Consumer Preferences of Wine in Italy Applying Best:Worst Scaling*

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Abstract

This work focuses on measuring the importance of the attributes which influence the wine choice of Italian consumers when they buy wine either in a retail or on-premise setting. Our goal is try to identify significant behavioural differences across geo-demographic subgroups of the sample, in order to give marketers an instrument to develop more efficient marketing strategies. We applied the BW method together with an ordinal logistic regression to compare subgroups. The main advantages of this methodology are (a) a higher discriminating power for the measure of the degree of importance given by respondents to attributes, (b) the avoidance of rating bias problems, and (c) the use of ordinal logistic regression to compare potential market segments. A general analysis of BW scores shows that direct, personal and sensorial experiences are the most importance attributes when choosing wine. The ordinal logistic regression model showed only a few differences among socio-demographic segments in the sample. However, some important differences were found. In particular the analysis showed that while choosing wine in retail stores the level of involvement respondents have toward wine, the frequency of consumption and the geographical province of the respondents showed the greatest differences in attribute importance. Respondents in the on-premise sector were more similar across the socio-demographic groups compared to the retail respondents, with differences in the age of interviewees having the greatest compared to other variables.

Key words: best-worst scaling, choice criteria for wine, Italy, on-premise, retail, wine choice

1. Introduction

This work aims at understanding what the attributes able to influence more the choice of consumers are when they buy wine either in the retail or the on-premise setting. Our goal is try to identify significant behavioural differences between segments of the population, so as to give marketers a powerful instrument to develop efficient marketing strategies.

In a holistic marketing perspective a marketer has to find the way to understand the needs, the wants and the demands of customers. Moreover, he has to choose which markets to target, so as to get, keep and grow customers through creating, delivering and communicating superior customer value (Kotler and Keller, 2007). These tasks become very difficult to achieve in the wine market due to two major issues. On one side, consumers are faced with more than 100,000 wine brands in the global market, several dozen main grape varieties and countries of origin (Goodman *et al.*, 2005). Other elements influence the choice of consumers, e.g. the vintage year, the design of the label and the information on back labels, the shape of the bottle, the brand name, alcohol content, etc. Thus, consumers are presented with an enormous amount of information, which impacts on their perceived risk of making a wrong decision while buying a bottle of wine. Redundant and ambiguous information may lead to a lack of trust in wine retailers and producers (Casini *et al.*, 2008). On the other side, the high level of fragmentation of the Italian wine industry does not allow the majority of the firms to target all the possible segments of the population. It is instead necessary that each firm, according to the means at its disposal, focuses on specific market segments, so as to develop efficient marketing strategies. Therefore, understanding what attributes are able to influence the choice of different segments of the population represents the first and fundamental step every marketer should undertake.

This study is also important as the analysis of product attributes and population segments is not usually possible through consumer panel data, but through stated preference data (Ben Akiva and Lerman, 1985). The latter allow researchers to get more insights on what consumers' actual preferences are, instead of evaluating them through panel data, which only register what was purchased and not necessarily what consumers really wanted (Goodman *et al.*, 2005).

Thirdly, this study utilises a recent methodology, which already proved to be very successful for the study of consumer preferences, especially when cross cultural comparisons are needed: the Best:Worst (BW) method (Cohen and Neira, 2003; Goodman *et al.,* 2005; Flynn *et al.* 2007; Lee *et al.*, 2007) This paper represents one part of a major project using BW measures of consumer preferences for wine in Italy. The same questionnaire has been used in 12 other countries, so the results are comparable across nations, allowing wine firms to have an international database of consumer preferences around the world at their disposal. This can give them powerful insights not only on their domestic market, but also on foreign countries, which purchase a 27% of the production of New World (NW) countries and a 10% of the European ones (Istituto di Servizi per il Mercato Agricolo Alimentare – ISMEA, 2007a).

To the best of our knowledge, this research is the first using the BW method together with an ordinal logistic regression model, with the objective to show the differences in response behaviour across geo-demographic subgroups of two distinct regions of the same country. The remainder of the paper is structured in the following way. After this brief introduction, a literature review, the methodology of the work and data collection techniques are presented. This is followed by a discussion of the results and conclusions with some suggestions for further research to end the paper.

2. Literature review

Literature on consumer behaviour toward wine preferences presents a plethora of works that aim to explain what attributes intervene in the choice process and how demographic factors may influence these choices. There is not, in fact, a unique answer to this question as wine, compared to other food products, (a) has many more labels to choose between (Goodman *et al.*, 2005) and (b) can be judged only through "search" and "credence" attributes, as its taste may vary from vintage to vintage, although brand and other extrinsic attributes remain identical (Lockshin *et al.*, 2006). The difficulty in processing so much product information may generate a confused state of mind in the pre-purchase phase, which negatively affects consumers' information processing and decision-making abilities and can lead consumers to make suboptimal choices (Walsh, 1999).

Consumers try to reduce confusion by a variety of means. Researchers found the elements able to most influence the choice of consumers are the attractiveness of the front label, the variety of the grapes, the brand and the region of origin. However, all these attributes impact differently on consumers according to demographic variables, e.g. age (Gluckman, 1990; Bruwer *et al.*, 2002; Barber *et al.*, 2006; Seghieri *et al.*, 2007), income levels (Felzensztein *et al.*, 2004; Barber *et al.*, 2006), involvement (Lockshin *et al.*, 2001; 2006; Rodriguez Santos *et al.*, 2006) and frequency of consumption (Perrouty *et al.*, 2006; Martinez-Carrasco Martinez *et al.*, 2006; Atkin *et al.*, 2007).

Goodman *et al.* (2005) found that Australian consumers tend to be more influenced by premium wines, grape varieties and wines from premium regions, while consumers in Israel rely more on the suggestions of a friend, the brand name and the variety of the grape. In a similar study Goodman *et al.* (2006) found that the Cabernet, Shiraz and the quality reputation of a region are the three most influencing choice attributes, but their rank changes depending on gender, frequency of consumption, age and involvement.

