



# Determinants of willingness-to-pay for sustainable wine: Evidence from experimental auctions

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## Abstract

The current paper explored young adult wine drinkers' willingness to pay (WTP) for three sustainable wines through Vickrey fifth-price full bidding auctions. In order to investigate factors affecting WTP the study compared the bid functions estimated with Tobit models and the premium functions estimated with ordinary least squares (OLS). The econometric results reveal that female and older respondents tend to bid higher for sustainable wines. Moreover, knowledge of specific claims increased price premiums. Our findings have significant marketing and policy implications for the promotion of sustainable wines among young adults.

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**Keywords:** Willingness-to-pay; Sustainable wine; Experimental auctions

## 1. Introduction

According to the review performed by [Christ and Burritt \(2013\)](#) key areas of environmental concern currently facing the global wine industry are: water use and quality issues, the production and management of organic and inorganic solid waste streams, energy use and the generation of greenhouse gas emissions, the use and management of chemicals in the vineyard and winery, land use issues and the impact on ecosystems. Indeed, like other food industries, the wine business has been increasingly impelled by market and regulatory drivers to assess, reduce and communicate environmental and social performances, particularly in certain countries with a shorter tradition in winemaking (Australia, New Zealand, the USA and South Africa). In addition, wine companies have realized that sustainability constitutes a means of differentiation, which is crucial for increasing productivity and competitiveness. Consequently,

sustainability has developed into a priority in the wine supply chain ([Forbes et al., 2009](#); [Gabzdylova et al., 2009](#)).

Despite the above-described scenario, the reasons behind consumers' adoption of sustainable practices, attitudes and intention to purchase sustainable wines remain largely unexplored ([Barber et al., 2010](#)). Furthermore, while many authors believe that consumers will not be willing to trade the quality of a wine off against environmental/social features ([Lockshin and Corsi, 2012](#)) – thus sustainable wines should be sold at the same price as regular wines – other scholars hold that sustainability is most likely to become a considerable competitive advantage in the international arena ([Pullman et al., 2010](#); [Forbes et al., 2009](#)). A major drawback of most of the published articles on sustainable wine is the use of contingent valuation techniques that do not capture actual behavior due to strong hypothetical bias. Indeed, unconstrained survey responses eliciting purchase intention, attitudes or product liking, used in most previous research on consumer valuation of ethical behavior, has been criticized for social desirability bias ([Auger and Devinney, 2007](#)) and the attitude–behavior gap ([Carrington et al., 2010](#)). To reduce such potential bias prominent authors recommend using specific products and incentive-compatible research methods. As previously demonstrated, auctions seem to be an effective method to obtain valid information on the perceived value of an attribute tested in the presence of external information; allowing one to know the monetary value attributed to a given label, brand or product while taking into account the economic

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constraint faced by the consumers (Lange et al., 2002). Nevertheless, this methodology has quite rarely been applied to wine (e.g. Combris et al., 2009; Lange et al., 2002; Combris et al., 2009; Sáenz-Navajas et al., 2013).

This paper draws on experimental auctions conducted in Naples (Italy) to analyze the true value attached by consumers to social and environmental claims concerning wine. In particular, the research was designed to cast light on the importance of social/ethical and environmental attributes for young adult wine drinkers (i.e. individuals consuming wine at least once a month).

The remainder of this paper is arranged as follows. The next section discusses the importance of young individuals in today's wine market. Subsequently a detailed description of the data gathering process and methods used is offered. The results of econometric analysis are then presented. Finally, our findings are discussed and compared with recent key studies, and future research avenues are outlined.

