# Italian millennials' preferences for wine: an exploratory study

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## Abstract

**Purpose** – This paper aims to investigate the wine consumption among young people belonging to the so-called millennial generation

**Design/methodology/approach** – This study uses a questionnaire and a choice experiment (CE) with a multinomial logit model (MNL), implementing a random parameter logit model (RPL), to investigate the attitudes of millennials towards wine consumption, their purchasing behaviours and their willingness to pay for attributes of the products; in particular regarding the follwing: region of origin, "winescape", certification, carbon footprint claim and price.

**Findings** – Millennials appear to drink wine less frequently; they consume it more often in social on-premise settings, having a slightly higher willingness to pay and preferring carbon-neutral brands when choosing wine.

**Research limitations/implications** – The limitation of this research was the analysis of a simulated situation where consumers declared their intention to purchase and not the effective purchase behaviour in the market.Further research should investigate wider millennials groups, also using the new media communication tools that characterise the communication behaviour of Generation Y. In this way, it would be possible to interview a millennial group at the national or international level.

**Practical implications** – The research identifies some characteristics of millennials' habits that can take into account the strategies of wine companies in order to develop a constructive relationship with Generation Y in Italy.

**Social implications** – This research contributes to knowledge regarding the wine consumption habits of Italian millennials.

**Originality/value** – This paper applies discrete choice models to consumption situations in order to analyse millennials' preference and their willingness to pay for some innovative attributes of wine, in particular the carbon footprint.

**Keywords** Carbon footprint, Choice experiment, Wine consumption, Italian millennials, Winescape aesthetic

**Paper type** Research paper

## 1. Introduction

In recent decades, the world wine market has become increasingly complex due to growing globalisation, international trade and competition, transformation of the supply chain, changes in consumption habits and innovation in marketing strategies (Mariani *et al.*, 2012).

On the supply side, the entrance of new producer countries has led to an overall geographical reconfiguration of the world productive scenario (Galati *et al.*, 2017), traditionally divided between two main groups of players as follows: the "Old World" wine (France, Germany, Italy, Portugal and Spain) and the "New World" wine (Australia, Argentina, Chile, New Zealand, South Africa and the United States) (Bernetti *et al.*, 2006; Lombardi *et al.*, 2016).

Over time, the differences between these two groups in terms of intrinsic characteristics of wine, productive tradition and quality recognition by consumers are decreasing and fading away. Furthermore, the old world/new world dichotomy fails to represent adequately the complexity of production and marketing in these two clusters and does not recognise the rapid expansion of wine production and consumption in developing countries of the "Third World," such as India and China (Banks and Overton, 2010).

These countries have registered faster growth in wine consumption following low starting consumption levels, and future demand in these countries has greater opportunities for growth. At the same time, the production of wine in these countries is increasing not only to meet the growing domestic demand but also to satisfy international markets (OIV, 2018, 2019).

Therefore, the international wine market has become more complex, with new productive regions, different forms of production and marketing. It includes small and medium enterprises of traditional production, closely linked to the place of production, and companies that operate on a large scale in industrial production and in global markets for mass consumption, supported by precise competitive strategies (Anderson *et al.*, 2003; Anderson, 2004; Banks and Overton, 2010).

On the demand side, numerous studies show an even more dynamic scenario, characterised by the presence of emerging markets, convergence in consumption models, differentiation of the characteristics required by consumers and the growing importance assumed by young adults', the so-called millennials or Generation Y, consumption (Mariani *et al.*, 2012).

In this new scenario, wine producers, in particular the traditional producers, are forced to re-think their strategies to avoid the consequences of potential losses of market shares and to compete within the new economic environment. These strategies must, above all, take into consideration new markets, new countries of consumption, the new characteristics of wine desired by consumers and new consumers of wine, with particular attention to millennials' consumption habits (Nowak *et al.*, 2006).

In fact, millennials are the largest consumer group in the history of the United States in terms of their buying power, and they are becoming more and more relevant in other countries, particularly in the new consumption countries (Olsen *et al.*, 2007; Thach and Olsen, 2006).

Research on millennial wine consumption is still limited in Europe, particularly in traditional consumption countries, including Italy, compared to other "New World" wine countries.

Therefore, the aim of the study is to analyse wine consumption among young people belonging to the so-called millennial generation in Italy, one of the most important wine producing countries and one of the traditional wine consumption countries.

The research used a questionnaire and a choice experiment (CE) to investigate the attitudes of millennials towards wine consumption, their purchasing behaviours and their preferences for several attributes of the products, with particular attention to the region of origin, "winescape", geographical indication (GI) certification, the carbon footprint (CF) claim and the willingness to pay (WTP) for these characteristics.

With respect to these attributes, it is necessary to highlight that although several studies have recently analysed millennials' preferences towards wines (Castellini and Samoggia, 2018; Galati *et al.*, 2019; Vannevel *et al.*, 2018), also by using a CE (Tait *et al.*, 2019), the

comparison among landscape aspects of wine production, the origin of wine and the greenhouse gas emissions throughout the life cycle phases of this beverage is largely unknown. To contribute to the literature, we investigated the effect of the above-mentioned characteristics on the wine choices of Generation Y consumers.

The paper is organised as follows. Section 2 presents the background of international wine consumption. Section 3 includes a literature review of the studies on millennials' consumption habits, with particular attention given to wine consumption. The methodological approach adopted to achieve the aim of the research is reported in Section 4. The results of the analysis are described and discussed in Section 5. Concluding remarks are presented in the final section.

## 2. International wine consumption trends

In recent decades, the international wine market has been increasingly affected by the process of globalization, a global phenomenon characterised by various internal trends, within which a particularly dynamic role has been exercised by changes in demand (Anderson, 2004; Bernetti *et al.*, 2006; Lombardi *et al.*, 2016).