In relation to the importance of front labels, consumers shop with their eyes (Rocchi and Stefani, 2005), with women rating higher than men items like colours, images, pictures and logos (Thomas and Pickering; 2003; Atkin *et al.*, 2007). Barber *et al.* (2006) got to the same conclusion, but they also added that females find back labels significantly more confusing, hard to read and have too much information. However, back labels represent an underutilized area for providing information to consumers, who find it a primary source for increasing product knowledge and for making a product choice (Charters *et al.*, 2000). Closures too enter in the choice process especially for women who consider wax seals an indication of freshness and foil coverings and indication of quality (Barber *et al.*, 2006). Seghieri *et al.* (2007) suggest that as consumers tend to evaluate labels in different ways, labels should be designed according to the targeted market segment, e.g. a basic label for the usual buyer, a detailed one for interested consumers and a creative label for rational ones.

The variety of the grape is another important decision factor (Thomas and Pickering, 2003; Felzensztein *et al.*, 2004; Balestrini and Gamble, 2006) that varies in relation to the grape under consideration (Ling and Lockshin, 2003). Its effect becomes even stronger for the choice of New World wines (Lockshin and Hall, 2003) and when consumers select wines in specialist off-licence shops (Felzensztein and Dinnie, 2005). Jarvis *et al.* (2003; 2007) found in Australia that both white and red varieties are the second most important attribute to influence loyalty levels of consumers. In particular they found that Chardonnay, Riesling (white) and Shiraz and Cabernet (red) show excess behavioural loyalty, with other grape varieties chosen mainly to try something different.

Perrouty *et al.* (2006) found that novice consumers give value to the region of origin independently of the type of brand and the price level. Conversely, experts find that the brand is a perfect moderator of the region-of-origin equity. Moreover, these researchers showed that

as consumer's expertise increases, people tend to give greater importance to a combination of product attributes, instead of evaluating them alone. Orth *et al.* (2005) showed that wine region equity originates from the evaluation of six consumer motivational factors: price, quality of the wine, social acceptance, emotional, environmental and human values. Schamel (2006) discovered that the region-of-origin becomes an important factor only for regions that mainly sell red wines. Linked to this, Yue *et al.* (2006) stated that brand and region-of-origin are both important items for the promotion of a wine. Balestrini and Gamble (2006) extend the concept of the geographical importance from region to country level, finding that for Chinese consumers the country-of-origin is the element that influences choice at most.

Balestrini and Gamble (2006) also found that consumers rely highly on peer recommendations, as also stated by Spawton (1991) and Wansinsk *et al.* (2006). The former found that in order to reduce the risk of making a bad decision consumer tend to (a) choose brands that express quality, (b) rely on peer recommendations and (c) rely on retail assistance. The latter found that in a restaurant setting there could be three ways to reduce the financial and social risk associated with the order of a wine: (a) waiter recommendations, (b) food-wine pairing suggestions or (c) small wine tasting portions. Apart from making consumers more comfortable with the choice, good wine suggestions will lead to an increase in wine sales for the restaurant. In the same setting Manske and Cordua (2005) found that the role of the sommelier is of strategic importance, as it may lead to an increase of wine sales of 10-15% to 25%. Moreover, a sommelier may arrange all the intrinsic and extrinsic attributes of a wine and present them in way that helps consumers in making a right choice. Other attributes able to influence consumer choice are the alcoholic content of the wine (Lockshin and Rhodus, 1993) and reading about wine at home (Unwin, 1999), an activity, which seems to be preferred more by men than women. Conversely, the latter tend to rely more on the information they find on the shelf (Atkin *et al.*, 2007). These studies show there is a wide range of factors influencing consumer choice for wine, but no definitive conclusion.

It is important to highlight that the vast majority of these studies focus on a general purchase behaviour, while only few take into consideration the place where consumers buy the wine (Martinez-Carrasco Martinez *et al.*, 2006). Nevertheless, substantial differences in purchase behavior between these two distribution channels exist, as proved by the commercial data. In Italy, for example, while the off-trade sector accounts for a 60% of the total wine sales in volume, the on-trade sector represents a 62% of the total value (Euromonitor International, 2007).

3. Methodology

When conducting quantitative research on the analysis of consumer preferences one could develop the analysis through (Bednarz, 2006):

- *rating based models*;
- *ranking tasks*;
- *constant sum tasks*;
- *Method of paired comparisons*.

These methods have been trialled in various consumer contexts, which has resulted in mainly rating based scales to be used. However, rating scales present several negative aspects, which stimulated researchers to find alternative and innovative instruments to analyse consumer preferences. First of all cultural differences influence the way people give ratings to items (Dolnicar and Grün, 2007; Diamantopoulos *et al.*, 2006; Usunier and Lee, 2005; van Herk *et al.*, 2004). Hence, when one wants to compare data collected in different cultural settings, as in our case, one risks to have a biased analysis of respondents behaviour. Moreover, some countries like Italy or the United States use the extremes in the scale more, compared to Japanese, Australian or French people (Lee *et al.*, 2007; Usunier and Lee, 2005).

As a consequence, in some countries we risk to have higher rating means than in others, although the importance people place to the same item is identical. Given this, the order of importance of values, which can be obtained through the BW, is the only elements to be compared across countries and cultures (Lee *at al.*, 2007). In addition Cunningham *et al.* (2006) highlighted the importance of cross cultural lexical equivalence, as this may bring to biased rating scales, maybe only partially due to real cultural differences. Then, the spatial position of the "strongly agree" Likert scale rate influences choice (Bednarz, 2006). Friedman *et al.* (1994) demonstrated that people express higher agreement when this rate is located in the left-hand side of the questionnaire. Finally, how could we affirm that the distance (and consequently the difference in importance) between a score of 1 to 2 is equal to the distance between 3 to 4? This is rarely true (Cohen, 2003). BW also offers advantages compared to traditional Discrete Choice Experiments (DCE). Flynn *et al.* (2007) stated that with BW it is possible to estimate the impact of all but one attribute, where the impact of an attribute is the average across all its levels. Traditional "pick one" DCEs cannot do it.

