Not everything has been still explored: Further thoughts on additional price for the organic wine

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Abstract
Several studies have been conducted on organic wine consumption, but no specific study has yet fully explored how the set of attributes explored by existing research affects the additional price for organic wine. To fill this gap, the objective of this paper was to examine whether and to what extent consumers are inclined to pay for buying organic wine and what are the attributes that significantly influence the additional price of organic wine compared to conventional one. With this aim, a quantitative study over a representative sample of wine consumers in Sicily (Italy) was carried out. Results allowed to observe that consumers attached greater importance to personal motivations such as environmental protection, distinctness and curiosity as well as to explicit label information such as brand renown and local production. In addition, male gender and income are positively correlated to the willingness to pay an additional price for organic wine. Our results have important implications for the actors involved in the wine sector as the adoption of marketing practices explicitly related to the label and motivations attributes can lead to value augmentation of organic wine that could increase consumers’ valuation for it.

1. Introduction

In the last years, organic wines consumption is increasingly grown, and more and more consumers have evidenced positive attitudes towards organic and sustainable wine in many consumer segments. Despite the consumption of organic wine is still limited (Schaufele and Hamm, 2018), consumers’ demand for this product shows a growing trend with a potential of expansion in the next years that appears significant both in traditional and non-traditional producing countries (Remaud et al., 2008; Schaufele et al., 2018).

Many studies analyzed the characters of organic foods consumption and within this stream many scholars investigated which attributes characterize the consumption of organic wine (e.g. Fotopoulos et al., 2003; Brugarolas Mollá-Bauzá et al., 2005). Moreover, wine consumers show high environmental attitudes paying high attention both to organic product and organic production process (Rahman et al., 2014). Past studies have been mainly addressed to analyze attitudes and behavior of consumers by considering seemingly homogeneous variables linked to the main following items: environmental and sustainable matters (Sirieux and Remaud, 2010; Vecchio, 2013; Sellers-Rubio and Nicolau-Gonzalez, 2016), credence and motivation attributes (Chinnici et al., 2002; Aprile et al., 2012), geographical and local origin (Mann et al., 2012; D’Amico et al., 2014) and sensory characters (Wiedmann et al., 2014).

Earlier studies on organic wine consumption observed the high importance that consumers assign to price (Fotopoulos et al., 2003). It was deemed as the most important variable in the quality recognition of organic wine for Australian wine drinkers (Remaud et al., 2008). Even most recently, price has represented the most important variable in the purchase intention of organic wine since its function is mainly determined by the range and its role differs as quality of wine varies (Costanigro et al., 2014). Several studies carried out in different countries show the positive consumers’ willingness to pay a premium price for organic and sustainable wine (Brugarolas Mollá-Bauzá et al., 2005; Remaud et al., 2008; Schaufele and Hamm, 2017).

Despite several studies have been conducted on organic wine...
consumption, understanding how the “organic attribute” affects wine evaluation remains an unresolved issue. Specifically, an interesting issue not yet fully explored relates to understand which factors determines an “additional price” that consumers are willing to pay for buying organic wine instead of conventional wine. To fill this gap, the objective of this paper is to examine whether and to what extent consumers are willing to pay an additional price for organic wine and what are the attributes that significantly influence the additional price of organic wine compared to a conventional one.

The novelty of this paper lies on the fact that this paper introduces for the first time a hypothetical case-study on price-related determinants based on consumers’ stated purchase intentions for an organic wine. For this purpose, by reviewing the current scientific literature on the organic wine consumption, we identified the main variables already investigated in previous studies pooling the most relevant variables in five groups: “sensory characteristics”, “label and origin aspects”, “motivations”, “objective characteristics” and “socio-economic” characteristics of consumers. Afterwards, we related these variables with a set of five rising additional prices indicating the additional premium that the consumer would be inclined to pay for organic wine compared to the price of conventional wine.

The remainder of paper is organized as follows: the first section briefly reports a literature review of main scientific contributes on organic wine consumers’ attitudes and behaviors. The second one reports methodological aspects, describing data collection methods and the econometric ordered logit model. Third part of the paper presents and discusses main results while the last section concludes and considers main implication for wine operators.

