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THE BEHAVIOUR OF ITALIAN CONSUMERS TOWARDS WINE AN APPLICATION OF NEW METHODOLOGIES FOR MARKET SEGMENTATION AND LOYALTY ANALYSIS

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reason that makes me face every day with a smile and transform the fear of every challenge into the wish of never giving up. I love you.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

AIC	Akaike Information Criterion
ANOVA	Analysis of Variance
BBD	Beta Binomial Distribution
BIBD	Balanced Incomplete Block Design
BIC	Bayesian Information Criterion
BW	Best:Worst
CA	Conjoint Analysis
CBC	Choice Based Conjoint
CMO	Common Market Organisation
CnAIC	Consistent Akaike Information Criterion
CrAIC	Corrected Akaike Information Criterion
DCA	Discrete Choice Analysis
DCE	Discrete Choice Experiment
DMD	Dirichlet Multinomial Distribution
DOC	Denominazione di Origine Controllata
DOCG	Denominazione di Origine Controllata e Garantita
EU	European Union
GI	Geographical Indication
IIA	Independence of Irrelevant Alternatives
IID	Independent and Identically Distributed
ISMEA	Istituto di Servizi per il Mercato Agricolo Alimentare
ISTAT	National Institute of Statistics
LCA	Latent Class Analysis
LL	Log Likelihood
MIPAAF	Ministero delle Politiche Agricole Alimentari e Forestali
MNL	Multinomial Logit
MS	Market Share
NBD	Negative Binomial Distribution
NSP	National Support Plan
NW	New World
OIV	International Organisation of Vine and Wine

OW	Old World
PCA	Principal Component Analysis
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
QMD	Qualitative Multinomial Distribution
RP	Revealed Preferences
RUT	Random Utility Theory
SISTAR	Sistema Statistico Regionale
SP	Stated Preferences
WTO	World Trade Organization

1. Introduction

In the last few years, the world wine market has been facing new challenges. According to Euromonitor International (2008a), the consumption of wine declined in Italy, France, Spain and Argentina, amongst others. Further, Switzerland and Spain (ranked eighth and tenth largest by value, respectively, in 2002) dropped out of the top ten wine drinking countries and were replaced by Canada and Russia. In terms of production, Old World (OW) countries faced years of over-supply, with over one-third of the annual European Union (EU) wine budget used to dispose of surplus wine. Outside of the EU, Australia has been getting rid of the excess grape surplus, reducing bulk export shipments and driving up prices opportunities. India, China and the United Kingdom (UK) are emerging as the new wine producing countries. Euromonitor International (2008a) estimates for the forecasted period 2007-2012 that emerging markets are expected to be the most dynamic, outperforming the global market in both volume and value terms. Western Europe will underperform all other regions in both volume and value growth terms due to ongoing volume declines in the major Italian and French markets. Wine sales in the United States (US) are expected to see steady growth over the forecasted period, with sales of still light grape wine increasing significantly.

In this global scenario, Italy still represents seventeen per cent and 30 per cent of the global and communitarian production respectively, but as the average production in the period 1987-1996 was 59.2 million hectolitres, in the following ten years (1997-2006) it decreased to 50.6 million hectolitres. If one only considers the five years 2003-2007, one registers a total production of 47.9 million hectolitres (Assoenologi, 2007). These figures are not only the result of a decrease in the production per unit; they also correspond to an absolute loss of 259,000 hectares of vineyards, which brought the Italian vine area to a total of 711,000 hectares at the end of 2007. The situation is also challenging in terms of consumption, as all productive segments registered a decrease in volumes in 2007 both in respect to the previous year (-2.4 per cent) and to the precedent five-year period (-6.1 per

cent). However, positive signs come in terms of values (+6.7 per cent over 2003-2007), despite the modest results obtained in respect to 2006 (-0.9 per cent) (Euromonitor International, 2008b). The Italian wine distribution channel also faced significant structural changes. The retail sector reached 60 per cent of sales by volume and 35 per cent by value in 2008, and they are forecasted to increase until the end of the 'economic crisis' (Euromonitor International, 2009). This change contributed to an increase in supermarket/hypermarket shelf spaces and in the number of labels used at most points of sales (ISMEA, 2007), thus making the analysis of retail wine purchases of particular interest.

In order to face these issues either at a communitarian or a national level, the EU brought into action a new Common Market Organization (CMO) for the wine sector on 29 April 2008, which aims at ensuring EU wine production matches demand, eliminating wasteful public intervention in EU wine markets, and redirecting spending to make European wines more competitive (European Commission, 2009).

This situation requires wine marketing managers in Italy to provide answers to four key questions, in order to develop marketing strategies that are more efficient.

First, it is fundamental to understand what drives the choices of Italian consumers in the retail setting, to offer efficient suggestions to all the actors of the wine supply chain. In particular, the wine marketing literature clarifies that the focus should be on the product attributes, such as region, grape variety and price, which are believed to be able to stimulate more consumer choices (Goodman et al., 2005) and loyalty (Jarvis et al., 2007a, 2007b; Singh et al., 2008), rather than brands.

However, in this context, the ability to identify the ways in which consumers make their choices is not sufficient. It is also important to recognise the factors influencing consumers' loyalty towards particular product attributes. Loyal consumers are a benefit to a firm. They demonstrate that the firm satisfies customers and stimulates them to buy the product a second time (Yi and La, 2004). Moreover, the ability to match customers' desires only once is not enough, as

enduring satisfaction represents a key antecedent of customer retention (Jiang and Rosenbloom, 2005). This is particularly significant when retailing wine, as tastes and preferences quickly change over time, often at a pace faster than the industry can adjust to this ever-changing demand. However, a producer, a grape variety, a region or a country needs several years to create awareness in consumers' minds, while the latter are not willing to wait that long to remain loyal to their preferences. This consideration is particularly relevant today, as evolutions in trade agreements and distribution facilities allow the vast majority of wines to be sold everywhere in the world; hence, consumers may change their preferences as much as they want, because they will often find what satisfies them on many supermarket shelves. Due to this, one must find a way to understand what makes customers loyal to a wine, otherwise they will be lost.

This scenario further extends the analysis to the relationships between product attributes. It is known that when consumers make a choice they take several product attributes (price, brand and label) into consideration, either consciously or unconsciously (Kotler and Keller, 2007). These attributes may *interact* (which means that the overall loyalty level they are able to generate is not the result of the simple algebraic sum of the loyalty levels they show when taken separately, but they give a result that could be higher or lower than the algebraic sum) or *correlate* (meaning that those consumers loyal to one attribute will also be loyal to another). Hence, it is also necessary to evaluate the nature (interaction, correlation or both) of product attributes' relationships and the combination of product attributes and levels that generate the highest loyalty levels.

The last aspect that must be stressed is that loyalty evolves over time. It is shown in the literature that there is a temporal change in an attribute importance, and that benefits and attributes have different roles in affecting customer satisfaction and loyalty, in respect to the different moments of the consumption cycle of a product. Hence, it is important to observe how loyalty, interaction and correlation effects towards product attributes evolve over time.

All these considerations, which are extremely important for any business

decision, broaden the scope of this work to a conceptual level. Two main approaches – stated preferences (SP) and revealed preferences (RP) data – can be used to address the issues relative to the analysis of consumers' behaviour and loyalty respectively through a theoretical perspective.

The SP approach requires the construction of a questionnaire, in which the interviewee is asked to declare what choice he/she would make, if he/she were in an analogous situation. SP data offer the following advantages when applied to the analysis of consumers' behaviour towards wine: (a) they are more flexible; (b) they offer more information on consumers' background; (c) they have higher forecasting ability; (d) they are more cost efficient; (e) they are more useful when data on actual choices are difficult to gather; and (f) they offer better potential for segmentation. However, these models still pose some problems. Although they are used to predict and analyse real market situations, SP methods of eliciting preferences provide answers for hypothetical, constructed markets, not for real markets. Moreover, these models do not use repeated choices to measure loyalty over the population of consumers.

Conversely, when it comes to the analysis of loyalty, researchers can use RP data, which is the actual choices of consumers, generally available through scanner data or commercial databases record purchases. They are useful as: (a) one knows what consumers really did and not what they say they would do hypothetically; (b) they present no problems in deciding which attributes to consider in the study; (c) they allow the analysis of how loyal consumers are to products; (d) one can observe not only how choice attributes interact, but also how much they correlate, hence providing a more realistic perception about people's choice processes; and (e) it is possible to analyse how loyalty, interaction and correlation effects between product attributes evolve over time.

Although extensively debated in several other sectors, such as health care, environmental economics and transportation, the extent to which the advantages and disadvantages of these two approaches can be considered valid when applied to the analysis of consumers' behaviour and loyalty towards wines has never

been clarified by the relevant wine marketing literature.

Hence, the contribution of this thesis to existing knowledge is at both a managerial and a conceptual level. On the former, it offers up-to-date and original insights on the product attributes and levels able to (a) drive wine choices and (b) measure loyalty, interaction and correlation effects, and their evolution over time, by applying two methodologies, which were never utilised in Italy. On the latter, the thesis aims to verify the extent to which the advantages and disadvantages of the SP and the RP approaches can be considered valid when applied to the analysis of consumers' behaviour and loyalty towards wine. By filling this gap, wine marketing researchers will have a *blueprint* to follow, for the first time, through which they can better understand what the best approach to follow is, according to the issues and problems they have when studying the behaviour of consumers and their loyalty in the wine sector. The choice of the incorrect approach, beyond being conceptually a mistake, risks giving biased managerial information on people's preferences, something that, as stated earlier, should be carefully avoided in this particular historical moment.

1.1. Research Questions

These considerations led to the formulation of the following main research questions. From the managerial perspective, the thesis presents two background questions and three core questions.

Background Questions:

1. To what extent does secondary data confirm the increasing competition between countries and regions in the wine sector under a marketing mix perspective?
2. What are the main changes caused by the new CMO for the European and the Italian wine sector?

Core Questions:

3. What are the product attributes that influence the choice of Italian consumers before they buy wine in the retail sector?

4. What are the product attributes that influence the loyalty of Italian consumers in the retail sector? How did they evolve over time?
5. To what extent do product attributes interact and correlate, and what do these phenomena imply for the behavioural loyalty of Italian consumers? How did these relationships evolve over time?

From a conceptual perspective, the thesis presents two original questions.

Original Questions:

6. Within the specific context of the analysis of consumers' behaviour towards wine, to what extent does SP data, compared to RP data:
   a) provide more flexibility;
   b) offer more information on consumers' backgrounds;
   c) offer higher forecasting ability;
   d) provide better cost efficiency;
   e) provide more useful information when data on actual choices are difficult to gather; and
   f) offer better potential for segmentation, when applied to the wine marketing sector?
7. Within the specific context of the analysis of loyalty towards wine, to what extent does RP data, compared to SP data:
   a) provide more exact data about what consumers actually did;
   b) present less problems in deciding what attributes to consider in the research;
   c) provide information on the degree to which consumers are loyal to product attributes;
   d) analyse how product attributes interact and/or correlate; and
   e) show how loyalty, interaction and correlation effects between product attributes evolve over time?

1.2. Research Methods

Thus far, researchers have used different methodologies to discover broader concepts on the advantages and disadvantages of SP and RP data. However, it should be stressed that this comparison is not conducted by demonstrating the strengths and weaknesses of different methodologies. Methods are only used as a means to derive considerations on the kind of information one can obtain by using a SP or a RP approach, which are then compared.

In line with the literature, it is important to clarify that the purpose of this work is not to compare the strengths and weaknesses of the methodologies that are going to be used. From the conceptual perspective, the purpose is to test and demonstrate the extent to which the advantages and disadvantages of the two approaches, obtained through the analysis of two typical quantitative methods (one belonging to the SP approach and the other to RP), can be considered valid when applied to the analysis of different aspects of consumers' behaviour and loyalty towards wine. From a practical perspective, the information obtained from these two methodologies will be used to answer the managerial questions outlined above. These questions do not require a discussion of what approach or method is more suitable to address them, as they can only be answered by analysing specific types of data and methodologies.

In the SP analysis, the Best:Worst (BW) method will be presented. BW scaling can be considered an extension of the paired comparison method, offering similar benefits, but a more efficient questioning structure. 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). With the exception of this last limitation, the method can be considered flexible, as it offers the possibility to include a reasonable number of choice attributes, combined according to a proper choice set design. This flexibility guarantees this method a higher forecasting ability, as it is able to provide comments and suggestions on a higher number of choice drivers. Moreover, due to the multiple number of choice sets per respondent, the BW method has a higher

cost efficiency than any other RP method. BW also avoids problems of rating bias, as there is only one way to choose the most and the least preferred item. This 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). Moreover, as the BW rating is obtained through a standardisation of raw scores, it overcomes the systematic tendency of rating based scales of producing distort ratings (Lee et al., 2007). In addition, researchers may obtain as much information on consumers' backgrounds as they want, given that they will be responsible of the questionnaire creation. Finally, the BW generates an ordinal ranking of the items for each respondent (Goodman et al., 2005). However, it is often accepted that ordinal scales also have interval properties for the mean scores, hence allowing the use of several econometrics techniques for the segmentation of preferences. For example, in the present thesis, two techniques will be adopted in order to show how SP data can be analysed for an efficient market segmentation. First, a simple multivariate analysis (ANOVA) on BW raw data will be conducted, then a latent class analysis (LCA) will be conducted.

This method and these segmentation techniques will be applied on data collected in two distinct Italian regions, Veneto and Le Marche, located in Northern and Central Italy, respectively. Although these two regions belong to the same country, they present significant socio-demographic differences, which may lead to different behaviours in how wines are chosen. Data collection took place at two cycles of cultural meetings organised in these two regions by an entertainment agency. People who come to these events belong to medium to high-income level groups, interested in cultural events, for example those regarding music, art and books, and who also like the opportunity to share a glass of wine in a refined environment. Questionnaires were collected in Le Marche in July 2007 resulting in a total of 100 valid responses on consumer preferences regarding thirteen product attributes in the retail sector. In Veneto, more than 200 valid questionnaires were gathered from July to September 2007.

Regarding the RP data, the polarization index (φ) method can be applied for the analysis of loyalty levels (Jarvis et al., 2003, 2006, 2007a, 2007b). The polarization index, proposed by Sabavala and Morrison (1977) for the first time in marketing, is an index the same as Kalwani's polarization index (Kalwani, 1980), and similar to the Hendry's k (Kalwani and Morrison, 1977) or the Bass et al.'s θ (1976), compared to which, however, shows higher potentialities (Rungie, 2000; Rungie and Laurent, 2003a; Rungie et al., 2005; Jarvis et al., 2006). It is derived from the application of the Beta Binomial Distribution (BBD) model to the purchases made by consumers of different brands in the same product category and in a defined interval time. In particular, it is possible to identify as many φ values – also called *marginal* φ or *BBD values* in literature – as the number of brands (or levels of the attribute) in a category. These values express the loyalty level of consumers in the marginal choice between each brand (or level of the attribute) and all the other brands (or other levels of the same attribute) in the category. The analysis can then focus on the deviations of the loyalty for each brand (or level of the attribute) from the average or benchmark loyalty level for the brands (or the various levels of the same attribute) in the category. The benchmark value – also called *category polarization index* (φ_c) or *DMD value* – represents the multivariate counterpart of the BBD. It can be estimated by fitting a Dirichlet Multinomial Distribution (DMD) to the data. Moreover, by applying the polarization method to the analysis of the same sample in two different periods, one has the opportunity to understand how loyalty evolves. Finally, the use of a new polarization methodology available through a statistical distribution, called Qualitative Multinomial Distribution (QMD), offers the advantage of utilising RP data to analyse interaction and correlation effects between brand/product attributes and their impact on consumers' loyalty.

RP data were gathered from the AC Nielsen Consumer Panel on the wine purchases made by a representative sample of the Italian population in the retail sector. The purchases were recorded for six years (2003-2008), but they were split in two three-year periods: 2003-2005 and 2006-2008. Loyalty levels towards three product attributes (prices, formats and quality designations) for the two three-year

periods were analysed separately. Then, by applying the QMD on these data for both periods, one can observe the degree of interaction and correlation between these attributes and their impact on consumer loyalty. Third, by comparing these analyses between the two periods, one can show how these phenomena evolved over time.

