapani, and Migliore (2019) found that environmental and social sensitivity plays a key role in influencing food destination choice among Italian culinary tourists.

Several scholars have adopted the Theory of Planned Behaviour (TPB) to predict wine tourists' intention, according to which an individual's intention to carry out a given behaviour is determined by three independent constructs: attitude, subjective norms and perceived behavioural control. In this regard, Sparks (2007) found that the main predictor of wine tourism intentions in Australia is perceived control, in terms of individual perception of having enough money or time for a wine holiday. Similarly, in their study of wine tourists in Australia and the USA, Quintal et al. (2015) found that wine tourist-perceived behavioural control exerts a substantial and positive effect on intention to revisit the winery whereas social norms (i.e. the perception of normative pressure to engage in such behaviour) positively affect willingness to recommend a winery and revisiting intention. However, other research on wine tourism highlighted that TPB structures may not fully capture the processes involved in the decision-making of leisure travellers (Ye, Zhang, & Yuan, 2017).

Lastly, in terms of demographics, some researchers suggested the existence of a gender gap in the profile of green wine tourists. For example, Barber et al. (2010) and Taylor et al. (2010) found that women have stronger environmental attitudes towards the protection of wine destinations than men, thus influencing their purchase intention. Taylor et al. (2010) also found a generational effect, with baby boomers more concerned about environmental issues and wine tourism than millennials. In this regard, Stergiou (2018), in a study on wine tourism among Generation Z in Greece, suggested that the core product of the winery experience seems to have limited appeal for young consumers who are particularly price-sensitive. Similarly, Stergiou et al. (2018) found that for the younger generation, visiting a winery appears to be less about the wine and more about the opportunity to have fun, socialise and discover local food and products.

Therefore, a deeper understanding of young adults' interest in sustainable wine tourism and of the core attitudinal, behavioural and demographic factors shaping sustainable wine tourism intention is needed.

Based on this background, the following research questions are investigated:

Research Question 1—What is the general interest of young adults for sustainable wine tourism?

Research Question 2—What are the main attitudinal, behavioural and demographic factors impacting the intention of young adults to have sustainable wine tourism experience?

Research Question 3—Which aspects of sustainability are prominent among young adults and thus deserve monitoring by private and public stakeholders interested in fostering sustainable wine tourism?

### 3. Materials and methods

This methodological section introduces the procedure we followed, the characteristics of the study participants, the measures and the data analysis approach. This study received formal approval from the ethics committee of the XXXX on 16 May 2022 (ethical approval code: 2022051601), with informed consent provided by participants and all data fully anonymised.

#### 3.1. Procedure

To answer the above research questions, this study adopted a quantitative-descriptive method operationalised through two cross-sectional surveys. We applied the computer-assisted web interviewing (CAWI) technique to respondents of two internet panels from commercial companies that financially compensated them for completing the

questionnaire. CAWI allows participants to answer the questionnaire using their electronic devices (smartphone, tablet or pc) at their earliest convenience. In addition, it was particularly suited to showcase a mock winery webpage. The survey was conducted in July 2022 using private platforms to two purposive samples in Italy and France, *i.e.* same shares of female and male participants and balanced in terms of age cohorts (18–24 and 25–32 years old). The screening criteria to take part in the survey were age (between 18 and 32 years) and wine consumption frequency (at least once a month).

The questionnaire was written in English and translated into Italian and French; then, the translated versions were checked by native speakers and compared with the original English version. We conducted a pilot study in both countries ( $N = 100$ ) to verify the clarity of the questions and the information scenarios and respondent fatigue.<sup>1</sup> Based on the pilot results, a modest number of questions were slightly changed to facilitate the respondents' understanding. We applied the best practices that Jaeger and Cardello (2022) suggested to achieve the highest data quality (such as the application of trap questions and use of a certified platform). In addition, we employed multiple randomisation techniques during the administration of the survey to reduce common method bias associated with the use of survey instruments and to enhance the validity of responses. It took participants around 9 min to complete the online survey.

After providing their informed consent, the participants were randomly assigned (using simple randomisation) to one of two information scenarios, stratified by two variables: age cohort (50% each 18–24 and 25–32) and sex at birth (50% male). Power calculations suggested the country samples be set to 400 respondents, with 200 observations per information scenario (Cohen, 2013). The participants who did not answer all the questions were excluded, as were respondents who completed the questionnaire too quickly (below half the median time of the entire sample). The final sample thus consisted of 1205 respondents, evenly divided among the 2 countries (605 in Italy and 600 in France).

### 3.2. Participants

An overview of the characteristics of the study participants is presented in Table 1 (Table A1 in the Appendix provides a detailed description of the two country samples). The respondents' mean age was 25.3 years ( $SD = 4.1$ ), and 49.6% of them were female. Over 62% of the participants were employed at the time of the survey, and around 54% stated having a household income in line with the national average. Furthermore, 42.5% of young adults consumed wine once a week or two to three times a month; 23.6%, two to three times a week or more often; and 33.9%, once a month. The participants' tourism activity levels were categorised as follows: more than twice per year (59.1%), twice per year (22%) and less than twice per year (18.9%). Approximately 36% of all the participants experienced visiting wineries between two and four times; 23.3%, only once; and 6.4%, more than five times. Notably, 34.4% have never visited a winery, revealing a relevant share of young adults that could be potentially addressed to this type of tourism activity.

### 3.3. Measures and stimuli

The questionnaire was designed and organised in five sections. After a brief introduction, the first section included screening and warm-up questions about the participants' wine consumption, purchasing habits and wine involvement. The second section collected information on individuals' general tourism habits, degree of interest and experience with wine tourism and importance attached to potential motivations

<sup>1</sup> Data from the two pilot studies (Italy  $n = 50$  and France  $n = 50$ ) are not included in the current research.

