

# Do consumers really recognise a distinct quality hierarchy amongst PDO sparkling wines? The answer from experimental auctions

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## Abstract

**Purpose** – Consumer likeability and willingness to pay (WTP) for two Italian sparkling wines, (Conegliano Valdobbiadene Prosecco DOPG and Prosecco DOP) are evaluated through a non-hypothetical Becker-DeGroot-Marschak (BDM) auction during a wine-tasting experiment. The purpose of this paper is to estimate individual WTP and relate it to likeability for both wines, with and without supplying additional information on their features.

**Design/methodology/approach** – Data were collected in May–June 2019 from a sample of 99 consumers in Northern Italy. A non-hypothetical BDM auction in a wine-tasting experiment was implemented.

**Findings** – The results show that the additional information plays a significant role in widening the WTP gap between the two geographical indications (GIs), while the blind tasting narrows this gap. The “superiority” of the Conegliano Valdobbiadene Prosecco DOPG is confirmed but relies more on its better reputation than its better taste.

**Research limitations/implications** – The authors are aware of two main limitations in the study. The first is the territorial composition of the consumer sample. The second is the selection of the Prosecco bottles used in the experiment. The results are considered pioneering and need to be verified by additional experiments with different consumer and bottle samples.

**Practical implications** – Promotional suggestions for the Tutelary Consortia of the two GIs stem from the results. The Prosecco DOP should primarily stress its likeability, while the Conegliano Valdobbiadene Prosecco DOPG should primarily emphasise the reasons for its “superiority”.



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**Originality/value** – To the best of the authors’ knowledge, no previous study has related likeability and WTP for similar GI wines produced in contiguous areas. Moreover, the current research has applied a non-hypothetical BDM auction in a wine-tasting experiment.

**Keywords** Geographic indication, Prosecco sparkling wine, Likeability, WTP, Wine-tasting experiment, Non-hypothetical BDM auction

**Paper type** Research paper

Distinct quality  
hierarchy  
amongst  
wines?

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## 1. Introduction

Today, the European Union’s wine producers are facing severe worldwide competition, in which the increased number of Protected Denominations of Origin (PDOs), sub-appellations and the range of wines (i.e. blend and varietal wines, types and versions) play crucial roles in shaping wine markets (Johnson and Bruwer, 2007). Over the last 20 years, the number of EU wine quality labels has risen noticeably, and this trend is expected to continue in the coming years. While the creation of new PDOs can generate both consumers’ preference heterogeneity and producers’ competitive advantages (Porter, 2008; Caracciolo *et al.*, 2016), the introduction of new appellations can also produce conditions in which consumers cannot distinguish different schemes and fail to attain value-added wines, at least in the short run (Aprile *et al.*, 2009; Resano *et al.*, 2012).

Prosecco sparkling wine can be considered an emblematic product for both the positive and negative effects of the introduction of new PDOs. To illustrate, the Prosecco sparkling wine market has experienced in recent years a dramatic increase in the dynamics of production and export (Del Rey, 2015; Pomarici *et al.*, 2019). The accomplishment of the Prosecco Reform of 2009, aimed at protecting the value of its name, has contributed to this success. Indeed, before 2009, the Prosecco grapevine was grown exclusively in Treviso Province, with two different certifications, Protected Geographical Indication (PGI) and PDO, with the latter reserved for the grapes cultivated in a very small area between two municipalities (Conegliano and Valdobbiadene). With the Prosecco Reform, the PDO production area was elevated to “Superiore PDO”, while a new PDO has appeared that broadens and substitutes for the previous Prosecco PGI (Rossetto *et al.*, 2011).

Thus, to date, Prosecco PDO can be presented to consumers through three Denominations of Origin: Conegliano Valdobbiadene Prosecco DOCG, which was recently recognised as a UNESCO World Heritage Site, and Asolo Prosecco DOCG (both Superiore PDOs) and Prosecco Doc, which have the same winemaking vocation linked to the cultivation of vines, the Glera grape variety and the production of Prosecco, but with significant historical, cultural and terroir differences. However, given the similar sensory characteristics [1] that contribute to consumers’ appreciation of all Prosecco production, companies suffer from the reduction of intra-PDO differentiation of Prosecco wines, which has, in turn, reduced the effectiveness of the communication of the intra-PDO quality signals of Prosecco sparkling wines. Hence, the signalling of quality distinctiveness by Prosecco sparkling intra-PDO wines can also become unclear to the consumer (Dal Bianco *et al.*, 2018), who could sustain higher transaction costs when examining differences amongst Prosecco PDO wines. This paper aims to investigate specifically if Prosecco consumers noticeably appreciate intra-PDO differences between Conegliano Valdobbiadene Prosecco Superiore DOCG (PS-DOCG) and Prosecco Spumante Doc (P-DOC). More specifically, the present research aims to contribute to the recent flow of the literature analysing Prosecco sparkling wine demand and consumer preferences for the different Prosecco geographical certifications (Rossetto and Gastaldello, 2018; Thiene *et al.*, 2013a, b). Differently from previous contributions in the literature, our study aims to understand if the differences between the two Prosecco PDOs’ hierarchical levels are recognised by consumers in terms of willingness to pay (WTP) and how the sensory characteristics as well as the provision of additional information may influence consumers’ perceptions and preferences. To this end, the study uses both sensory and experimental economics approaches.