This is characterised from the 80s by declining or stagnating per capita consumption in traditional wine-producing countries (France, Italy, Spain), with some differences from one country to another (Castellini and Samoggia, 2018). This trend has been accompanied, in the last two decades, by new market opportunities in areas historically lacking a wine culture, such as the United States, Northern Europe, Oceania and East Asian countries, in particular China and, more recently, India. In these new markets, wine is increasingly appreciated, and it is partially replacing traditional local alcoholic beverages (Cicia *et al.*, 2013; Pomarici and Vecchio, 2014; Richie, 2007). This development has been confirmed by the growing importance of the international wine trade compared to national markets (OIV, 2018, 2019).

At the same time, there has been a convergence in wine consumption patterns, significantly influenced by the internationalisation of the retail chain and media communication (Anderson, 2004; Lombardi *et al.*, 2016; Smith and Mitry, 2007). Wine demand has historically been influenced by social, religious and cultural aspects (Lee, 2009), but the internationalisation of wine markets has likely diminished the cultural differences among countries (Aizenman and Brooks, 2008). While in the past, in the new consumer countries, wine was considered an exclusive goods for the sophisticated classes of society; recently the consumption and popularity of wine has been increasing, and it is now part of the daily life of many consumers (Banks and Overton, 2010).

Moreover, there is an increasing expectation that products should have certain characteristics concerning high safety, high quality, taste, quality control standards, cultivar, origin (geographical indication), winemaking process, packaging, environmental sustainability (organic, biodynamic, carbon and water footprint) and the landscape impact of the vineyard (the so-called "winescape") (Amienyo *et al.*, 2014; Pomarici and Vecchio, 2019; Tempesta *et al.*, 2010; Sogari *et al.*, 2016; Vecchio, 2013).

This can be found not only in the traditional wine production and consumption countries, the so-called "Old World" wine (Troiano *et al.*, 2016), but also in the "New World" wine and in several new consumption countries (Aizenman and Brooks, 2008).

These phenomena are particularly relevant for the millennial wine consumers, who seem to pay particular attention to the characteristics of qualitative wine differentiation and constitute an important market segment, especially in the new wine consumption countries (Pomarici and Vecchio, 2014).

In this general scenario, the Italian situation tends to align itself increasingly with international trends. The Italian wine market is characterized by a growing demand for quality, mainly linked to the origin of the product and the organic characteristics of the

production process (Pomarici and Vecchio, 2019; Troiano *et al.*, 2016). Moreover, it is necessary to note that millennials account for about 11 million people (Eurispes, 2017), equivalent to 18% of the population, and by 2020 they will represent 25% of the population (which is the European average) (Castellini and Samoggia, 2018). Statistics and several studies point out that wine consumption tends to increase among young people between ages of 18 and 34 so that millennial wine drinkers represent 11% of the total volume of consumption (Castellini and Samoggia, 2018; Wine Monitor Nomisma, 2018). Therefore, Italian millennials today represent a new attractive target for wine producers.

## 3. Literature review

### 3.1 Millennials' wine consumption behaviour

Millennials, the people born between 1980 and 2000, are the youngest generation of wine drinkers and are an attractive consumer group (Nowak *et al.*, 2006).

The literature review shows an increasing interest in millennials' behaviour, and the countries where this issue attracted more attention were those with a younger population and with a more dynamic demographic structure both in the regions producing old worldly and new worldly wine.

The first and wider research on millennials' consumption behaviour was carried out in the United States (Barber *et al.*, 2008; Nowak *et al.*, 2006; Thach and Olsen, 2006) and in the United Kingdom (Ritchie, 2007; Silva *et al.*, 2014); then, it was carried out in Australia (Teagle *et al.*, 2010) and New Zealand (Fountain and Lamb, 2011). In the last decade, similar studies analysed the "Old World" wine countries, such as France (Kevany, 2008) and Italy (e.g.: Agnoli *et al.*, 2011; Capitello *et al.*, 2016; Castellini and Samoggia, 2018; Pomarici and Vecchio, 2014), while other researches extended the scope of the analysis to non-English–speaking countries and to cross-cultural approaches (Charters *et al.*, 2011; De Magistris *et al.*, 2011; Durvasula and Lysonski, 2008; Mueller Loose *et al.*, 2011).

The basic assumptions for a part of these studies, sometimes subject to verification, are that millennials have common characteristics in a great part of the world and that millennials' behaviour differs from that of the previous generations (Qenani-Petrela *et al.*, 2007). These characteristics should be relevant for explaining some specific consumption behaviours, including wine consumption (Chrysochou *et al.*, 2012; Lancaster and Stillman, 2002).

In particular, millennial wine consumers differ from older generations in the way they consume wine. In fact, they drink wine less frequently overall, but consume it more often in social and formal occasions. Moreover, they have a higher willingness to pay compared to the oldest segment of consumers. These results are common to several studies in different countries (see the above cited research of Agnoli *et al.*, 2011; Barber *et al.*, 2006; Capitello *et al.*, 2016; Castellini and Samoggia, 2018; Fountain and Lamb, 2011; Kevany, 2008; Nowak *et al.*, 2006; Pomarici and Vecchio, 2014; Teagle *et al.*, 2010; Thach and Olsen, 2006).

On the other hand, cross-national studies indicate that millennials behaves differently in different countries, in particular in relation to the consumption of alcoholic beverages (Charters *et al.*, 2011; De Magistris *et al.*, 2011; Durvasula and Lysonski, 2008; Mueller Loose *et al.*, 2011).

We expect that most of the differences relate to their age, having only recently entered the wine market, instead of being caused by generation specific values. Further research should validate and analyse the age versus generation effect.