A solution to these problems has been given by Finn and Louviere (1992) through the so called Best:Worst (BW) method, which proved to be empirically successful, but it was not until 2005 that Marley and Louviere gave a rigorous methodological explanation for it (Marley and Louviere 2005). BW scaling can be considered an extension of the paired comparison method, offering similar benefits, but a more efficient questioning structure (Cohen and Orme, 2004). Respondents are asked to tick the item they consider the most preferred (BEST) and the item they consider the least preferred (WORST) from a set of three or more items (Cohen and Markowitz, 2002) for each of the choice sets presented to them – generally not more than 20 (Cohen, 2003). Choice sets are created through different kind of designs. Some examples include Full Factorial design, Fractional Factorial design, Latin Square design and Balanced Incomplete Block design (Louviere, 2006). The benefits of BW are many. First of all, it provides a more discriminating way to measure the degree of importance respondents give to each item. As interviewees can only choose one most preferred and one least preferred item in each choice set, they are necessarily required to make tradeoffs between benefits (Cohen, 2003). Secondly, BW avoids problems of rating bias, as there is only one way to choose the most and the least preferred item, independently from the cultural background of the respondent (Goodman *et al.*, 2005). This is interesting, as it allows the BW method to be a powerful way to conduct cross-national studies on consumer behaviour (Auger *et al.*, 2007; Goodman *et al.*, 2005, Cohen and Neira, 2003). Moreover, as the BW rating is obtained through a standardization of the raw scores, it overcomes the systematic tendency of rating based scales of producing distort ratings (Lee *et al.*, 2007). Finally, the BW generates an ordinal ranking of the items for each respondent (Goodman *et al.*, 2005), hence an ordinal logistic regression model can be applied to the data, to obtain a deeper understanding of the differences among the groups analysed. The ordinal logistic regression, in fact, has fewer assumptions about the distribution of the data and is therefore more reliable in estimating those differences. In addition, a preliminary analysis of data is easy to conduct and understand (Goodman *et al.*, 2005), making it a useful instrument also for managers Finally, the outcomes of the BW method proved to be about 95% as accurate as when using a multinomial logit, which models the same data (Auger *et al.*, 2004). The few weaknesses of the BW method are only related to a lack of published articles and a lack of methodology documentation (Bednarz, 2006).

An international group of experts in the sector of wine marketing identified the 13 most influential attributes for the choice of a wine in both settings, analysing a large database of studies in the area of consumer behaviour for wine, part of which have been indicated in the literature review. In the present study the design follows the criteria of the Balanced Incomplete Block design, adopted by Auger *et al.* (2004). This kind of design ensures that

each attribute appears 4 times across all choice sets and, within each set, each pair of attributes appears only once. The level of importance of each attribute, also called *BW score* (Cohen, 2003, Goodman *et al.*, 2005) is obtained by subtracting the number of times an attribute is chosen as the least important (WORST) to the number of times the attribute has been chosen as the most important (BEST). In order to standardize the result, this number is divided by the number of respondents and by the frequency each attribute appears in the choice sets. The standardisation allows different groups of respondents to be comparable.

This score has been used on one side to define the general level of importance people from these two geographic regions give to the attributes able to influence the choice of the wine. On the other side, researchers registered the number of times each individual ranked an attribute as BEST minus the number of times he/she ranked it as WORST.

As explained before, BW rating scales create an ordinal ranking of items, hence it is possible to analyse it through an ordinal regression model. This model has been largely applied in literature (Spais and Vasileiou, 2006; Fu *et al.*, 2006; Rutheford *et al.*, 2007) when the choice object presents several modal outcomes or where the choice object can be better represented as a set of points on a scale of inclination (Davies and Hodge, 2006), with the result that a binary choice model becomes too restrictive to represent reality (Wynn *et al.*, 2001). When respondents are asked to give a score based on a Likert scale (Halkos and Salamouris, 2003; Kondoh and Jussaume, 2006; Norris *et al.*, 2006), they express a level of agreement regarding a question giving a score ranging from 1 to, generally, 5 or 7. Similarly, it is possible to record BW scores as the difference in the number of times an item is chosen as the most preferred and the number of times it is chosen as the least preferred. In other words, it has to be understood if the distribution of BW scores among the individuals classified in respect to the variables is statistically significant.

4. Data collection

Data were collected in two distinct Italian regions: Veneto and Le Marches, located in Northern and Central Italy, respectively. Although these two regions belong to the same country, they present significant socio-demographic differences, which can likely lead to different behaviours in how wines are chosen.

First of all the average GDP per capita is higher in Veneto than in Le Marches – € 28,286 and € 24,277, respectively. However, while the GDP at constant prices increased by 4% in Le Marches from 2000 to 2004, in Veneto it only increased by 1.7%. Veneto has four times the number of inhabitants than Le Marches and the three main economic sectors – primary sector, industry and service sector are different in importance. In Veneto they account for a 3.7%, a 38.8% and a 57.5% of the total workforce (Sistema Statistico Regionale – SISTAR – Veneto, 2007), while in Le Marches the three sectors represent a 4.4%, a 28.2% and a 67.4% of the total workforce (SISTAR Le Marches, 2007). In terms of wine making activity, Veneto has ha 72,460 of vineyards, while Le Marches only 19,187. This leads to a production of hl 7,208,000 of wine and must in Veneto in 2006, while in Le Marches is 7 times lower. Narrowing the analysis to quality wines, these two regions produced hl 2,281,000 and hl 380,000 of DOC-DOCG wines. It is not by chance that Le Marches and Veneto hold 16 and 37 GI-DOC-DOCG denominations, respectively (ISMEA, 2007b). However, it should be noted that ISMEA (2007b), analysing the ratio of volume/value of the production, classified Le Marches as a "niching quality" region, while Veneto was considered a "quantity first" region. ISTAT (2008) revealed that the percentages of inhabitants in Veneto who consumed at least one alcoholic beverage (wine, beer, etc.) in the past 12 months is higher than in Le Marches (74.9% vs. 73.4%), but in the latter region there are more people who daily drink alcoholic beverages (32.1% vs. 38.7%). This tendency is either valid in respect to sex and units of alcohol drunk daily. Only females from Veneto who drink more than 3 units of

alcohol per day are more than the respective category in Le Marches (2.1% vs. 1.7%). Veneto has a higher number of people who tend to consume alcohol outside meals (12.0% vs. 6.3%) and also more people who drank more than 6 units of alcohol in one occasion at least once in the past 12 years (10.8% vs. 7.7%). It is interesting in this context that while Veneto tend to have a higher percentage of people who drink beer and other alcoholic beverages than Le Marches, the latter proportionally have more people who drink wine (62.7% vs. 60.0%). In particular, Le Marches have more people who consume 1-2 glasses of wine per day than Veneto and also more people who have a daily intake of wine above 0.5litre.