The first sub-sample accounts for 5,299 households, while the second comprises 6,394 families. A further sub-sample was extracted from each of the two groups, in order to include only those households with somewhat regular purchase behaviour. The sub-samples include the families who (1) bought wine on more than one occasion in each of the two three-year periods and (2) bought more than ten units of wine in each of the two interval times. This brought the number of families to 3,858 and 4,643 respectively, and, while in 2003-2005 the final sub-sample purchased 366,413 litres of wine, in the latter period the population bought 411,638 litres.

1.3. Thesis Structure

In order to fulfil the research objectives, the work is structured as follows. After this introduction (Chapter 1), Chapter 2 provides an overview of the major wine marketing trends affecting the international arena and Italy under a marketing mix perspective, and of the main changes caused by the new wine CMO. Then, the relevant literature on the advantages and disadvantages of the SP and RP data approaches will be presented in Chapter 3. Chapter 4 is dedicated to the methodological aspects of the thesis. The BW method will be introduced, along with the techniques that allow the segmentation of the population, followed by the explanation of how the polarization index and the QMD methodologies work. Then, data collection relative to both SP and RP data will be illustrated (Chapter 5). The first part of Chapter 6 presents the main results obtained through the BW method and the application of the two segmentation techniques, while the latter highlights the main outcomes relative to the loyalty towards product attributes, their evolution over time and the nature of the relationship between them in determining overall consumers' loyalty. After this, Chapter 7 discusses the main results of the research from a managerial perspective. Chapter 8 concludes the

thesis with a summary of the results and provides direction for future research in the field.

2. Market Analysis

2.1. Introduction

This chapter[1] will present an overview of the wine market at both an international and a national level, highlighting the reasons that pushed the EU to set new norms to regulate the production and trade of wine within the community and towards Third Countries. The new CMO for the wine sector was launched not only to provide opportunities for the growth of European producers, but also to stop the communitarian wine sector losing ground from New World (NW) wine countries, such as Australia, the US and South Africa.

This chapter is divided into three sections. The first two sections provide a description of the main characteristics of the international and the national wine markets, through an analysis of the data relative to current trends and to their evolution over time. In particular, the changes in the extension and geographical location of the wine area in the last few years are observed. As a consequence of these modifications, the production and consumption of wine evolved over time, not only in terms of volumes and values, but also in respect to their geographical location. The configuration of import-export fluxes are described, highlighting the main importing and exporting countries at an international level, and what the main markets for Italian wines appear to be, given that the imports of foreign products in Italy are still very scarce. Finally, the main elements of competition between the players of the wine supply chain are presented, followed by a description of the roles performed by distribution channels and by some considerations of sector developments in the next few years. The third section presents the aims and the most significative changes introduced by the new wine CMO.

2.2. The International Scenario

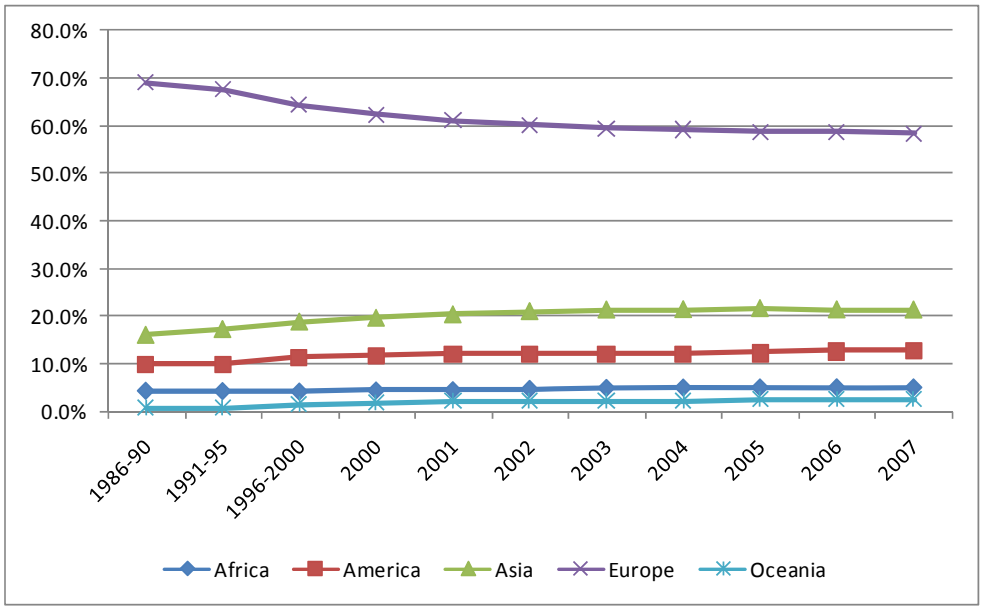
2.2.1. The Global Vineyard

[1] The author wishes to thank Dr. Alampi Sottini for the fundamental contribution in data collection and analysis of wine market data relative to the international scenario.

The global vineyard accounted for about seven million hectares in 2007, almost in line with the values registered in 2000 (OIV, 2008). In particular, Europe still plays a dominant role in the international context, holding 58.3 per cent of the total vine area. Asia follows with 21.3 per cent, while the third position is occupied by America (12.8 per cent). Asia and Oceania hold five per cent and 2.6 per cent respectively.

Intense growth, which lasted until the second half of the 1970s, brought the global vineyard to a record of ten million hectares, but then the area under production shrank by more than three million, down to current values. However, the stabilisation registered in the last eight years is the result of contrasting tendencies that are occurring at a global level, as indicated in Figure 1 below.

Fig. 1: Evolution of Global Vineyard Area 1986-2007 by Continent (%)



Source: The author's elaboration on OIV (2008)

Figure 1 shows that Europe has been facing a continuous reduction (-25 per cent in respect to the period 1986-1990), due to a decline in the number of vines, which has been mainly occurring in countries like Italy (-7.5 per cent), France (-5.5 per cent) and Spain (-4.9 per cent). This phenomenon can be ascribed to grubbing-up and cessation premiums promoted by the European Community to control continental wine production. Conversely, vineyards have been growing in America, Asia and Oceania. The former has been undergoing a slow but constant

increase since the second half of the 1980s. However, while the US and Chile have been enlarging the national vineyard by 24 per cent and 58 per cent respectively, Argentina has been decreasing it by about thirteen per cent. Asia had been growing until the beginning of the new millennium, but it then stabilised at about 1.6 million hectares. China, in particular, has played fundamental role in this process, as it expanded its vine area from 0.1 million to 0.5 million hectares in approximately 20 years. It is important to note the role that Australia and New Zealand have played in the growth of Oceania, which increased by 25 per cent from 1986-1990 to 2007. Finally, Africa remained almost stable in the considered interval time, as it moved up from representing 4.3 per cent of the global vine area to five per cent (OIV, 2008).

2.2.2. Supply

The global wine supply reached a volume of 264.4 million hectolitres in 2007, down by about six per cent and seven per cent in comparison to the previous year and 2000 respectively (FAOSTAT, 2009).

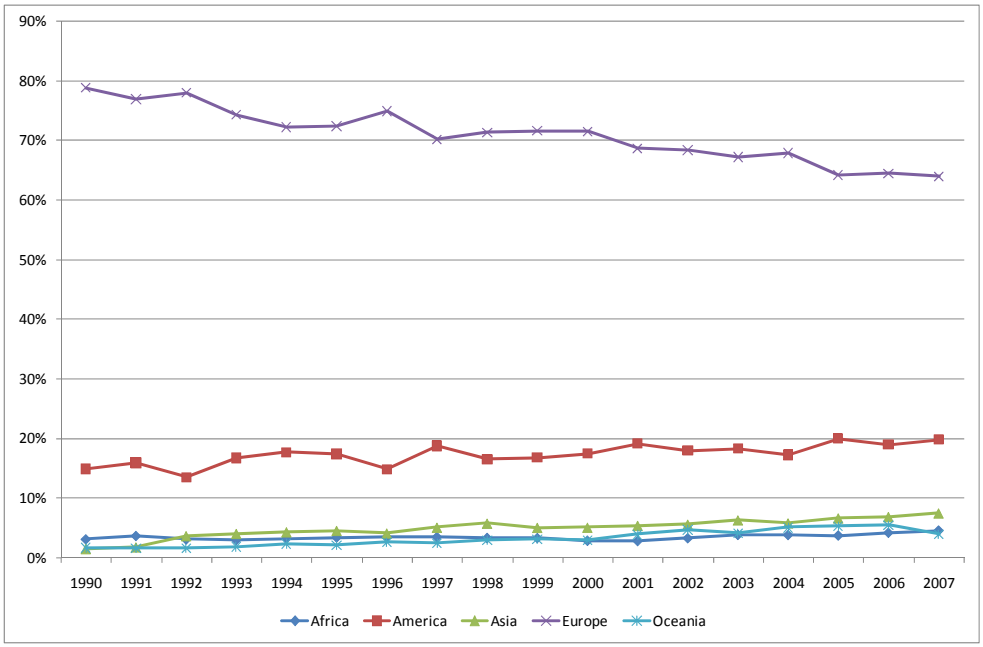
As for the total area, Europe still leads the way with 64 per cent of the total production, followed by America (19.9 per cent) and Asia (7.5 per cent), while Africa and Oceania share the remaining 8.5 per cent almost equally (4.6 per cent and 4.1 per cent respectively).

Again, in line with the trends relative to the global area, it is interesting to observe that Europe lost fourteen percentage points compared to 1990, while Asia and America increased by six and five points respectively. Simultaneously, Africa (+1.5 per cent) and Oceania (+2.3 per cent) remained almost stable with 1990 values.

In particular (see Figure 2), Europe reduced its production from 224.5 million hectolitres in 1990 to 169.3 million hectolitres in 2007. Italy, Spain and France continue to be the market leaders, accounting for 79 per cent of the continental production, although they also saw production shrinkage of about eight per cent for Italy and Spain and 28 per cent for France. Conversely, Asia saw the highest increase, moving from four million hectolitres produced in 1990 to nineteen

million hectolitres in 2007. China leads the continent, with about 72 per cent of the Asian wine production. Regarding America, the trend shows that Chile boosted its production by a 118 per cent since 1990, while the US (+25 per cent) and Argentina (+10 per cent) evidence a more modest growth, and Brazil (-23 per cent) decreased. The expansion of Oceania, which moved from four million hectolitres to ten million hectolitres in the 1990-2007 period, was mainly given by Australia, whose production covers 90 per cent of the continental wine supply. Finally, Africa consolidated its international role expanding by about 36 per cent up to twelve million hectolitres, 87 per cent of which comes from South Africa.

Fig. 2: Evolution of Global Wine Production 1990-2007 by Continent (%)



Source: The author's elaboration on FAOSTAT (2009)

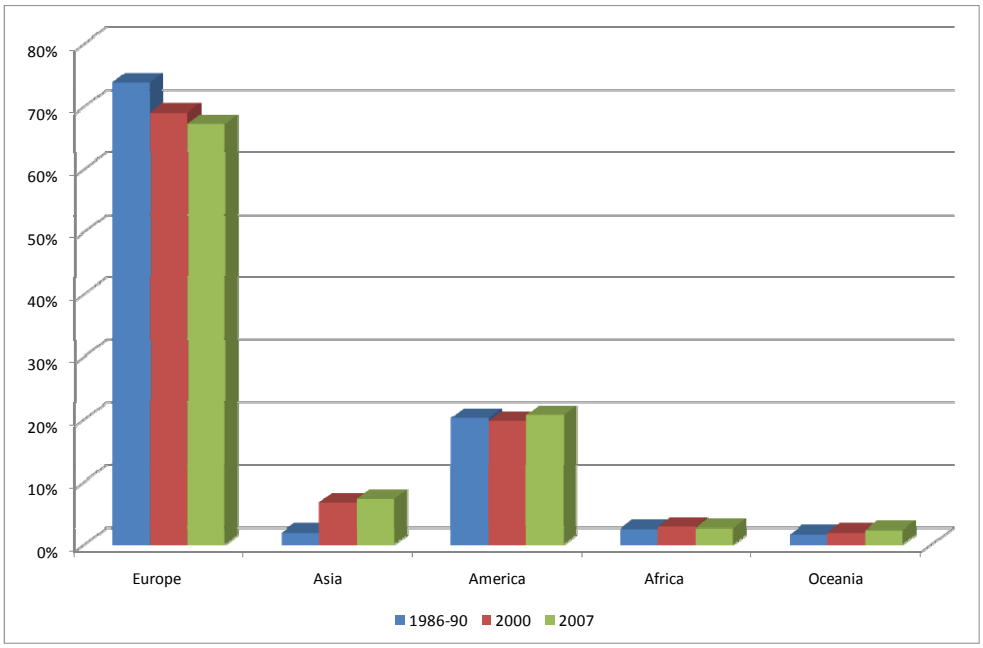
2.2.3. Demand

Wine consumption significantly declined since the 1970s to the year 2000 (-19.7 per cent), down to a volume of 225 million hectolitres. Then, the market saw an upward trend, which brought the total sales by volume up to 245 million hectolitres (+8 per cent) (OIV, 2008).

As one can reasonably understand from what has previously been shown, consumption in Europe has been declining for 20 years. While in the five-year period 1986-1990, 73.8 per cent of wine was consumed in Europe, this value

reduced by 6.6 percentage points, down to 67.2 per cent of the total consumption in 2007. In global terms, Asia is the continent registering the most significant performance, moving from a volume of 1.9 per cent in the interval time 1986-1990 to 7.2 per cent. Conversely, Africa, America and Oceania remained almost stable in the period 2000-2007, although due to different reasons. Africa shows steady consumption values (2.6 per cent in 2007), as the decrease in the volume of wines consumed in South Africa was not greatly compensated by an increase in other African countries. As for America, while wine sales boosted in the US (+25 per cent), they significantly decreased in Argentina (-10 per cent) and Brazil (-18 per cent), bringing the continental wine consumption to a 20.7 per cent of the global figure. Finally, Oceania holds the remaining 2.3 per cent, up from 1.6 per cent in 1986 (see Figure 3).

Fig. 3: Evolution of Global Wine Consumption 1986-2007 by Continent (%)



Source: The author's elaboration on OIV (2008)

On a country basis (see Table 1), seven out of the main ten consuming markets are European and they cover almost 50 per cent of the wine consumed worldwide. France is the market leader with 32 million hectolitres in 2007, followed by Italy and the US (26 million), Germany (20 million), the UK and Spain (thirteen million each), Argentina (eleven million), Romania, Portugal and Australia (five million).

Tab. 1: Top Ten Consuming Countries 2000-2007 by Volume (Million Hectolitres)

Country	2000	2001	2002	2003	2004	2005	2006	2007
France	34.5	33.9	33.6	32.9	33.1	33.0	33.0	32.2
Italy	30.8	30.2	27.7	29.3	28.3	27.6	27.3	26.7
USA	21.2	21.3	22.5	23.8	24.3	25.1	25.9	26.5
Germany	19.6	19.7	20.3	20.2	19.6	19.4	19.9	20.2
UK	9.1	10.1	10.3	11.1	11.3	12.0	11.7	13.7
Spain	14.0	14.2	14.0	13.8	13.7	13.7	13.5	13.3
Argentina	12.5	12.0	12.0	12.3	11.1	11.0	11.1	11.2
Romania	5.2	4.7	5.0	5.1	3.2	2.4	5.5	5.1
Portugal	5.0	4.7	5.0	5.3	4.8	4.8	4.8	4.8
Australia	3.9	4.0	4.0	4.2	4.4	4.5	4.6	4.8
World	**225.1**	**226.5**	**227.8**	**235.9**	**239.5**	**239.2**	**242.7**	**244.9**

Source: The author's elaboration on OIV (2008)

On a per-capita basis (see Table 2), the most significant declines in the 2001-2007 period are registered by some of the main wine producing and consuming countries, such as Spain (-26.1 per cent), Italy (-16.6 per cent), France (-11.1 per cent), and South Africa (-10.1 per cent). Within Europe, it also interesting to observe a decrease in Denmark (-26.1 per cent), but a considerable increase in Austria (+14.1 per cent), in the UK (+21 per cent) and in Belgium (+23.1 per cent). At a more international level, one can observe the positive performances of America, due to a growing trend in Argentina (+5.9 per cent), the US (+8.1 per cent), Chile (+9.6 per cent) and Canada (+30.4 per cent). Oceania and Asia also experienced a significant increase, aided by Australia (+22 per cent), New Zealand (+32.1 per cent), Japan (+36.4 per cent) and China (+133.3 per cent).