It is necessary to note that "while the concept of 'generational marketing' suggests that each generation is distinguished by certain generational values that drive their consumption behaviour (Walker, 2003), the contrasting life-cycle marketing concept (Wells and Gubar, 1966) states that younger consumers adapt their behaviour when they grow older. Accordingly, younger consumers are likely to purchase and consume products differently

from older consumers independent of the generational cohort they belong" (Teagle *et al.*, 2010, p. 2).

In particular, Thach and Olsen (2006) determined six specific traits that represent the millennials' Internet proficiency as one of them, but they were also labelled as fun-loving, positive and practical, environmentally and socially aware and diversity-conscious (diversity of race and gender) millenials. This could translate into being more responsive towards marketing that would be quirky and fun. Millennials have been known to boycott brands which they perceive to be in violation of these values. In particular, millennials are very technologically driven; many have grown up with the Internet and they have been able to use it in order to research products and make purchases (Nowak *et al.*, 2006).

These elements are probably common to millennials in different parts of the world, in particular in relation to environmental commitment and ethical attributes and, in general, to consumption preferences (Bakewell and Mitchell, 2003; Noble *et al.*, 2009; Wolf and Thomas, 2007). This behaviour is also expected towards wine consumption and towards its attributes (Hristov and Kuhar, 2015).

In particular, several data and researches show trends and influences of millennials on wine consumption in different countries. Millennials appear to drink wine less frequently, consume it more often in social on-premise settings, have a slightly higher willingness to pay and consume a higher share of white wine compared to other generations. Most of these differences can be linked to an age effect, suggesting that their wine behaviour will change overtime (Barber *et al.*, 2008).

The results in Thach (2005), Atkin and Thach (2012), Olsen *et al.* (2007), Fountain and Fish (2010), Fountain and Lamb (2011) show that in the new wine world there is an increasing per capita consumption of wine among young adults.

It has not been shown that these elements have the same relevance in every country. In fact, some studies analyse millennials' behaviours, and this contributes to the question of whether generational differences are similar in different markets or they are country-specific (Nowak *et al.*, 2006; Nowak and Newton, 2008; Olsen *et al.*, 2007; Wolf and Thomas, 2007). In particular, some cross-cultural analysis suggests that members of the same generation are likely to differ within a country (Ritchie, 2009) and between different countries (Durvasula and Lysonski, 2008; Mueller Loose *et al.*, 2011).

In particular, Teagle *et al.* (2010) report some findings regarding the question about the common behaviour of millennials in every country. According to Hussain *et al.* (2007), while the United Kingdom has developed from a beer-dominated culture to a market where wine is now an integral part of food culture, the United States is still on the way to building a wine culture. On the other hand, the research by Thach and Olsen (2006) shows that wine consumption is decreasing in France, partially due to the younger consumers who have not adopted the traditional wine culture of their forefathers. This argument implies that country-specific differences should be observed for millennials' wine behaviour between different wine markets.

The findings of Mueller Loose *et al.* (2011, p. 1) have a number of noticeable differences between countries: wine involvement and consumption increase with age in traditional European wine markets, while they decrease in North America; environmental concerns and purchase channel usage hardly differ between generations but very strongly between markets".

The findings of Kevany (2008), Agnoli *et al.* (2011) and De Magistris *et al.* (2011) demonstrate that in the Mediterranean countries wine consumption in this cohort is decreasing with regard to the shift in the preferences towards other products such as beer and spirits. In these countries, millennials seem to have changed and expanded the set of alcoholic beverages they consume, and among these, wine is perceived as a special or unique goods to share with others or to offer as a distinctive gift (Castellini and Samoggia, 2018).

Therefore, it is useful to examine the characteristics and traits of the millennial generation in different countries and region, taking into account the expected common profile of young adult and the specific characteristics of wine consumption in a country or region. In this way, marketers can suggest new marketing strategies to reach this large and affluent segment; and this is true also for the wine sector (Li *et al.*, 2011).

In Italy, millennials, in recent years, have become an increasingly interesting target group, especially for wine producers. In fact, the Italian millennials appear as a globalized, multilingual generation, with international friendships, without geographical barriers and open to cultural diversity. Nevertheless, at the same time, they maintain close ties with family and parents and place a high value on the Italian tradition of food (Bigi *et al.*, 2007; Castellini and Samoggia, 2018; Censis, 2017).

Moreover, several studies confirmed Italian millennials' attitudes for environmental and social concerns (i.e. buying ethical labelled or carbon neutral wines), even if they have a limited knowledge about these attributes (Capitello *et al.*, 2016; Castellini and Samoggia, 2018; Gallenti *et al.*, 2019; Pomarici *et al.*, 2016, 2018). Therefore, the behaviour of these young adults about wine attributes is worth to be investigated.

### 3.2 Wine demand and wine attribute

Consumer demand usually takes into account the different characteristics of the wine, such as price, origin and production process but also some environmental factors could be relevant in the purchase choices (Benedetto, 2013; Borsellino *et al.*, 2016; Gallenti *et al.*, 2019).

A number of recent studies analysed millennials' preferences towards wine attributes both in foreign countries and in Italy. In the first group, of specific interest is the researches of Atkin and Thach (2012), Chrysochou *et al.* (2012), Gassler (2015), Hristov and Kuhar (2015), Silva *et al.* (2014) Spielmannet *et al.* (2016), Tait *et al.* (2019) and Vannevel *et al.* (2018). At the same time, the researches concerning Italian millennials include in particular the studies of Agnoli *et al.* (2011), Capitello *et al.* (2016), Castellini and Samoggia (2018), De Magistris *et al.* (2011), Gallenti *et al.* (2019), Pomarici and Vecchio (2014), Pomarici *et al.* (2018), Troiano *et al.* (2016). All these studies pointed out how millennials are favourably inclined towards sustainable, innovative, high quality wines.