Experimental auctions (EA) are largely used to measure consumers' preferences in a non-hypothetical scenario, with participants facing real economic incentives to disclose their real preferences (Corrigan and Rousu, 2006; Gracia *et al.*, 2011; Lewis *et al.*, 2016; Lusk, 2003; Lusk *et al.*, 2007; Shogren *et al.*, 1994). Some authors (Lusk *et al.*, 2004; Lusk and Hudson, 2004) have demonstrated the usefulness of EA as a valuable tool to support policymakers in their marketing decisions, whether in public institutions or private firms.

The paper is structured as follows. In the first section of the article, the literature background is given. The second section illustrates materials and methods, while in the third section, the major findings from data analysis are presented. Finally, the concluding discussion of the work is reported.

## 2. Literature review

### 2.1 Consumers' preference on sparkling wines

The previous literature has largely showed that consumers have heterogeneous preferences with respect to sparkling wine (Caracciolo and Furno, 2020): factors such as consumer demographic characteristics and psychological attitudes may largely shape preferences and consumption behaviour for sparkling wines (Zepeda and Deal, 2009). For example, as concerns demographic characteristics, young Korean wine consumers (aged 20–29 years) have shown a stronger preference for sparkling wines than older consumers (Lee *et al.*, 2005). These results have been confirmed by more recent research conducted in the North American market, where some authors have shown differences in sparkling wine consumption in Canada between genders and generations (i.e. millennial and older consumers) (Bruwer *et al.*, 2011, 2012). The study by Charters *et al.* (2011) confirmed the effect of gender on consumer preferences, showing transcultural similarities. Sparkling wines were considered women's drinks, in line with previous findings by (Hoffman, 2004), who considered that women are more likely to drink sparkling wines than men.

Indeed, in the purchasing decision-making process, socio-demographic and cultural characteristics may play a mediating role between consumer psychological attitudes and the consumption of sparkling wines (Zepeda and Deal, 2009). For instance, a study targeting four English-speaking countries (United States, United Kingdom, Australia and New Zealand) has provided empirical evidence that the cultural differences of young consumers may influence the perception of Champagne and sparkling wines (Velikova *et al.*, 2016). Using socio-demographic covariates and attitudinal scores Thiene *et al.* (2013), identified WTP patterns concerning differences between Prosecco PDOs and PGI, while the research of Olarte *et al.* (2017) identified the role of social norms in shaping the purchasing intentions of sparkling wine consumers, although with less importance than other factors such as sensory characteristics and price. Social norms as well as other psychological factors are important drivers, as argued in a recent study conducted in Australia by Verdonk *et al.* (2017), which showed that positive social image, reputation and symbolism are particularly relevant for Champagne consumption.

The above-mentioned literature shows the influence of consumer characteristics on consumer purchasing behaviour for sparkling wines. However, product characteristics are also becoming increasingly relevant, since the sparkling wines market is becoming increasingly differentiated in terms of intrinsic and extrinsic attributes, quality, complexity and price range.

Along these lines, Culbert *et al.* (2017) and Vecchio *et al.* (2019) focussed on the role of production methods (Charmat or traditional method) in affecting the sensory profile and therefore the quality perception of sparkling wines. Similarly, Thiene *et al.* (2013) highlighted the importance of certification of origin and type of production (sparkling and semi-sparkling) in affecting Prosecco choices. A few studies have highlighted the role played by region or country of origin and their supporting certifications in sparkling wines. Rossetto and Gastaldello (2018), for instance, identified a positive effect of the PDO certification reputation in influencing Prosecco consumers' loyalty. Similarly, Chamorro *et al.* (2015) considered multiple

origin designations of Cava sparkling wines and demonstrated that consumers' preference structure is largely influenced by the area of origin. In particular, the study showed that when consumers recognise the differentiation in denominations of origin, they show a higher involvement with the product in terms of consumption frequency and purchasing value. The consumers' recognition of the quality attributes is a crucial issue while, as the next paragraph will illustrate, consumers often might misperceive the information signal associated to GIs.