Tab. 2: Per capita Consumption 2001-2007 by Country (Litres)

Country	2001	2007	Var. 2001/2007 %	Country	2001	2007	Var. 2001/2007 %
France	56.9	50.6	-11.1	Germany	24.3	24.3	0.0
Portugal	46.8	45.8	-2.1	The Netherlands	20.8	21.4	2.9
Italy	52.4	43.7	-16.6	New Zealand	15.9	21.0	32.1
Greece	26.9	-	n.a.	UK	16.2	19.6	21.0
Argentina	32.1	34.0	5.9	Chile	14.6	16.0	9.6
Austria	28.3	32.3	14.1	Canada	9.2	12.0	30.4
Belgium	23.4	28.8	23.1	South Africa	8.9	8.0	-10.1
Denmark	33.2	28.7	-13.6	USA	7.4	8.0	8.1
Spain	34.8	25.7	-26.1	Japan	2.2	3.0	36.4
Australia	20.5	25.0	22.0	China	0.9	2.1	133.3

Source: The author's elaboration on OIV (2008)

2.2.4. Supply/Demand Balance

After having separately analysed the global supply and demand of wine, it is useful to consider them jointly as this can reveal other interesting aspects of the market.

The most significant problem the wine industry is facing at a global level is an over-supply of product (often known as 'grape glut'). This makes it difficult to sell products, thus increasing storage costs. Consequently, prices rise or, at the same time, producers may sell the wine at lower values, rather than keep it in warehouses. Whatever happens, this price variation undermines consumers' confidence in brand equity, thus affecting producers' profits.

Over-supply has largely characterised the wine sector, particularly since the beginning of the new millennium. Europe continued to dedicate a consistent part of the agricultural budget to distil wine surplus. Other countries, such as Australia, had difficulties in getting rid of excess grape surplus, in exporting bulk wines and in keeping prices high (Euromonitor International, 2008a).

2.2.5. Imports

Thirty-one per cent of the wine produced globally was imported by countries different from those of production in 2007 (FAOSTAT, 2009).

With the exception of the US and Canada, European countries are the biggest wine importers (see Table 3), with Germany and the UK leading the ranking. In particular, Germany imported 14.2 million hectolitres in 2007, followed by the UK with 11.8 million. However, if one looks at growth rates during the six-year period 2001-2007, the US and Russia show the best performances. In the US, a grape glut reduced the marketability of domestic products, favouring, in turn, the penetration of wines mainly from Argentina and Chile. Moreover, a weakening of the purchasing power of the dollar threatened imports from OW countries, thus helping NW countries even more. As for Russia, the country was helped by a change in import regulations. Although OW countries are regarded as suppliers of

high quality products, NW countries, such as Argentina, Chile and Australia, have been progressively changing the competitive environment (Euromonitor International, 2008a).

Tab. 3: Top Ten Importing Countries 2001-2007 by Volume (Million Hectolitres)

Country	2001	2002	2003	2004	2005	2006	2007	Var. 2001/2007 %	MS %
Germany	11.3	11.7	11.9	13.0	12.6	13.3	14.2	25.9	17.0
UK	9.9	10.3	11.3	13.0	13.2	11.8	11.8	18.6	14.1
USA	4.7	5.5	6.1	6.4	7.1	7.8	8.5	80.3	10.1
France	5.1	4.5	4.7	4.7	5.4	5.3	5.3	3.0	6.3
Russia	2.6	3.0	4.2	5.1	6.2	3.7	4.0	55.7	4.8
The Netherlands	2.4	2.8	3.3	3.2	3.7	3.1	3.4	39.9	4.1
Canada	2.4	2.4	2.7	2.7	2.8	3.0	3.1	30.6	3.7
Belgium	2.4	2.8	2.7	2.8	2.8	3.0	3.1	27.2	3.7
Denmark	2.0	2.0	2.1	2.0	1.9	1.9	1.9	-7.9	2.2
Switzerland	1.9	1.8	1.8	1.8	1.8	1.8	1.9	-0.2	2.2
Total	**60.3**	**63.0**	**68.4**	**73.5**	**77.3**	**78.1**	**83.4**	**38.3**	**1.0**

Source: The author's elaboration on FAOSTAT (2009)

In current value terms (see Table 4), wine imports increased by more than double in the period 2001-2007, from US$13 billion to US$27.3 billion. The UK still remains the market leader (US$5 billion), followed by the UK (US$4.6 billion) and Germany (US$2.7 billion). These three countries account for 45.1 per cent of all the wine imported globally by value, but within the top ten of wine producers it is remarkable that the boom registered in Canada (+152.8 per cent in the six-year period 2001-2007 – US$1.4 billion in 2007), Belgium (+137.9 per cent – US$1.4 billion) and the Netherlands (+119.5 per cent – US$1 billion) (FAOSTAT, 2009).

Tab. 4: Top Ten Importing Countries 2001-2007 by Value (US$ x 1,000,000)

Country	2001	2002	2003	2004	2005	2006	2007	Var. 2001/2007 %	MS %
UK	2,774	3,026	3,535	4,249	4,137	4,139	5,010	13.0	18.3
USA	2,325	2,655	3,409	3,578	3,700	4,148	4,624	98.9	16.9
Germany	1,653	1,675	2,040	2,286	2,202	2,384	2,697	63.1	9.87
Canada	582	611	821	908	1,042	1,264	1,470	152.8	5.38
Belgium	599	740	858	989	1,007	1,085	1,426	137.9	5.22
Japan	779	800	904	1,050	1,007	1,159	1,244	59.6	4.55
The Netherlands	471	582	762	815	876	822	1,033	119.5	3.78
Switzerland	619	632	770	792	762	818	999	61.4	3.66
France	424	434	515	603	595	606	734	73.1	2.69
Denmark	386	400	485	523	550	589	720	86.6	2.64
TOTAL	**13,097**	**14,290**	**17,507**	**19,943**	**20,681**	**22,519**	**27,314**	**100.0**	**100.0**

Source: The author's elaboration on FAOSTAT (2009)

2.2.6. Exports

With regards to global market exports, FAOSTAT (2009) reveals that they account for a total volume of 96 million hectolitres (36 per cent of the total production) in 2007, a value that corresponds to an increase of 14.8 per cent compared to the previous year.

As indicated in Table 5 below, five of the ten biggest wine exporters are located in Europe, accounting for 57 per cent of the global exports. Italy confirms its leadership in the ranking with more than eighteen million hectolitres exported in 2007, followed by two other OW countries, France (fifteen million) and Spain (fourteen million). Chile more than the US is responsible for America's positive performance, as the former country increased by more than a 187 per cent in seven years, reaching a value of almost twelve million hectolitres of wine exported, while the latter grew by only 52.8 per cent (four million hectolitres in 2007). A very positive result is also registered by Australia (eight million – +151.4 per cent in the period 2000-2007) and of South Africa (five million – +194 per cent).

Tab. 5: Top Ten Exporting Countries 2000-2007 by Volume (Million Hectolitres)

Country	2000	2001	2002	2003	2004	2005	2006	2007	Var. 2000/2007 %	MS %
Italy	14.7	15.4	15.2	12.8	14.4	15.5	17.9	18.3	24.5	19.0
France	14.8	15.5	15.4	15.0	14.4	13.7	14.6	14.9	0.7	15.6
Spain	7.8	9.0	9.0	11.8	13.5	13.6	13.4	14.3	84.5	14.9
Chile	4.0	4.9	3.4	3.9	4.7	4.1	4.7	11.6	187.8	12.1
Australia	3.1	3.8	4.7	5.4	6.5	7.0	7.6	7.8	151.4	8.1
South Africa	1.7	1.7	2.1	2.3	2.6	3.5	2.7	5.0	194.0	5.2
USA	2.8	2.8	2.7	3.3	3.9	3.5	3.7	4.2	52.8	4.4
Argentina	0.9	0.9	1.2	1.9	1.6	2.2	3.0	3.7	296.3	3.8
Germany	2.4	2.4	2.4	2.7	2.7	2.8	3.2	3.4	42.7	3.6
Portugal	1.9	1.6	2.1	3.1	3.1	2.5	2.9	3.4	82.3	3.6
Total	**61.0**	**65.8**	**66.6**	**71.1**	**76.7**	**79.2**	**83.6**	**96.0**	**57.3**	**100.0**

Source: The author's elaboration on FAOSTAT (2009)

The situation significantly changes when observed from a value perspective (see Table 6). The most evident phenomenon is the undoubted French leadership. The country holds 32.5 per cent of the global export by value, which corresponds to more than US$9 billion. To understand what this means fully, one must observe the position of Italy, the second most important export country by value. Italy

holds a little more than half of the French exports (US$4.7 billion). Another interesting phenomenon is the entrance of New Zealand in the top ten, to Argentina's detriment, a signal that the value of New Zealand wines outpaces the volumes exported. Conversely, Spain's performance should be noted for its negative results, as it moves from third in the ranking by volume to fifth place in the ranking by value (US$2.4 billion – +112.8 per cent since 2000 to 2007). Therefore, Spain leaves its position to Australia, which significantly grew in the considered period by 175.4 per cent, up to a total of US$2.5 billion. Another interesting trend is that demonstrated by Chile, who expanded considerably (+318.5 per cent) since 2000, reaching a value of export close to that of Australia. Finally, South Africa plays the role of the continental leader of wine exports (US$669 million – +173.2 per cent).

Tab. 6: Top Ten Exporting Countries 2000-2007 by Value (US$ x 1,000,000)

Country	2000	2001	2002	2003	2004	2005	2006	2007	Var. 2000/2007 %	MS %
France	5,044	4,787	5,398	6,563	6,920	7,015	7,821	9,254	83.5	32.6
Italy	2,230	2,289	2,590	2,986	3,550	3,718	4,038	4,742	112.7	16.7
Australia	904	998	1,272	1,539	2,002	2,112	2,083	2,488	175.4	8.8
Chile	577	645	604	663	835	875	960	2,414	318.5	8.5
Spain	1,126	1,138	1,215	1,598	1,836	1,893	1,959	2,396	112.8	8.4
Germany	352	355	395	540	592	671	793	990	181.0	3.5
USA	531	514	527	610	745	619	799	903	70.2	3.2
Portugal	469	436	481	603	661	654	666	818	74.5	2.9
South Africa	245	228	286	419	533	597	527	669	173.2	2.4
New Zealand	90	97	127	158	245	332	397	559	522.5	2.0
Total	**12,705**	**12,671**	**14,206**	**17,318**	**19,765**	**20,655**	**22,424**	**28,402**	**100.0**	**100.0**

Source: The author's elaboration on FAOSTAT (2009)

2.2.7. Competition, Distribution and Future Prospects

According to Euromonitor International (2008a), several markets reached a high level of maturity. In particular, the ten major wine producing countries show an average per capita consumption higher than the global average, while they are forecasted to grow less than the world average. China and Brazil appear to be key opportunity markets, but Russia and Ukraine should be observed with attention. In relation to this, one observes that the market is also very stable in terms of production, as the ranking of the ten biggest wine companies remained identical

in 2006 with respect to 2005, with the exception of *Viña Concha y Toro*, which moved up by one position in 2006, gaining the tenth place. However, the sector is still very fragmented, as the top ten wine companies only account for fifteen per cent of volume sales and *Constellation Brands*, the global wine leader, holds four per cent of volume sales.[2] Another interesting aspect is that the major wine companies are enlarging their portfolio in order to include wines from different regions. This, in turn, implies that wine companies are less reliant on wines of a single region, which may become out-of-fashion for several reasons (such as poor harvest, changes in consumer preferences or specialised magazine reviews). Conversely, the entrance of wine multinationals in many markets threatens national players, as they can hardly compete with the former on at least three strategic marketing elements: quantity supplied, price and distribution.

Distribution, in particular, is a relevant issue for the international wine market as the off-trade channel accounts for about 70 per cent of the total wine sales, a level that remained constant since 2002. For example, in the US, the economic downturn the country has been facing since the end of 2007 pushed consumers to entertain more at home, instead of going out to bars, cafes or restaurants, therefore favouring off-trade sales. The dominion of the retail sector is even more evident in Eastern European countries, such as Belarus, Poland and Russia, where off-trade sales represent more than 90 per cent of the total sales. Despite this, socialisation in bars and restaurants is becoming increasingly popular, thus helping the growth of the on-trade sector in the next few years. However, there are exceptions to this rule. Greece and Spain, for example, represent countries where on-trade sales outpace off-trade sales. This phenomenon should become even more evident in Greece in the next few years, due to a wider number of wine labels available and a growing number of bars and pubs. Conversely, Spain is expected to move towards the off-trade sector, due to a reduction in quantity consumed and more restricting driving regulations.

More specifically, concerning the off-trade sector, Euromonitor International

[2] Although these data are relative to 2006 it is possible to affirm that the situation did not change a great deal in 2007.

(2008a) highlights that supermarket/hypermarkets represent the two most important retail channels, accounting for 43 per cent of the total volume sales in 2007. Specialists hold another nineteen per cent, suffering from the expansion of supermarkets/hypermarkets in countries such as the UK or Thailand, but they still tend to be very strong in countries where sales of alcoholic beverages are restricted (for example, Canada, Finland and Sweden). Convenience stores and discounters registered the fastest growth in the 2002-2007 period, while direct sales still constitute a niche in the retail channel, but they are likely to grow significantly in years to come.

Euromonitor International (2008a) forecasts to 2012 suggest that still light grape wine will be slightly under the average sector growth, which is expected be at +1.6 per cent by volume and at +2.2 per cent by value. However, this category will continue to represent the leading wine segment with a total share by volume of about 80 per cent. However, the best performing products will be sparkling wines. Although they will still be considered a sector niche, experts think that they will outperform the overall market growth, particularly helped in this process by the increasing amount of sparkling wines that will be consumed worldwide. In terms of countries, emerging markets are supposed to show the most dynamic performances in the next three years, while traditional producing and consuming countries should face a more stagnant situation. As partially anticipated before, China and Brazil are seen as key opportunity markets. Both basic and premium still light wines are expected to grow considerably, sustained by a higher per capita income and by the efforts that producers and distributors will make to spread wine culture in China. The Brazilian growth will be mainly driven by still light wines, which will account for almost 40 per cent of total wines sales by volume in 2012, 68 per cent of which will be represented by red wines. Sparkling wines are also expected to increase, although they will still be treated as a niche in the domestic market. However, within mature markets, the US will represent an exception, as wine sales are expected to grow steadily over the forecasted period. Still light grape wines should register a better performance (+25 per cent) than in the 2002-2007 period (+10 per cent). In addition, a supply more in line with

demand will help price stabilisation, while an empowerment of distribution channels, including direct sales, will make wines more ready available to consumers.

2.3. The Italian Scenario

2.3.1. The Italian Vineyard

The vine area has constantly decreased in Italy over the last 20 years. While over one million hectares were under production in the 1980s, only 684,000 hectares were cultivated in 2008. In other terms, in 20 years Italy lost more than the current total area of Lombardy, Puglia and Sicily (Assoenologi, 2009).

However, in the last three years, the trend was more stagnant than before (see Table 7). While the total productive area was about 687,000 hectares in 2006, it only went up by 0.8 per cent in the next two years. The only regions that reported significant changes in the 2006-2008 period are Molise and Le Marche. The former increased by 15.4 per cent from 7,500 hectares registered in 2006, while the latter enlarged by 6.6 per cent up to 20,000 hectares in 2008.