**Table 1**  
Sample characteristics (%).

$N = 1205$	
	25.33 ±
Age (mean ± S.D.)	4.14
Older cohort (25–32y)	51.8
Female	49.6
Currently employed	62.2
Household income (compared with national averages)	
Extremely low	7.9
Low	21.3
Average	53.9
High	13.7
Very high	3.2
Wine-purchasing frequency	
2–3 times a week or more	23.6
Once a week or 2–3 times a month	42.5
Once a month	33.9
Tourism frequency	
More than twice per year	59.1
Twice per year	22
Less than twice per year	18.9
Wine tourism experiences	
Five or more	6.4
Between 2 and 4	35.9
Once	23.3
Never	34.4
Average price paid for a bottle of wine for informal occasions in € (Mean ± S.D.)	16.20 ± 18.04
Average price paid for a bottle of wine for formal occasions in € (Mean ± S.D.)	20.35 ± 24.78

that affect wine tourism choice. In the third section of the questionnaire, after presenting the information scenarios (randomly assigned), the respondents' intention to visit a sustainable winery in the following 12 months was measured using four items adapted from Byrd, Canziani, Hsieh, Debbage, and Sonmez (2016) and Sparks (2007). Specifically, to operationalise sustainable wine tourism intention, we incorporated two diverse environmental stewardship information framings in the survey through a mock winery webpage using understandable layperson terms. One information scenario was more oriented towards the sustainability of the production process and certification of the wine, *i.e.* for Italy, the Integrated Production National Quality System was presented, a certification introduced by the Italian Department of Agriculture that guarantees the sustainability of the whole production process with the seal 'Sustainable Quality'; for France, the Terra Vitis certificate was used, a national certification for sustainable viticulture, based on the three pillars of sustainability. Conversely, the other scenario was framed with emphasis on the adoption of eco-compatible practices and the winery commitment in preserving the biodiversity, highlighting the adoption of eco-friendly fertilisation techniques and the use of renewable energy, water-saving systems and recycled materials in the winery. To test the potential influence of these two information scenarios, we designed two webpages, identical in terms of images, logo and brand, and an initial description of the winery and its mission (all fictitious). The two webpages were designed based on real Italian and French winery webpages. The fourth section collected data on perceived behavioural control, social norms and environmental attitudes, whereas the final section gathered socio-demographics. Responses to the survey items were recorded on a 7-point Likert-type scale (1 = completely disagree to 7 = completely agree). Table 2 reports the items and scale used. Construct scores were built by taking the mean of the respective scale items.

### 3.4. Data analysis

We analysed the internal reliability of the scales (*i.e.* sustainable wine tourism intention, wine involvement, perceived behavioural control, social norms and environmental concern) using Cronbach's  $\alpha$  (Table 3). If the internal reliability of a scale was reasonable, the mean of



**Table 2**  
Items and scales applied in the questionnaire.

	Item	Source
<b>Wine involvement</b>	I have a strong interest in wine	Adapted from Vecchio, Parga-Dans, Alonso González, and Annunziata (2021); Alebaki et al. (2015)
	Wine is very important to me	
	For me, wine does matter	
	I would choose my wine very carefully	
	Deciding which wine to buy would be an important decision for me	
	Which wine I buy matters to me a lot	
	Wine-related activities (tasting; purchasing)	
	Wine educational opportunities	
	Sustainability features of wineries (environmental certification; adoption of sustainable environmental practices; organic or biodynamic certification)	
	Socialising and recreation opportunities	
<b>Motivations influencing visits to a winery or a wine region</b>	Natural environment and rural landscape	Adapted from Trigo and Silva (2022); Szolnoki and Tafel (2022); Afonso et al. (2018); Byrd et al. (2016); Alebaki et al. (2015); Charters and Ali-Knight (2002); Bruwer and Alant (2009); Bruwer and Lesschaeve (2012); Cohen and Ben-Nun (2009)
	Familiarity with this kind of experience	
	Other regional/territorial aspect	
	I would like to visit this winery in the next 12 months	
	I would suggest visiting this winery to my friends and family	
	I would be happy to encourage my friends and family to visit this winery	
	I would say good things about wine tourism to other people	
	I have enough money to take a sustainable wine tourism experience in the next 12 months	
	Nothing prevents me from taking a sustainable wine tourism experience if I want to	
	I have enough time to take a sustainable wine tourism experience in the next 12 months	
<b>Sustainable wine tourism intention</b>	I would like to visit a sustainable winery that I have heard about from friends/family	Byrd et al. (2016); Sparks (2007)
	I would like to take a sustainable wine tourism experience that is popular among my friends/family	
	I would like to take a sustainable wine tourism experience that has been recommended by friends/family	
	I am willing to make personal sacrifice for the sake of the environment	
	I would be willing to change my behaviour to help protect the environment	
	I feel that purchasing	
	I have enough money to take a sustainable wine tourism experience in the next 12 months	
	Nothing prevents me from taking a sustainable wine tourism experience if I want to	
	I have enough time to take a sustainable wine tourism experience in the next 12 months	
	I would like to visit a sustainable winery that I have heard about from friends/family	
<b>Perceived behavioural control</b>	I would like to visit a sustainable winery that I have heard about from friends/family	Sparks (2007); Quintal et al. (2015)
	I would like to take a sustainable wine tourism experience that is popular among my friends/family	
	I would like to take a sustainable wine tourism experience that has been recommended by friends/family	
	I am willing to make personal sacrifice for the sake of the environment	
	I would be willing to change my behaviour to help protect the environment	
	I feel that purchasing	
	I have enough money to take a sustainable wine tourism experience in the next 12 months	
	Nothing prevents me from taking a sustainable wine tourism experience if I want to	
	I have enough time to take a sustainable wine tourism experience in the next 12 months	
	I would like to visit a sustainable winery that I have heard about from friends/family	
<b>Social norms</b>	I would like to visit a sustainable winery that I have heard about from friends/family	Sparks (2007); Quintal et al. (2015)
	I would like to take a sustainable wine tourism experience that is popular among my friends/family	
	I would like to take a sustainable wine tourism experience that has been recommended by friends/family	
	I am willing to make personal sacrifice for the sake of the environment	
	I would be willing to change my behaviour to help protect the environment	
	I feel that purchasing	
	I have enough money to take a sustainable wine tourism experience in the next 12 months	
	Nothing prevents me from taking a sustainable wine tourism experience if I want to	
	I have enough time to take a sustainable wine tourism experience in the next 12 months	
	I would like to visit a sustainable winery that I have heard about from friends/family	
<b>Environmental attitudes</b>	I would like to visit a sustainable winery that I have heard about from friends/family	Sogari et al. (2016); Haws, Winterich, and Naylor (2014); Liu, Cheng, and Wu (2022)
	I would like to take a sustainable wine tourism experience that is popular among my friends/family	
	I would like to take a sustainable wine tourism experience that has been recommended by friends/family	
	I am willing to make personal sacrifice for the sake of the environment	
	I would be willing to change my behaviour to help protect the environment	
	I feel that purchasing	
	I have enough money to take a sustainable wine tourism experience in the next 12 months	
	Nothing prevents me from taking a sustainable wine tourism experience if I want to	
	I have enough time to take a sustainable wine tourism experience in the next 12 months	
	I would like to visit a sustainable winery that I have heard about from friends/family	