2. Literature review and research goal

Many studies have been addressed to analyze the organic and sustainable wine consumption. In this section we briefly report the main contributes on the most important attributes that affect the consumption of organic wine, looking to the studies on sustainable wines whereas this is not the main issues faced in this work. In the seminal paper of Fotopoulos et al. (2003) on organic wine consumption, consumers motivational and cognitive discriminating differences in organic wine were shown. Subsequent studies have investigated the effect of attributes related to organic wine taking into consideration different approaches and thematic issues that we rearranged in the following five classes.

2.1. Sensory attributes

A relatively large strand of studies addressed the role of sensory attributes in consumer behavior for conventional wines (Galati et al., 2018; Di Vita et al., 2019), nevertheless relatively few contributes addressed these topics for organic wines (Mann et al., 2012; Paglierini et al., 2013; Wiedmann et al., 2014). By comparing sensory and hedonics qualities of organic and conventional red wine, Paglierini et al. (2013) highlighted that both wines show slight differences in the intensity of sensory descriptors among consumers. More recently, other authors showed that ‘appearance’ and ‘taste’ are perceived to be better for the organic wines rather than the conventional ones (Wiedmann et al., 2014), whereas other studies observed how ‘taste’ and ‘appearance’ have been considered as purchase barriers (Schäufele and Hamm, 2018).

Despite ‘taste’ is one of the most important key factors in assessing wine quality both for organic and conventional wines (Rahman et al., 2014), its role in the organic wine consumer perception is quite controversial. As a fact, whereas ‘taste’ appreciably influences customer behavioral intentions, Kim and Bonn (2015) and Wiedmann et al. (2014) found that organic-labelled wines have a significantly better ‘taste’ if compared to the conventional ones, even if not always consumers agreed with this statement. Indeed, other studies argued the negative taste-perceptions of consumer towards organic wines (Stolz and Schmid, 2008). This apparent dichotomy could be traced back to the low-quality level of organic wines traded during their introduction phase in the market, in the early 90s, so that taste of organic wine is still suffering an image drawback which is struggling to disappear.

Even latest surveys have highlighted how consumers’ knowledge of organic wine is still at the growth stage (Troiano et al., 2016). Therefore, a strongly positive perception of ‘taste’ for the organic wine is not completely achieved and demonstrated (Schäufele and Hamm, 2018).

Concerning ‘color’ attribute, it has been widely explored in many consumer studies on conventional wines (D’Amico et al., 2014; Di Vita et al., 2015; Caracciolo et al., 2016) but its role has been little explored in organic wine consumer. In this regard, it has been observed that ‘color’ is a scarcely relevant attribute in organic wine consumption (Mann et al., 2012). As regards the role of ‘aroma’ in consumer choices, we found few studies, whereas it has been considered as rather unimportant (Fotopoulos et al., 2003) or significant only for specific target of organic wine consumers. Therefore, the role of ‘aroma’ was not fully explained given that this attribute has been generally taken into consideration jointly with other sensory characteristics (Fotopoulos et al., 2003).

However, wine consumers do not have an adequate level of sensory perception expertise (Barber et al., 2009), and they are not able to identify hedonic and sensory difference between organic and conventional wines (Pagliarini et al., 2013). For these reasons, the role of sensory attributes in organic wine consumption is not well-defined and as such it could be deeply analyzed in future researches.

2.2. Regional and origin attributes

Regional and local origin has been indicated as an important proxy in the organic wine consumption (D’Amico et al., 2016). The role of regional origin has previously discussed by Remaud et al. (2008) that underlined a significant relation between the region of origin and organic attributes of wine, but at the same time authors argued that consumer does not always associate the regional product with the organic process (Remaud et al., 2008). With this respect, another survey carried out on Swiss wine drinkers, partially confirms previous findings showing that price and the country of origin were more important than organic attribute (Mann et al., 2012). Other authors have analyzed the influence that geographical indication - such as ‘Protected Designation of Origin’ (PDO) - and organic farming label have on consumer’s choice, showing how PDO certification prevails on the organic claim (Müttet and Alibisu, 2006; Aprile et al., 2012; Chamarro et al., 2015; Scorzafava et al., 2018).