In general, one observes that the two biggest wine regions are located in Southern Italy. Sicily leads the ranking with almost 112,000 hectares under production, followed by Puglia with 106,000 hectares. In Central Italy, Tuscany (60,000 hectares) is the most cultivated vine area, while Veneto (69,000 hectares), Piedmont and Emilia-Romagna (56,000 hectares) are the three main wine poles of Northern Italy.

Tab. 7: Vine Area in Italy 2006-2008 by Region (Hectares)

Region	2006		2007		2008		Var. 2006-2008 (%)	
	Total Area	Productive Area	Total Area	Productive Area	Total Area	Productive Area	Total Area	Productive Area
Piedmont	53119	52377	53123	52421	53683	52980	1.06	1.15
Valle d'Aosta	550	530	703	690	550	539	0.00	1.70
Lombardy	24375	21928	24232	22079	24228	22037	-0.60	0.50
Liguria	1947	1887	1937	1880	1958	1900	0.56	0.69
Trentino-Alto Adige	13648	13062	13930	13567	13917	13552	1.97	3.75
Bolzano/Bozen	5557	5220	5729	5366	5756	5391	3.58	3.28
Trento	8091	7842	8201	8201	8161	8161	0.87	4.07
Veneto	75011	69141	76024	69589	76127	69660	1.49	0.75
Friuli-Venezia Giulia	20523	20431	19048	18998	20242	20189	-1.37	-1.18
Emilia-Romagna	60971	56193	60751	56496	60551	56320	-0.69	0.23
Tuscany	62514	57540	62483	59760	62921	60160	0.65	4.55
Umbria	13830	13301	14033	13526	14225	13710	2.86	3.07
Le Marche	18910	18747	19031	18880	20155	20001	6.58	6.69
Lazio	24486	23863	24400	23813	23704	23132	-3.19	-3.06
Abruzzo	32977	31371	32537	30931	32058	30468	-2.79	-2.88
Molise	7507	7507	8633	8633	8659	8659	15.35	15.35
Campania	27051	26569	27128	26816	27127	26654	0.28	0.32
Puglia	108769	102368	107817	102249	108224	102650	-0.50	0.28
Basilicata	6435	4999	6549	5030	6573	5046	2.14	0.94
Calabria	12547	12262	12609	12413	12758	12649	1.68	3.16
Sicily	116597	113265	114822	111473	115322	111930	-1.09	-1.18
Sardinia	31906	31527	31943	31710	32006	31857	0.31	1.05
Italy	**713673**	**678868**	**711733**	**680954**	**714988**	**684093**	**0.18**	**0.77**

Source: The author's elaboration on ISTAT (2009)

2.3.2. Supply

In terms of production, Italy represents the world leading wine producer in 2008. According to the National Institute of Statistics (ISTAT) (2009), 46.2 million hectolitres were produced in Italy in 2008, four per cent less than the average amount of the last five-year period and 6.8 per cent less than 2006. Concerning the former, the most relevant decrease was registered in Central and Southern Italy (-12 per cent and -4 per cent respectively), while Northern Italy was almost in line with this trend (-1 per cent). Conversely, as for 2007, Italy registered one of the scarcest productions since 1950 (42.6 million hectolitres), with an average decrease of fourteen per cent compared to the previous year, although in some regions of Southern Italy the downturn was even higher, up to -55 per cent (see Table 8).

Tab. 8: Wine Production in Italy 2006-2008 by Region (Thousand Hectolitres)

Region	2006	2007	2008	Var. 2007/2008 (%)
Piedmont	3229.0	2723.9	2479.6	-7.6
Valle d'Aosta	20.0	17.5	17.2	-1.5
Lombardy	1081.0	1099.1	1249.5	13.9
Liguria	77.4	89.1	71.0	-23.3
Trentino-Alto Adige	1158.7	1221.4	1139.6	-7.1
Bolzano/Bozen	347.4	356.4	335.2	-6.1
Trento	811.3	865.0	804.4	-7.5
Veneto	7207.6	7798.5	8118.6	4.4
Friuli-Venezia Giulia	1013.7	1029.5	1013.7	-1.6
Emilia-Romagna	6767.8	6253.2	6340.1	1.3
Tuscany	2978.4	2823.6	2799.9	-0.8
Umbria	1103.4	998.4	843.0	-14.1
Le Marche	1090.1	756.7	871.0	10.5
Lazio	2315.8	1840.0	1797.2	-1.8
Abruzzo	3233.3	2205.5	3054.0	26.2
Molise	375.6	319.3	319.3	0.0
Campania	2019.6	1652.4	1768.1	5.7
Puglia	7396.6	5667.9	6949.1	17.3
Basilicata	245.8	221.2	208.0	-5.4
Calabria	483.8	406.1	444.7	8.0
Sicily	6974.4	4573.9	6180.2	23.0
Sardinia	859.3	862.2	581.5	-32.7
Italy	**49631.3**	**42559.3**	**46245.4**	**7.4**

Source: The author's elaboration on ISTAT (2009)

If one observes 2008 production on a regional basis, one notes that Northern Italy was not destabilised significantly, as a result of the weight that Veneto has on the macro-area considered. This region accounts for 37 per cent of the production of Northern Italy, so the increase (+6 per cent) it had in 2008 over the average quantity produced in the 2002-2007 period, together with the positive performance of Lombardy (+4 per cent over the same time), compensated for the decrease recorded by Piedmont (-15 per cent), Valle d'Aosta (-15 per cent), Liguria (-21 per cent) and Friuli Venezia-Giulia (-10 per cent). As for Central Italy, the production of Tuscany was around 2.8 million hectolitres, almost in line with that of the 2002-2007 period. Conversely, Umbria (-16 per cent), Le Marche (-17 per cent) and Lazio (-22 per cent) decreased in the same period. Finally, 2008 production in Puglia and Sicily helped these two regions to align with the average of the period considered (-1 per cent in Puglia and – +4 per cent in Sicily). This trend also characterised

Abruzzo, which ended 2008 with 3.2 million hectolitres of wine produced (+3 per cent over the 2002-2007 period).

Once the overall wine supply is defined, it is possible to observe the destination of the domestic production in 2008, with regards to the three Italian quality designations, that is (a) table wines, (b) Geographical Indication (GI) and (c) *Denominazione di Origine Controllata* (DOC) and *Denominazione di Origine Controllata e Garantita* (DOCG) wines. First, one has to observe that three million hectolitres out of the 46 million produced in 2008 are destined to musts and concentrated/rectified musts (see Table 9). Of the remaining 43 million, 37 per cent was classified as table wine (+11.7 per cent compared to 2007). Another 63 per cent is almost equally divided between the other two quality designations. GI (29.8 per cent) and DOC and DOCG (32.8 per cent). The production of table wines tends to be mainly relevant for Southern Italian regions, as Sicily, Puglia, Abruzzo and Campania together account for more than 60 per cent of domestic table wines. However, the role played by Emilia Romagna in this segment is also noteworthy, as it alone represents another twelve per cent of the Italian table wine production. Conversely, Northern Italy dominates the production of GI wines, as Emilia-Romagna and Veneto together hold more than 50 per cent of the domestic GI share, although Sicily and Puglia are strong competitors in this segment, accounting for more than 20 per cent of the overall GI production. The situation is more balanced regarding DOC and DOCG wines, as all three main geographical areas are well represented. Piedmont and Emilia-Romagna lead high quality production of Northern Italy, Tuscany controls DOC and DOCG of Central Italy, while Abruzzo is the main pole for Southern Italy (ISTAT, 2009).

Tab. 9: Wine Production in Italy 2008 by Region and by Quality Designation (Thousand Hectolitres)[3]

[3] The total wine produced in 2008 does not correspond to the data shown in Table 8, as grape is not included in Table 9.

Region	2008				Var. 2007-2008 (%)		
	Table Wine	GI	DOC & DOCG	Total	Table Wine	GI	DOC & DOCG
Piedmont	3.6	0.0	21.2	24.8	-20,2	0.0	-6.8
Valle d'Aosta	0.1	0.0	0.1	0.2	-	0.0	-2.6
Lombardy	3.0	2.4	7.1	12.5	22.9	30,2	5.8
Liguria	0.3	0.1	0.3	0.7	-15.9	-23.6	-23.2
Trentino-Alto Adige	0.1	1.6	9.7	11.4	-36.8	-10.6	-5.4
Bolzano/Bozen	0.1	0.2	3.1	3.4	-43.5	-32.8	-1.7
Trento	0.0	1.4	6.6	8.0	-7.0	-7.0	-7.0
Veneto	7.8	48.5	23.2	79.5	-3.0	6.7	-0.4
Friuli-Venezia Giulia	1.6	2.0	6.5	10.1	2.5	-2.3	-2.2
Emilia-Romagna	20.6	23.1	14.9	58.5	4.1	0.4	0.4
Tuscany	3.5	7.2	17.2	27.9	-3.1	1.8	-1.4
Umbria	2.4	3.3	2.8	8.4	-18.9	-18.5	-8.6
Le Marche	1.4	3.9	3.4	8.7	12.1	7.8	26.2
Lazio	5.6	3.1	9.0	17.7	-6.9	-5.0	1.6
Abruzzo	16.8	2.6	10.7	30.0	34.6	96.2	38.7
Molise	1.3	0.0	1.9	3.2	-	-	-
Campania	12.1	2.7	2.9	17.7	3.9	6.6	22.6
Puglia	43.8	13.2	8.4	65.4	25.1	24.9	1.3
Basilicata	1.6	0.2	0.3	2.1	-6.0	-6.0	-6.0
Calabria	3.0	0.6	0.9	4.4	2.3	109.5	1.0
Sicily	32.3	15.6	2.3	50.3	22.4	36.1	50.0
Sardinia	2.9	1.3	1.6	5.8	-34.3	-28.0	-32.8
Italy	**163.8**	**131.3**	**144.4**	**439.5**	**11.7**	**9.1**	**1.4**

Source: The author's elaboration on ISTAT (2009)

Concerning GI and DOC and DOCG production, it is interesting to observe the number of quality designations present in Italy, to understand how wide the range of quality wines supplied to consumers is. By the end of 2008, Italy counts 477 quality designations, seven more than in 2007. The ranking is led by DOC wines with 316 designations, followed by GI (120) and DOCG (four). These designations are mainly geographically located in Northern Italy (40 per cent). Central and Southern Italy share almost equally another 47 per cent, while Sicily and Sardinia hold the remaining thirteen per cent. In particular, the weight of DOC and DOCG designations is higher in Central and Northern Italy, while Southern Italy is stronger on GI. Piedmont is the region with the highest number of denominations (56), followed by Tuscany (49) and Veneto (39) (ISMEA, 2009).

2.3.3. Demand

According to EU estimates (European Union, 2009), the supply/demand ratio in Italy is equal to 1.8 for 2008. If one considers that the domestic production of wine is 46.2 million hectolitres and that the imports of wine by volume in Italy are 1.8 million hectolitres in the same year, one can consider Euromonitor International (2009) data very reliable. According to this data source, the consumption of wine in Italy for 2008 is approximately 27 million hectolitres (see Table 10), of which 25.7 million are represented by still light grape wine. Sparkling wines (Champagne and other sparkling wines) account for another million, while the remaining half a million is generated by fortified wines. This quantity generates a total turnover of US$20 billion, 85 per cent of which is attributed to still light grape wine, while another ten per cent is made by sparkling wines. These consumption levels are 5.5 per cent lower than those registered in 2003, and 0.8 per cent inferior to those of 2007.

Tab. 10: Wine Consumption in Italy 2003-2008 by Volume (Million Hectolitres)

	2003	2004	2005	2006	2007	2008	Var. 2003-2008 (%)	Var. 2007-2008 (%)
Still light grape wine	27.1	26.7	26.6	26.2	25.9	25.7	-5.4	-0.9
° Still red wine	13.0	13.1	13.1	12.9	12.6	12.3	-4.9	-2.4
° Still white wine	12.3	11.8	11.6	11.4	11.4	11.5	-6.2	0.7
° Still rosé wine	1.9	1.9	1.9	1.8	1.8	1.8	-3.2	0.1
Sparkling wine	1.0	1.0	1.0	0.9	0.9	0.9	-8.9	0.8
° Champagne	0.1	0.1	0.0	0.0	0.1	0.1	9.6	7.5
° Other sparkling wine	1.0	0.9	0.9	0.9	0.9	0.9	-9.9	0.3
Fortified wine and vermouth	0.3	0.3	0.3	0.3	0.3	0.3	-4.2	-0.8
° Marsala	0.1	0.1	0.1	0.1	0.1	0.1	1.9	-3.5
° Vermouth	0.2	0.2	0.2	0.2	0.2	0.2	-2.2	0.6
° Other fortified wine and vermouth	0.0	0.0	0.0	0.0	0.0	0.0	-30.8	-5.3
Non-grape wine	0.1	0.1	0.1	0.1	0.1	0.1	-4.2	-1.1
° Fruit and honey-based	0.1	0.1	0.1	0.1	0.1	0.1	2.6	0.0
° Sake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
° Yellow Wine	0.0	0.0	0.0	0.0	0.0	0.0	-33.3	0.0
Total	**28.5**	**28.0**	**27.9**	**27.4**	**27.2**	**27.0**	**-5.5**	**-0.8**

Source: The author's elaboration on Euromonitor International (2009)

However, if one looks at the same situation in value terms (see Table 11), the market grew by 3.2 per cent and 1.9 per cent compared to 2003 and 2007 respectively. In particular, the best performances are those registered by sparkling wines, or, more precisely, by Champagne. The consumption of this product increased by 9.6 per cent by volume and 11.8 per cent by value in the 2003-2008

period. Rosé wines have recorded a good performance in value terms (+13.8 per cent), although they have also suffered in volume terms (-3.2 per cent).

Tab. 11: Wine Consumption in Italy 2003-2008 by Value (US$ x 1,000,000)

	2003	2004	2005	2006	2007	2008	Var. 2003-2008 (%)	Var. 2007-2008 (%)
Still light grape wine	16,998	17,297	17,147	17,133	17,303	17,578	3.4	1.6
° Still red wine	8,146	8,575	8,435	8,369	8,294	8,230	1.0	-0.8
° Still white wine	7,723	7,585	7,551	7,575	7,776	8,062	4.4	3.7
° Still rosé wine	1,129	1,138	1,161	1,189	1,233	1,285	13.8	4.6
Sparkling wine	1,958	1,927	1,838	1,811	1,882	1,964	0.3	4.2
° Champagne	562	552	503	505	570	629	11.8	10.5
° Other sparkling wine	1,395	1,375	1,336	1,307	1,312	1,335	-4.3	1.6
Fortified wine and vermouth	390	413	399	402	410	422	8.2	3.0
° Marsala	64	68	69	70	69	69	7.1	-1.1
° Vermouth	290	310	299	303	314	290	0.3	-8.2
° Other fortified wine and vermouth	36	35	32	329	26	24	-32.8	-5.9
Non-grape wine	63	63	63	62	62	29	-54.5	-53.2
° Fruit and honey-based	47	48	48	62	49	50	6.1	0.6
° Sake	5	5	5	6	6	49	829.7	824.3
° Yellow Wine	11	10	9	8	7	7	-40.3	-6.5
Total	**19,408**	**19,701**	**19,447**	**19,409**	**19,658**	**20,025**	**3.2**	**1.9**

Source: The author's elaboration on Euromonitor International (2009)

Concerning colours, red wines still continue to be the most appreciated category (48 per cent by volume in 2008), followed by white (44 per cent) and rosé wines (eight per cent). However, the gap between red and white wines is reduced in value terms, as the share of these two categories is equal to 48 per cent and 46 per cent respectively. As opposed to what the number of quality designations may suggest, more than 50 per cent of wines consumed in Italy are made by three grape varieties each, for all the three categories under consideration. In terms of red wines, Montepulciano (20 per cent by volume) is the most appreciated grape variety, followed by Barbera (seventeen per cent) and Sangiovese (seventeen per cent). Similarly, in terms of white grape varieties, Tocai (24 per cent), Prosecco (eighteen per cent) and Chardonnay (sixteen per cent) dominate the segment. Finally, the most notable varieties for rosé wines are Montepulciano (24 per cent) and Cerasuolo (20 per cent), although Pinot Noir (eighteen per cent) is constantly increasing in importance (Euromonitor International, 2009).