**Table 2 (continued)**

Item	Source
sustainable products helps protect the environment	
Purchasing sustainable products does not really do much to help the environment (reverse scored)	
I think that protecting the environment is a worthwhile goal	
It is important to me to preserve the environment for future generations	

**Table 3**  
Mean, standard deviations and Cronbach's  $\alpha$  ( $N = 1205$ ).

Scale	Mean	S.D.	Cronbach's alpha
Sustainable wine tourism intention	5.04	1.23	0.91
Wine involvement	4.70	1.31	0.92
Perceived behavioural control	4.59	1.43	0.97
Social norms	4.67	1.42	0.87
Environmental attitudes	5.22	1.04	0.79

the corresponding items was calculated and used in further analyses. We compared the attitudinal scales and wine-related measures in the two countries using independent samples parametric and non-parametric tests. The results indicated no statistically remarkable differences. Therefore, all elaborations were performed on the entire sample.<sup>2</sup> Homogeneity checks between the sub-groups that received different winery sustainability information (*i.e.* sustainable certification vs. adoption of eco-compatible practices) revealed successful randomisation in terms of sex at birth, age cohort and household income.

A regression analysis estimating the linear relationships between sustainable wine tourism intention and individual attitudinal, behavioural and demographic factors was conducted. Specifically, due to the censored nature of the dependent variable (*i.e.* intention to visit a sustainable winery, ranging between 1 and 7; for further details, see the Appendix), we conducted a tobit regression analysis (McDonald & Moffitt, 1980).<sup>3</sup> This estimation assumes that the probability of limited and non-limited outcomes is affected identically by the same determinants. A single-bounded model was applied (instead of a double-censored model), as the number of observations on the lower limit was negligible (8). Furthermore, this specification was a more robust tool against alternative approaches.

Before performing econometric analysis, we computed the variance inflation factors for the independent variables to detect potential multicollinearity (Daoud, 2017). No issues among the final predictors were revealed. For parsimony, the selected tobit model (preferred specification based on AIC and log-likelihood values) presented hereafter includes only statistically significant coefficients. Due to the rather large sample size, the significance level was set to  $p < .1$ . We conducted all the statistical and graphical analyses using STATA v.14.

<sup>2</sup> To further verify the presence of country differences, we replicated the regression analyses separately for each country and compared the results with those of the pooled sample. Estimated coefficients in both analyses were comparable to those of the entire sample in terms of direction and significance.

<sup>3</sup> In the case of a censored dependent variable, ordinary least square estimates are inefficient, and therefore a tobit model (a hybrid of probit and multiple regression analyses) is recommended (Tobin, 1958).

#### 4. Results

Fig. 1 presents the individual wine consumption frequency of the whole sample. Almost 28% of respondents drink wine between two and three times a week; more than 18%, two to three times a month; and 7%, every day. In relation to the number of winery visits, our results indicate that over 38% of the samples have experienced between one and two visits, and about 30% have never visited a winery.

Fig. 2 presents the degree of importance attached to different motivating factors impacting general wine tourism intention. The findings show that the attractiveness of the destination (e.g. enjoy the rural landscape and scenery, a tour through the vineyards, dine at local restaurants) is considered to be the most important ( $M = 5.35$ ), followed by the presence of wine-related activities (e.g. wine tasting, meet the winemaker, purchase wines) ( $M = 5.13$ ) and the opportunity to have fun and socialise (e.g. participate in a new and different activity, escape routine, be with friends/family) ( $M = 5.12$ ). The sustainability of the winery (e.g. environmental certification, commitment to environmental preservation) was also favourably evaluated by the respondents ( $M = 5.02$ ).

Table 3 presents the average scores of sustainable wine tourism, of the validated scales and constructs, together with the relative Cronbach's  $\alpha$ . The findings indicate that all scales and constructs have high internal consistency.

Fig. 3 presents the distribution of participants' sustainable wine tourism intention scores, highlighting the relevant number of right-censored observations (upper tail of the distribution). The findings indicate that almost half of the respondents (47.6%) expressed high intention (scores above 5) whereas only 14.5% expressed lower intention (scores below 4) to participate in sustainable wine tourism within the next year.

The results presented in Table 4 indicate the core drivers of respondents' sustainable wine tourism intention. Specifically, regarding the two different information framings, i.e. one built on the sustainable certification of the firm and the other one emphasising the adoption of eco-compatible practices, the findings indicate that the latter has a stronger positive impact on individual intentions.

Furthermore, our analysis revealed that higher wine involvement levels ( $\beta = 0.169, p = .000$ ) increase sustainable wine tourism intention together with higher scores of perceived behavioural control ( $\beta = 0.107, p = .000$ ), social norms ( $\beta = 0.219, p = .000$ ) and environmental attitudes ( $\beta = 0.056, p = .000$ ). The degree of familiarity with this type of experience and other aspects linked to regional attributes (e.g. the presence of many attractions, shops or markets selling local farm produce) also positively affects sustainable wine tourism intention. Additionally, firm-specific sustainability factors, including eco-friendly and sustainable viticulture and production practices, commitment to the preservation and enhancement of the viticulture landscape, the

adoption of separate waste collection systems and the possibility of reaching the location by public transport, positively impact young adults' intentions to visit a sustainable winery.

Conversely, a higher frequency of general tourist activities decreases sustainable wine tourism intention ( $\beta = -0.045, p = .031$ ). Finally, male respondents are less interested in sustainable wine tourism compared with female respondents ( $\beta = -0.104, p = .045$ ). All other variables not reported in Table 4, such as country, wine consumption frequency, average price paid for a bottle of wine for formal and informal occasions and age cohort, were originally included in the regression analysis but did not reveal any substantial effect on sustainable wine tourism intention.<sup>4</sup> Therefore, we opted to not include this data in the final tobit model.

#### 5. Discussion

This study contributes to the current literature on sustainable wine tourism by providing evidence about the drivers of young adults' intention to experience sustainable wine tourism and determining which aspects of winery sustainability are more important to these consumers.

With reference to Research Question 1, our findings provide evidence that young adults' interest in sustainable wine tourism is relevant in both countries considering the high incidence of respondents expressing their intention to experience sustainable wine tourism in the next year ( $M = 5.04$ ). This finding is partially in contrast with those of Stergiou (2018) and Stergiou et al. (2018) with reference to general wine tourism experience but confirms that younger generations represent promising segments for further development of sustainable tourism (Schönherr & Pikkemaat, 2023). An interesting aspect that arises from our results is that a higher frequency of tourist activities decreases the respondents' sustainable wine tourism intention, suggesting that these segments represent a particular market niche with specific needs that substantially differ from mass tourism.