### *2.2 Consumers' perception towards geographical indications*

The "quality perception gap" between consumers and producers represents a crucial issue to be investigated for the well-functioning of any markets (Steenkamp, 1990). With respect to wine, this topic mainly involves how the GIs are recognised and perceived credible by consumers. To this regard, Caracciolo *et al.* (2016) empirically proved that consumers appreciation of wines increases as the level of origin designation increases from lower (PGI) to higher quality (DOCG). This result is largely consistent with findings of other studies (Cembalo *et al.*, 2014), even if, there are many exceptions: for instance, Saenz-Navaja *et al.* (2014) showed that while wine geographical origin is one of the main quality cue for less-involved consumers, more-involved consumers may use a wider range of cues for identifying the highest quality wines. In general terms, the longer the GI history, the higher its awareness and its positive impact on consumers' choice (Costanigro *et al.*, 2017). However, reforms of GI systems regularly occurred with the final aim to increase vertical differentiation while consumers may be confused or misled since only a smaller proportion of them are generally prepared towards an ever-increasing variety of wines choice (Johnson and Bruwer, 2007; Teuber, 2011).

For instance, Costanigro *et al.* (2019) demonstrated that the introduction of an upper-tier quality geographic classification (i.e. Chianti Classico's Gran Selezione wines) increased the perceived quality of the new product while, at the same time, it decreased the quality perception of lower-tier wines. Similarly, a change of the hierarchical levels within Burgundy GIs might generate significant changes in the consumers' perception of the quality levels. In particular, the promotion of medium-tier wines to higher quality wines is beneficial for those wines, while the loss is limited to wines in the other levels (Saidi *et al.*, 2020). These results were confirmed by Gokcekus and Finnegan (2017) by analysing the impact of introducing new sub-divisions within Oregon's Willamette Valley American Viticultural Area.

By means of a non-hypothetical Becker-DeGroot-Marschak (BDM) auction in a wine-tasting experiment, this paper contributes to this debate (Galletto, 2005; Scarpa *et al.*, 2009) by investigating if the quality signalling within the different Prosecco sparkling intra-PDO certifications is effective, or, in other words, if consumers appreciably recognise a distinct quality hierarchy amongst Prosecco PDOs as introduced by the Reform of the 2009.

### **3. Materials and methods**

Consumers' preferences for different Prosecco PDOs are elicited here using an EA within a non-hypothetical experiment. In particular, preferences are measured in monetary metrics in terms of individuals' WTP by using the BDM mechanism in a mixed within/between-subjects experimental design (Charness *et al.*, 2012; Rousu *et al.*, 2004). By using monetary metrics and observing effective purchases, consumers are fully incentivised to truthfully reveal their real preferences (Caracciolo *et al.*, 2019).

Within the BDM procedure, participants simultaneously presented an offer price in a closed envelope. Then, a sale price was randomly drawn from a uniform distribution, ranging from three to ten euros in increments of €0.50. The above-mentioned range was unknown to the participants. Any participants who provided an offer price greater than the sale price received the product by paying the sale price. Because the sale price was drawn at random, participants were informed that it was in their interest to offer the real price that they were

willing to pay for the products. This mechanism is incentive-compatible since bidders have no reason to underestimate their real WTP because the sale price is determined by a random drawing and not by the same participants (Shogren *et al.*, 1994; Becker *et al.*, 1964; Corrigan and Rousu, 2006). The BDM procedure is widely used by food researchers (Vecchio *et al.*, 2019; Caracciolo *et al.*, 2019) and is easily implemented, particularly within a real market (such as shops and restaurants), which allows the experimenters to carry out a study applying a random sampling method (Lusk, 2003). Amongst the main disadvantages is that participants in the BDM auctions may tend to deviate from their true WTP (Bohm *et al.*, 2004) for the so-called anchoring effect. The distortion occurs because the participants may refer to other people's WTP, as participants can use this information to adjust their own evaluations. Therefore, as mentioned above, the researcher should try to avoid reference prices (Drichoutis *et al.*, 2008; Harrison and List, 2004).

Moreover, consumers' expected liking and informed liking for the different Prosecco PDOs are collected. Following criteria established in Harrison and List (2004), the main characteristics of the experiment will be illustrated in the next sub-paragraph, including the characteristics of the participants and of the evaluated wines, the rules of the BDM auction, the activities carried out by participants and the information provided.