In particular, a previous study carried out in Italy among Generation Y (Gallenti *et al.*, 2019) was helpful to us as a starting point for improving knowledge about millennials' behaviour regarding wine consumption. With a larger sample, in this study we aim to improve knowledge and better understand preferences towards a number of wine attributes, such as the region of origin (or production area of origin), certification of geographical indication, certification of organic production methods, winescape aesthetic characteristics and carbon footprint claim label.

Different methods can be used to estimate millennials' WTP, among these some of the most used are, contingent valuation method (CV), conjoint analysis (CA) and choice experiments (CE). In particular, CE has been used most often in recent literature (Breidert *et al.*, 2006; Louviere *et al.*, 2010).

### 4. Material and method

#### 4.1 Data

In this research, a survey was conducted between 2015 and 2017 among Italian millennials, using a face-to-face questionnaire. Prior to developing the questionnaire, in particular the CE, and analysing millennials' preferences towards wine, a focus group was formed and a pilot study was conducted during the process of designing the questionnaire, with 50 consumers filling out the pilot questionnaire. Focus group discussions were used to obtain information

about the dimensions of the quality of wine that are important to millennials when choosing a product. Friulano was chosen in the present survey, following the results of pre-tests and focus group discussions, as the most suitable, representative and well-known wine when trying to describe millennials' wine preferences. Friulano is a white wine mainly produced in the Northeast Italy from a grapevine variety named Tocai Friulano. This wine could be considered a wine which every respondent was familiar with. Moreover, according to Mueller Loose *et al.* (2011) and Koksal (2019), it seems that millennial wine consumers drink significantly more white wines.

The questionnaire included questions about respondents' socio-economic characteristics, their wine-related consumption habits and their specific knowledge and perception of the wine product (Table 1).

Five main attributes and their levels were defined after the focus group screening (Table 2). The characteristics of and the motivation for the choice of these attributes are described as follows:

| Questions | Answers (open / multiple choice) | |
| --- | --- | --- |
| Age | | |
| Gender | | |
| City of residence | | |
| Education | Secondary education, bachelor's degree, others _____ | |
| Parents' professions | | |
| Presence of a wine expert in the family | Wine producer, wine merchant, sommelier, restaurateur, bartender, wine-making expert | |
| Preferred alcoholic beverage | Wine, beer, super alcoholic beverage, do not drink alcoholic beverages | |
| Frequency of wine consumption | More than once a day, regularly during meals, regularly at dinner, occasionally, never | |
| Purchase channels of wine | Producer, wholesaler, supermarket, vinotheque or specialised wine shop, others, do not purchase | |
| Knowledge of organic wine | Yes / No | |
| Frequency of organic wine consumption | More than once a day, regularly during meals, regularly at dinner, occasionally, never | |
| Knowledge of biodynamic wine | Yes / No | |
| Frequency of biodynamic wine consumption | More than once a day, regularly during meals, regularly at dinner, occasionally, never | |
| Importance of the greenhouse gas (GHG) emissions for the environment | Yes / No | |
| Level of importance | Very important, medium importance, not so important, unimportant | |
| Knowledge of CF labels | Yes / No | **Table 1.** |
| The CF certification concerns... | The GHG emissions, genetically modified organism (GMO) use, chemical input use, transportation and distribution of products | Questions Included in the questionnaire |

| Attribute | Levels | |
| --- | --- | --- |
| Price (€) | 4, 8, 12 | |
| Origin | Collio, Friuli Venezia Giulia Region, Other Italian Regions | **Table 2.** |
| Winescape | Yes / No | Attributes and |
| Carbon footprint labelling | Yes / No | attribute levels used in |
| Geographical Indication | Table wine, DOC, DOCG | the CE |

Price: price is the traditional economic variable that influences consumer demand in a negative way. According to ISMEA (2015), three price levels (4, 8 and 12 euros) were proposed for a typical 750 ml wine bottle. The middle level reflected the average retail price of the Friulano, whereas the two other price levels were set at 35% above and 35% below this average price.

Regional origin of wine: while the brands of the country of origin are more known, the region of origin is less known and studied, and only in recent years has it been possible to observe an increasing interest of researchers in this issue. This attribute points out that the region of origin is a component of a wine brand and adds value to a wine purchaser. This is a particularly relevant attribute of wine not only in the traditional production countries but also in some "New Word" wine countries as well (see Engelbrecht *et al.*, 2014; García-Gallego *et al.*, 2015; Johnson and Bruwer, 2007). During the focus group discussion, the following qualitative levels were chosen: 1) Collio, which is a famous area in the Friuli Venezia Giulia region with high-quality wine production (Miglietta and Morrone, 2018); 2) Friuli Venezia Giulia Region, an area in the Northeast Italy and 3) other Italian Regions.

Geographical indication: The geographical indication of wine is another distinctive sign used to identify a product as originating from the territory of a particular country, region or locality where its quality, reputation or some other characteristic is linked to its geographical origin. In this context, the term is used to refer to the EU legislation, but also other countries have been adopting similar regulations. Nowadays, the EU's labels – such as protected designations of origin (PDO) and protected geographical indications (PGI) or the Italian labels *Denominazione di Origine Controllata e Garantita* (DOCG) and *Denominazione di Origine* (DOC) – are well known among Italian wine consumers, who recognise these certifications (Agnoli *et al.*, 2011; Capitello *et al.*, 2013, 2016). The CE uses the following levels: table wine, DOC and DOCG.

The winescape aesthetic: The European landscape convention (Council of Europe, 2000, p. 9) defined landscape as "an area, as perceived by people, whose character is the result of the action and interaction". The term is applicable to the common places that hold the history and culture of a region; knowing that vineyards contribute to the landscape and often become a valuable and distinctive feature of it. Therefore, winescape is an important factor in wine quality perception and influences the wine tourist demand, which is demonstrated by international literature (e.g.: Bruwer and Lesschaeve, 2012; Bruwer *et al.*, 2014; Quintal *et al.*, 2015; Tempesta, 2014; Veale and Quester, 2008). The CE used a dichotomous variable (yes/no) corresponding to the presence (or not) of a winescape image.