As for Research Question 2, the results indicate that the intention to experience sustainable wine tourism is related to higher levels of wine involvement, environmental attitude and perceived behavioural control. Therefore, our findings corroborate that consumers more involved in wine are more inclined to visiting a sustainable winery (Alebacki et al., 2015; Charters & Ali-Knight, 2002; Santos et al., 2017) and that environmental attitudes are predictors of wine tourism intention (Grimstad & Burgess, 2014; Taylor et al., 2010). Furthermore, a higher level of individual perception of having (or not) the resources (in our survey, time or money) to engage in wine tourism increases the sustainable wine tourism intention. Therefore, consistent with Quintal et al. (2015) and Sparks (2007), perceived behavioural control positively affects the intention to experience a sustainable wine tourism. Likewise, our results indicate that young adults' perception of social normative pressures from family and friends (i.e. social norms) is a relevant driver of their intention to experience sustainable wine tourism (Quintal et al., 2015).

With reference to the Research Question 3, our results highlight that the sustainable orientation of wineries plays a key role in influencing wine tourist choices, confirming that the adoption of sustainable practices may result in benefits for companies in the wine tourism sector (Nave, & do Paço, A., and Duarte, P., 2021). According to our results, the adoption of eco-friendly, sustainable viticulture and production practices, the commitment to preserving and enhancing the viticulture landscape, the adoption of separate waste collection systems and the possibility of reaching the winery by public transport are substantial aspects that positively impact young adults' intention to experience sustainable wine tourism and thus deserve careful monitoring by private and public stakeholders interested in fostering this type of tourism.

<sup>4</sup> Interaction terms were also tested as additional predictors, and none was significant. As the explained variance of the model did not improve with their addition, they were excluded from the final analysis.

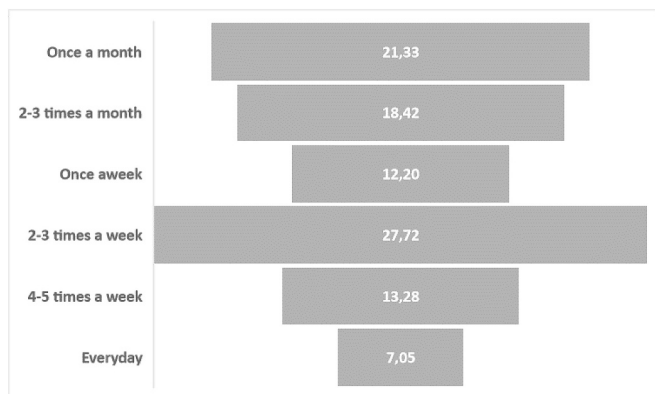


Fig. 1. Wine consumption frequency (%).

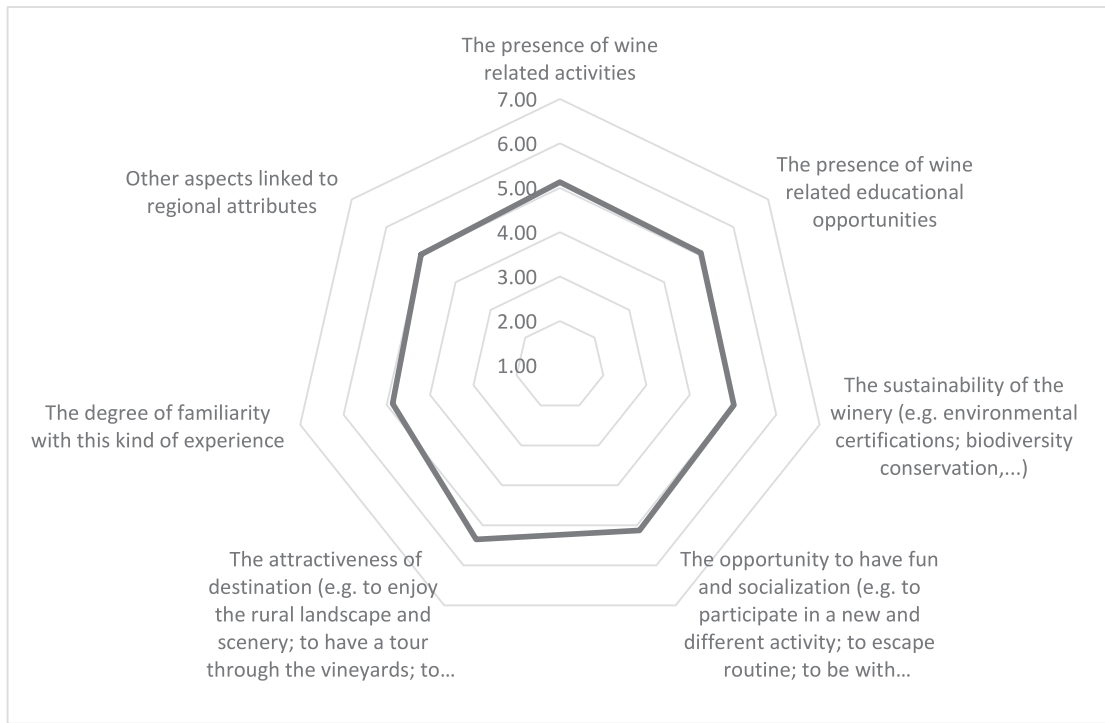


Fig. 2. Importance of motivating factors (scale 1 to 7).

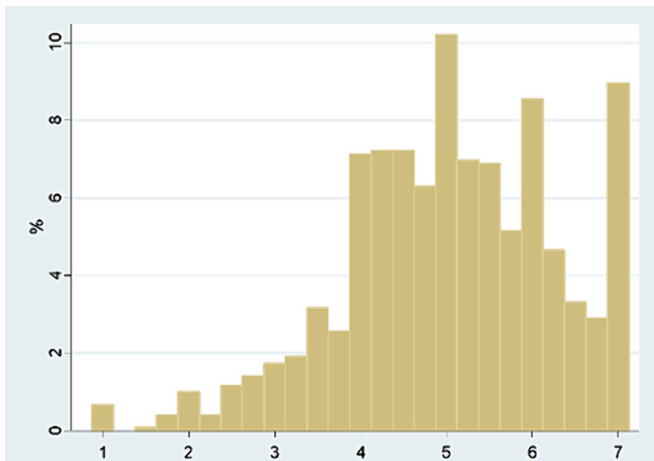


Fig. 3. Distribution of participants' sustainable wine tourism intention scores (N = 1205).