The data collection took place at two cycles of cultural meetings organised in these two regions by an entertainment agency. People who came to these events belong to a medium to high income level groups, interested in cultural events regarding music, art, books, etc. but who also like the opportunity to share a nice glass of wine in a refined environment. Questionnaires were collected in Le Marches in July 2007 for a total of 192 valid responses, 100 for the retail and 92 for the on-premise sector. In Veneto more than 400 questionnaires were gathered from July to September 2007, 214 for the retail sector 216 for the on-premise sector. Respondents received a complete questionnaire and a pen. Each interviewee was informed about the technique and asked to complete the questionnaire and return it before leaving the meeting. Those who completed the questionnaire properly could take part in a drawing of a selection of bottles of wines offered by the University of Florence and the "Verdicchio di Matelica" Consortium. In order to take part to the drawing, respondents had simply to complete the last part of the questionnaire with their names, telephone number and/or e-mail address, and post it in a box located at the entrance of the meeting place. In this way researchers have been able to guarantee the anonymity of the responses given by interviewees, while the latter had an incentive to participate to data collection.

The need to present two questionnaires – one for the retail and the other for the on-premise sector – lies in the fact that consumers tend to behave differently when they have to choose a wine in these two choice settings (Martinez-Carrasco Martinez *et al.*, 2006). After a preliminary part where respondents gave some information about their habits toward the wine world, respondents were asked to evaluate the 13 attributes through 13 different choice sets and the respondents were asked to choose the attribute, which influences MOST him/her and the attribute, which influences LEAST him/her while choosing wine in a restaurant for a meal with his/her friends (for the on-premise format), or for a dinner at home with his/her friends (retail format).

The final part of the questionnaire asked information about gender, age, income, number of people in the household and few clues on the last bottle of wine bought. The sample has been segmented in different groups based on the geographic area (Veneto and Le Marches), the income level, age, involvement and frequency of drinking. In particular 3 age groups (18-40; 41-55, 55+ years old) have been created. Then, 3 income levels have been defined according to the per capita income taken from the National Institute of Statistics of Italy (ISTAT). The current average GDP per capita of Italy was € 24,502 in 2005. As a consequence we classified in the "below average" group respondents who declared to have an income of less than € 22,000, in the "about average" group those with an income between € 22,000 and € 32,000, and in the last group people with an annual income of more than € 32,000. In order to specify the concept of involvement, researchers recorded the score given to three questions regarding the interest people devote to wines based on a Likert scale ranging from 1 to 5 (Lockshin *et al.*, 2006). The sample was divided into 3 categories (about 1/3 of the sample in each category) based on the sum of the three questions. People with scores ≤10 points were classified as "low involved" consumers, from 11 to 13 "medium involved" and above 13 points as highly involved in wine. The three questions were summed to create a single attribute. A factor analysis with varimax rotation was run for the three

questions and one factor explains more than 76% of the variance. Moreover, the internal reliability was very high (Cronbach's alpha=0.84). In respect to the frequency of consumption respondents who drink wine more than once a week have been considered frequent drinkers. Those who consume wine less often have been grouped in the low frequency group.

The BW score (dependent variable) was compared across the different geo-demographic groups (independent variables) using an ordinal regression model. Differently from the standard application of this model, scores in this work go from -4 to +4, rather than from 1 to *n*, *n*= 5, 7, 9, depending on the scale used. This occurs because the frequency of appearance of each attribute is 4, hence each respondent may tick it as the least (most) important attribute four times or each combination of most/least in the middle. In some cases we observed that scores were limited to -3. This happens when no respondent rated the attribute four times as the worst. For each variable where there were statistically significant results, a new BW analysis was conducted on the responses given by each geo-demographic segment, in order to see how different sub-groups of the population rated the attributes. This second analysis focused on the attributes able to influence the choice of consumers, i.e. those that received a positive score (Goodman *et al.*, 2005).

5. Results and discussion

Table 1 shows the number of responses per category in both geographic areas and distribution channels. We see some differences in the samples collected from the two regions, but overall there are enough respondents in each demographic to conduct comparative analysis.

Tab. 1: Respondents per category

	Survey	Le Marches	Veneto
	# of respondents	100	214
Age	18-40	41	68
	41-55	31	78
	55+	28	68
Income	Below Average	21	33
	About Average	31	39
	Above Average	48	142
Involvement	Low Involvement	30	75
	Medium Involvement	41	75
	High Involvement	29	64
Frequency of drinking	Low	42	81
	High	58	133

Retail

	Survey	Le Marches	Veneto
	# of respondents	92	216
Age	18-40	36	69
	41-55	26	86
	55+	30	61
Income	Below Average	19	22
	About Average	23	46
	Above Average	50	148
Involvement	Low Involvement	34	81
	Medium Involvement	27	81
	High Involvement	31	54
Frequency of drinking	Low	60	77
	High	32	139

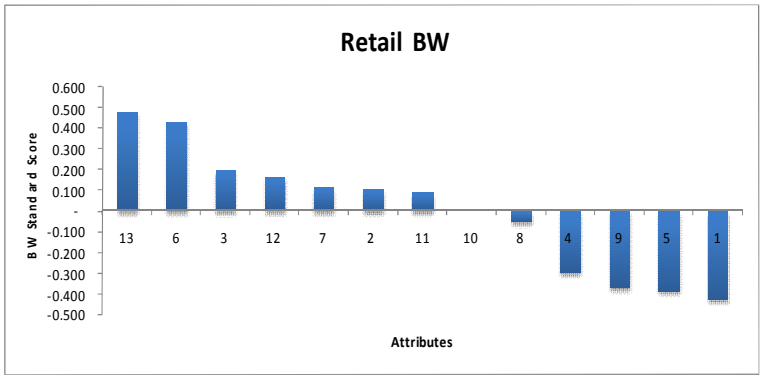
On Premise

The BW analysis showed that in the retail segment (Fig. 1) when consumers choose wine for a dinner at home with their friends, they firstly tend to select a wine they previously tried. Hence, familiarity is a fundamental attribute in choosing wine (Atkin *et al.*, 2007, Perrouty *et al.*, 2006). The second most important attribute is matching the wine with food, which provides evidence of the strong association of wine and food in Italy. Differently from Lockshin and Hall's (2003) Australian sample, this Italian sample seems to care less about the origin of the wine, although a simple descriptive analysis of other answers given in the questionnaire about the last bottle of wine bought revealed that the vast majority of people from Veneto bought wines produced in their region, the same as respondents from Le Marches did. On the other side there seems to be scarce concern about promotional displays in store, a behaviour which is in line with the high interest toward already tasted wines. In a sense, if consumers tend to buy what they already tried, they can select it in any case, whether the product was promoted or not. The alcoholic level of the wine is another attribute, which deserves limited attention. However, we should not forget that while in several countries associations against binge drinking proliferate, e.g. the Portman Group in the UK, in other countries like Italy or France only recently some politicians have proposed warning bans on

wine labels and they have been fiercely criticised by diverse lobbying groups. An interesting aspect to underline from these results is that having an attractive front label does not seem to be an important element for the choice of the wine. This result is in contrast with what several other researchers found (Atkin *et al.*, 2007; Seghieri *et al.*, 2007; Barber *et al.*, 2006) concerning the importance of the front label. It is significant, however, to note that these studies used Likert type scale questions to measure the importance consumers derive from front labels, with all the limits presented above. It is therefore necessary to investigate further this aspect in Italian consumers, so as to understand whether the different evaluations of this product attribute are the result of sample bias or methodological issues.