The wine carbon footprint: nowadays there is a general consensus among most climate scientists that greenhouse gas (GHG) emissions generated by human activity are the main drivers of climate change, and agriculture contributes significantly to this. Some studies point out that agriculture, forestry and land use change are responsible for 20–24% of global GHG emissions, with a percentage from 10% to 17% deriving directly from agricultural activity, while an additional 7–14% related to changes in land use (Akaichi *et al.*, 2017; Bertoni *et al.*, 2018). Also, wine production plays a relevant role in the production of these externalities (Bosco *et al.*, 2011; Capitello *et al.*, 2013, 2016; Rugani *et al.*, 2013; Santini *et al.*, 2013). The CE used a dichotomous variable (Yes / No) corresponding to the presence (or not) of CF labelling.

*4.2 Methodology*
Before the survey, interviewers were trained in survey administration. The questionnaire was administered to university students enrolled at the University of Trieste and the University of Udine, universities located in the Friuli Venezia Giulia Region, in the Northeast Italy. 759 completed questionnaires were obtained. Financial incentives were not offered.

For the analysis of the data collected in the first part of the questionnaire, we used the traditional univariate statistical analysis, while for the second part of the questionnaire we carried out a CE. We applied a CE in order to define not only the ordinal ranking of

preferences but also the WTP for the key characteristics of the wine. Moreover, this study uses the multinomial logit model (MNL) and examines a random effect specification by implementing a random parameter logit model (RPL). Unlike the traditional MNL, where consumers are assumed to be homogeneous, here heterogeneity in consumer preferences for wine attributes is measured. Despite the traditional logit, the RPL model relaxes the limitations by offering particular flexibility in order to deal with respondents' differences in choice decision strategies and choice consistency, which would otherwise lead to biased part-worth utilities (Hensher, 2010; McFadden and Train, 2000). The increasing use of an RPL model for the analysis of CE in food contexts has been underpinned by the recognition of the heterogeneity in consumers' preferences and the desire to make this heterogeneity relevant for marketing segmentation purposes.

Welfare measures were found by looking at the marginal rate of substitution between non-monetary and monetary attributes included in the indirect utility function (IUF). Therefore, it was possible to estimate the premium price (or WTP) for each attribute level by dividing $\beta$ coefficients by $\beta$ price:

$$\mathrm{WTP} = -\beta/\beta\,\mathrm{price}$$

As the utility function is assumed to be linear in cost, the marginal WTP for the attribute is the ratio between the parameter of the attribute and the cost parameter in the utility function.

According to the steps proposed by Louviere *et al.* (2000), we constructed choice sets. An orthogonal fractional factorial design was then generated using SPSS software, with 18 alternatives (or profiles) selected. The profiles were randomly combined into choice sets so that respondents had to face six groups with three treatment combinations each, plus the opt-out alternative. The latter was added to each choice set according to Bateman *et al.* (2002), who stated that in the application of CE to marketing products the exclusion of the no-choice option might result in unreliable welfare measures. The six choice sets were the same for each respondent. The bottles proposed to the respondent, except for the five attributes described above, had no difference in any other aspects (wine producer, alcohol content, year of production, etc.).

To analyse data, we used a utility function for each considered option in the MNL (base model) as follows:

$$U(X_i) = \mathrm{OPTOUT} + \beta_1\,\mathrm{COLLIO}_i + \beta_2\,\mathrm{PGDO}_i + \beta_4\,\mathrm{PDO}_i + \beta_5\,\mathrm{WINESCAPE}_i$$
$$+ \beta_6\,\mathrm{CARBON}_i + \beta_{\mathrm{price}}\,\mathrm{PRICE}_i$$

where:
OPTOUT = dummy for the "none of these/no choice" option;
COLLIO = dummy for origin of wine from Collio area;
FVG = dummy for origin of wine from Friuli Venezia Giulia region;
PGDO = dummy for PGDO (DOCG) certification of wine;
PDO = dummy for PDO (DOC) certification of wine;
WINESCAP = dummy for organic winescape characteristics of production landscape;
CARBON = dummy variable for CF certification label;
PRICE = price in €/bottle.

The $\beta$s coefficients can be considered as the marginal utilities of each attribute of utility.

## 5. Results and discussion
*5.1 Millennials' attitude and behaviour regarding wine consumption*
The research collected data from 759 respondents, 52% of whom were female and 48% male; 93% of the total respondents were 19–24 years old, and the rest were 25 years old or above (Table 3).

The education level analysis showed that 93% of the sample had received secondary education and only 7% had a bachelor's degree. This is obviously an expected result, considering the sample of respondents. Only 13% of the families had a wine expert; therefore, it is possible to suppose that the main knowledge of wine amongst the interviewees came from other sources (the Internet, newspapers, friends and so on).

Regarding alcoholic beverage preferences (Table 4), the respondents preferred beer (33%), followed by wine (28%) and spirits (23%); 15% of the respondents did not drink alcoholic beverages. This result shows that millennials have some preferences about alcoholic beverages that differ from the previous generation's preferences, which usually prefers wine, in particular in the Northeast Italy, where wine is traditionally produced and consumed. There is also a difference between female and male respondents, where women claimed to prefer spirits and wine in the same percentage (32%) but not beer (17%) while almost 50% of the men preferred beer and only 25% wine. This is important information; the female consumer is becoming an interesting market segment for wine producers.