In addition, considering the potential influence of the two information scenarios, our findings indicate that the mock webpage framed around the adoption of eco-compatible practices and the winery commitment in preserving the biodiversity is more attractive and motivating than the communication focused on a sustainability certification. This may suggest that for wine tourists, the presence of sustainability certification is not the main driver of visiting a winery (Szolnoki & Tafel, 2022) and that sustainable wine tourists appreciate more the adoption of specific eco-compatible practices and biodiversity safeguarding activities.

5.1. Theoretical and practical implications

This study holds several theoretical and practical implications. Concerning the theoretical implications of our findings, this study provides a useful framework for future scholars interested in analysing

Table 4

Drivers of sustainable wine tourism intention (tobit regression).

Variable	Coefficient
Sustainable Certifications Information Framing	-0.115** (0.051)
Wine involvement	0.169*** (0.025)
Environmental attitudes	0.056* (0.031)
Social norms	0.219*** (0.026)
Perceived behavioural control	0.107*** (0.023)
Eco-friendly and sustainable viticulture	0.085*** (0.026)
Winery landscape conservation commitment	0.074** (0.026)
Separate waste collection systems	0.064** (0.025)
Public transport	0.062*** (0.019)
Degree of familiarity with sustainable tourism	0.085*** (0.023)
Attractiveness of destination	0.108*** (0.023)
Frequency of tourism activities	-0.045** (0.021)
Male	-0.104** (0.052)
Constant	0.349** (0.170)
N. observations 1205	
Log likelihood - 1504.404	
Likelihood ratio $\chi^2(13)$ 1010.18	
Prob. > $\chi^2$ 0.000	
McFadden's adjusted R <sup>2</sup> 25%	

Notes: The dependent variable is the sustainable wine tourism intention construct (upper limit = 7). Information scenario: sustainable certifications = 1, safeguarding biodiversity = 0; male = 1, female = 0. Total censored observations: 108. \*\*\* and \*\* indicate significance at  $p < .01$  and  $p < .05$ , respectively. The numbers in parentheses are standard errors.

sustainable wine tourism intention under the lenses of generational theory, disentangling the key motivations of different age cohorts.

Furthermore, our results indicate that the considered drivers of sustainable wine tourism intention are unable to depict the full picture of young adults' motivations and barriers. Therefore, scholars interested in deepening understanding of young adults' sustainable wine tourism drivers and barriers should consider a more comprehensive set of factors (as personal values), including also non-cognitive measurements (such as peer pressure and decision–context effects). Moreover, the absence of relevant differences among Italian and French respondents should spark further investigations on the impact of cultural background on sustainable wine tourism intention and determinants.

With reference to managerial implications, the generally high stated interest among young adults for sustainable winery visits urges managers of wine tourism activities to exploit this opportunity, designing tailored touristic offers (such as organising specific events for young adults). Given the multiple patterns of wineries' commitment to preserving and enhancing the viticulture landscape and adopting various waste management practices, the intention to visit can be enhanced by, for example, ensuring the winery can be easily reached by public transport. These aspects deserve to be monitored from both wineries and policymakers using a holistic perspective that could enrich the designers' toolbox of practical options to ensure the sustainability of wine tourism.

Second, the present study shows that individuals with high levels of wine involvement are keener to visit sustainable wineries. Consequently, stakeholders interested in fostering sustainable wine tourism should evaluate the benefits (and costs) of different modalities to relate to and attract this target segment of wine consumers. Additionally, they should identify the most appropriate and feasible options and subsequently implement *ad hoc*, coordinated strategies (e.g. engaging with wine clubs, sommelier associations and slow food communities).

With reference to the information scenarios, according to our results, the presence of a sustainability certification holds a lower impact on the intention to visit a winery. Thus, policymakers and wineries should monitor the actual knowledge of the sustainable certification systems among wine consumers and evaluate their effectiveness in communicating clearly wine producers' commitment to sustainability.

Third, study outcomes show that there are no significant differences between Italian and French young adults in their core motivations (and barriers) to perform sustainable wine tourism. Thus, wineries and policymakers could develop the strengths of their sustainable touristic offer effectively catering to this cross-country segment of individuals. Also monitoring, in particular, the firm-specific and territory services that most satisfy young consumers and the complementary experiences that these individuals are seeking in their vacation (as naturalistic and gastronomic experiences).

### 5.2. Limitations and future research directions

While current findings provide valuable insights for researchers and practitioners, our study also has some limitations. First, consistent with numerous previous studies, we examined the self-reported intention to experience a sustainable winery visit using static, mock winery web-pages, which may not correspond to actual behaviours, particularly in view of socially desirable responses (Milfont, 2009). Future research might consider measuring non-hypothetical intentions to visit *via* an online ticketing data analysis and how these intentions might be impacted by the different information framings of winery sustainable activities on their dynamic sites as well as visitors' perceptions of certifications. Second, our sampling and data collection method was purposive and derived from an online panel, which partially hinders the external validity of our findings (Jeong et al., 2019).

Future research should verify how generalisable our results are to the general population of young individuals and extend to individuals with diverse wine consumption frequencies. In particular considering that

respondents who consume wine less than once a month were excluded from the present study, and thus data could lead to over/under-estimations. In addition, the relatively low explained variance in our regression analysis indicates that there may be other factors that drive young adults' intention to experience sustainable wine tourism. Thus, future studies should also investigate other motivations and attitudinal constructs together with personal psychographic characteristics that may affect young individuals' wine tourist intentions.

Finally, while we conducted our study in Italy and France and found no substantial differences between the samples, both are Latin countries with a similar wine culture and Roman origins. Hence, based on the findings of Liu et al. (2022), we expect that studies in different countries could bring further insights into the behavioural patterns of young adults towards sustainable wine tourism.

## 6. Conclusion

The present study sheds light on practical opportunities to foster sustainable wine tourism among Italian and French young adults. The results indicate that a substantial proportion of this demographic exhibits a strong inclination towards engaging in sustainable wine tourism experiences. In addition, the key factors found to influence their intention are wine involvement, environmental attitude and perceived behavioural control, suggesting that stakeholders should leverage these individual traits of young adults to encourage their participation in sustainable wine tourism. Our findings also recommend a strategic shift in communication, emphasising winery commitments over certifications to resonate more effectively with the values of the target demographic.

### Author contributions

**Riccardo Vecchio** (MSc, PhD) applies economic and behavioural experiments to analyze consumer food preferences; his research centers on consumer attitudes and behaviour towards wine and food product attributes.

**Azzurra Annunziata** (PhD) develops research on sustainability of the food system with particular attention to consumers preference towards healthy and sustainable food.

**Tatiana Bouzdine-Chameeva** (PhD, HDR) is involved in interdisciplinary studies focusing on wine management, distribution channels, sustainability in wine sector, and wine tourism experience.