### 3.1 Participant characteristics

Overall, 99 sparkling wine consumers were recruited to participate in an EA at the University of Padova's sensory analysis room (UNIEN ISO 8589: 2014) in Conegliano (a small town to the north of Treviso), avoiding non-wine drinkers (Depositario *et al.*, 2009).

The sample was almost entirely formed of participants living in the Veneto region, between the PS-DOCG (49%) and P-DOC (51%) areas (Table 1). The EA was conducted in 2019. Amongst participants, there was a higher proportion (39% of total) of young people (aged 18–25 years) compared to other age groups, 29% (aged 25–50 years) and 31% (older than 50 years), respectively. In the sample, there were more men (60%) than women. The cohort of frequent drinkers was the most prominent: 23% consumed wine habitually (every day) and 56% two or three times a week, whereas the occasional drinkers (17%) and infrequent drinkers (3%) accounted for lower percentages. Most of the participants (81%) had not received specific training on wine.

### 3.2 Product characteristics

In accordance with the Consortium's sparkling specifications and their wine production features, 14 Prosecco PDO producers with similar characteristics (i.e. own vineyards and considerable direct sales' share) and wines were selected to represent the wide heterogeneity of Prosecco production: seven sparkling wines from the P-DOC and seven sparkling wines from the P-DOCG. The selection of the wines for the two Prosecco PDOs has been planned, by considering different producers in each Prosecco PDOs level, to avoid the producer effect (Saidi *et al.*, 2020). Each producer provided 15 bottles of sparkling wine (standard format of 0.75 l) made from Glera grapes (100%). In particular, the sparkling brut (nonvintage) line was used in the experiment, given consumers' higher familiarity with this specific product line, which is characterised by low residual sugar (between 6 and 12 g per litre) (Boatto *et al.*, 2018; Lusk and Shogren, 2007; Plott and Zeiler, 2005; Zhao and Kling, 2004).

Table 2 summarises the characteristics of the 14 wines chosen for the experiment. Although, on average, the residual sugar between P-DOC and PS-DOCG wines is the same, the latter has an average price that is 56% higher. The difference in the price between the two typologies reflects the current market [2].

The front label, indicating the Prosecco PDOs certification and the producer brand, and the back label were hidden during the auction.

Variable	Frequency (%)	Distinct quality hierarchy amongst wines?
<i>Provenance</i>		
Prosecco PDO superior area	49 (49.5)	
Prosecco PDO area	40 (40.4)	
Other provenance	10 (10.1)	
<i>Socio-demographics</i>		
<i>Gender</i>		
Male	60 (60.6)	
Female	39 (39.4)	
<i>Age group</i>		
18–25	39 (39.4)	
26–50	29 (29.3)	
older than 50 years	31 (31.3)	
<i>Specific education on wine</i>		
None	80 (80.8)	
High school degree (6-year circle)	13 (13.1)	
University or postgraduate	6 (6.1)	
<i>Consumption frequency</i>		
Daily	23 (23.2)	
2–3 times a week	56 (56.6)	
2–3 times a month	17 (17.2)	
Almost never	3 (3.0)	
<i>Purchase of wines by prevailing channel</i>		
Restaurant	9 (9.1)	
Wine shops and cafés	68 (68.7)	
Large-scale retail	12 (12.1)	
Direct sales	10 (10.1)	

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**Table 1.**  
Profile characteristics of the overall sample (99 participants)

	Mean	St.dev	Min	Max	
<i>Prosecco DOC (PDO)</i>					
Residual sugar (g/L)	10.29	1.78	7.50	12.00	
Ex-cellar price (euro/bottle)	4.84	0.74	3.50	5.70	
<i>Conegliano Valdobbiadene Prosecco DOCG (Superior PDO)</i>					
Residual sugar (g/L)	9.71	1.80	7.00	12.00	
Ex-cellar price (euro/bottle)	7.61	1.31	6.00	9.40	

**Table 2.**  
Descriptive characteristics of the wines tasted

### 3.3 The study design

The study was based on a mixed within/between-subjects design without any deceptive practice or unfaithful communication of information. As discussed in the second paragraph, the study assumes that, holding all other things constant, consumers' preferences can be influenced by taste likeability and PDO information (Lange *et al.*, 2002). For this reason, participants joined two consecutive rounds, in each of which they were asked to bid on two Prosecco wines, a P-DOC and a PS-DOCG. However, the two rounds differed in the amount and type of information participants received.