The answers about the frequency of wine consumption show (Table 5) that the occasional consumption reached the value of 65% of the respondents (about 67% of female and 62% of male); the percentage is high (75%) also in the group of respondents that prefer wine among

| Gender | Female | Male |
|---|---|---|
| Age | 52% | 48% |
| | 19–24 | 25 and over |
| | 93% | 7% |
| Education | Secondary education | Bachelor's degree |
| | 97% | 3% |
| Wine expert in your family | Yes | No |
| | 13% | 87% |

**Table 3.** Sample characteristics

| | Female | Male | Total |
|---|---|---|---|
| Wine | 32% | 25% | 28% |
| Beer | 17% | 49% | 33% |
| Spirits | 32% | 14% | 23% |
| Does not drink alcoholic beverages | 19% | 12% | 15% |
| Total | 100% | 100% | 100% |

**Table 4.** Alcoholic beverage preferred

| | Female | Male | Respondents that prefer wine | Respondents that prefer different beverage or nothing | Total |
|---|---|---|---|---|---|
| More than once a day | 0% | 3% | 2% | 1% | 1% |
| Regularly during meals | 3% | 12% | 15% | 5% | 8% |
| Regularly at dinner | 3% | 4% | 8% | 1% | 3% |
| Occasionally | 67% | 62% | 74% | 61% | 65% |
| Never | 26% | 19% | 0% | 32% | 23% |
| Total | 100% | 100% | 100% | 100% | 100% |

**Table 5.** Consumption frequency of wine

alcoholic beverage. These data confirm several studies that claim that among the young adult consumers the habit regarding wine consumption has changed with respect to the previous generations (Qenani-Petrela *et al.*, 2007; Teagle *et al.*, 2010). For millennials, wine is an experience food, differentiated and of high quality and no longer a common food to consume during meals.

Moreover, respondents purchase wine mainly at supermarkets (27%) and from producers (25%); 32% do not purchase wine at all (Table 6). The purchase from producer shows that a higher percentage among respondents prefers wine among alcoholic beverages (42%). The specialized shops are also preferred by respondents who prefer wine among alcoholic beverages (16%) and by those who declared a frequent consumption of wine (19%). Finally, female consumers do not purchase wine more compared to the male consumers. It is possible that the male consumer remains the usual buyer of wine also among the young groups and families.

The questions concerning environmental issues show that only 27% of the respondents knew about organic wine and 5% about biodynamic wine (Table 7), while 94% of the respondents thought that GHG emissions were a problem for the environment. In particular, 44% of the respondents considered this an important problem, 40% considering this as a problem of medium relevance and 13% as a very important problem (Table 8). This confirms the attitude of the millennials for environmental issues (Capitello *et al.*, 2016; Pomarici *et al.*, 2016, 2018). Nevertheless, only 17% of the respondents said they knew CF labelling, and among these 83% answered at a multiple choice question that tested the effective knowledge of this label (Table 9).

*5.2 Millennials' preference for wine attributes: random parameter logit model estimates*
To estimate the preferences of respondents for wine attributes, we used a dataset obtained through the questionnaire, and this dataset was based on 4,554 choice observations (6 choices completed by each of the 759 respondents). To analyse the dataset, we used a random parameter logit (RPL) model, as illustrated in the previous section.

| | Female | Male | Prefer wine | Prefer different beverage or nothing | Frequent consumption * | Infrequent consumption ** | Total |
|---|---|---|---|---|---|---|---|
| Producer | 22% | 28% | 42% | 19% | 33% | 31% | 25% |
| Vinotheque or specialised wine shop | 9% | 12% | 16% | 8% | 19% | 12% | 10% |
| Wholesaler | 2% | 2% | 1% | 2% | 3% | 2% | 2% |
| Supermarket | 27% | 28% | 31% | 26% | 35% | 34% | 27% |
| Others | 2% | 4% | 3% | 3% | 4% | 4% | 3% |
| No purchase | 38% | 26% | 8% | 42% | 5% | 17% | 32% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

**Note(s):** *More than once a day, regularly during meals, regularly at dinner; **Occasionally, never

**Table 6.**
Purchase channels

| | Yes | No | |
|---|---|---|---|
| Knowledge of organic wine | 27% | 73% | **Table 7.** |
| Knowledge of biodynamic wine | 5% | 95% | Knowledge of organic and biodynamic wine |

The RPL model was estimated using NLOGIT 4.0. After estimating a number of RPL models, we chose the random parameters, looking at the significance of the derived standard deviation. As stated by Tempesta *et al.* (2014), it is up to the researcher to decide which parameters of the utility function could be treated as random and to identify the distribution of their density function. In our study, the parameters of the attributes including Collio area, Friuli Venezia Giulia region and origin certifications were set as random. The heterogeneity of random parameters was specified as triangularly distributed, and the distribution of the parameters was conducted using 400 Halton draws. It was also possible to estimate the premium price (or WTP) for each attribute level by dividing $\beta$ coefficients by $\beta$ price (WTP = $-\beta/\beta$ price). Table 10 presents the estimated results for this model.

To explore the effect of individual characteristics on the preferences expressed for the attributes used in the CE, several models were tested. However, we estimated that the overall fit of the model was satisfactory by conventional standards used to describe these models. According to the criterion that values of Pseudo-$R^2$ between 0.2 and 0.4 are considered to be extremely good fits, the overall fit of our model (0.16) indicates an acceptable fit.