Fig. 1: BW Retail

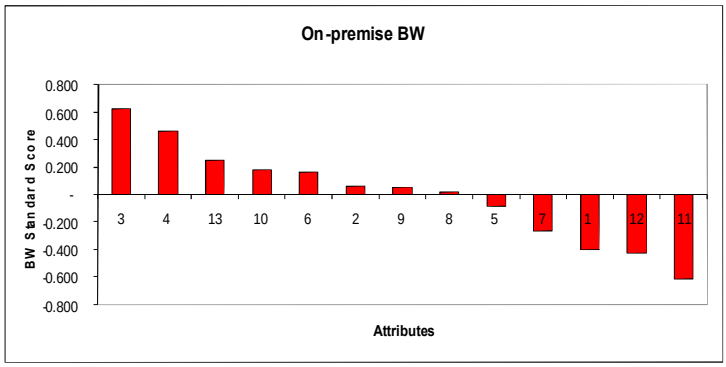
	Attributes	BW Score
13	Tasted the wine previously	0.474
6	Matching food	0.424
3	Origin of the wine	0.190
12	I read about it	0.163
7	Information on back label	0.107
2	Grape variety	0.104
11	Someone recommended it	0.085
10	Brand name	0.000
8	Medal / award	-0.054
4	Information on the shelf	-0.302
9	An attractive front label	-0.373
5	Alcohol level below 13%	-0.389
1	Promotional display in-store	-0.429



The answers regarding the on-premise segment (Fig. 2) closely follow the indications from the retail segment with the first two attributes switched in order. Respondents suggested that when choosing wine in a restaurant it becomes fundamental to match it with the food, as there is a growing awareness of the "basic" rules of food and wine matching, but this may also depend on the fact that matching the right food with the right wine is one of the most fashionable aspects media channels highlight when they present a wine. Consumers give a very high importance to previous experiences with a wine. It is interesting to note that in an on-premise segment the region of origin deserves even a scarcer attention than in the retail segment, changing its position in the ranking with the attribute "I have read about it, but never tasted". This is quite surprising, as it seems to be more rational to experiment with new products in a familiar environment at home buying the wine in a retail store, where the product can be found at a cheaper price. However, it can also happen that the presence of a label in a restaurant wine list may be seen as a guarantee of the goodness of a product. Consumers could be more prone to experiment with new wines in this situation, perhaps because there are fewer choices available. In the lesser preferred side of the BW ranking we found the promotion card on the table, not surprisingly. This way of promoting wine is not common in Italy, so people are not used to choosing a wine following promotional cues. Again the alcohol level is not considered an important attribute. It is strange to observe that the possibility to have a wine available in half bottles (375 ml) is not important. It has to be considered that new and more restrictive drink driving laws favoured the decrease of alcohol intake in on-premise locations and that the trend toward the "wine by the glass" format, as recently stated by Lodovico Antinori – one of the leading worldwide grape grower and producer – is increasing, but the price and selection of small bottles is not conducive to promoting this format.

Fig. 2: BW On-Premise

	Attributes	BW Score
3	I Matched it to my food	0.619
4	I have had the wine before and liked it.	0.463
13	I had read about it, but never tasted	0.243
10	Region	0.175
6	Suggested by another at the table	0.162
2	Waiter recommended	0.059
9	Varietal	0.048
8	Try something different	0.019
5	Suggestion on the menu	-0.088
7	Available by the glass	-0.265
1	Alcohol level below 13%	-0.401
12	Available in Half Bottle (375ml)	-0.422
11	Promotion card on the table	-0.613



Using the *ologit* command in STATA 8.0 (Stata Corp LP), we ran an ordinal logistic regression model on the simple BW score for each single individual. In particular we analysed how these responses changed across (1) the demographic attributes, (2) the geographic areas, (3) the levels assumed by the demographic attributes in these two zones and (4) the levels assumed by the demographic attributes within each area. The analysis has been run separately for the retail and the on-premise sector. The *between* regions and *within* regions analysis allowed the researchers (a) to observe in detail where the differences in the evaluation of the attributes were located and (b) to prove the usefulness of the analysis of points (1) and (2). A regression has been run for each of the 13 attributes by the 5 geo-demographic variables studied. Similarly another 13 regressions have been run to discover the presence of significant differences between the levels assumed by the demographic attributes *within* the two regions and *between* the two regions, which means another 104 regressions – 13 attributes by 4 variables by 2 settings (*within* regions and *between* regions). This time, of course, the variable geographic area has not been taken into consideration.

This kind of analysis has been applied to the retail and the on-premise sector, resulting in 338 ordinal logistic regressions. The outcomes showed a general homogeneous behaviour across different geo-demographic groups in the evaluation of the 13 attributes. This means that the segments of the population tend to rate the attributes almost similarly, converging to the value of the BW scores presented above. However, some differences have been found, with the retail questionnaires showing more variance compared to those of the on-premise sector, as it can be seen by the following table (Tab. 2):