The prevalence of Geographical Indications (GIs) over organic certification has been also observed for organic wines (Delsencu et al., 2013) and even consumers who appreciate organic wine attach greater importance to the local claims (Troiano et al., 2016). Local organic food is positively perceived by consumers (Sirieix et al., 2011) that consider local organic product as more environmentally sustainable than non-organic product (Hashem et al., 2018). Factors affecting consumer behavior towards locally produced wines have received a quite particular attention by scholars (D’Amico et al., 2014; Giampietri et al., 2018), but limited are the studies that analyzed the connection between local and organic wines. With this regard, the organic wine consumption is detached
from the dynamics related to the locally produced food (Mann et al., 2012).

Concerning ‘brand renown’, its role has been widely debated for conventional wines (Lockshin et al., 2006; Drennan et al., 2015; Dal Vecchio et al., 2018) but not for organic wines except few studies that used generic approaches (Fotopoulos et al., 2003). For this reason, we decided to include the attribute ‘brand renown’ in our analysis.

2.3. Motivations

According to Nasir and Karakaya (2014), the predictors of organic food purchase intentions can be grouped in “utilitarian aspects and hedonic aspects, health orientation and environmental and socially responsibility”. A relatively modest number of studies focused on the main motivations of organic wine consumption that were mainly addressed to environmental concern and beliefs (Rahman et al., 2014). Concerning the hedonic aspects of organic wine consumption, that is a pleasure-oriented consumption, ‘distinctiveness’ was a character found for the first time by Fotopoulos et al. (2003). Further study pointed out the importance of this attribute even up to recommend it as a marketing tool to communicate its worth to the consumers (Sirieix and Remaud, 2010).

‘Curiosity’ was for the first time highlighted by a study on consumption of organic food conducted by Chinnici et al. (2002). Later, ‘curiosity’ was identified as a driver of organic wine consumption in a study indicating how preferences for organic wines without sulfites were effectively associated with curiosity (D’Amico et al., 2016). We decided to test the ‘curiosity’ to verify if there is still a lack of knowledge about organic wine, given that the organic wine market has a certain delay if compared to other categories, such as fruit and vegetables for which consumers show awareness, objective knowledge and consolidated habits of purchases (Pellegrini and Farinello, 2009; Pieniak et al., 2010).

Another strand of literature on environmentally friendly wine was addressed to analyze the sustainable wines, whose production refers to a production process that is ecologically, economically and socially viable (Loureiro, 2003; Warner, 2007; Falcone et al., 2015). In this direction, scholars have been deeply analyzed the consumer behavior for organic wines, highlighting their high environmental consciousness (Barber et al., 2009; D’Amico et al., 2016).

2.4. Objective characteristics

In this category, we reassumed main contributes related to ‘sulfites free’, ‘price’ and ‘alcohol content’. A segment of research dealing with organic wine consumption has been addressed to investigate the role of any additives, such as sulphites, enzymes, selected bacteria, selected yeasts and gelatins (Barreiro-Hurlé et al., 2008; Stolz and Schmid, 2008). Only the function of sulfites has attracted more attention among the scholars, since it is perceived as risky additive and as such considered as unhealthy (Costanigro et al., 2014). With this respect, there are many evidences that consumers are willing to pay an additional price for wines sulphites free, thus confirming the negative perception of this additive (Costanigro et al., 2014; D’Amico et al., 2016; Amato et al., 2017). ‘Alcohol content’ was the last wine attributes we analyzed since Fotopoulos et al. (2003) showed a high degree of importance of this attribute for the organic buyers.

2.5. Socio-economic characteristics

As occurred for many other organic products, past studies confirmed also for wine the relevance of ‘gender’ in buying organic, by highlighting how female are the most organic wine-sensitive (Mann et al., 2012). At the same time, women are those less disposable to spend a large amount of money for the purchase of organic wine (D’Amico et al., 2016). It implies that women seem to hold in consideration more the aspects linked to the price than the organic certification. In this direction, Vecchio (2013) revealed that female and older consumers have higher propensity for sustainable wines.

More in detail, another study, carried out on Italian millennial generation, showed that the label related to social descriptor obtained the highest response among young respondents. The most sensitive to sustainable wine, among millennial, are consumers living in metropolitan areas, female and older (27–35 years old) (Pomarici and Vecchio, 2014). In addition, it seems that low income negatively influences the purchase of organic wine, while for higher income class, the price of wine is not a purchase barrier (Schaufele and Hamm, 2018).