It can be observed that only some variables showed a statistically significant heterogeneity of preferences. As expected, the price coefficient was negative. Thus, on

| Importance of GHG emissions | Yes | 94% | No | 6% |
|---|---|---|---|---|
| Level of importance | Female | Male | | Total |
| - very important | 14% | 13% | | 13% |
| - important | 43% | 44% | | 44% |
| - medium | 41% | 38% | | 40% |
| - not so important | 2% | 5% | | 3% |

**Table 8.**
Importance of GHG emission

| | Yes | No |
|---|---|---|
| Knowledge of CF labelling (declared) | 17% | 83% |
| Knowledge of CF labelling (verified through multiple choice question) | 83% | 17% |

**Table 9.**
Knowledge of CF labelling

| Variable | Coefficient | Standard error | $T$-value | $P$-value | WTP |
|---|---|---|---|---|---|
| *Random parameters in utility functions* | | | | | |
| COLLIO | −0.072 | 0.102 | −0.703 | 0.482 | |
| FVG | 0.398 | 0.113 | 3.515 | 0.000 | 8.05 |
| PGDO-DOCG | 0.404 | 0.120 | 3.358 | 0.001 | 8.16 |
| PDO-DOC | 0.485 | 0.104 | 4.670 | 0.000 | 9.81 |
| *Non-random parameters in utility functions* | | | | | |
| OPT-OUT | 0.226 | 0.102 | 2.204 | 0.027 | |
| PRICE | −0.049 | 0.008 | −6.004 | 0.000 | |
| WINESCAP | −0.006 | 0.080 | −0.072 | 0.943 | |
| CARBON | 0.774 | 0.099 | 7.768 | 0.000 | 15.64 |
| *Derived standard deviations of parameter distributions* | | | | | |
| TsCOLLIO | 3.897 | 0.230 | 16.905 | 0.000 | |
| TsFVG | 4.906 | 0.234 | 20.967 | 0.000 | |
| TsPGDO | 3.579 | 0.198 | 18.032 | 0.000 | |
| TsPDO | 3.344 | 0.211 | 15.846 | 0.000 | |

**Table 10.**
RPL model estimates

average, higher prices reduced the probability of a wine being chosen. This is in line with other reports on the price sensitivity of young adults (Thach and Olsen, 2006; Gassler, 2015).

In addition, some attribute levels were not statistically significant, in particular winescape, which, therefore, was not considered for the WTP evaluation.

The most important characteristic affecting interviewees' utility was the CF. Considering WTP, it is interesting to note that usually local production obtains high premium prices. However, according to Atkin and Thach (2012), it seems that millennials rely less on region of origin to determine wine quality.

Furthermore, our findings demonstrate that the CF claim was able to reach higher WTP.

Probably some questions about respondents' awareness towards the CF could have influenced the preferences of interviewees. Specifically, the WTP for the bottle of wine with the CF logo was equal to €15.64 compared to a bottle without this label. However, this result confirms other studies. Using LC models, Capitello *et al.* (2013, 2016) showed, having investigated several classes of consumers, that Italian young adult wine consumers preferred carbon-neutral brands. Also Gassler (2015) found that young Austrian wine consumers were willing to pay €1.43 more for wine labelled as carbon neutral compared to a conventionally produced one. But the results of studies are not uniform: Mueller Loose and Remaud (2013) found negative valuations of carbon neutrality claims among adult consumers in the United Kingdom, France, Germany, the US East Coast, the US Midwest and Anglophone and Francophone Canada.

Regarding the DOC and DOCG wines, the WTP was lower. On average, respondents were willing to pay €9.81 and €8.16 more for DOC and DOCG bottles of wine respectively in comparison to conventional ones. Moreover, local origin was another important potential factor for the interviewees although according to Atkin and Thach (2012) it is not the main characteristic millennials use to choose among bottles of wine. The average WTP for the consumption of Friuli Venezia Giulia origin was equal to €8.05. This is probably because the respondents did not distinguish very well the DOC and DOCG wines from the locally produced wines. In fact, DOC and DOCG are well-known labels, and also young consumers know that these certifications are not only certifications of quality but also certifications of origin. They probably consider only the DOC and DOCG of Friuli Venezia Giulia region, and they value the local wine as good-quality wine – wine from Collio area in particular – and implicitly assume that these bottles have DOC and DOCG labels.

Organic labelling was not introduced among the attributes because we supposed correlation between the organic certification of products and CF labels, with both attributes being correlated to environmental attitudes of consumers.

It is also important to consider that the respondents are students, and probably they do not work and do not have a lot of their own money to spend on purchasing wine, making price a very important decision variable in the consumption choice.


## 6. Conclusion

This study contribute to better understand the relationship between millennials and wine consumption in Italy. Its findings confirm the general traits concerning general habits and behaviour, as emerging from the international literature on this issue (Noble *et al.*, 2009; Nowak and Newton, 2008).

In particular, the results about wine consumption behaviour (alcoholic beverage preference, consumption frequency, channels of purchase) are similar to the findings of similar studies (e.g.: Barber *et al.*, 2008; Nowak *et al.*, 2006; Olsen *et al.*, 2007; Qenani-Petrela *et al.*, 2007; Teagle *et al.*, 2010; Wolf and Thomas, 2007).

The majority of millennials consider themselves as global citizens who have a responsibility to make the world better. Although millennials might not label themselves as

environmentalists, they feel strongly about environmental policies. This research confirms that millennials prefer carbon-neutral brands when choosing wine; this is in line with literature about Generation Y consumers, who are defined as conspicuous consumers (Noble *et al.*, 2009).

Nevertheless, Italian millennials' attitudes towards wine attributes are characterized by some traditional behaviour such as the attention to the origin, the preference for local production and GI certification. In particular, local origin emerges as another important attribute of wine; this finding confirms that millennials' preferences differ between different countries, while they seem to be influenced by family and societal consumption habits rooted in tradition and terroir .This results is consistent with those highlighted in the literature (Durvasula and Lysonski, 2008; Mueller Loose *et al.*, 2011; Ritchie, 2009) and confirmed in some recent similar studies (Castellini and Samoggia, 2018)

At the same time, millennials represent a promising innovation-oriented consumer group that appear increasingly involved in environmental protection and having a specific attention to climate changes, with attitudes for environmental and social concerns of the product they buy. Nevertheless they have a limited knowledge about these attributes (Gallenti *et al.*, 2019; Castellini and Samoggia, 2018) as confirmed by this study.