Tab. 2: Attributes with significant differences

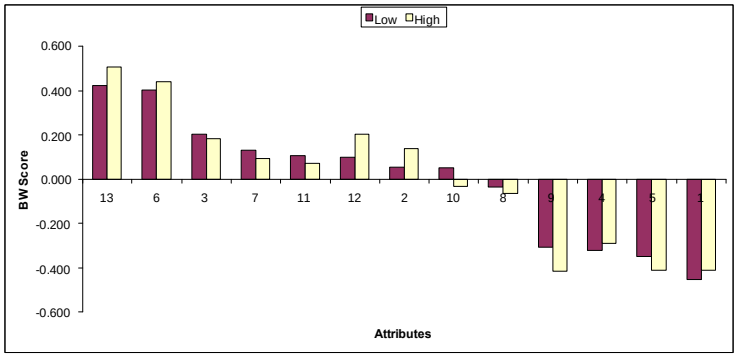
Variable	Retail Significant Attributes	On-Premise Significant Attributes
Income	Someone recommended it (# 11) I read about it (# 12)	Suggestion on the menu (# 5)
Age	Promotional display in store (# 1) Alcohol level below 13% (# 5) Someone recommended it (# 11)	Alcohol level below 13% (# 1) Suggestion on the menu (# 5) Suggested by another at the table (# 6) Try something different (# 8)
Frequency of drinking	An attractive front label (# 9) I read about it (# 12) Tasted wine previously (# 13)	
Involvement	Grape variety (# 2) Medal/Award (# 8) Brand name (# 10) Someone recommended it (# 11) I read about it (# 12)	Suggested by another at the table (# 6) I read about it, but never tasted (# 13)
Geographic area	Alcohol level below 13% (# 5) Matching food (# 6) Information on back label (# 7) Tasted wine previously (# 13)	Alcohol level below 13% (# 1)

A second BW analysis has been carried out only for the attributes *frequency of drinking*, *involvement* and *geographic area* on the retail side, and for the variable *age* on the on-premise side, because those attributes showed a higher number of significant differences between segments of the population on the attributes that influenced choice at most.

Low and high frequency consumers show significantly different behaviours in respect to the evaluation of the importance of an attractive front label (#9), previously reading about the wine (#12) and the fact of having already tasted a wine (#13). In particular, the results (Fig. 3) seem to show that high frequency drinkers tend to rely more on a previous experience with a wine when they have to choose compared to low frequency drinkers. It is interesting to observe that having read about a wine in a guide or specialised magazine is the third most important choice attribute. This could suggest that those who drink wine more regularly are more involved in wine and are interested in learning more. Conversely, this judgment toward wine guides and specialised magazines becomes the sixth most important choice attribute for low frequency drinkers, who tend to rely more on the region of origin of a wine. This attribute can be interpreted for this segment of the population in two different ways. It could represent one of the well known wine geographic areas (e.g. Chianti, Barolo, Valponicella, etc.), which are known by the vast majority of the population independently from the frequency of consumption or involvement. On the other side, it could symbolize a place familiar to the consumer because it was the area where he/she lives or a place he/she visited. No matter how one considers it, the importance of the region of origin for low frequency drinkers is clear also because the next two more important choice attributes for them are the importance of the back label (where generally some information about the region of origin of the wine can be found, together with some tasting notes) and the suggestion by someone else, maybe an expert, those consumers rely on.

Fig. 3: High and Low frequency drinkers

Attribute	No.	Low	High
Tasted the wine previously	13	0.423	0.507
Matching food	6	0.402	0.438
Origin of the wine	3	0.203	0.182
Information on back label	7	0.130	0.092
Someone recommended it	11	0.108	0.071
I read about it	12	0.100	0.204
Grape variety	2	0.053	0.136
Brand name	10	0.049	-0.031
Medal / award	8	-0.037	-0.065
An attractive front label	9	-0.307	-0.416
Information on the shelf	4	-0.321	-0.289
Alcohol level below 13%	5	-0.350	-0.414
Promotional display in-store	1	-0.453	-0.414



In respect to the three levels of involvement (Fig. 4) in which the sample has been classified, the variety of the grape (#2) tends to have an overall positive score, for high and medium involved consumers. It is interesting to note that the score of this attribute increases with the level of involvement of consumers, telling us that highly involved consumers put more attention on grape varieties compared to low involved ones. The medal/award attribute (#8), which has been translated in the Italian version of the questionnaire as a wine receiving a high score in one of most famous wine guides, seem to be considered a bad attribute for low involved consumers, while with the increase in the level of involvement the percentages are opposite. This suggests that highly involved consumers pay higher attention to wine guides than low involved ones.

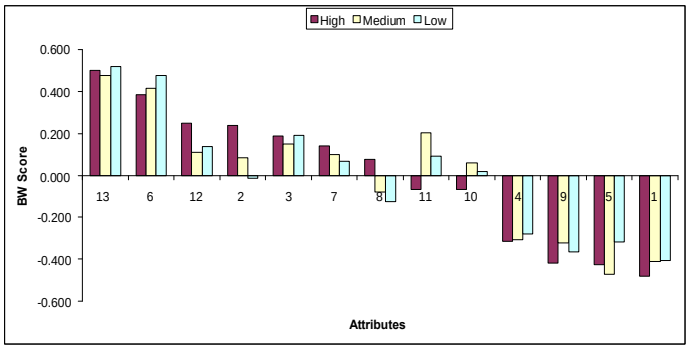
Hence, it is even more interesting to note that the attribute brand name (#10) catches more of the attention of low involved consumers, who tend to follow famous brand names. This can suggest that guides, given the plethora of wines they rate, are able to give to high involved consumers an ample range of wines to choose between, with the result that high

involved consumers do not look as much to the name of the brand, but maybe to other attributes, like the grape variety.

The results of the last two attributes are in line with the statements drawn above. Although the recommendation of someone else (#11) and the "I read about it" attribute (#12) tend to have an average overall score, they show that lower involved consumers are more attentive to the suggestions of other people (given that they read less), while high involved consumers give a higher score to the fact of reading about the wine. Where do they read that information? We may assume wine guides, but this is a question for further research to answer.