The literature review has shown that wine attributes are important for marketing organizations as they help understand consumer behavior. However, understanding how attributes affects consumption of organic wine, the manner in which consumers seek them, and the ways in which consumers might alter their consumption decisions based on organic wine attributes remain relatively unexplored in the literature. Specifically, an interesting issue not yet fully explored that we analyzed in our study relates to the concept of additional price. In the wine sector, additional price can involve a range of components related to the product itself (e.g., sensory attributes, origin and objective characteristics, motivations), hence, additional price in the organic wine sector could influence consumers’ decision-making with potential implications for the valuation of wine. The existing literature on organic wine consumption does not clearly specify attributes related to the additional price that consumers are willing to pay for organic wine. Moreover, while a substantial body of research has analyzed factors affecting the purchase of organic wine, no other known study has examined the effects of attributes explicitly applied to the additional price for organic wine. Understanding how the attributes influence consumers’ evaluation of organic wine could have important implications for marketing and the competitiveness of the wine sector in a wine region.

To fill this gap, we conducted a survey to estimate the effects of the attributes on consumers’ additional price for organic wine.

3. Methodology

Our survey was conducted in the metropolitan area of Catania in Sicily (Italy). A specific questionnaire was administered by face to face interviews to a sample of 500 consumers randomly selected. Catania is a medium size town and it has previously deemed as representative of Italian metropolitan cities, due to the food purchasing behaviours and attitudes of its population, as reported by previous studies (D’Amico et al., 2016). Interviews were carried out in specialized wine shops and were addressed to organic wine consumers, both regular or occasional drinkers, that consumed organic wine at least once a month or during the past 30 days.

Respondents were asked to provide a series of qualitative and quantitative information about their attitudes and purchase behavior with respect to the organic wines. The survey gathered information about following topics: a) general characteristics of the organic products consumption, b) patterns, habits and motivation of organic wines consumption, c) intrinsic and extrinsic characteristics of organic wine purchase, d) willingness to purchase organic wine, e) distribution channels of sales, f) socio-demographic characteristics of the interviewees. At the end of survey, the questionnaires considered valid for the analysis were
equal to 403. The remaining 93 subjects of the 500 intercepted declared they were not interested in the topic and therefore refused to be interviewed. The characters of sample have been reported in Table 1.

To estimate effects of the attributes on additional price for organic wine, we developed an ordered logit model. The model was built around the structural model for ordinal outcomes with a single continuous latent variable (Greene, 2012; D’Amico et al., 2016). The regression model is specified as:

\[ AP_i^j = X_i \beta + \epsilon_i \]

Where \( AP^j \) is the latent variable continuous and ranging from \(-\infty\) to \(+\infty\), \( X_i \) is the vector of the explanatory variables, \( \beta \) is a vector of coefficients and \( \epsilon_i \) is the vector of error terms.

In the model, a set of coefficients \((\alpha_1 < \alpha_2 < \ldots < \alpha_{J-1})\) with \((J - 1)\) intercept terms as cut-points in the distribution of the latent variable \( AP^j \) was also estimated. The cut-points represent the threshold values for moving from one category of the \( AP \) variable to another one. Consequently, the observed ordered variable \( AP \) is tied to the latent variable \( AP^j \) as:

\[ AP_i = \max_j \{ j : \alpha_{j-1} < AP_i \leq \alpha_j \} \]

where \( j = 1\) to \( J \), \( \alpha_0 = -\infty \) and \( \alpha_J = +\infty \).

Thus, in our study we analyzed whether the probability of paying an “additional price” (AP) for organic wine is influenced by the attributes of the wine and by the socio-demographic characteristics of the consumer. We estimated an ordered logit model in which the dependent variable “additional price” (AP) is classified into five different rising levels indicating the additional payment that the consumer is willing to pay for organic wine as an additional percentage compared to the price of conventional wine. The categories of the dependent variable AP are: “not willing to pay”, “willing to pay 10% more”, “willing to pay 20% more”, “willing to pay 30% more”, “willing to pay 50% more”.