In the first round, the participants were asked to indicate their bid based only on their background knowledge of Prosecco PDO wines and without tasting the product (*round 1: no*

*taste; no additional information*). In the second round, the participants received more information on the two products but did not taste them (*round 2: additional information*) and then indicated their WTP. In the third and last round, participants tasted the wines after blind tasting (*round 3: blind tasting*) and then indicated their offer price for the two wines and their overall liking for each wine. To summarise, each participant submitted 6 bids (2 wines  $\times$  3 rounds), and, when they tasted the wine, they also reported a hedonic rating in terms of overall liking. The detailed information provided to the participants on the two Prosecco Denominations is shown in Table 3 (Roth *et al.*, 1995), while their overall liking was measured through a 9-point hedonic categorical scale with the following anchors: “I find it extremely unpleasant” (=1), “I find it very unpleasant” (=2), “I find it unpleasant” (=3), “I find it slightly unpleasant” (=4), “It leaves me indifferent” (=5), “I find it slightly pleasant” (=6), “I find it pleasant” (=7), “I find it very pleasant” (=8), and “I find it extremely pleasant” (=9).

Participants received cash compensation of €10. However, as this might overestimate WTP values, participants were asked to indicate how they would spend the cash in the near future. This approach minimises the windfall or house money effect (Lombardi *et al.*, 2019). Half of the sample played the last two rounds in reverse order (round 3 – blind tasting before, then round 2 – information) to control for any potential order effects.

At the beginning of the experiment, participants were given a questionnaire to collect essential consumer sociodemographic information (age, gender, origin), wine knowledge, and consumption attitudes and habits. Specifically, consumers were asked about their specific training in wine, extracurricular knowledge, where they usually buy wine and their intention to improve their wine knowledge and tasting skills. To prevent collusion between participants, no form of communication was permitted amongst the bidders during the auction. To avoid the affiliation effect, price feedback was not provided to participants in the three rounds (Lusk and Shogren, 2007). Moreover, the wealth effect was controlled by randomising only one wine in one round as binding. The careful explanation that the money provided to the bidders in the auction represents a fee linked to the cost of participation

	Prosecco DOC (PDO)	Conegliano valdobbiadene prosecco DOCG (superior PDO)
Area under vines (hectares)	22,000	7,500
Production area	Flat land of Treviso	Hills between Valdobbiadene and Conegliano*
Firm size and tradition	Mostly medium-large firms with modern and contemporary heritage	Mostly small family businesses with historical heritage
Grape variety	100% Glera	100% Glera
Production hectares (tons)	18	13.5
Vineyard labour (yearly hours)	50	450
Pruning and harvesting	Mostly mechanical	Mostly manual
Sparkling production method	Martinotti	Martinotti
Refermentation duration (days)	30	30
Production (million bottles sold)	500	90
Sparkling distribution channels	Mostly sold in large-scale retail	Mostly sold in HoReCa

**Note(s):** \* 15 boroughs of the Treviso piedmont

**Table 3.** Information provided to participants in the experimental auction

helped minimise the windfall effect (Carlsson *et al.*, 2013). Problems concerning the order of presentation of wines were avoided by randomisation (List *et al.*, 2011).

The procedure was repeated seven times, involving a total of 99 participants. As shown in Figure 1, each of the seven sessions was divided into seven major phases, requiring approximately 45 min of participation.