Fig. 4: Low, Medium and High involved consumers

Attribute	No.	High	Medium	Low
Tasted the wine previously	13	0.500	0.476	0.519
Matching food	6	0.382	0.416	0.476
I read about it	12	0.250	0.110	0.138
Grape variety	2	0.236	0.082	-0.012
Origin of the wine	3	0.189	0.149	0.193
Information on back label	7	0.142	0.097	0.067
Medal / award	8	0.075	-0.078	-0.124
Someone recommended it	11	-0.066	0.203	0.090
Brand name	10	-0.066	0.058	0.019
Information on the shelf	4	-0.316	-0.306	-0.279
An attractive front label	9	-0.420	-0.321	-0.364
Alcohol level below 13%	5	-0.425	-0.474	-0.317
Promotional display in-store	1	-0.481	-0.412	-0.407



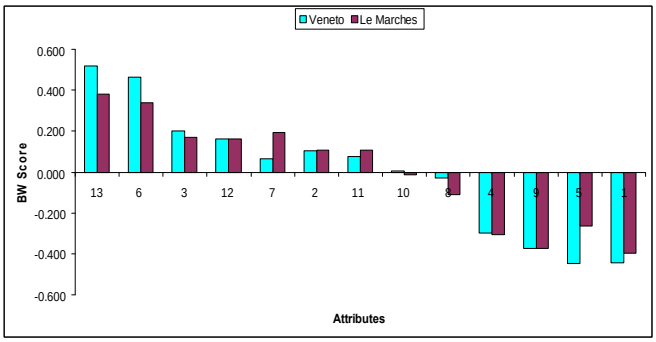
The analysis by geographic areas (Fig. 5) shows that people situated in Northern Italy present a more definite choice pattern, with the first two attributes – tasted wine previously (#13) and matching food (#6) – being the most important by far. This could represent the "mirror" of the oenological backgrounds of the two regions. Veneto is a land of many important white and red wines (Soave and Amarone above all), with *Amarone della Valponicella* probably being its most well known wine all over the world. Le Marches and especially the area where the vast majority of the interviews have been collected are the land of *Verdicchio di Matelica*: a rich and full-bodied white wine, which, apart from the "Reserve" typology, has an ABV%Vol. of around 12-12.5%. This provides three considerations. The first is that if one has to drink these two wines, certainly the kind of food one decides to match with has an important role. But, of course, the Verdicchio may be matched more easily then Amarone. Secondly, we have to consider that Veneto, the region where Verona is located, developed an important eno-gastronomic culture, greater and earlier than Le Marches, with the result that the attribute "matching with the food" has been evaluated more as a BEST attribute from people of Veneto than from people of Matelica. It must also be considered that the average price for DOC/DOGC wines in Veneto is higher than in Le Marches (ISMEA, 2007b). In particular it is well known that a good *Amarone della Valponicella* may be found in the ultrapremium price range, while a nice *Verdicchio di Matelica* won't cost more than € 20 – even in the top "Reserve" category. This could explain that consumers may be more disappointed if they buy an Amarone and they dislike it, compared to a wrong purchase of a Verdicchio. Hence, consumers in Veneto may keep continuing choosing a wine they already know, instead of risking a bad purchase. Thirdly, it is not by chance that people from Verona tend to evaluate the attribute "alcohol level below 13 %" worse than people from Matelica. Although this attribute has been rated very poorly by both segments of the population, it is again the oenological background of these two regions that influences the way people value the alcoholic degree of a wine.

Beyond this, it is interesting to note that the third most influencing attribute for consumers in Le Marches are the information on the back label, while they are poorly rated by people living in Veneto. This supports the hypothesis formulated previously on the importance of back labels. For the latter group only two attributes guide choices, while people in Le

Marches seem to be more curious about the wines they buy. This information may be found in the back label; hence this explains the importance of having clear and exhaustive ones. Moreover this could help the promotion activities of a wine and consequently the awareness of a wine region, developing policies that aim at targeting not only "foreign" consumers (and therefore extra-regional exports, tourists, especially agro-tourist and cultural ones, or "Sunday trippers"), but also local populations – both rural and those of adjacent urban areas (Cavicchi and Corsi, 2007).

Fig. 5: Geographical areas

Attribute	No.	Veneto	Le Marches
Tasted the wine previously	13	0.518	0.380
Matching food	6	0.464	0.340
Origin of the wine	3	0.200	0.170
I read about it	12	0.164	0.163
Information on back label	7	0.065	0.195
Grape variety	2	0.102	0.108
Someone recommended it	11	0.075	0.108
Brand name	10	0.006	-0.013
Medal / award	8	-0.028	-0.110
Information on the shelf	4	-0.300	-0.305
An attractive front label	9	-0.374	-0.373
Alcohol level below 13%	5	-0.446	-0.265
Promotional display in-store	1	-0.444	-0.398

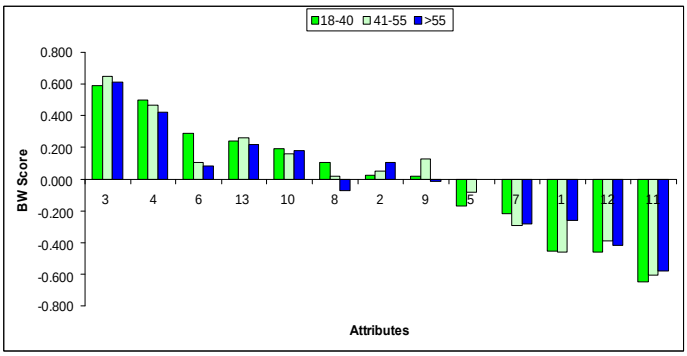


In the on-premise sector the variability in the judgement of the attributes according to different age groups is concentrated more on a few attributes which are in the middle level of importance, but as a result of contrasting evaluations (Fig. 6). An alcohol level below 13% ABV Vol. (#1) seems to make the wine more disliked in the on-premise sector. This attribute is one of the four which received a low score. The important thing to note is that young people certainly go for high alcohol wines, while elder ones tend to have a neutral behaviour toward this attribute. One of the causes may be the tendency for new-comers in the wine world to try full-bodied and rich, fruity wines. They maybe followed the trend of wines made out of Cabernet/Merlot/Syrah aged in oak barrels, very alcoholic, coloured and vanilla flavoured, which dominated the market in recent years. Elder people instead have a different background, made of wines which barely reach 13% ABV Vol.

Younger people are less attentive to the suggestions presented on the menu, but tend to accept the suggestion by table mates (#6), which becomes for them the third most important choice attribute. Older people on the contrary prefer more to guide the situation, choosing the wine for all table companions (maybe even the younger ones). Analysing the relationship between age groups and BW scores, we find that young people are more "adventurous" than older ones. Conversely, the latter are more loyal to their favourite wines (#8).