The dependent variable AP has been related to 16 independent variables concerning wine attributes (12 attributes) and socio-demographic variables of consumer (4 variables). As regard the wine attributes, the survey investigated whether these affected the willingness of consumers to pay an “additional price” for organic wine. Each of respondent was asked to classify them on a 1–7 scale, whereas 1 is correspond to “not important” and 7 to “very important”. The list of explanatory variables is reported in Table 2.

All variables were identified by taking into account the most important attributes employed in previous studies carried out on organic or sustainable wines. All variables were rearranged in five classes: a) Sensory attributes: color, taste, aroma; b) Label and origin attributes: PDO/PGI designation,\(^1\) local origin, brand renown; c) Motivations: trend/distinctiveness, curiosity, environmental protection; d) objective characteristics: sulfites free, price, alcohol content; e) Socio-economic characteristics: age, income, education, gender.

Many studies have pointed out the strong linkage between organic food and their healthy characteristics so much so by now health is a pre-requisite in the consumption of organic products (Sirieix et al., 2011). For this reason, the variable linked to healthy concern of organic wine has not been built in the analysis.

In ordered response model both the sign and magnitude of coefficients are not directly interpretable (Greene and Hensher, 2010). As a result, to estimate the change in the probability we need to compute marginal effects. This allows to estimate how a marginal change in the value of an explanatory variable changes the outcome probabilities (Boes and Winkelmann, 2006), with other regressors held at their mean values.

To test internal consistency of the set of 16 items reported in Table 2, we performed a Cronbach’s Alpha test (Cronbach (1951) which is one way of measuring the strength of that consistency (Table 3). Results of the test showed high level of acceptance with \( \alpha \) coefficients values very close to 1 ranging around 0.92.

4. Results

The goal of this paper was to analyze how different attributes affect additional price for organic wine. Overall, our results show that consumers are willing to pay an additional price for organic wine compared to conventional one. The frequencies of the five categories of the dependent variable are shown in Table 4. The most of respondents (73.2\%) stated that they are not available to pay an additional price to buy organic wine. Of the remaining sample, the highest frequency was recorded for the category “willing to pay 20\% more” with 13.2\%. Only 1\% of respondents said they are willing to pay an additional price of 50\% to buy organic wine.

To estimate effects of the attributes on consumers’ additional price for organic wine, we developed an ordered logit model and Table 5 reports the results of the regression model. The goodness of fit is acceptable as shown by Pseudo R2 value (0.4145). Concerning the first group of variables linked to sensory attributes, no positive relation between ‘color’, ‘taste’, ‘aroma’ and willingness to pay an additional price was found. In this vein, our results confirm the findings of previous studies (Pagliarini et al., 2013; Rahman et al., 2014), that is, the stimuli coming from sensory attributes, for example ‘color’, ‘taste’ and ‘aroma’ do not have influence on the consumers’ willingness to pay an additional price and subsequent purchasing behavior.

The result is much more interesting when we analyze Label and origin attributes. In our study we tested the role of the geographical indication, that is ‘PDO and PGI designation’, on the additional price for organic wine. Particularly, geographical indication was not significant, showing that the wine quality labels linked to the origin of wine do not generate any additional price for organic wines. Vice versa, consistently with findings of other studies, ‘local origin’ was significant even negatively pointing out that local food is perceived as better for the environment also for organic wines (Grebitus et al., 2013; D’Amico et al., 2014). An interesting novelty of our findings compared with previous studies is the result of ‘brand renown’, that was negatively correlated to the additional price. This outcome could suggest that the importance that consumers attach to organic

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\(^1\) PDO is Protected Designation of Origin; PGI is Protected Geographical Indication.

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Table 1 Socio-demographic characteristics of sample.