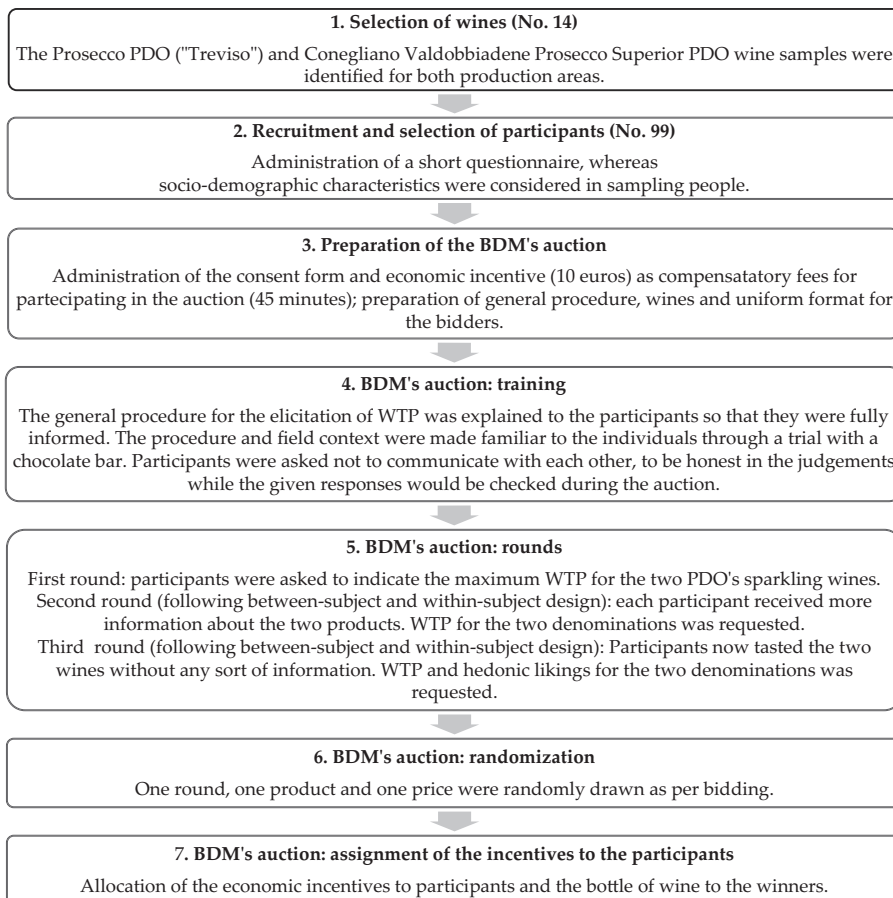
#### 4. Results

Table 4 exhibits the mean WTP of the two Prosecco PDO alternatives. The comparison of means showed that, in the reference round, when participants did not receive any information in addition to what they already knew about GIs and had not tasted the wines, the PS-DOCG was the most preferred.

After receiving the additional information, participants still reasonably preferred the PS-DOCG, which entailed a systematic decrease in the WTP for P-DOC. In the blind tasting round, the mean WTP remained higher for the PS-DOCG than for the P-DOC, but participants' bids switched back to higher means for the latter than in the first round. The representation of participants' preferences across rounds makes these outcomes explicit (Figure 2).

Distinct quality hierarchy amongst wines?

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**Figure 1.** The experimental procedure followed in the evaluation of Prosecco sparkling wines



The effects of information and wine tasting on Prosecco wines exert varying influences on preferences, leading, in the first case, to an increase in the price differential between the PS-DOCG and the P-DOC, from 60.2% in round one to 77.7% in round two, while in round three, the gap was reduced to 15%. This result means that, on average, participants are willing to pay almost the same price for a bottle of the PS-DOCG when additional information is supplied, while its WTP is reduced by 21.8% when the first round is compared with the blind-tasting round (Table 5).

In contrast, the values of P-DOC WTP with the additional information decrease compared to those in the first round (-10%); however, the blind tasting shows a substantial recovery of the P-DOC WTP, with higher values compared to the first round (+8.9%), thereby reaching the closest average value, amongst the rounds, to that of the PS-DOCG (Table 6).

The hedonic liking (HL) mean scores for the two GIs show a higher level for the PS-DOCG, although the gap is less significant than that for the WTP. The WTP percentage difference is slightly less than double than the percentage difference in terms of HL score.

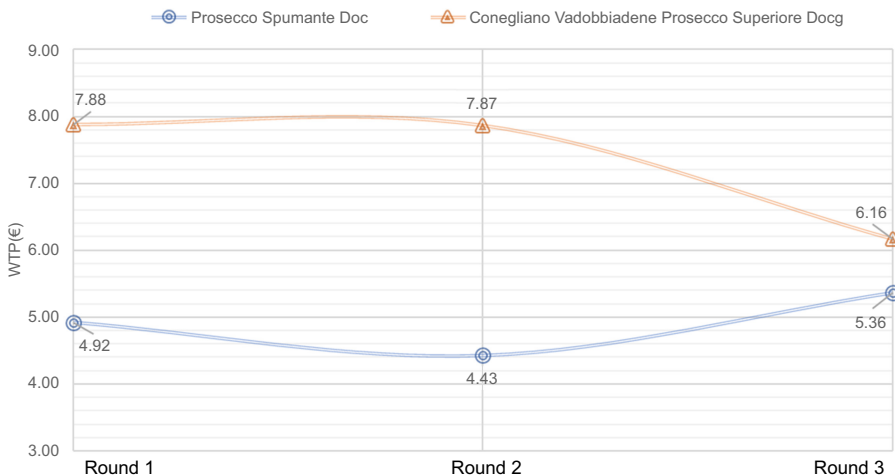
Figure 3 shows box-and-whisker plot differences in the mean WTP for the PS-DOCG and the P-DOC across rounds. In particular, in round two, where the difference in  $\Delta$ WTP is larger, the PS-DOCG shows less heterogeneity in participants' judgement compared to the third round. In contrast, in round three, the whiskers extend between €-2 and €5.5, 87.5% more than in round two, as there is even more dispersion in the negative  $\Delta$ WTP. More