### CRedit authorship contribution statement

**Riccardo Vecchio**: Writing – review & editing, Writing – original draft, Validation, Supervision, Data curation, Conceptualization. **Azzurra Annunziata**: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Tatiana Bouzdine Chameeva**: Writing – review & editing, Writing – original draft, Resources, Project administration, Methodology, Funding acquisition, Conceptualization.

### Declaration of competing interest

The authors declare they have no known competing financial interests or personal relationships that might influence the work in this paper.

### Acknowledgement

This research was partly conducted under the support of the French VitiREV project and the European Union NextGenerationEU Project code 2022FMY5TR - Boosting Ecological Transition in the Agricultural Sector (PRIN BETAS). Any opinions, conclusions or recommendations expressed are those of the authors and do not necessarily reflect the view of the French Ministry of Agriculture or Italian Minister of Research



(MUR).

## Appendix

**Table A1**

Respondents' characteristics per country (%).

	Italy (n = 605)	France (n = 600)
Age (mean ± S.D.)	25.57 ± 3.84	25.09 ± 4.40
Older cohort (25–32y)	53	50
Female	49.4	49.7
Currently employed	56	68.5
<b>Household family income (compared with national averages)</b>		
Extremely low	9.4	6.3
Low	24	18.7
Average	58	49.9
High	6.6	20.8
Very high	2	4.3
<b>Wine-purchasing frequency</b>		
2–3 times a week or more	22.8	24.3
Once a week or 2–3 times a month	49.9	35.2
Once a month	27.3	40.5
<b>Tourism frequency</b>		
More than twice per year	56.9	60.1
Twice per year	22.3	21.7
Less than twice per year	20.8	18.2
<b>Wine tourism experiences</b>		
Five or more	5.3	8
Between 2 and 4	36.7	35
Once	26.1	20.5
Never	31.9	37
Average price paid for a bottle of wine for informal occasions in € (Mean ± S.D.)	12.97 ± 11.71	19.50 ± 22.29
Average price paid for a bottle of wine for formal occasions in € (Mean ± S.D.)	16.27 ± 12.57	24.51 ± 32.35

### Tobit regression analysis

Tobit is a statistical analysis particularly suitable for dependent variables with censored distributions. This analysis predicts the probability of the censored value against the non-censored value as well as the value of the non-censored part of the dependent variable explained *via* multiple regression analysis. To estimate the coefficients, the maximum likelihood estimation method is employed. We obtained the final coefficient estimates presented in Table 3 by entering the independent variables in successive steps. We assessed the model fit at each step based on the model's proportion of explained variance and compared it with the model of the previous step *via* the likelihood ratio test ( $\Delta\chi^2$ ) using the log-likelihood value. In tobit models, the coefficients are interpreted similarly to ordinary least squares regression coefficients. However, the linear effect is on the uncensored latent variable, not the observed outcome.

## References

- Afonso, C., Silva, G. M., Gonçalves, H. M., & Duarte, M. (2018). The role of motivations and involvement in wine tourists' intention to return: SEM and fsQCA findings. *Journal of Business Research*, 89, 313–321.
- Alant, K., & Bruwer, J. (2004). Wine tourism behaviour in the context of a motivational framework for wine regions and cellar doors. *Journal of Wine Research*, 15(1), 27–37.
- Alebaki, M., Menexes, G., & Koutsouris, A. (2015). Developing a multidimensional framework for wine tourist behavior: Evidence from Greece. *Wine Economics and Policy*, 4(2), 98–109.
- Altschwager, T., Conduit, J., Bouzdine Chameeva, T., & Goodman, S. (2017). Branded marketing events: Engaging Australian and French wine consumers. *Journal of Service Theory and Practice*, 27(2), 336–357.
- Antonazzo, A. P., Fiore, M., La Sala, P., & Contò, F. (2015). Assessing perceptions of wine tourists on organic wine. *Economia Agro-Alimentare*, XVII No.2, 57–76.
- Atout France. (2022). *Tourisme et Vin*. Paris: Editions Atout France.
- Baird, T., Hall, C. M., & Castka, P. (2018). New Zealand winegrowers attitudes and behaviours towards wine tourism and sustainable winegrowing. *Sustainability*, 10(3), 797–820.
- Barber, N., Taylor, D. C., & Deale, C. S. (2010). Wine tourism, environmental concerns, and purchase intention. *Journal of Travel & Tourism Marketing*, 27(2), 146–165.
- Bonn, M. A., Chang, H., & Cho, M. (2020). The environment and perceptions of wine consumers regarding quality, risk and value: Reputations of regional wines and restaurants. *Journal of Hospitality and Tourism Management*, 45(12), 203–212.
- Bouzdine-Chameeva, T., & Krzywoszynska, A. (2011, June). Barriers and driving forces in organic winemaking in Europe: Case studies in France and Italy. In 6<sup>th</sup> AWBR International Conference, Bordeaux Management School (pp. 9–10).
- Broccardo, L., & Zicari, A. (2020). Sustainability as a driver for value creation: A business model analysis of small and medium enterprises in the Italian wine sector. *Journal of Cleaner Production*, 259, Article 120852.
- Bruwer, J., & Alant, K. (2009). The hedonic nature of wine tourism consumption: An experiential view. *International Journal of Wine Business Research*, 21(3), 235–257.
- Bruwer, J., & Lesschaeve, I. (2012). Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework. *Journal of Travel & Tourism Marketing*, 29(7), 611–628.
- Byrd, E. T., Canziani, B., Hsieh, Y. C. J., Debbage, K., & Sonmez, S. (2016). Wine tourism: Motivating visitors through core and supplementary services. *Tourism Management*, 52, 19–29.
- Carlsen, J., Getz, D., & Willcock, C. (2006). What do generations x and y want in a wine tourism experience? An application of importance-performance evaluation to a youth-targeted wine tour. In 3<sup>rd</sup> International Wine Business Research Conference (Vol. 6, No. 8).
- Charters, S., & Ali-Knight, J. (2000). Wine tourism—A thirst for knowledge? *International Journal of Wine Marketing*, 12(3), 70–80.
- Charters, S., & Ali-Knight, J. (2002). Who is the wine tourist? *Tourism Management*, 23(3), 311–319.
- Charters, S., & Menival, D. (2011). Wine tourism in champagne. *Journal of Hospitality and Tourism Research*, 35(1), 102–118.
- Cohen, E., & Ben-Nun, L. (2009). The important dimensions of wine tourism experience from potential visitors' perception. *Tourism and Hospitality Research*, 9(1), 20–31.
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge.
- Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics: Conference Series*, 949(1), Article 012009.
- Divinea. (2023). *Report Enoturismo e Vendite direct-to-consumer* (p. 2023). <https://winesuite.divinea.com/it/report-enoturismo-vendite-direct-to-consumer-2023>.