<table>
<thead>
<tr>
<th>Gender</th>
<th>(%)</th>
<th>Profession</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>57.6</td>
<td>Housewife</td>
<td>7.9</td>
</tr>
<tr>
<td>Females</td>
<td>42.4</td>
<td>Manager</td>
<td>3.0</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td>Unemployed</td>
<td>2.0</td>
</tr>
<tr>
<td>from 18 to 35 years</td>
<td>20.3</td>
<td>Clerk</td>
<td>41.2</td>
</tr>
<tr>
<td>from 36 to 50 years</td>
<td>41.0</td>
<td>Self-employed</td>
<td>31.5</td>
</tr>
<tr>
<td>from 51 to 65 years</td>
<td>33.2</td>
<td>Pensioner</td>
<td>5.5</td>
</tr>
<tr>
<td>Over 66 years</td>
<td>5.5</td>
<td>Other</td>
<td>4.7</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td>Annual income</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>6.7</td>
<td>Up to 15,000 euros</td>
<td>20.1</td>
</tr>
<tr>
<td>Secondary</td>
<td>42.9</td>
<td>From 15,000 to 30,000 euros</td>
<td>46.2</td>
</tr>
<tr>
<td>Graduate/post graduate</td>
<td>50.4</td>
<td>From 30,000 to 50,000 euros</td>
<td>23.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over 50,000 euros</td>
<td>10.4</td>
</tr>
</tbody>
</table>

(Data collected through direct survey).
wine goes beyond the brand, i.e. consumers are willing to pay an additional price for organic wine regardless of who produces it.

As for the motivations group, our results show that all the three variables examined for this group were statistically significant. In line with previous studies (Sirieix and Remaud, 2010; Nasir and Karakaya, 2014; Rahman et al., 2014), the positive coefficients obtained from the model indicate that motivational characteristics such as ‘distinctiveness’, ‘curiosity’ and ‘environmental protection’ can represent important drivers for promoting the consumption of wine produced from organic grapes. Particularly, our study confirms the findings of previous study (D’Amico et al., 2016) that ‘curiosity’ is still a driver of organic wine. This result could be due to the lack of knowledge that persists about organic wine compared to other foods such as fruit and vegetables for which consumers show consolidated habits of purchases. This result implies that greater knowledge of its characteristics is needed to spread the consumption of organic wine among consumers.

The group of objective characteristics also presents statistically significant variables since ‘price’ and the ‘sulphites free’ in organic wine significantly affect additional price for organic wine. These results are in line with earlier research on consumer behavior towards free sulphites wine (Costanigro et al., 2014; D’Amico et al., 2016). Remarkable compared to the existing literature, is the result for the ‘price’. The higher the importance that consumers
assign to this attribute the higher the additional price for organic wine. This result could mean that the ‘price’ is perceived as an indicator of quality that distinguishes organic wine from the conventional one. Moreover, it seems remarkable the role of ‘alcohol content’ variable that in our study was not statistically significant in affecting additional price for organic wine. Conversely, ‘alcohol content’ positively affects the prices of conventional wine (Galati et al., 2017). This result may suggest that the additional price for organic wine is not influenced by alcohol content, i.e. consumers buy organic wine regardless of this attribute. However, this result requires further verification in future studies.

Finally, ‘income’ and ‘gender’ were found statistically significant among socio-demographic characteristics. According with past studies (D’Amico et al., 2016; Schäufele and Hamm, 2018), high incomes are positively correlated with the additional price that consumers buy organic wine while men are willing to pay a higher price than women.

By observing our results, relevant implications in terms of marketing of organic wines may arise. First, the attitudes of organic wine drinkers suggest that patterns of consumption are still not very mature and well-established. The outcomes linked to motivational aspects indicate that consumption is strongly related to novelty, such as curiosity, or even it could be considered as passenger or trendy phenomena. Respondents seem to ascribe the consumption of organic wines as a function to distinguish themselves. Therefore, “drink organic” becomes an element of distinction among regular wine consumers. On the contrary, our results linked to environmental protection also shows the “green consciousness” of organic wine consumers, confirming what before-hand found (Barber et al., 2009; D’Amico et al., 2016).

Unlike it occurs for certified wines, such as PDO and PGI wines that achieve a premium price (Di Vita et al., 2015), our results show that the additional price is not affected by PDO designation. Rather than the designation of origin, consumers attach greater importance to private reputation than collective one, since ‘brand renown’ plays a relevant role among Label and origin attributes category. For the first time, also for organic wine, this finding confirms what already evidenced in previous studies for conventional wines (Caracciole et al., 2016), whereas price-sensitive consumers (in case of low- and high-priced wines) are positively influenced by private label. Collective label, such as the geographical designations, do not acquire specific importance.