Another perspective from which one can observe the demand of wine is through a segmentation based on quality designations. According to the *Istituto di Servizi per il Mercato Agricolo Alimentare* (ISMEA) data (2009), 50 per cent by

volume, but only 29 per cent by value of the wine purchased for home consumption is represented by table wines. DOC and DOCG wines constitute the second most important category, which absorbs 25 per cent by volume and 39 per cent by value of the total retail demand. GI wines follow, but not that closely, to DOC and DOCG wines. They account for eighteen per cent and nineteen per cent by volume and value respectively. Compared to 2007, the value of both GI and DOC and DOCG wines increased more than the corresponding values. The former registers a performance of +7.7 per cent and +5.3 per cent, while the growth in volume terms stops at 1.5 per cent and 2.9 per cent respectively. These data highlight that although the weight of DOC and DOCG wines is still dominant, Italian consumers increasingly rely on GI wines, especially as a result of a better value for money ratio. Therefore, despite the global economic crisis that has characterised the second half of 2008, data demonstrates that Italian consumers are still willing to buy quality wines, but they prefer to spend a bit less, orienting their choices towards GI products. On a geographical basis, 45 per cent of all DOC and DOCG wines is consumed in the North-West, followed by Central Italy and Sardinia (24 per cent), the North-East (nineteen per cent) and Southern Italy (twelve per cent). The North-West is also the area in which the consumption of DOC and DOCG wines increased most by volume (+3.6 per cent) in 2008 over the previous year, while Central Italy and Sardinia register the best performances in value terms (+12.8 per cent). Conversely, a decrease in quantity characterises North-Eastern Italy, which is balanced by an increase in value terms, although inferior to the national average. In terms of GI wines, the geographical distribution of this category is similar but not perfectly coincident with that of DOC and DOCG products. North-Western Italy is the area in which GI wines are mostly consumed (34 per cent by volume and 36 per cent by value respectively in 2008) followed by Central Italy and Sardinia (24 per cent by both volume and value), Southern Italy and Sicily (24 per cent and 22 per cent) and the North-East (eighteen per cent in both volume and value terms). In comparison with 2007, Central Italy and Sardinia is the area in which the consumption of GI wines increased most in 2008 (+7.5 per cent by volume and +16.8 per cent by value

respectively), although North Eastern Italy (+5.8 per cent and +12.6 per cent) and Southern Italy and Sicily (+5.3 per cent and +7.3 per cent) also record good performances. Conversely, in North-Western Italy, GI wines decreased by three per cent by volume, but they increase by 0.7 per cent in value terms (ISMEA, 2009).

2.3.4. Supply/Demand Balance

As previously mentioned, Italy produces more wine than it consumes. It is, therefore, easily understandable that Italy needs to export and distil part of the domestic production in order to maintain the trade balance on equilibrium. If one introduces into the production/consumption ratio the quantity of wines imported and exported, the value reduces to 1.08, which is still higher than the equilibrium point, but not by much. Distillation is definitely the measure that helped the domestic wine sector to consume annual wine stocks within one year, although the increase in the quantity of quality wines stocked in the last few years may hide some marketing and commercialisation problems for Italian products. Therefore, if the productive situation will not change in the following years, or if the consumption of Italian wines will not increase at either a domestic or an international level, Italy should still rely on distillation in order to maintain the trade balance on equilibrium. However, the new CMO will progressively reduce funds dedicated to this measure (as will be explained below), thus implying that the current situation cannot be sustained for much longer.

2.3.5. Imports

Italian consumers still largely prefer domestic wines. Imports of wine in Italy represent around eight per cent of the wines consumed in the country. Moreover, according to Euromonitor International (2009), 70 per cent of Italian consumers never purchase foreign wines, as they believe them to be of lower quality than domestic wine. In addition, the most important supermarket and hypermarket chains do not offer a wide range of foreign brands, although they often are cheaper than their domestic counterparts are.

Spain is the leading importing country with 700,000 hectolitres of wine product introduced in Italy in 2008. The US and France follow with 580,000 and 480,000 hectolitres, while the other seven top importers fall behind. In addition, Spain and France are the countries that most significantly increased their presence in Italy since 2006, as they grew by 43.5 per cent and 35.7 per cent respectively (see Table 12).

Tab. 12: Top Ten Importing Countries 2006-2008 by Volume (Thousand Hectolitres)

Country	2006	2007	2008	Var. 2006/2008 (%)
Spain	488.2	543.1	700.5	43.5
USA	526.0	618.9	576.5	9.6
France	355.3	403.5	482.0	35.7
Portugal	29.4	143.9	33.8	15.0
Germany	32.9	30.3	25.4	-22.8
Hungary	12.8	7.7	12.3	-4.0
Chile	11.0	17.4	10.3	-6.7
Austria	7.9	8.7	10.2	29.5
South Africa	4.6	10.8	9.2	102.9
Argentina	10.4	15.1	8.7	-16.4
Rest of the World	66.4	57.3	23.1	-65.2
Total	**1,544.8**	**1,856.6**	**1,892.1**	**22.5**

Source: The author's elaboration on Coeweb (2009)

The situation is different when observed in value terms (see Table 13). Mainly as a result of the imports of Champagne, France undoubtedly is the leading wine importer in Italy with over US$300 million in 2008. The US and Spain, which are second and third in the ranking respectively, reach an import value of US$68 and US$50 million. However, the latter registers the best performances in the 2006-2008 period, with an increase of more than 40 per cent. Table 12 and Table 13 demonstrate that in the last three years, Italian consumers have begun to increasingly appreciating foreign wines, although they remain a niche, which is normally purchased at low price points.

Tab. 13: Top Ten Importing Countries 2006-2008 by Value (US$ x 1,000,000)

Country	2006	2007	2008	Var. 2006/2008 (%)
France	294.7	351.4	325.8	10.6
USA	61.7	74.2	67.9	10.2
Spain	34.5	49.9	49.6	43.6
Portugal	12.6	17.8	10.5	-16.7
Germany	7.6	8.9	8.1	6.9
The Netherlands	5.7	10.9	5.1	-9.7
Chile	2.9	3.3	2.1	-27.2
Austria	2.1	2.2	1.9	-7.3
Switzerland	1.1	2.2	1.8	60.4
Argentina	1.5	0.9	1.4	-4.4
Rest of the World	11.1	11.6	9.0	-19.0
Total	**435.5**	**533.3**	**483.4**	**11.0**

Source: The author's elaboration on Coeweb (2009)

2.3.6. Exports

As opposed to wine imports, exports of Italian products record a negative performance in volume terms, but a positive performance in value terms in the 2006-2008 period (see Table 14 and 15). Concerning the former, the quantity of Italian wine exported has decreased by 4.2 per cent since 2006 to eighteen million hectolitres, generating a corresponding turnover of more than US$5 billion (+11.7 per cent).

Germany still represents the most important market for Italian wines with over 5.5 million hectolitres exported in 2008, a volume greater than that introduced in the UK (2.7 million hectolitres) and in the US (2.5 million). France, the fourth most important country for Italian wines, fell behind with less than one million hectolitres exported in 2008, a level inferior by 35 per cent to that of 2006. However, France is not the only country in which Italian wines register negative performances in the last three years. Germany (-13.2 per cent) and Austria also (-24.6 per cent) show negative results.

Tab. 14: Top Ten Exporting Countries 2006-2008 by Volume (Thousand Hectolitres)

Country	2006	2007	2008	Var. 2006/2008 (%)
Germany	6,558	6,398	5,692	-13.2
UK	2,413	2,748	2,710	12.3
USA	2,354	2,539	2,483	5.5
France	1,498	1,280	973	-35.0
Switzerland	609	626	620	1.8
Canada	560	572	584	4.3
Czech Republic	556	579	559	0.6
The Netherlands	322	352	371	15.3
Austria	463	468	349	-24.6
Belgium	328	333	341	3.8
Rest of the World	3,126	3,475	3,322	6.3
Total	**18,786**	**19,369**	**18,003**	**-4.2**

Source: The author's elaboration on Coeweb (2009)

Germany, the UK and the US are the leading wine destinations in value terms, although their relative importance is different than that by volume. The US and Germany share almost an identical turnover of about US$1.1 billion, while the UK stops at US$700 million. However, the UK market seems to be much healthier than the other two, as wine imports there increased by 26 per cent in the 2006-2008 period, while the German market grew only by 6.1 per cent and the American market decreased (-1.1 per cent). It also interesting to observe the performance of the rest of the world, where the exports expands by 31.1 per cent, mainly due to the growth of the Asian, Russian and Brazilian wine markets.

Tab. 15: Top Ten Exporting Countries 2006-2007 by Value (US$ x 1,000,000)

Country	2006	2007	2008	Var. 2006/2008 (%)
USA	1,202	1,233	1,188	-1.1
Germany	1,074	1,131	1,139	6.1
UK	583	706	734	26.0
Switzerland	293	324	340	15.8
Canada	283	293	301	6.2
Japan	148	149	153	3.4
Denmark	134	145	137	2.3
The Netherlands	107	120	135	26.1
France	125	127	121	-3.1
Sweden	95	109	121	26.7
Rest of the World	753	928	987	31.1
Total	**4,797**	**5,265**	**5,356**	**11.7**

Source: The author's elaboration on Coeweb (2009)

2.3.7. Competition, Distribution and Future Trends

The Italian wine system is still highly fragmented, with relative young wine firms, tied to simple corporate forms and not much in favour of a decentralisation of productive structures. The most recent official data on this issue relates to 2005 and indicates that 95 per cent of Italian wineries are owned by sole traders: a solution that minimises bureaucratic requirements. Capital companies or partnerships only account for 3.7 per cent and 1.5 per cent of the total respectively. The remaining quota is absorbed by cooperatives and consortia, but they play a role of primary importance in terms of both production and sales (Unioncamere, 2007). The three biggest Italian wine companies are cooperatives – *CAVIRO*, *GIV* and *CAVIT* – to whom *Mezzacorona* adds in 2008, thus making *Piero Antinori S.r.L.* the only family winery in the top five of Italian wine companies by turnover (Mediobanca, 2009).

However, company structures have been changing progressively in the last few years, to find a way to access organisational, financial, legal and fiscal solutions better able to face the challenge of internationalisation. If one observes the trend, which characterises the five-year period 2000-2005, one notes that capital companies increased by 60 per cent, while partnerships and other corporate structures, which also includes cooperatives, only grew by ten per cent (Unioncamere, 2007). One example of this phenomenon includes the gradual externalisation of packaging phases (+11.8 per cent), as wineries think that in this way they benefit from economies of scales provided by larger bottling facilities (Euromonitor International, 2009). Another example is related to promotional activities of communitarian wines in Third World countries. National applicative provisions of the Reg. CE. 479/08 impose that these projects must present a minimum total cost, which increases from US$150,000 for the agricultural season 2008-2009, up to US$450,000 for that of 2011-2012; amounts more easily reachable when firms are bigger.

A further example concerns the developments introduced by the Legislative

Decree n. 6/2003, which, together with other fundamental laws made in the last few years, such as the n. 142/2001 or the n. 220/2002, intends to promote the efficiency and the competitiveness of cooperative companies on the market, without watering down its institutional and distinctive characters (Bartoli, 2006). This favours the diffusion on the national territory and the competiveness at an international level.

The number of wineries is decreasing in Italy (-11.4 per cent in 2005 with respect to 2000). More than 75 per cent of the 178,000 wineries active in Italy in 2005 were established between 1990 and 1999, while only 2.8 per cent of them were founded prior to 1990. This is a signal that denotes the difficulty that many wineries have in remaining competitive in the medium- to long-term, therefore obliging wine firms to be able to re-invent themselves continuously (Unioncamere, 2007).

In terms of distribution, 60 per cent of the wine consumed in Italy in 2008 in volume terms was purchased in the off-trade channel, a level that is in line with that registered in 2007 (+0.1 per cent). This quantity generates a total turnover of only a 35 per cent, despite the positive performance recorded in 2008 over the previous year (+3.1 per cent). Conversely, a completely opposite situation characterises the on-trade sector, which accounts for 40 per cent of the volume and 65 per cent of the value consumed in 2008 (-2.1 per cent and a +1.2 per cent respectively over the previous year). These data support the idea that wine is still an essential good for Italian consumers, but, despite the increasing power of supermarkets/hypermarkets and the economic crisis the world has been facing since the second half of 2008, they also prefer to consume high quality wines away from home. However, they are also becoming more price sensitive than they previously were, thus making off-trade sales grow more than on-trade sales. Consequently, supermarkets/hypermarkets shelves constantly improve their supply, mainly with domestic products, and they often benefit from the presence of sommeliers/assistants in dedicated wine isles, and from clearer and simpler promotional displays and activities. Retail wine prices follow this tendency and, although it seems hazardous to affirm that quality prevails over quantity, it is

interesting to observe that purchases are shifting from the low basic fascia (<€1) to the medium basic (€1-€2) (Euromonitor International, 2009).

Forecasts to 2013 demonstrate that still light grape and sparkling wines will register different performances. According to Euromonitor International (2009), the former will remain almost in line with 2008 levels in volume terms (-0.7 per cent), but will improve in value terms (+3.7 per cent). In particular, it is expected that red wines will lose ground (-11.9 per cent and -10.1 per cent in volume and value terms respectively) in favour of white (+8.7 per cent and +16.7 per cent) and rosé (+0.4 per cent and +10.1 per cent) wines, due to better quality products. Conversely, sparkling wines will significantly grow both in volume (+4.6 per cent) and in value (+87 per cent) terms, as they, mainly dry style wines such as Prosecco or Champagne, will benefit from the performances in the on-trade sector, either alone or as the main ingredient of many cocktails. Sparkling rosé should also expand in the next few years, following a trend similar to that observed in other European countries. In line with this phenomenon, fortified wines, such as Marsala, are forecasted to decrease in the next five years (-6.2 per cent and -5.8 per cent), but they will be more than balanced by vermouths (+3.8 per cent and +11.4 per cent), as the latter are widely used for cocktails preparation.

2.4. The New CMO for the European Wine Sector

The analysis of the wine market at both an international and a national level suggests the reasons why the European Commission decided that the time had come to introduce changes to the set of norms that rule the production and trade of European wines within the EU and towards Third Countries. According to the European Commission, EU wine producers are disadvantaged in respect to their competitors, as (a) they are smaller than NW countries, (b) their production often does not meet the needs of large-scale retailers, and (c) EU producers' marketing strategies are not dynamic enough and are subject to excessive constraints. Therefore, the new CMO, brought into action on 29 April 2008, aims at ensuring that EU wine production matches demand, eliminates wasteful public intervention in EU wine markets, and redirects spending to make European wines

more competitive (European Commission, 2009).

From a normative point of view, the new CMO brings a series of changes that will significantly affect the national and the European system of wine enterprises, and, in turn, the typologies of products consumers may purchase. Following the summary scheme proposed by the European Commission (2008), the main modifications introduced by the new CMO are the following:

National financial envelopes: allow Member States to adapt accompanying measures to domestic conditions. These measures include the promotion, innovation, restructuring and modernisation of the productive chain, support of green harvesting, crisis management, and decoupling. Italy decided to activate all these measures, but the last in its National Support Plan (NSP) (MIPAAF, 2008). Conversely, crisis management actions are inserted in the NSP, although without pre-determined capital grants.

Grubbing-up and introduction of the decoupled single farm payment: 175,000 hectares of vine will be grubbed-up in the three-year period 2009-2011. In order to encourage producers to explants their vineyards, the EU allocated more than US$1.5 billion. In addition, a decoupled payment will be given to (a) grape and wine producers according to Member States decisions and (b) to all producers, who grub their vineyards. However, both Italy and France decided to limit this measure exclusively to the premium associated with vineyards grubbing-up.

Phasing-out distillation schemes: crisis distillation will be phased-out over the next four years (2011-2012), with a maximum fund of 20 per cent of the national funding budget for 2009, fifteen per cent for 2010, ten per cent for 2011 and five per cent for 2012.