- Duarte Alonso, A., Kok, S., & O'Brien, S. (2020). Sustainable wine tourism development through the lens of dynamic capabilities and entrepreneurial action: An exploratory four-region perspective. *Tourism Recreation Research, 45*(3), 401–419.
- Duarte Alonso, A., & Liu, Y. (2012). Old wine region, new concept and sustainable development: Winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands. *Journal of Sustainable Tourism, 20*(7), 991–1009.
- Festa, G., Cuomo, M. T., Foroudi, P., & Metallo, G. (2020). Wine tourism as a non-core business strategy for small wineries. *International Journal of Managerial and Financial Accounting, 12*(2), 149–164.
- Festa, G., Cuomo, M. T., Genovino, C., Alam, G. M., & Rossi, M. (2023). Digitalization as a driver of transformation towards sustainable performance in wine tourism—the Italian case. *British Food Journal, 125*(9), 3456–3467.
- Festa, G., Shams, S. R., Metallo, G., & Cuomo, M. T. (2020). Opportunities and challenges in the contribution of wine routes to wine tourism in Italy—A stakeholders' perspective of development. *Tourism management. Perspectives, 33*, Article 100585.
- Filopoulos, S., & Frittella, N. (2019). Designing sustainable and responsible wine tourism experiences. In *Vol. 12. BIO web of conferences* (p. 03006). EDP Sciences.
- FranceAgriMer. (2023). Available online at: <https://www.franceagrimer.fr/filieres-Vin-et-cidre/Vin>.
- Flores, S. S., & Medeiros, R. M. V. (2016). Wine tourism moving towards sustainable viticulture? Challenges, opportunities and tools to internalize sustainable principles in the wine sector. In M. Peris-Ortiz, M. Del Río Rama, & C. Rueda-Armengot (Eds.), *Wine and tourism* (pp. 229–245). Springer.
- Galati, A., Testa, R., Schifani, G., & Migliore, G. (2023). Tourists' motivation toward culinary destination choice: Targeting Italian tourists. *Journal of Foodservice Business Research, 26*(4), 647–668.
- Garibaldi, R. (2021). Rapporto sul Turismo Enogastronomico Italiano 2021. *Trend e tendenze*.
- Getz, D., & Carlsen, J. (2008). Wine tourism among generations X and Y. *Tourism: an international interdisciplinary Journal, 56*(3), 257–269.
- Grimstad, S. (2011). Developing a framework for examining business-driven sustainability initiatives with relevance to wine tourism clusters. *International Journal of Wine Business Research, 2*(1), 62–82.
- Grimstad, S., & Burgess, J. (2014). Environmental sustainability and competitive advantage in a wine tourism micro-cluster. *Management Research Review, 37*(6), 553–573.
- Hall, C. M., Cambourne, B., Macionis, N., & Johnson, G. (1997). Wine tourism and network development in Australia and New Zealand: Review, establishment and prospects. *International Journal of Wine Marketing, 9*(2), 5–31.
- Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: A review of theories, concepts, and latest research. *Journal of Sustainable Tourism, 29*(7), 1021–1042.
- Haws, K. L., Winterich, K. P., & Naylor, R. W. (2014). Seeing the world through GREEN-tinted glasses: Green consumption values and responses to environmentally friendly products. *Journal of Consumer Psychology, 24*(3), 336–354.
- Holohan, W., & Remaud, H. (2014). The impact of eco-friendly attributes on Bordeaux wine tourism and direct to consumer sales. In *Proceedings of the 8th International Conference of the Academy of Wine Business Research* (pp. 1–13). Hochschule Geisenheim University.
- Iazzi, A., Scorrano, P., Rosato, P., & Grandhi, B. (2019). Millennial generation preferences for rosé wine: An exploratory study of the Italian and French markets. *British Food Journal, 122*(8), 2443–2461.
- Istat. (2023). *Prodotti agroalimentari di qualità DOP, IGP e STG*. Available online at <https://www.istat.it/it/archivio/198705>.
- Jaeger, S. R., & Cardello, A. V. (2022). Factors affecting data quality of online questionnaires: Issues and metrics for sensory and consumer research. *Food Quality and Preference, 102*, Article 104676.
- Jeong, M., Zhang, D., Morgan, J. C., Ross, J. C., Osman, A., Boynton, M. H., & Brewer, N. T. (2019). Similarities and differences in tobacco control research findings from convenience and probability samples. *Annals of Behavioral Medicine, 53*(5), 476–485.
- Karagiannis, D., & Metaxas, T. (2020). Sustainable wine tourism development: Case studies from the Greek region of Peloponnese. *Sustainability, 12*(12), 5223.
- Kim, H., & Bonn, M. A. (2016). Authenticity: Do tourist perceptions of winery experiences affect behavioral intentions? *International Journal of Contemporary Hospitality Management, 28*(4), 839–859.
- Lamoureux, C., Barbier, N., & Bouzdine-Chameeva, T. (2022). Managing wine tourism and biodiversity: The art of ambidexterity for sustainability. *Sustainability, 14*(22), 1–29.
- Leighann, N., & Judith, M. (2014). Using winery web sites to attract wine tourists: An international comparison. *International Journal of Wine Business Research, 26*(1), 2–26.
- Lichy, J., Kachour, M., & Stokes, P. (2023). Questioning the business model of sustainable wine production: The case of French “Vallée du Rhône” wine growers. *Journal of Cleaner Production, 417*, Article 137891.
- Liu, S., Cheng, P., & Wu, Y. (2022). The negative influence of environmentally sustainable behavior on tourists. *Journal of Hospitality and Tourism Management, 51*(6), 165–175.
- McDonald, J. F., & Moffitt, R. A. (1980). The use of tobit analysis. *Review of Economics and Statistics, 62*, 318–321.
- Mihailescu, R. (2018). Is there a scope for organic wine tourism development? A focus on south African wine industry. *Rivista di Scienze del Turismo-Ambiente Cultura Diritto Economia, 6*(1–2), 11–21.
- Milfont, T. L. (2009). The effects of social desirability on self-reported environmental attitudes and ecological behaviour. *The Environmentalist, 29*(3), 263–269.
- Mitchell, R., & Hall, C. M. (2001). Lifestyle behaviours of New Zealand winery visitors: Wine club activities, wine cellars and place of purchase. *International Journal of Wine Marketing, 13*(3), 82–93.
- Molina-Collado, A., Santos-Vijande, M. L., Gómez-Rico, M., & Madera, J. M. (2022). Sustainability in hospitality and tourism: A review of key research topics from 1994 to 2020. *International Journal of Contemporary Hospitality Management, 34*(8), 3029–3064.