Finally, the sensory aspects or even the presence of additional certification, such as organic or geographical (PDO/PGI) do not seem to follow the dynamics of other sectors, such as fruit and vegetables or olive oils, whereas sensory factors and geographical origin are the most important motives in the organic food choice among consumers (Zakowska-Biemans, 2011; Panzone et al., 2016).

To analyze to what extent attributes along with other socio-economic characteristics can affect the additional price for organic wine, we also assessed the marginal effects of above reported ordered logit model. Since our dependent variable in the ordered regression model consists of five categories, there are five sets of marginal effects that describe the impact of a change in the covariates on the predicted probabilities. Technically, if the predicted probabilities obtained from the regression, reported in the previous Table 5, are varied across categories of the dependent variable, the marginal effects can be used to estimate their increase or decrease. Table 6 shows the results of the marginal effects analysis.

Looking at the marginal effects, ‘local origin’ affects the additional price. Particularly, the marginal effects of the highest categories of the additional prices (20%, 30% and 50%) assume a negative value, indicating that the greater the importance to ‘local origin’ the lower the additional price for organic wine. For example, if the score assigned by consumers to ‘local origin’ increases by one unit (for example from –1 to +2 in the scale submitted to the participants), the likelihood that additional price increases from 20% to 30% decreases by almost 1% (0.009). Conversely, the marginal effects of the lowest categories of additional price (not willing to pay and 10%) take a positive sign, thus indicating a higher likelihood that who gives more importance to ‘local origin’ is not willing to pay an additional price for organic wine. For example, if the score assigned in the scale by consumers to ‘local origin’

Table 5
Ordered logit model results.

<table>
<thead>
<tr>
<th>Group</th>
<th>Variable</th>
<th>Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory attributes</td>
<td>Color</td>
<td>0.132136</td>
<td>0.040395</td>
</tr>
<tr>
<td></td>
<td>Taste</td>
<td>0.0489751</td>
<td>0.72849</td>
</tr>
<tr>
<td></td>
<td>Aroma</td>
<td>0.083027</td>
<td>0.55252</td>
</tr>
<tr>
<td>Label and origin attributes</td>
<td>PDO/PGI designation</td>
<td>0.0415166</td>
<td>0.71515</td>
</tr>
<tr>
<td></td>
<td>Local origin</td>
<td>0.0177201</td>
<td>0.25716</td>
</tr>
<tr>
<td></td>
<td>Brand renown</td>
<td>0.0392767</td>
<td>0.06732</td>
</tr>
<tr>
<td>Motivations</td>
<td>Distinctiveness</td>
<td>0.497592</td>
<td>0.004648</td>
</tr>
<tr>
<td></td>
<td>Curiosity</td>
<td>1.23174</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td></td>
<td>Environmental protection</td>
<td>0.91246</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Objective characteristics</td>
<td>Sulphites free</td>
<td>0.23751</td>
<td>0.00958</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>0.7337977</td>
<td>0.00022</td>
</tr>
<tr>
<td></td>
<td>Alcohol content</td>
<td>0.079306</td>
<td>0.65441</td>
</tr>
<tr>
<td>Socio-economic characteristics</td>
<td>Age</td>
<td>0.00172401</td>
<td>0.25716</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>0.397267</td>
<td>0.06732</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td>0.0454763</td>
<td>0.12637</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>1.25455</td>
<td>0.00024</td>
</tr>
<tr>
<td></td>
<td>cut1</td>
<td>5.41663</td>
<td>0.02089</td>
</tr>
<tr>
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<td>cut2</td>
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</tr>
<tr>
<td></td>
<td>Number of observations</td>
<td>403</td>
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Note: *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.
increases by one unit (for example from +1 to +2), the likelihood that additional price increases from “not willing to pay” to 10% is almost 0%.

A similar result was shown by ‘brand renown’. Consumers that give high importance to this attribute are willing to pay a lower additional price for organic wine than consumers that give high importance to ‘brand renown’. For example, if the score assigned by consumers to ‘brand renown’ increases by one unit (for example from +1 to +2), the likelihood that additional price increases from 20% to 30% decreases by almost −0.029 (2.9%).