Rural development measures: a series of actions corresponding to those of art. 28 of the Reg. CE 1698/2005. For three consecutive years from 2010, Italy will allocate a total budget of US$238 million to finance measures, such as installation aids for young farmers, improvement of trade skills, vocational training, support to producers' organisations, funds dedicated to supplementary expenses, income

losses derived from the maintenance of the cultural environment, and pre-retirement.

Planting rights: will be abolished by the end of 2015, but they can be maintained at a national level within 2018.

Chaptalisation and aid for the use of must: these techniques will continue to be authorised, but lower contents for sugar and must will be introduced.

Wine-making practices: the European Commission instead of Member States will be in charge of approving new wine making practices or modifying existing practices, evaluating those admitted by the International Organisation of Vine and Wine (OIV) and adding some of them in those allowed by the EU.

Labelling rules: as opposed to the views of the European Commission, it appears more reasonable to talk about a 'change of the rules' rather than an 'improvement of the rules'. The inspiring principle of the new labelling system is Reg. CE 510/2006, which is the regulation that disciplines the protection of products with a protected designation of origin (PDO) or a protected geographical indication (PGI). In other words, since 1 August 2009, GI, DOC and DOCG were included into PGI (for GI wines) and PDO (for DOC and DOCG), without, however, cancelling the current domestic wine quality pyramid. As for producers, this change means that: (a) the recognition procedure of PDO and PGI, which will be concluded only when the new PDO and PGI wines will be recorded in the Communitarian Register, will be managed through a preliminary national procedure and a subsequent communitarian one; (b) control quality schemes, which will also involve GI wines, must be managed by a third body; (c) GI wines will have a delimited production area; (d) it will no longer be possible to choose what quality designation to produce (within a range of allowed designations) from one year to another;[4] and (e) the level of protection of quality designations

[4] The inclusion of GI and DOC and DOCG designations in Reg. CE 510/2006 will state that a parcel of land cannot host more than one designation, either GI, DOC or DOCG. This represents an historical change for the Italian viticulture of the last 50 years, as it obliges producers to think carefully about what they want to produce in the medium- to long-term. It will no longer be possible to move from one designation to another in case the quality of a certain GI, DOC, or DOCG does not meet minimum quality standards or the demand is inferior to the supply in a given year. It will only be possible to declass a GI, DOC, or DOCG wine to table wine.

will be raised at an international level. An electronic register of all PDO and PGI products, to which an international protection from the World Trade Organization (WTO) is ensured, will be created. This register will be accessible to everyone and published in the Official Journal of the EU. As for consumers, the changes means that the old acronyms, such as GI, DOC and DOCG, people are used to reading on wine labels, will not disappear, although wineries will have the opportunity to use PDO and PGI indications and the respective communitarian logos instead of the traditional ones. Moreover, table wines will be allowed to indicate grape varieties and the vintage year, a strategy already largely used by several NW countries, such as Australia, New Zealand and the US, which are not constrained by the overwhelming number of rules to which European wines are subjected. The opportunity to use grape varieties' names will still be forbidden in all those cases where they may generate confusion in consumers' minds with another GI or DOC and DOCG product (for example, Moscato d'Asti and Sangiovese di Romagna). A further change is related to GI wines, as Member States can allow indicating a geographical area more restricted than the one appearing on the label (sottozona).

2.5. Conclusion

This chapter provided an overview of the wine sector at both an international and a national level, highlighting the reasons that led the EU to establish a new CMO able to increase the competitiveness of the continental wine sector.

First, data demonstrated that the global vine area has not changed a great deal since the beginning of the new millennium. However, while Europe has been constantly decreasing the total vineyard under production, America, Asia and Oceania showed a positive trend. Analogously, both production and consumption recorded a negative performance, only partially balanced by the positive results registered in America and Asia. However, the role of Europe is still fundamental, as seven out of the ten most important consuming countries are European. In terms of import/export fluxes, it is possible to segment countries into three groups: *producers*, where domestic consumption overcomes exports, although the latter are still fundamental for the performances of the sector (for example, France

and Italy); *exporters*, for whom the internal wine consumption is very limited, therefore production is mainly exported (for example, Australia and Chile); and *producers/consumers*, where production levels are closed to consumption (for example, Argentina and the US). In terms of competition, the sector is very fragmented, as the top ten wine companies only account for fifteen per cent of volume sales. However, some of the major firms are enlarging their portfolio, to be less reliant on a region or country that may become out-of-fashion in a short period. Consequently, the entrance of wine multinationals in many markets threatens national players, as they can hardly compete with the former on quantity supplied, price and distribution power. As for this latter point, the off-trade channel accounts for about 70 per cent of global wine sales and this share is forecasted to increase in coming years due to more restricting driving laws and to the lower prices that supermarkets/hypermarkets propose compared to on-trade venues. In the next few years, the market should grow both in volume and value terms. China and Brazil are seen as the key opportunity markets, although the US is expected to develop in the short-term.

The situation in Italy is very similar to that described at a continental level. The national vineyard has been constantly decreasing for the last 20 years, as well as the production and the consumption of wine. However, it is interesting to observe that the number, the volumes and the values of GI and DOC and DOCG wines have been progressively increasing, reaching a total market share (MS) of more than 60 per cent. In line with this, wine consumption in Italy decreased in volume terms, while its value expanded, a sign that Italian consumers are moving towards higher quality products. As opposed to what happened at an international level, the ratio production/consumption is in favour of the former, therefore it is fundamental for domestic products to export them in foreign countries. Conversely, imports of wine are very limited, as Italian consumers continue to prefer domestic products. From a competitive point of view, the Italian wine system is highly fragmented, with relative young wine firms, tied to simple corporate forms and not much in favour of a decentralisation of productive structures. Even so, the sector is slowly moving towards a more rational

management of production phases. As for the previous section, the off-trade sector dominates over the on-trade in volume terms, but the situation radically changes when observed from a value perspective. Future forecasts reveal that still light grape wines will remain almost in line with 2008 levels, while sparkling wines are expected to register a significant growth.

The last section described the main changes introduced by the new CMO. The reform will significantly rationalise the continental wine production, giving an orientation towards the market as has never occurred before. In particular, the new CMO will change the approach to production that characterised Italy in the last 50 years, mainly due to the changes relative to labelling rules and grubbing-up mechanisms. The reform will benefit all those wineries able to manage all the production and distribution phases consistently, understanding the strengths and weaknesses over direct and indirect competitors.

Having described the competitive background of the wine industry upon which this thesis is built, it is important to offer an overview of what previous researchers have found regarding consumers' behaviour and loyalty towards wine consumption. This overview will be provided in the next chapter (Chapter 3).

3. Literature Review

3.1. Introduction

Literature offers two main typologies of data, through which one can investigate people's choices: SP, that is what consumers say they will do, and RP, that is what consumers actually did.

The two kinds of data present different advantages, thus researchers should be able to find the best methodology to use according to the objectives of their studies. In addition, it is also possible to combine the two sources of information, to benefit from both of them. However, the debate is still open on how and whether this opportunity should be further investigated.

With particular regards to the wine marketing literature, one observes that, since its foundation in 1991, due to the seminal article on the 'four Ps' of the wine marketing mix by Anthony Spawton (Spawton, 1991), several authors applied either stated or revealed preferences data in order to understand consumers' behaviour towards this product better. However, although extensively debated in several other sectors, such as health care, environmental economics and transportation, the extent to which the advantages of these two approaches can be considered valid when applied to the analysis of consumer behaviour towards wines was never clarified by the relevant wine marketing literature.

The main advantages and disadvantages derived from the application of SP and RP data will be discussed in this chapter. The main wine marketing literature produced recently using SP and RP data will be discussed. In particular, in terms of SP data, the attention will be focused on the research about product elements able to influence choice and about market segmentation. Regarding RP data, the studies on loyalty and hedonic price analysis appear to be the most generous research fields. The concerns relative to the combination of SP and RP data will be highlighted, explaining the reasons why it was decided to keep them separated in this thesis.

3.2. The Advantages of SP Data

The use of SP data for the measurement of consumer preferences chronologically began before that of RP data (Chege Kimenju et al., 2006) and significantly increased since the mid-1990s in the fields of environmental economics, transport economics and marketing (Louviere, 2000). The idea of using SP data arises from the need to elicit consumers' preferences towards goods, courses of action or, more generally, alternatives that do not belong to real markets, but to constructed, hypothetical ones (Louviere et al., 2006).

In particular, one can identify the following main reasons to support the use of SP data:

1. Explanatory variables do not vary significantly in the marketplace. Although products have been present in the market for many years, they do not tend to vary a great deal in key explanatory variables. There are three main reasons that explain this phenomenon. First, one cause can be attributed to the market structure itself: in situations of perfect competition, products are offered as homogeneous. Second, in markets where intellectual property is not granted, imitation is a better strategic solution than innovation. The third reason is that it is often easier (although not less dangerous) to change prices rather than other elements of the marketing mix in order to differentiate from competitors, with the result that products are often very similar (Hensher et al., 2005). To this, it must be added that analysts should be aware that it is not only important to observe what really differs for consumers, but also what it is perceived to be different. Consequently, data on actual consumers' choices may not always reflect what people really perceived to be the best option for them (Hensher et al., 2005). In addition, databases often do not offer information on all the interesting key variables, so RP data are not always informative enough for the scopes of the analysis (Burge et al., 2005; Louviere et al., 2006; Hensher et al., 2008). Conversely, SP data are more flexible, as researchers may decide what variables to include and what to avoid (Whitehead and Blomquist, 2006), thus also offering better potential for segmentation.

2. SP data allow the collection of more background information on respondents (Burge et al., 2005). In relation to the previous point, researchers may decide to collect as much information as they want, compatibly with the increase in the time required to complete the questionnaire. Conversely, it is more difficult to build or buy a database where this kind of information is present.
3. Organisations need to estimate in advance the impact on consumers of new attributes or features. Although some economists doubt the reliability of SP data in predicting future events, several others have demonstrated that they are able to forecast how the market will react to new products (Adamowicz et al.; 1998; Blaney and Bennet, 2001; Hurd et al., 2004; Kim et al., 2005; Davies and Loomis, 2006; Louviere et al., 2006; Travisi et al., 2006; Whitehead et al., 2007).
4. There is a need to estimate the value of products and services that are not traded in the real market. In some cases, researchers developed metrics and techniques in order to use RP data as proxies of the true underlying dimension of interest towards a public good, such as a forest or a freeway, but in several other cases, such as the estimation of an environmental damage caused by an oil spill, only SP data can be used (Louviere et al., 2006). Analogously, consumers' choices may be explained by the introduction of new product features. If one collects RP data, it is only possible to obtain information on what currently exists in the market. This is not a problem if one considers a closed market, which is at an equilibrium level, without the possibility of new entrants or innovation processes (Hensher et al., 2005). However, the more a market matures, the more recent features replace obsolete ones. How could one estimate the impact of the ABS system in cars with RP data prior to its introduction (Louviere et al., 2006)?
5. SP data are not time consuming or expensive to collect. In comparison to panel data, which require a lot of time to be set up and are generally very expensive to be gathered, SP data can be collected much faster and with a reasonable amount of money (Chege Kimenju et al., 2006; Louviere et al., 2006).

3.3. SP Data in the Wine Marketing Literature

3.3.1. Consumers' Behaviour

Literature on consumer behaviour towards wine with SP data includes a plethora of studies that aim to explain what attributes intervene in the choice process and how demographic factors may influence them. There is not a single 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). In particular, researchers found that the elements able to most influence the choice of consumers are the attractiveness of the label, the packaging, the variety of the grapes, the brand and the region of origin.

From a chronological perspective, in the last ten years, the first two studies that analysed the issue of the importance of labels, are those of Charters et al. (1999) and Rutheford et al. (2000). The former conducted a study on Australian consumers' responses to the information contained on wine bottle back labels finding that: (a) experienced consumers believe that it is difficult to match tastes of wine with back labels information; (b) more than a half of the sample regularly check back labels in making their purchase decision; (c) the information respondents judge as the most useful is the simple descriptors of tastes and smell; and (d) it is very easy to draw general conclusions about the effects of label on socio-demographic variables (Charters et al., 1999). The latter analysed the level of perceived similarity by consumers of two wines with similar trade dress and they found that only one variable among several generates significantly different results over the sample interviewed (Rutheford et al., 2000). Therefore, they concluded that brand loyalty is less likely to occur and switching behaviour could become common in the wine market. After these studies, Thomas and Pickering (2003) provided the first classification of the information contents of wine labels, showing that when these pieces of information are nested together, they are able to generate new important attributes commonly associated with wine labels (Thomas and Pickering, 2003). Subsequently, the attention shifted from the label to the role of packaging in its entirety. It was shown that the attributes associated

with bottles and labels represent the main factor underlying wine packaging perceptions, as consumers 'shop with the 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) came to the same conclusion, but they also added that females find back labels significantly more confusing, hard to read and have too much information, as also affirmed by Hertzberg and Malorgio (2008) in a study on the consumer behaviour of Italian consumers in North-Eastern Italy. In relation to this, Mueller and Lockshin (2008) studied differences in consumers' attribute evaluation of wine labels, through direct verbal BW experiment and an indirect visual discrete choice experiment (DCE) method. They found that with BW all visual extrinsic cues are measured less important than verbal cues and show a smaller variance between respondents. Conversely, a visual DCE reveals a higher average importance and strong consumer preference heterogeneity of wine packaging design attributes and levels (Mueller and Lockshin, 2008). In addition to differences between genders, literature explored divergences towards wine labels between age groups and cultures. Through a series of in-depth interviews and a 7-point Likert scale questionnaire, it was found that authenticity communicated through wine labels is the most important element explaining purchasing behaviour of wine consumers (Lunardo and Guerinet, 2007), while McGarry Wolf (2008) found that both Australian and US consumers consider the appearance of the wine label as an important factor when they purchase wine for a home consumption or for a party, at a bar or at a restaurant. Finally, Orth and Malkewitz (2006) tried to identify empirically-based guidelines to develop strategically valid wine labels.

Closures also enter in the choice process especially for women who consider wax seals an indication of freshness and foil coverings an indication of quality (Barber et al., 2006). The effects of natural cork, synthetic cork and screw cap on purchase intention were also analysed, using a taste survey where participants judged and rated wines before and after knowing information on closures (Marin and Durham, 2007). The authors found that the type of closure only has a limited impact on purchase intentions, while the taste of the wine is the most important

choice variable. However, other studies came to different conclusions. A research on the importance of the type of stopper between French and French-speaking Swiss consumers found through a conjoint analysis (CA) that the closure attribute is the most important choice factor for both populations, with natural cork being by far the most chosen. However, when the attribute price is inserted the type of stopper loses positions in favour to the former, but natural corks still lead the preferences (Lecat-Hec, 2008). These conclusions are similar to those of Bleibaum et al. (2005), who found through a choice based conjoint (CBC) study that American consumers are more influenced by closure types, with natural cork being the most preferred, followed by synthetic. Only those consumers who buy wines for less than US$8 showed that they care more about the price of the wine than the type of closure. The situation is different for Australian consumers, as price is the major choice determinant for them and natural cork is only marginally chosen more than screw caps. More specifically, these consumers used to spending more than AUS$15 on a bottle of wine and also those who had been drinking wine for less than ten years showed to appreciate screw caps at the same extent or even more than cork.

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 NW wines (Lockshin and Hall, 2003) and when consumers select wines in specialist off-licence shops (Felzensztein and Dinnie, 2005). In a study on consumer choice towards wine in the retail sector of twelve countries made through the BW method, authors found that grape variety shows a strong influence in Austria and New Zealand, and has the least influence in China and the UK (Goodman et al., 2008; Goodman, 2009). Similarly, by applying the same methodology and the same questionnaire in the on-premise sector of Australia, France and the UK, Cohen et al. (2009) found that Australian consumers judge grape variety as being of interest, while British and, even more, French consumers do not care about it when choosing a wine in a restaurant.