- Montella, M. M. (2017). Wine tourism and sustainability: A review. *Sustainability, 9*(1), 113–124.
- Nave, A., & do Paço, A. (2021). Sustainability in the wine-tourism sector—an analysis of perceived understanding and practices implemented by firms. *Journal of Wine Research, 32*(2), 103–116.
- Nave, A., & do Paço, A., and Duarte, P.. (2021). A systematic literature review on sustainability in the wine tourism industry: Insights and perspectives. *International Journal of Wine Business Research, 33*(4), 457–480.
- Nave, A., Laurett, R., & do Paço, A. (2021). Relation between antecedents, barriers and consequences of sustainable practices in the wine tourism sector. *Journal of Destination Marketing and Management, 20*, Article 100584.
- OIV. (2023). *State of the world wine and wine sector in 2022* (April 2023).
- Poitras, L., & Donald, G. (2006). Sustainable wine tourism: The host community perspective. *Journal of Sustainable Tourism, 14*(5), 425–448.
- Priilaid, D., Ballantyne, R., & Packer, J. (2020). A “blue ocean” strategy for developing visitor wine experiences: Unlocking value in the cape region tourism market. *Journal of Hospitality and Tourism Management, 43*(6), 91–99.
- Quintal, V. A., Thomas, B., & Phau, I. (2015). Incorporating the winescape into the theory of planned behaviour: Examining ‘new world’ wineries. *Tourism Management, 46*, 596–609.
- Salinero, Y., Prayag, G., Gómez-Rico, M., & Molina-Collado, A. (2022). Generation Z and pro-sustainable tourism behaviors: Internal and external drivers. *Journal of Sustainable Tourism, 1–20*.
- Santini, C., Cavicchi, A., & Casini, L. (2013). Sustainability in the wine industry: Key questions and research trends. *Agricultural and Food Economics, 1*(1), 1–14.
- Santos, V., Ramos, P., & Almeida, N. (2017). The relationship between involvement, destination emotions and place attachment in the Porto wine cellars. *International Journal of Wine Business Research, 29*(4), 401–415.
- Santos, V., Ramos, P., Almeida, N., & Santos-Pavón, E. (2019). Wine and wine tourism experience: A theoretical and conceptual review. *Worldwide Hospitality and Tourism Themes, 11*(6), 718–730.
- Santos, V., Ramos, P., Sousa, B., & Valeri, M. (2022). Towards a framework for the global wine tourism system. *Journal of Organizational Change Management, 35*(2), 348–360.
- Sigala, M. (2020). The transformational power of wine tourism experiences: The socio-cultural profile of wine tourism in South Australia. In S. Forbes, T. A. De Silva, & A. Gilinsky, Jr. (Eds.), *Social sustainability in the global wine industry*. Cham: Palgrave Pivot.
- Sigala, M., & Robertson, R. (Eds.). (2018). *Management and marketing of wine tourism businesses: Theory, practice and cases*. Springer International Publishing.
- Smyczek, S., Festa, G., Rossi, M., & Monge, F. (2020). Economic sustainability of wine tourism services and direct sales performance—emergent profiles from Italy. *British Food Journal, 122*(5), 1519–1529.
- Sogari, G., Mora, C., & Menozzi, D. (2016). Factors driving sustainable choice: The case of wine. *British Food Journal, 118*(3), 632–646.
- Sottini, V. A., Barbierato, E., Bernetti, I., Capocchi, I., Fabbrizzi, S., & Menghini, S. (2019). Winescape perception and big data analysis: An assessment through social media photographs in the chianti Classico region. *Wine Economics and Policy, 8*(2), 127–140.
- Sparks, B. (2007). Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism Management, 28*(5), 1180–1192.
- Stergiou, D. P. (2018). An importance-performance analysis of young people's response to a wine tourism situation in Greece. *Journal of Wine Research, 29*(4), 229–242.
- Stergiou, D. P. (2019). *Generation Z as young winery visitors in Greece* (pp. 63–79). Management and Marketing of Wine Tourism Business: Theory, Practice, and Cases.
- Stergiou, D. P., Airey, D., & Apostolakis, A. (2018). The winery experience from the perspective of generation Z. *International Journal of Wine Business Research, 30*(2), 169–184.
- Sun, Y. Y., & Drakeman, D. (2022). The double-edged sword of wine tourism: The economic and environmental impacts of wine tourism in Australia. *Journal of Sustainable Tourism, 30*(4), 932–949.
- Szolnoki, G., & Tafel, M. (2022). Environmental sustainability and tourism. The importance of organic wine production for wine tourism in Germany. *Sustainability, 14*(19), 11–31.
- Taylor, C., Barber, N., & Deale, C. (2010). Environmental attitudes towards wine tourism. *International Journal of Wine Research, 2*, 13–26.
- Testa, R., Galati, A., Schifani, G., Di Trapani, A. M., & Migliore, G. (2019). Culinary tourism experiences in Agri-tourism destinations and sustainable consumption—Understanding Italian tourists' motivations. *Sustainability, 11*(17), 4588.
- Tobin, J. (1958). Estimation of relationships for limited dependent variables. *Econometrica: Journal of the Econometric Society, 26*(1), 24–36.
- Trigo, A., & Silva, P. (2022). Sustainable development directions for wine tourism in Douro wine region, Portugal. *Sustainability, 14*(7), 3949.
- UNWTO. (2016). *Georgia declaration on wine tourism*. Tbilisi: United Nation World Tourism Organisation. <https://doi.org/10.18111/unwtodeclarations.2016.25.02?download=true>. Available at.
- Vecchio, R., Parga-Dans, E., Alonso González, P., & Annunziata, A. (2021). Why consumers drink natural wine? Consumer perception and information about natural wine. *Agricultural and Food Economics, 9*(1), 1–16.

Ye, B. H., Zhang, H. Q., & Yuan, J. (2017). Intentions to participate in wine tourism in an emerging market: Theorization and implications. *Journal of Hospitality and Tourism Research*, 41(8), 1007–1031.

Schönherr, S., & Pikkemaat, B. (2023). Young peoples' environmentally sustainable tourism attitude and responsible behavioral intention. *Tourism Review*. <https://doi.org/10.1108/TR-01-2023-0022> (ahead-of-print).

Statista. (2023). *Global wine tourism market size 2030*. Available online at <https://www.statista.com/statistics/912835/market-size-enotourism-worldwide/>.