In fact, the claim of carbon neutrality also results in significant WTP compared to the most traditional consumer segments. These results are in line with findings of Capitello *et al.* (2016), Gassler (2015) and Pomarici and Vecchio (2014).

Similarly, findings of the many studies carried out on millennials in the US support marketing strategies targeted towards indigenous consumers but are not directly transferable to other cultures (Mueller Loose *et al.*, 2011; Atkin and Thach, 2012).

The results about millennials' behaviour and their attitudes towards wine characteristics are particularly interesting for wine producers with relevant implication for managerial strategies.

In fact, in a global wine market characterized by growing competitiveness, within which countries with a history of production and consumption of wine record a long- term reduction in per capita consumption, the emergence of new consumers group represents a business opportunity for wine producers and sellers. So, the interest in these consumers is growing at worldwide level, including Italy (Agnoli *et al.*, 2011; Castellini and Samoggia, 2018; Pomarici and Vecchio, 2014).

This opportunity appears very important for Italian wine producers where the domestic markets are characterized by a constant risk of oversupply, with many brands and producers (Corsi *et al.*, 2018). This leads to great, and increasing, competition and the adoption of various competitiveness strategies.

Since the beginning of the millennium, wine experts suggest that producers and sellers find new consumer targets, instead of putting pressure on the usual consumers (Castellini and Samoggia, 2018).

In order to predispose an effective marketing plan for wine products, it is necessary to know how millennials approach wine, how they purchase it and what perceptions and habits they have. This is particularly complex in the case of the young and fast-evolving generation as millennials.

As highlighted by other studies, millennials perceive wine as possibly special or unique, to be shared with others, or to offer as a distinctive gift. Wine branding and brand loyalty have limited importance for this group. Millennials are open to novelties, especially if accompanied by nice product image and informative labels (Castellini and Samoggia, 2018).

Hence, a successful strategy should be grounded in the awareness that millennials are young and dynamic, and they are looking for a wine experience.

In particular, wine producers should take into account not only millennials' preference for wine characteristics, that appear linked with traditional quality differentiation attribute such as origin and IG certification, but the latent demand of environmental attributes (e.g.: organic,

biodynamics, food miles, carbon and/or water footprint, packaging). This is particularly relevant in a general context in which the young generation shows a renovate attention to environmental issues and specifically to climate change.

So that this happens, it is necessary to better understand the specific characteristics and preference of Italian Millennials related to their latent demand and reduce the asymmetric information on the markets that currently characterize some environmental attribute of wine, in particular carbon and water footprint.

Finally, market strategies should take into account the source of information about wine used by millennials, the channel of purchasing preferred and the difference inside this cohort.

If on the one hand millennials have a widely acknowledged passion for technological solutions and devices, on the other hand some studies point out that this is not significant for wine purchasing and consumption, as millennials enjoy wine purchasing and consumption in a face-to-face environment (Castellini and Samoggia, 2018). Furthermore, millennials include a wide, heterogeneous generation group (people born between 1981–2001). People between 18 and 25 years may have a wine consumption and purchasing approach which is different from millennials, who nowadays are above the age of 26(Radovanović *et al.*, 2017). This is related to the degree of wine neophilia of a consumer group. But millennials are not wine neophilic to the same degree, and innovative wine products should be mainly addressed to the segment of millennials' group that are the most wine neophilic, within the young adults cohort. (Castellini and Samoggia, 2018).

The results of this study, and in general the research on millennials' wine consumption behaviour, can provide useful information for the implementation of nutritional education programs and for the development of health prevention strategies. The importance of such strategies is also related to their additional benefits in terms of positively influencing the next generation; it is within this age range that many start families, passing their habits on to their children (Richards *et al.*, 2006).

It is important to target the Italian millennials as a specific consumer group, taking into account the specific goals of the wine producers and of the policy makers, both for the development of new commercialisation strategies and the implementation of health prevention strategies.

It is therefore necessary to improve the still rather limited research on this topic. So, this paper represents a contribution to a better understanding of the behaviour of the millennials and their attitude towards the attribute of wine consumption.

Nevertheless, this survey has a number of limitations, which suggest future research developments. First of all, the sample of respondents was characterized by a geographically limited area (Northeast Italy) and a socio-cultural profile, that it is not representative of the entire population of young Italian adults. Second, data collection took place in a very traditional way.

Therefore, further research should investigate wider millennial groups, also using the new media communication tools that characterise the communication behaviour of Generation Y. In this way, it would be possible to interview a millennial group at the national or international level. Moreover, although the attributes and their levels were chosen after a careful focus group discussion, it should be noted that the findings could have been different by using different characteristics of wine.

In addition, it would also be interesting to use other methods of research to analyse the effective behaviour of young adult consumers. In fact, it is important to remark that the main limitation of this research was the analysis of a simulated situation, where consumers declared their intention to purchase and not the effective purchase behaviour in the market.

Further studies should also pay more attention to the inhomogeneity of the group, in particular to the difference that can exist between people between 18 and 25 years of age and who are 26 years of age and above. Furthermore, comparisons with the results of other

studies require special attention because the behaviour of the millennials changes with greater speed compared to other generational cohorts, so that the analyzes could easily become obsolete.

It is also necessary to investigate policies and tools to reduce the asymmetric information about environmental issues of wine products and to communicate the externalities related to carbon footprint or to other similar attributes. This aspect should be put in the more general context of the Italian National Strategies for Sustainable Development that the national governments adopted to achieve the Sustainable Development Goals (SDGs) of United Nation, the so-called Agenda 2030.

Nonetheless, the findings of this research may be useful because they point out that a number of diversification strategies could benefit wine sellers. In detail, it seems they could obtain a non-negligible premium price with suitable communication among millennials, emphasizing some environmental sustainable aspects of wine production. Policy makers can play an important role in reducing information asymmetries (Rousseau and Vranken, 2013) by regulating and supporting the carbon footprint certification process of wine.

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