On the contrary, ‘curiosity’ positively affects the probability to have high categories of additional price. In other words, consumers that give high importance to ‘curiosity’ are willing to pay a higher additional price for buying organic wine. For example, if the score assigned by consumers to ‘curiosity’ increases by one unit (for example from +1 to +2), the likelihood that additional price increases from 10% to 20% is almost 4.6% (0.045 in Table 6). The same likelihood was observed if the additional price increases from 20% to 30%.

The same outcomes obtained from the ‘curiosity’ have been also observed for ‘environmental protection’, ‘sulphites free’, and ‘price’. All of these attributes positively affect the probability to have high categories of additional price. Therefore, consumers that give high importance to the aforementioned attributes are more willing to pay an additional price for organic wine than consumers that give low importance to them.

Looking at the marginal effects of socio-demographic variables, ‘gender’ positively influences the additional price for organic wine, and females are less likely than males to pay it. The marginal effects of higher categories (20%, 30% and 50%) assume a negative sign indicating a lower likelihood that females will spend more than males. For example, the probability that females will pay 20%, 30% or 50% more for organic wine is respectively 1.0% lower than males. For example, the probability that females will pay 20%, 30% or 50% more for organic wine is respectively 4.6% and 1% lower than for males the probability that a female gives a score of 4 or 5 to “additional price” is respectively 4.6% and 1.0% lower than males.

5. Conclusion

A quantitative study was carried out by developing an ordered logit model over a representative sample of respondents, in order to identify the main consumers’ attitudes towards organic wine. Results allowed to identify important and diversified outcomes, sixteen years after the first contribution on organic wine consumption (Fotopoulos et al., 2003).

In line with past studies, our results allowed to observe that consumers are willing to pay an additional price for organic wine since they attach greater importance than conventional wine to personal motivations such as environmental protection, distinctness and curiosity as well as to explicit label information such as brand renown and local production. In addition, we found that gender and income have a positive correlation with the willingness to pay an additional price for organic wine. Outcomes also revealed the prominent role of the objective characteristics such as price and in a lesser extent the absence of sulphites. Conversely, sensory attributes of organic wines do not affect the willingness to pay an additional price.

Our findings highlighted interesting aspects that are still few unexplored in the current scientific literature. Specifically, results
suggest that ‘brand renown’ and ‘price’ affect consumers’ additional price for organic wine reflecting the relevant role played by label and objective characteristics attributes of organic wine. Moreover, for the first time, our study shows that ‘curiosity’ represents an important driver for promoting the consumption of wine produced from organic grapes. Even though the findings of the paper are in line with previous studies, our outcomes allow to enhance the existing literature on price formation by adding an important piece in terms of pricing strategies, since any relevant attributes in price formation mechanisms (Brentari et al., 2011; Levaggi and Brentari, 2014) for organic wines would seem to be slightly different from conventional ones, whereas price depends also on sensory characteristics. Overall, our findings show that the additional price for organic wine seems to be due to attributes not pertaining directly to the organic wine. In fact, intrinsic characteristics of organic wine such as sensory attributes (i.e. color, taste and aroma) do not affect the additional price whereas extrinsic characteristics such as label, motivations and objectives attributes significantly affect the evaluation of organic wine.

Our results have important implications for the actors involved in the wine sector. For example, for wine managers, the adoption of marketing practices explicitly related to the label and motivations attributes such as ‘distinctiveness’ or ‘curiosity’ lead to value augmentation of organic wine that could increase consumers’ valuation for it. Moreover, for wine producers, knowing which factors affect consumers’ attitudes toward organic wine can lead to an increase in wine demand that could enhance their business income.

Since this study has some limitations, due to the limited number of observations and to the specific regional geographical context, our findings are reasonably generalizable in theoretical terms. However, before to extend our results to all Italian consumers, future research should test the robustness of our findings by assessing the effect of the attributes that we have examined in this study in other environmental contexts, e.g., in other wine regions. Moreover, future studies should also explore more in depth what attributes are related to the organic wine upon which the additional price occurs. Knowing which types of attributes can affect additional price of the organic wine can help managers and marketers enhance not only the economic value of organic wine but also its hedonic and symbolic values.

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References