**Table 4.** Willingness to pay (€) per bottle of wine (0.75 L) and hedonic liking for Prosecco PDOs before and after receiving information

Rounds		Prosecco PDO	Prosecco PDO superior	sig	$\Delta$ (PDO-Sup.PDO) $\Delta$ %
1st	No info (WTP)	4.92	7.88	***	60.2
2nd	Information (WTP)	4.43	7.87	***	77.7
3rd	Blind tasting (WTP)	5.36	6.16	***	15.0
3rd	Blind tasting (HL)	5.62	6.10	**	8.6

**Note(s):** significance levels according to the paired *t*-test; \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ ;  $n = 99$  participants. HL = Hedonic liking assessment (1-9-point Likert scale)

**Figure 2.** Mean willingness to pay (€ per bottle, 0.75 L) across the rounds for the Conegliano Valdobbiadene Prosecco Superiore DOCG and the Prosecco Spumante DOC



interestingly, in the second round,  $\Delta$ WTP's interquartile range goes from €3 to €4, 1.5 times less heterogeneous than in the third round.

Distinct quality hierarchy amongst wines?

### 5. Discussions and conclusions

This study focussed on the consumers perceived differences between the two Prosecco PDO designations and how the sensory characteristics as well as the provision of additional information may influence consumers' preferences in terms of WTP.

A first observation arises from comparing the WTP difference in the first round and the price gap shown for the tasted wines. Of course, the two mean WTP values are higher than the two mean values of the Prosecco sample, given that they are maximum values and not market prices. However, the two percentage differences are quite similar (60 and 57%), reflecting the quality and reputation information used in participants' past purchasing experience of sparkling Prosecco (Landon and Smith, 1997), which is largely due to the subset of information on the two PDOs that was available and used in their purchasing decision (Rosen, 1974).

A second point to be stressed is the significant widening of WTP gap following the introduction of additional information, which is exclusively due to decreased WTP for the

Prosecco PDO superior		Mean	sig	$\Delta\%$ Sup. PDO
Info effect	round 2-round 1	-0.015		-0.19
Taste effect	round 3-round 1	-1.718	***	-21.80

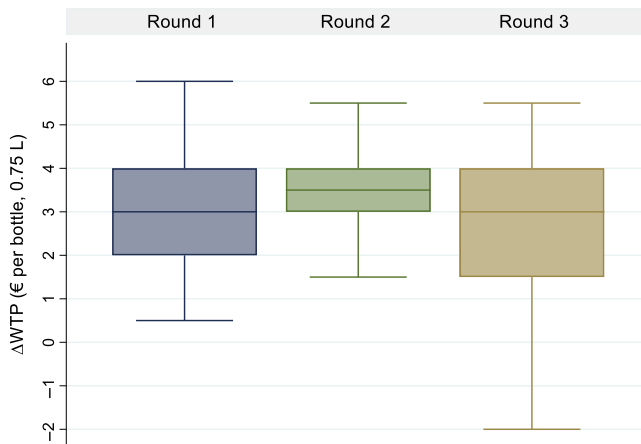
**Note(s):** significance levels according to the paired *t*-test; \**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01; *n* = 99 participants

**Table 5.** Willingness to pay variation across rounds for the Prosecco PDO Superior

Prosecco PDO		Mean	sig	$\Delta\%$ PDO
Info effect	round 2-round 1	-0.493	***	-10.02
Taste effect	round 3-round 1	0.439	***	8.92

**Note(s):** significance levels according to the paired *t*-test; \**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01; *n* = 99 participants

**Table 6.** Willingness to pay variation across rounds for the Prosecco PDO



Excludes outside values

**Figure 3.** Boxplot of  $\Delta$ WTP (€) across rounds between the Prosecco Superior PDO and the Prosecco PDO

P-DOC and not to an improved WTP for the PS-DOCG. As with the first point, this fact can be explained mostly by collective reputation variables as relevant elements in the consumers' information set. We can argue that, for consumers, the regional reputation of Prosecco sparkling wine is essentially that of the PS-DOCG, which is strongly rooted in their minds and for which they know both the production methods and the history and tradition associated with it. Therefore, the additional information on this wine did not change its reputation and WTP. In contrast, the additional information about the Prosecco PDO gave most participants the awareness of a less-demanding production technique, a somewhat newer tradition and less appealing vine-growing landscape, all factors that contributed to its reduced WTP.