Fig. 6: Age groups in the on-premise sector

Attribute	No.	18-40	41-55	>55
I Matched it to my food	3	0.590	0.650	0.613
I have had the wine before and liked it.	4	0.500	0.464	0.420
Suggested by another at the table	6	0.288	0.107	0.085
I had read about it, but never tasted	13	0.240	0.263	0.220
Region	10	0.190	0.158	0.179
Try something different	8	0.102	0.018	-0.074
Waiter recommended	2	0.026	0.054	0.104
Varietal	9	0.017	0.125	-0.011
Suggestion on the menu	5	-0.169	-0.085	0.000
Available by the glass	7	-0.217	-0.295	-0.283
Alcohol level below 13%	1	-0.457	-0.462	-0.261
Available in Half Bottle (375ml)	12	-0.462	-0.391	-0.415
Promotion card on the table	11	-0.650	-0.607	-0.577



6. Conclusions and future research

This research applied the BW method together with an ordinal logistic regression to investigate the degree of importance individuals give to 13 attributes related to choosing wine, and in particular the behavioural differences across geo-demographic subgroups of the population sample. The main advantage of this methodology compared to others widely used for the analysis of consumer behavior is a higher discriminating power for the measure of the degree of importance given by respondents to attributes. Secondly, it avoids problems of rating bias, favouring cross national or even cross regional comparison of the way diverse populations judge similar attributes. Thirdly, giving that the BW method generates ordinal outcomes, it allows the utilisation of an ordinal logistic regression method for a better segmentation of the market.

A general analysis of BW scores shows that interviewees weight more the direct, personal and sensorial experience they had with a wine than other attributes. If respondents already have drunk a wine or if a wine matches best with the food they are going to eat either at home with their friends or in restaurant, there is a higher probability that this wine will be chosen. Conversely, our research found scant attention toward the alcoholic content of the wine and promotional activities carried out by both sectors in order to stimulate wine purchases. It has been surprising to note that in the retail sector an impressive front label is not sufficient to influence the choice of consumers, while in the on-premise situation, the possibility to buy a wine in a 375 ml format is not seen as a key incentive.

The analysis developed through the ordinal logistic regression model in respect to the geo-demographic variables showed an overall similarity in the behaviour of the segments of the population. However, some differences are present; hence they justify the need to deepen the analysis of the way people judged the 13 attributes. The model is not only a valid methodological instrument for data classification, but it also represents a way to give business managers a greater insight on how different sub-groups of the population evaluate choice attributes. It is then possible to develop more efficient marketing strategies, aiming at targeting diverse consumer segments. In particular the analysis showed that while choosing wine in retail stores the level of involvement respondents have toward wine is the factor which discriminates most the preferences expressed by consumers. Differences in terms of income, on the other side, don't seem to segment the market strongly. In the on-premise sector respondents demonstrate a more homogeneous behaviour compared to the retail respondents, with differences in the age of interviewees having greater influence than other variables. Such homogeneity is so evident that respect to the frequency of consumption, not even one attribute could discriminate between frequent and infrequent consumers.

According to these results producers should try to create a wine that matches at best with the food people choose at a restaurant or for a dinner with their friends. The task is not easy as consumers do not put a lot of attention to the front label, which then cannot be used as a way to communicate the characteristics of the product. However, firms operating in Le Marches could focus more on the information on the back label, as consumers in this region seem to devote more attention to it. Back labels should clearly expose information on (a) food pairings, (b) region of origin and (c) grape variety, as consumers rated the importance they give to these attributes in this categorical order. Indication about the alcoholic degree of a wine should be limited to the legal requirements, as this is not considered a fundamental choice item. Hence, a well-written back label will help smaller firms compensate for the lower capacity to generate awareness about a wine through advertising on wine guides and/or specialised magazines, which have been evaluated as an important factor in the choice process especially for people living in Veneto. Firms with good financial power should try to advertise themselves in guides and magazines, as they will benefit from this especially from

two categories of consumers: high frequency and high involved consumers, who both seem to rely on what they read before buying a wine in a the retail setting. Hence, advertising can be considered the first step toward the tasting of a wine. If consumers like it, they can more prone to buy it a second time. Firms with reduced financial resources should concentrate more on the on-premise sector, where the suggestion by another person at the table or the by the waiter influences the choice. In particular, this statement should be taken into consideration when firms aim at targeting consumers in Le Marches or elder consumers (>55 years). This also means that firms should try to stimulate the interest of sommeliers toward their products and this could be done by focusing on the same attributes considered important for high involved consumers. Other useful suggestions are that firms operating in the on-premise sector should not worry much about having formats different from the classic 750 ml. If consumers choose a wine, in fact, they do not seem to care having it in half bottle. This statement could be also applied to restaurateurs. This doesn't mean, however, that giving customers a little taste of a wine does not help selling the entire bottle.

The study also demonstrated the strong ability of the BW method to give clear and simple answers regarding the items most and least preferred by individuals, even to those who are not familiar with econometric instruments. The joint usage of this method with an ordinal logistic regression model allows a second level analysis of the data, able to give more precise answers on how individuals belonging to different geo-demographic groups evaluate the same attributes.

However, the study presents some limitations. First of all, researchers carefully selected the attributes to put in the survey, according to what literature found so far. However, it is not possible to state with certainty that these are the 13 most important attributes that influence wine choice behaviour. Moreover, if one tries to include or remove other attributes, BW scores change, as the result of the fact that the importance of each attribute is evaluated in respect to the others present in the choice set. The BW, in fact, generates an interval scale, which is influenced by the distance between the attribute with the highest raw score and that with the lowest. Thirdly, the analysis of choice data from a best–worst exercise is less straightforward than that in traditional DCEs (Flynn *et al.*, 2007). The sample is still too narrow to extend conclusions at a country level range. The sample cannot be considered representative of the Italian population, but rather a convenience sample. The people who took part in the study correspond to a skewed sample of the entire population. Those who attended the meetings were not all wine drinkers; hence, it was necessary to skip several completed questionnaires, which were duly filled, because the question regarding the frequency of drinking was answered by several respondents as "I do not drink wine". Another limitation lies in the fact that there is lack of literature regarding the joint usage of the BW method and the ordinal logistic regression. So, it is not possible to verify how other researchers operated similar analysis, in order to evaluate the goodness of the logical structure of this present work.

Future research could be focused on filling these gaps firstly, by enlarging the size of the sample, making it as much representative as possible of the Italian framework. Then it could be interesting to apply this methodology to data collected in other countries so as to verify what is the level at which we observe differences in consumer behaviour. We would like to see whether the way in which people rate the attributes in terms of BW score change between countries or within regions of the same country or both. This could indicate that the choice of the most and least important attributes, while choosing wine depend on some cultural, social and economic factors, which differ from one country to another, but are homogeneous within each country.

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