Concerning the region of origin, Perrouty et al. (2006) applied a DCE and

found that Australian novice consumers give value to the region of origin independently of the type of brand and the price level. Conversely, experts believe that the brand is a perfect moderator of the region of origin equity. Moreover, these researchers showed that as consumers' expertise increases, people tend to give greater importance to a combination of product attributes, instead of evaluating them alone. In a similar study on Australian and Canadian wine consumers, Lockshin and Halstead (2005) observed that the rate about a well and a little known region of origin generates the biggest difference between the two populations, with Australian being very discouraged in buying wines from unknown regions. Further, Lockshin et al. (2006) found that well known wine regions amplify the desirability of small brand more than large brands for Australian consumers. 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'. Balestrini and Gamble (2006) extended the concept of the geographical importance from a regional to a country-level, finding that the country of origin is the element that influences the choices of Chinese consumers the most.

Balestrini and Gamble (2006) also found that consumers highly rely on peer recommendations, as also stated by Wansinsk et al. (2006). The former found that, in order to reduce the risk of making a bad decision, consumers 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 between ten to fifteen per cent and 25 per cent. Moreover, a sommelier may arrange all the intrinsic and extrinsic attributes of a wine and present them in way that helps consumers to make the correct 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 that 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).

3.3.2. Segmentation Techniques

After presenting the most relevant elements that influence people's choices, it is important to remember that attributes generally impact differently on consumers, thus opening the perspective towards segmentation, as a tool through which one reduces the heterogeneity of the sample into a defined numbers of more homogeneous groups. Literature classifies segmentation methodologies in two families: *a priori* and *post-hoc* (Wedel and Kamakura, 2000; Agarwal, 2003; Thiene et al., 2006; Bassi, 2007; Dias and Vermunt, 2007; Mueller et al., 2008).

To the first group belong some techniques (for example, cluster analysis) that tend to allocate individuals in different groups based on criteria that are typically based on the minimisation of differences within each segment and the maximisation of differences between clusters (Magidson and Vermunt, 2002). In order to do this, the socio-demographic characteristics of the sample, such as age, involvement, frequency of consumption and income, interact with choice attributes, or, where it is considered more appropriate, with constant-specific alternatives (Thiene et al., 2006).

For example, attempts were made in order to classify a population according to age/generation groups. Hall et al. (2004) conducted a study in Australia to demonstrate how a basic demographic characteristic like age is a useful variable for segmentation purposes. The study presented six dominant choice factors: 'mood enhancement', 'information and perceived risk', 'wine and food matching', 'product attributes', 'price' and 'value'. By classifying the population in three main segments (eighteen to 24 years old, 25-34 years old and 35+ years old), the authors showed that the older group cares less about risk reduction information and mood enhancement factors, while wine and food matching is less important for the

middle-aged segment. Price and value factors are not much different between the three groups, as well as product attributes factors (Hall et al., 2004). Another study was conducted in California through a survey of 416 respondents. The study identified three age groups (Generation X, Generation Y and Baby Boomers), which all agreed on the fact that Californian wines are those consumed most often. However, while Generation Xers look for premium quality wines and important brands, and prefer French and Italian wines, Generation Yers seek 'good value for money' wines and prefer products from NW countries (New Zealand and Australia more than others). Baby Boomers place themselves in the middle, as they prefer 'good value for money' wines, look for brands, enjoy more French wines and are more concerned about environmental issues associated with wine production (Mc Garry Wolf et al., 2005). A similar study aimed at exploring the potentialities of wine tourism to Generation Yers in Australia and New Zealand, through a quantitative survey made in six local universities, found that a large proportion of respondents think that wine tourism is an appealing tourism activity and many of them had visited a winery. For this reason, the important thing that marketers should remember when targeting Generation Yers is that they should focus on the elements of leisure, travel suggestions and 'value for money' activities linked to wine tourism, rather than on the technical elements of production and cellaring (Treloar et al., 2004).

Another used segmentation criterion is through involvement levels. According to the recent work of Arnaud and Fleuchaus (2009), who conducted an extensive review of segmentation studies in the wine marketing literature, Lockshin et al. (1997) were the first authors who tried to overcome the weak dichotomy between high- and low-involved consumers in the wine marketing literature, which characterised Krugman's construct (Krugman, 1965). The authors used three types of involvement – product, brand decision and purchasing – which were different when they were tested through a factor analysis of 368 questionnaires collected in four types of retail stores: speciality, general, discount and convenience. After this, an internal validation of the data brought the number of questionnaires to 347, which were then segmented through a k-means cluster

analysis, generating five sub-groups (Lockshin et al., 1997). Lockshin et al. (2001) brought forward the research on this topic, by conducting a cross-cultural study in France and Australia. The authors were able to group respondents in homogeneous segments of high- and low-involved consumers, thus showing that involvement works well as a mean of segmentation. Later, Aurifeille et al. (2002) combined the latter two studies. They utilised the above-mentioned types of involvement and clustering techniques proposed by Lockshin et al. (1997) together with a cross-national data collection applied by Lockshin et al. (2001), identifying five homogenous sub-groups of the population, which were very similar between the two nations, Australia and France, thus showing that involvement is a reliable tool for segmentation in a cross-cultural scenario. The next step was made by d'Hauteville (2003), who combined involvement information with demographics and consumption information of a sample of 4,010 French consumers, obtaining five clusters: hedonistic and involved occasional consumers, non-consumers, daily drinkers, uninvolved occasional drinkers, and drinkers by tradition. More recently, Rodriguez Santos et al. (2006) analysed the use of involvement towards appellation of origin as a way to segment Spanish consumers. The authors combined information from two focus groups together with those coming from a quantitative research of more than 400 questionnaires. They found that the cluster of wine consumers, which were created based on three levels of involvements (low, medium and high), did not differ significantly in respect to their socio-demographic variables. Finally, a study on 187 New Zealand regular wine consumers was conducted through a conjoint experiment, which used Sauvignon Blanc as the grape and a series of product stimuli defined by three attributes: presence/absence of region of origin information, price levels, presence/absence of a price discount. The results evidenced that information on the origin of the wine is more important for consumers with high levels of product and purchase involvement than for consumers with low levels. Moreover, consumers with high product involvement care less about price, while those with low purchase involvement place greater attention on price discounts (Hollebeek et al., 2007).

A third segmentation criterion is through the frequency of consumption. The first study that used this type of approach was conducted in the US in 2001 (Moulton et al., 2001). The authors classified the sample in five clusters: 'non drinkers', 'marginal drinkers', 'simple wine drinkers', 'aspirants' and 'connoisseurs'. This study was followed by that of Thomas and Pickering (2003), who interviewed 320 New Zealand consumers and then clustered them in three segments: (a) 'light consumers', used to spending an average of NZ$15 for each of the four bottles they buy every month mostly at supermarkets; (b) 'medium consumers', used to spending an average of NZ$16.87 for each of the 12.7 bottles of wine they most often buy in bottle stores, supermarkets and by direct mail; and (c) 'heavy consumers', mainly represented by males who drink almost a bottle of wine per day and are mainly used to buying wine in bottle stores or directly at wineries at an average price of NZ$17.87. More recently, a CA was conducted in Spain in order to determine the impact that the purchase place and the consumption frequency have on the perceived quality of a wine, which was represented through a set of four attributes: type of wine, designation of origin, price and consumption occasion (Martinez-Carrasco Martinez et al., 2006). The authors identified three segments: sporadic consumers, occasional consumers and regular consumers. In respect to the frequency of consumption, the main differences between segments are that consumers that are more habitual give a lower importance to designations of origin and price, which, in turn, represents a key variable for scarce wine drinkers.

A final segmentation criterion is considered consumers' income. In a literature review on the attributes that stimulate wine consumption at most, Felzensztein et al. (2004) report the results of a few studies by Baritelle and Folwell (1975, 1976a, 1976b, 1977), who conducted a research on 8,000 households in the US, finding that being well educated, having a high income and being geographically concentrated in urban areas were some of the main characteristics of the heaviest wine users. Another study conducted in the US on 334 consumers using a self-administered questionnaire with closed-ended and 5-point Likert-type scale questions, observed that respondents in the US$35,000-US$49,999 income group

significantly use back labels as a source of information more than those respondents in the US$25,000-US$34,999 and over US$$100,000 income group. Moreover, respondents with household income over US$35,000 are significantly more likely to be influenced by the front label brand name as compared to those respondents with household income US$$35,000 of lower (Barber et al., 2006).

However, during the 1990s, another segmentation approach began to be used. It was primarily based on the analysis of consumers' behaviour and, in particular, on the attributes that are thought to be decisive when choosing something. In this case, socio-economic condition are analysed later, as descriptive factors of homogeneous categories (Swait, 2006). This brought to the birth of *post-hoc* segmentation techniques (for example, LCA), in which the division of the sample is not based on known characteristics (such as age and income), but on an analysis of the information collected on an attitudinal scale or other important constructs (Mueller et al., 2008). However, due to the innovativeness of these techniques, not many studies have applied a LCA approach to wine marketing so far. More precisely, it is only possible to cite one study by Scarpa et al. (2006) and another by Mueller et al. (2008). The former investigated preference heterogeneity of wine consumers of the Veneto Region (Italy) towards a well known wine produced in the same region. Prosecco. Scarpa et al. (2006) applied a latent class model based on a series of attitudinal questions, identifying four different classes of individuals with similar response pattern. After this, the segments were described by the socio-demographic characteristics of the individuals belonging to each of them, and a class-specific willingness to pay for the above-mentioned typology of wine was estimated for each group. Conversely, Mueller et al. (2008) first identified through a BW scale that the most important attributes for the choice of a wine by English consumers in an on-premise context are represented by the past experience with a wine and by the desire to match the right wine with the right food. On the contrary, the factors towards which these consumers are indifferent are the alcoholic content of a wine and the opportunity to have it in half-bottles (ml 375). After this, the authors conducted a LCA on BW scores, identifying four segments of the population, distinct with regards to the elements

influencing choices and, to a lesser extent, to socio-demographic variables.

3.4. The Advantages of RP Data

As opposed to SP data, RP data refer to information collected on choices that consumers actually made in the real market. They represent what people actually did (Hensher et al., 2005). It is possible to classify the main advantages of RP data in the following points:

1. RP data represent real world situations. As the total demand associated with any good or service is the sum of the number of times that a certain good or service is chosen in the marketplace, one can collect information on the MS associated with a good or service by observing what a representative sample of the population did (Hensher et al., 2005; Jaeger and Rose, 2008; Ruijs, 2008). Consequently, RP data are valid and reliable. This information is fundamental for the analyst, as reliability refers to the idea that no matter how many times the analysis is repeated, one will obtain the same or similar results up to a sampling error. Face validity refers to the fact that what it is observed to be chosen, it really is what is actually chosen (Mark and Swait, 2004; Hensher et al., 2005; Whitehead et al., 2007).
2. Explanatory variables do not vary a great deal in the marketplace. This was indicated as an advantage of SP data. Actually, this could also be an advantage of RP data, depending on the needs of the analyst. If a researcher is merely interested in understanding what consumers really did, it is not a limit to have a lack of information about what consumer perceive about a good or service, as this information does not influence the analysis. The only fundamental thing is that, whatever is the data source, it contains all the necessary information (Hensher et al., 2005).
3. If the number of alternatives present in the market is limited, RP data do not face problems related to the not-chosen alternative. Researchers often fail to obtain information on this specific alternative, especially in cases where data are collected through a database. However, in case the number of alternatives is limited, it is reasonable to believe that they are always present when

consumers made their purchases, thus overcoming the not-chosen issue (Hensher et al., 2005).

4. RP data allow a better analysis of the loyalty consumers attach to goods or services. RP data are more useful to understand past behaviour (Banerjee and Ware, 2006), thus if one observes consumers' choices over a defined period, one obtains information on the elements that stimulate their repeat purchases the most. Moreover, one can evaluate how much choice elements interact, or correlate or a combination of both, hence providing a more realistic perception about people's choice processes. Finally, it is possible to analyse how loyalty, interaction and correlation effects between choice attributes evolve over time.

3.5. RP Data in the Wine Marketing Literature

The use of RP data in the wine marketing literature mainly involved the study of two topics, hedonic price analysis and loyalty to brands and product attributes, although the former has received much more attention than the latter thus far.

3.5.1. Hedonic Price Analysis

The rationale that hedonic price analysis is built on is that the price of a good is a function of the quality attributes the good contains (Rosen, 1974). The more quality levels of the considered attributes belong to a good, the higher will be its price premium on the market. When one regresses the price of the good on the attributes, one obtains a hedonic function, which estimates the influence of each attribute on the equilibrium price (Schamel, 2002).

In recent years, several studies were conducted using this methodology. The first one was published in 2000 and refers to an estimation of a hedonic model with sensory quality ratings, individual and regional indicators for a white (Chardonnay) and a red (Cabernet Sauvignon) variety, coming from seven regions (Australia, Chile, Napa and Sonoma Valley, Oregon, Sonoma County, South Africa and Washington State). The results showed that price elasticity of sensory quality is higher for white wines than for red wines, thus indicating that consumers are willing to pay more for the former than for the latter. Moreover, regional reputation and individual quality indicators are more important to US

consumers of red wine (Schamel, 2000). In addition, Roberts and Reagans (2001) argued that the producer or regional quality signals improve with the duration of market exposure and consumers' evaluations, through an examination of three parameters: market experience, consumer attention and price-quality relationships for NW wines in the US market. The relationship between quality ratings, independent quality assessment, region of origin's effects and market exposure continued with a work, which utilised the annual publication of California wine winners during the period 1990-2001 (Schamel, 2002). The author derived three main conclusions from his research. The first one is that willingness to pay for premium wines, after correcting for grape varieties and region of origin, is significantly more influenced by independent quality assessment. Second, the reputation of a wine does not significantly impact the willingness to pay for premium prices. Finally, consumers are progressively more able to differentiate between wine regions (Schamel, 2002). These results were confirmed in a study published in 2003 by the same author, who utilised expert rating evaluations from *Wine Spectator* from October 2001 to October 2002, (a database different from the one previously used), thus reinforcing the previously mentioned conclusions (Schamel, 2003).

Other important studies on the relationships between quality and price in the Californian wine market are those of Lima (2006) and Costanigro et al. (2007). The former used the wines who won at least a medal (n=1,884) in nine tasting events that took place in 1995, as indicated in the *California Wine Winners* book. The author ran a hedonic price analysis, treating quality as an exogenous variable to price. The results showed that when the quantity of a wine of a certain quality increases, *ceteris paribus* prices tend to lower. Moreover, it was indicated that the timing of wine shows is fundamental for the influence that the results have on the quality of wine. The *San Francisco Wine Show*, the seventh out of nine wine festivals chronologically, was found to present results that predict at best the quality of wines (Lima, 2006). Conversely, Costanigro et al. (2007) conducted a hedonic price analysis to show that people rate wine attributes differently across products, depending on the price range under consideration. The author considered that

there are break points in the price ranges perceived by consumers, which lead to them being classified in two main categories: consumption wines and collectible wines. The study was conducted on 13,157 observations of ten years of tasting ratings, as reported in *Wine Spectator* for wines coming from California and Washington. The sample was segmented maximising the goodness of fit to the data, resulting in three different break points (US$13, US$21 and US$40). A function was calculated for each sub-sample, showing the correctness of the hypothesis. In particular, differences across the lower priced segments are mostly relatively small, while fine wines have a radically different hedonic function. In addition, the authors stated that two substantially different market segments could be identified: a first group focuses on low price wines and forms its price idea at grocery stores, while a second group focuses on fine wines and forms its price idea at specialised shops and with good wineries.

Moving out from the US context, a study was conducted on Australian wines in the UK market using wine purchasing data relative to 1994 of a selected number of English outlets, as reported in the UK AC Nielsen database, for a total of 1,495 prices. Results showed that Australian Cabernet Sauvignon/Shiraz wines negatively impact consumers' willingness to pay for Australian wines, as well as Cabernet Sauvignon from Coonawarra and New South Wales. Conversely, English wine buyers are positively influenced by Chardonnay and wines from the state of Victoria (Steiner, 2004). Another interesting study was conducted on 537 South African wines available in 2004. Through a hedonic price analysis of five grape varieties, Cabernet Sauvignon, Merlot, Pinotage, Pinot Noir and Shiraz, the authors showed that the quality/price relationship is not linear. Successive increments in wine quality ratings are not equally priced (Prillaid and Van Regensburg, 2006). Research was also recently conducted in Italy, aimed at evaluating the value of the grape Tocai for local consumers. The researchers directly registered wine attributes and prices on a selected number of points of sales of Veneto and Friuli Venezia Giulia, the two most important Italian regions for the production of this grape. In particular, authors registered all the references, which reported the name Tocai on the label and all those indicating Bianco Veneto

IGT.[5] Results showed that the indication of the grape on the label significantly influences the evaluation that consumers give to the wine, taking aside all other possible product attributes (DeFrancesco and Trestini, 2008).