## 2. Research background

The wine market has experienced a huge change in geography of consumption over the last 40 years: a substantial share of total consumption has moved from large producing countries to those with a limited domestic production or none at all. Starting from the second half of the 1970s wine consumption has continuously decreased in traditional large producers in Europe and in South America (countries which used to be key consumers), and with the crisis in the Soviet Union there were sharp declines also in East and Central Europe. Meanwhile, however, starting from the 1960s consumption began to increase in Northern Europe, North America and Japan, countries which can now be considered traditional importers, and later, from the mid 1990s in countries which until that time were marginally involved with wine, namely Asia or non-producing countries in Central and South America; there was also a return to consumption in Central and Eastern Europe (Mariani et al., 2011, 2012). In traditional producing countries the decline in domestic consumption has been considered as an inevitable consequence of lifestyle changes and the wine industry has reacted by increasing its export propensity, reaching countries with a growing interest in wine (Rabobank, 2003; Anderson and Nelgen, 2011). Increased competition on international markets, however, is inducing wine industry stakeholders of the main producing countries to identify national strategies to stabilize domestic wine consumption in terms of quantity and, if possible, to increase sales. In this perspective we can frame the initiative of the Argentine parliament in the spring of 2013, which declared wine as the < national beverage > and that of the Spanish parliament which, in the same period, formed the group called *Asociación Parlamentaria por la Cultura de la Viña y el Vino* (APCVV) to exploit the importance of wine as a core element of Mediterranean culture.

For about two years in Italy, the main association of wine producers, the Italian Wine Union, has been encouraging academics and policy makers to study the characteristics and

expectations of Italian wine consumers with at least the same care which is applied to foreign consumers. Wine consumption in Italy started to decrease on a nationwide basis in the early 1970s. In those years, domestic consumption reached 60 million hectoliters, which corresponded to a per capita consumption of more than 100 l per year, while at the end of the first decade of the new century, consumption had stabilized at just above 20 million hectoliters, with an annual consumption of less than 40 l per capita. Reflecting a change in consumer behavior, the total amount of wine consumed by each individual has decreased but there has also been a decline in the total number of wine drinkers in Italy. The proportion of wine drinkers in the Italian population in the early 1990s was just under 60% while by 2010 it had fallen to just over 53%.

Detailed analysis of the contribution of different age classes to the change in consumption patterns shows that in recent years (2003–2010) the older age cohorts have largely contributed to this decline. Larger shares of young adults under 24 are becoming wine drinkers compared to individuals between 25 and 34 years. Even if among these young adults the proportion of daily drinkers continuously decreases – the share of occasional drinkers is increasing – wine is a product that tends to take root in the lifestyle of these individuals. Moreover, recent surveys (ISPO, 2012) indicate that in young Italians there prevails, unlike in France, Germany and the United Kingdom, a tendency to drink alcoholic beverages responsibly, and this would appear to reward wine consumption.

From a marketing perspective it is therefore extremely important to exploit these signals and strengthen the relationship between wine and the younger generation in order to bring about conditions for consumption growth. To achieve this it is of paramount importance to characterize the image of the product consistently with the issues to which the younger generation appears to be more sensitive.

In the last decade in many producer countries, the wine industry has devoted considerable resources to the identification of pathways to adapt production processes to the principles of sustainable development and the establishment of protocols for the evaluation of sustainability behavior. This is also happening in Italy and it is consequently interesting to ascertain to what extent the issue of sustainability can be useful to contribute to the embedding of wine consumption among the younger generation. Sustainability appears to be a potentially useful issue as younger generations seem to be particularly sensitive to this topic (UNEP, 2011). It has been demonstrated that the so-called Millennials care more compared to other cohorts about the environmental impact of the wine industry (MacDonald et al., 2013; Thach and Olsen, 2006). On the other hand, interest in sustainability does not automatically translate into purchases of sustainable food (Vermeir and Verbeke, 2006), as other factors strongly impact behavior.

As a result, in order to understand to what extent the issue of sustainability can actually be useful to strengthen the relationship between wine and Italian young adults, and also as a marketing tool, it is necessary to analyze in depth the attitude of young Italians towards sustainability attributes of wine.

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