The third round, though still showing a highly significant WTP predominance of the PS-DOCG, rehabilitates the P-DOC, especially in terms of HL, reducing the gap between the two GIs. This result should not be considered unfavourable for the PS-DOCG. Previous blind wine-tasting tests (Goldstein *et al.*, 2008) using non-wine-experts have shown a substantial inability of testers to distinguish positive relationships between wine sensory attributes and price.

The WTP difference – €0.80 per bottle, or 15% – can be interpreted as reflecting the minimum quality gap between the two sparkling wines, which is determined exclusively by experience attributes (taste). At the opposite end, the widest WTP difference – €3.44 per bottle, or 77.7% – found in the second round can be viewed as the expression of the overall quality when consumers are fully cognisant of all the credence attributes. However, the effect of the latter on the appreciation of the two Proseccos is divergent: for the PS-DOCG, they increase the WTP by almost 28% above the bottom WTP level defined by its likeability; for the P-DOC, they reduce the WTP by 21% below the top WTP level defined by its likeability.

Although limited by a somewhat narrow sample constituted mainly by consumers living almost exclusively in the Veneto region, our analysis once again underlines the “superiority” of the PS-DOCG in comparison with the P-DOC. In addition, it supplies useful indications for a promotion strategy for the two collective brands.

Even if we cannot infer general conclusions on the influence of information, we would add the idea that employing a set of ad hoc communication strategies could lead to a process learning effect that raises the possibility of discriminating the ranking at the wine-tasting step and identifying the heterogeneity between the two PDOs (Combris *et al.*, 2009). Indeed, for the PS-DOCG, it appears crucial to effectively communicate the values associated with the production land, tradition, history and any other aspect that increases its image and reputation. This communication is particularly important for markets in which it competes with the other GI and must be differentiated from the latter. At the same time, both the Consortium and producers have to continuously improve the wine's sensorial quality to avoid disappointing feedback following consumption, especially for consumers who already know the other P-DOC.

The P-DOC promotion strategy should be based on two aspects to be communicated. The first is its main strength, i.e. the high value for money of its likeability (the mean price of one HL score is €0.86, while for the PS-DOCG, it is €1.25) arising from a quite good sensorial level. The second, which is particularly useful for markets in which it competes with the PS-DOCG, consists of stressing all the credence features that are shared with the latter (region, Glera variety, winemaking method, etc.) to avoid a negative effect by emphasising the main differences between them.

This study suffers from some limitations that are often frequent in research on WTP and likeability. First, the sample size limits the representativeness concerning the broader population, leading to restrictions in the generalisation of results. Second, despite the attention paid to the sampling characteristics used in the auctions (i.e. limitation to wine drinkers and mainly to non-expert drinkers, consumer sociodemographic information), the recruitment method relied on the population who were conveniently available to participate

in the study, considering inclusion criteria restricted to regional cohorts inside and outside the two Prosecco PDO areas. Third, although the wines were accurately selected, we can argue that a different set of brands belonging to both the GIs might change their evaluation in terms of likeability, leading to other WTPs in the blind tests. These two reasons suggest the necessity of performing further BDM auctions during wine-tasting experiments in different locations and with other wine sets. Therefore, these wines were not representative of the whole intra-PDO heterogeneity of the two Prosecco PDO alternatives. Fourth, it is also recognised that the choice of wine when operating in a laboratory environment can prompt different evaluations from those given in the context of a real market (Harrison and List, 2004).

Further research might investigate, in other Italian regions and foreign countries, the importance of factors such as consumer socio-demographic characteristics, cultural features and psychological attitudes in affecting both consumer preferences for Prosecco PDO and their purchasing behaviour. In this context, from the producer's perspective, the question arises: how important is the role of sensorial characteristics in highlighting a distinctiveness quality hierarchy across Prosecco PDO sparkling wines for consumers?

## Notes

1. In wine tasting, Prosecco wines have numerous similar elements that represent a source of unclear information for the Prosecco consumer who is not able to perceive intra-PDO sensory differences.
2. According the annual report on the Prosecco PDO wine market, the average ex-cellar price of the PS-DOCG wines was mainly concentrated in the super-premium range (71%), while the P-DOC wines showed a price positioning between popular premium (57%) and premium wines (43% - Boatto *et al.*, 2018).

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Distinct quality  
hierarchy  
amongst  
wines?

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