3.5.2. Loyalty Analysis

In terms of the analysis of loyalty, all the literature is very recent and relates to Australian wine consumers. The first article was published by Jarvis and Rungie (2002), using actual purchases of wine as inputs for a CA. The results showed that brands are more important than the region of origin, an outcome that may appear strange compared to what it is normally seen in CA applied through SP data. However, the authors affirmed that the value attached to the region of origin might be overestimated when evaluated with SP data, as individuals' involvement levels may generate biased estimations. However, these results represent an exception in the literature of loyalty towards wine, as they were never confirmed in following studies. In addition, it is also important to note that this study constitutes the only example of the application of a CA to real data for the estimation of loyalty levels, as this methodology was soon substituted by the DMD model, already widely known and appreciated in the marketing literature, but only recently applied to wine marketing. The first paper on wine loyalty using RP data was published in 2003 (Jarvis et al., 2003). The study utilised a database of 38,514 purchases, made by a sample of 1,092 Australian consumers in the year 1999-2000. After introducing typical performance measures, such as penetration, purchase frequency and share of category requirements, known as Brand Performance Measures, which were generally used to evaluate the loyalty a product/brand receives from consumers, the authors presented two statistical distributions, the BBD and the DMD, which allow observing two important phenomena related to brand/product loyalty: Brand Positioning and the Dirichlet Model.[6] Concerning the former, it was shown that while niche positioning typically occurs very rarely in the market, it is not so in the wine industry, where small wine brands can show excessively high purchase frequencies among their

[5] Tocai grapes could be used for the production of several DOC or GI wines.
[6] The detailed discussion of these phenomena will be presented in Chapter 4.

smaller customer base. In addition, the Dirichlet Model demonstrates that Australians are indeed loyal to brands, but a well known region of origin stimulates loyalty even more than brands do (Jarvis et al., 2003).

These concepts were deepened in the following years, due to the research of Jarvis and Goodman (2005) and Jarvis et al. (2006, 2007a, 2007b). The former analysed RP data on the Australian wine market over a population of 4,000 wine shoppers in a twelve-month period. By applying the same methodology used by Jarvis et al. (2003) to the analysis of loyalty towards price ranges, it was shown that niche and change-of-pace situations are prevalent in the wine market and that wines below AUS$7.50 and above AUS$17.50 stimulate the highest loyalty levels. Consequently, small wineries should aim at targeting them. The latter (Jarvis et al., 2006) applied the BBD and the DMD to the same database used by Jarvis and Goodman (2005), confirming that the two above-mentioned price ranges are those that generate the highest loyalty, and showing that Australian consumers are very loyal to famous brands, while small brands face difficulties in catching consumers' favours. The analysis was then extended to other product attributes, such as red and white grape varieties and red and white wine regions of origin (Jarvis et al., 2007a). For the first time, it was demonstrated that brands in the wine sector stimulate loyalty less than other product characteristics, such as price, grape variety and region of origin. In particular, it was noted that price is the attribute Australian consumers are more loyal to, followed by white grape varieties, red grape varieties, red wine region of origin and white wine region of origin. Brands generate the lowest loyalty level, thus suggesting to marketing practitioners that a rethink in the way in which wine brands are communicated is more than necessary (Jarvis et al., 2007a). Finally, a specific study was conducted on consumers of red wine. In contrast to general Australian wine buyers, red wine shoppers are not loyal to the AUS$<7.50 wines at all, but they indeed are to the AUS$>17.50 price range, followed by the AUS$12.50-AUS$17.49 and the AUS$7.50-AUS$12.49 categories. In addition, red wine buyers are very loyal to the red wines from famous Australian wine regions, then to the general Australian state origin and, lastly, to unknown wine regions. In terms of grape varieties,

Shiraz is the grape consumers attach the highest loyalty to, followed by Cabernet Sauvignon/Shiraz and Cabernet Sauvignon. Conversely, all the other grape varieties fall behind (Jarvis et al., 2007b).

3.6. Is it Useful to Combine SP and RP Data?

The previous paragraphs reveal that the advantages of SP data are the disadvantages of RP data and *vice versa*. Therefore, a question arises on the possibility and the opportunity to combine these two data sources in order to benefit from both of them (Hensher, 1994).

The answer to the first question is definitely 'yes': it is possible to combine SP and RP data through a process called data enrichment.[7] According to Whitehead et al. (2007), who provided an extensive review on this topic, revealed and stated preferences data reciprocally reinforce each other. For example, RP data can be enhanced by SP data when (a) an analysis of hypothetical markets is needed, (b) it is important to observe preferences not only of actual consumers, but of the entire population, and (c) variables are highly collinear between each others. Conversely, SP data benefit from RP information when it is important to have a clear understanding of individual and market constraints, which limit consumer behaviour. Moreover, a combination of SP and RP data is useful to test the validity of each of the two for the specific kind of analysis one wishes to conduct (Whitehead et al., 2007). The combination of SP and RP data is seen as an interesting solution because, in order to implement it, choice sets and respondents for each data type are not required to be the same (Hensher et al., 2005). Concerning the first point, it is possible to estimate the value of an alternative, which is not present in one of the two data sets, if the sources of information are combined. For example, if an alternative is present in the RP data set, but not in the SP data set, it is still possible to estimate the preference function for that alternative, based on RP values, and *vice versa*. Analogously, sampling issues are

[7] This process was originally proposed by Morikawa (1989) and subsequently illustrated by Ben-Akiwa and Morikawa (1990), Ben-Akiva et al. (1992), Bradley and Daly (1994) and others. It is not a purpose of this thesis to provide the mathematical, statistical and technical steps of the data enrichment paradigm. See Louviere et al. (2006), Chapter 8, for a detailed discussion on this topic.

not problematic, as data pooling techniques help the analyst in reducing the size of surveys, which often are too long for one individual to complete.

Several authors offered examples on the advantages of combining SP and RP data in several research fields, such as environmental economics (Adamowicz et al., 1994; Axsen, 2006; Bilgic et al., 2008), recreational activities (Alberini et al., 2006; Boxall and Englin, 2008; Landy and Liu, 2009), transportation (Randall, 1994; Ahern and Tapley, 2005; Cherchi and De Dios Ortuzar, 2006; Little et al., 2006), household decisions (Earnhart, 2002; Dosman and Adamowicz, 2006), and health issues (Burge et al., 2005; Onwujekwe et al., 2006).

In contrast to the first question, doubts arise over the opportunity to combine SP and RP data. If RP and SP parameters are significantly different, then the two sources of data cannot be merged without biasing the parameters of one of the two data sources. It is, of course, possible to test whether the parameters across the two data sources are equal (Whitehead et al., 2007), but even when the analyst carefully looks at the design, the layout and the framework context and the quality of RP data, it may happen that the hypothesis does not hold in some empirical contexts (Louviere et al., 2006). In addition, another issue arises around the possibility to pool data collected from different samples. As previously mentioned, it is possible to use information coming from different consumers, but they should still be treated as panel data. However, this consideration is often ignored for two reasons: (a) equality of parameters concerns; and (b) limited computing power (Whitehead et al., 2007). A last issue is that the SP and RP models the analyst wants to combine should be carefully evaluated, as data pooling does not always result to be straightforward for any possible SP-RP combination (Ahern and Tapley, 2006; Whitehead et al., 2007).

However, this does not mean that it is not useful to look at both SP and RP data separately, as one can still provide some information that the other is not able to give. Therefore, it is recommended to collect both sets of data, trying to derive comprehensive conclusions on consumers' preferences through a detailed analysis of what people say they will do and what they actually did. (Hensher et

al., 2005).

3.7. Conclusion

In this chapter, the main advantages of SP data were presented. They mainly relate to the ability of (a) being more flexible, (b) offering more information on consumers' background, (c) forecasting future events, (d) being cheaper to collect, (e) analysing a wider spectrum of choice alternatives, (f) offering better potential for segmentation. Conversely, RP data have their strength in (a) representing real world situations, (b) showing consumers preferences under real actual constraints, (c) being valid and reliable, (d) allowing an analysis about loyalty towards brand or product attributes, the nature of the relationships between attributes and levels and the way in which loyalty, interaction and/or correlation effects evolve over time.

The main relevant wine marketing literature recently published, using SP and RP data, was presented. With regards to the former, it was shown that the main elements influencing choice behaviour towards wine are: (a) labels, closures and packaging; (b) brands; (c) regions of origin; (d) grape varieties; (e) peer recommendations; (f) waiter recommendations; (g) the alcoholic content of a wine; (h) reading about a wine; (i) food-wine pairing suggestions; and (j) wine tasting portions. However, these elements impact differently on the population, thus offering potentials for market segmentation. In particular, the main socio-demographic segmentation criteria were identified in: (a) geographical area of provenance; (b) age; (c) involvement levels; (d) frequency of consumption; and (e) income. Concerning the latter, most of the attention dedicated thus far to the relationships between quality and prices, through a series of hedonic price analysis applied mainly, but not exclusively to, the US wine sector. Nevertheless, it was also shown that a more recent and, therefore, more interesting field of research is represented by the analysis of loyalty towards brands and product attributes. These researchers exclusively concentrated on Australian wine consumers, showing that product attributes, such as region of origin, grape variety and price are able to stimulate loyalty more than brands.

Finally, the reasons why it considered preferable to keep SP and RP data separated for the analysis of consumer behaviour was discussed. Further, it was explained that an observation of both kinds of information helps the analyst in developing a more comprehensive understanding of consumer preferences and market phenomena.

Therefore, in line with what the literature has suggested, it is now important to find and describe the methodologies able to identify separately the extent to which the advantages of both SP and RP data can be considered valid when applied to the analysis of consumers' behaviour and loyalty towards wine. Simultaneously, these methodologies should be able to explain which elements influence consumers' choices in a pre- and post-purchase phase, thus providing answers to the core questions proposed by this thesis. Chapter 4 will help answer these questions.

4. Methodology

4.1. Introduction

In this chapter, the main characteristics of the methodologies able to identify the extent to which the advantages of SP and RP data can be considered valid when applied to the analysis of consumers' behaviour and loyalty towards wine will be presented.

The first part of the chapter is dedicated to the methods relative to the use of SP data. In particular, the characteristics and the advantages of Discrete Choice Analysis (DCA) compared to some of the most important preferences' elicitation techniques belonging to the CA paradigm, such as rating scales, ranking scales, constant-sum scales and the method of paired comparison, will be highlighted. Subsequently, the BW method will be presented as a recent evolution in the family of DCA, showing the key features, potentialities and the most salient application in the wine marketing field. After this, two well known segmentation techniques – Analysis of Variance (ANOVA) and LCA – belonging to the *a priori* and *post-hoc* segmentation paradigms respectively will be described. The two segmentation approaches are based on different assumptions and are performed in different ways. Therefore, one can hypothesise that they produce different outcomes.

The second part of the chapter will describe the methodology used for the analysis of RP data in relation to the advantages presented in the previous chapters. The polarization index (φ) and the phenomena derived from it, which are Brand Positioning and the Dirichlet Model, will introduce this section. Then, a new statistical distribution, called QMD, able to measure how much product attributes/brands interact or correlate, will be described. It is important to remember that when these two methods are applied to the same population of consumers purchasing the same products/brands over two different interval periods, it is possible to measure how much loyalty, interaction and correlation effects evolve over time.

4.2. Methodology for SP Data

4.2.1. CA

With the term CA, literature defines a very wide array of methods for the elicitation of consumers' preferences. The rationale behind CA is that decision makers have to make choices between options that simultaneously vary across two or more attributes, thus finding a way to trade off the possibility that option X is better than Y on a certain attribute, while Y is better than X on a different attribute, and various extensions of these conflicts (Green et al., 2001). In order to understand this concept further, assume that a winery wants to introduce a new wine in the market. The number of elements it must take into consideration are many, for example, grape variety, use of a designation of origin, packaging format and price. In addition, each of these present multiple alternatives. For the choice of the grape variety alone, for example, a winery potentially has more than several dozen of varieties to choose from. Using different data collection techniques, such as focus groups, in-depth interviews and questionnaires, a winery may test what the best option for consumers is, by letting them evaluating a certain number of product combinations, the characteristics of which are determined through an appropriate combinatory choice design.

According to Louviere (2000), all CA methods share some similarities:

- The researcher identifies *a priori* the technique or approach through which he/she questions respondents on the attributes able to drive most their preferences. However, there is not a standard way to do this and, what is more, there is no consensus between academics about how to solve this issue.
- After having identified the attributes, their range of variation must be assigned, that is, the researcher must define a certain number of levels for each attribute. Again, there is a little consensus on the way this should be done.
- After this, one has to construct the combinations to describe the possible alternatives, which are generally based on orthogonal or near orthogonal arrays of attribute levels combinations. It often happens that applications involve combinations of low statistical resolution, which are created through an orthogonal design. Unfortunately, the latter does not help a great deal in

understanding consumer valuations as it requires that preferences or utility functions are assumed to be strictly additive. However, this cannot be tested, thus generating very biased estimates if the assumption does not hold true.

- Once the experiment is designed, the analyst should identify some forms of preference elicitation based on the design used. Again, there is still no consensus on the way this should be done, although several opinions exist on this issue. However, it is increasingly more widespread the awareness that individuals are able to manage much larger and complex tasks than what is generally believed by academics. Despite this, it is yet to be clarified what the optimal size or how complex the design should be. Therefore, it is still complicated to define the exact point at which the total efficiency (for example, design efficiency and respondent efficiency) declines.
- Another issue relates to sample selection and data collection. Some techniques, such as telephone interviews, are difficult to implement due to the nature of CA.
- A final consideration concerns data analysis. There is a wide range of practices that may be adopted according to researchers' analytical preferences and predisposition. In relation to this, the increasing computational capabilities of computers expanded the quality and quantity of the analysis that could be conducted.

4.2.1.1. Attributes' Importance Elicitation Techniques in CA

The analysis of consumer preferences through quantitative methods can be conducted in a variety of ways: rating based models, ranking tasks, constant sum tasks, or the method of paired comparisons.

With the **rating technique,** respondents rate each alternative on either a metric or a semantic scale. These scales are easy to present to respondents (Alwin and Krosnick, 1985), are not expensive to collect (Hofmans et al., 2007), and they can be gathered through mail surveys or self-administered questionnaires (Darmon and Rouzies, 1999), hence not causing any linear dependency problem inherent in

ranking scales (Alwin and Krosnick, 1985). Moreover, rating tasks require less time to respond than ranking ones (Munson and McIntyre, 1979) and they give more information on consumer preferences, together with preference ordering of the options proposed (Bunch et al., 1996; Whelan and Tapley, 2006; Hofmans et al., 2007).

However, rating scales presents several potential drawbacks. As giving a rate to a certain alternatives requires less effort, the quality of the data may be reduced (Alwin and Krosnick, 1985). Cultural differences influence the way people give ratings to items (Alwin and Krosnick, 1985; van Herk et al., 2004; Bingenheimer et al., 2005; Usunier and Lee, 2005; Diamantopoulos et al., 2006; Dolnicar and Grün, 2007). Hence, when one wants to compare data collected in different cultural settings, as in this thesis, one risks having biased estimates of respondents' behaviour. Moreover, some countries such as Italy or the US use the extremes in the scale more, when compared to Japanese, Australian or French people (Usunier and Lee, 2005; Lee et al., 2007). Consequently, in some countries, one risks having higher rating means than in others, although the importance people place on the same item is identical. 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 (Weng and Cheng, 2000; Bednarz, 2006; Hofmans et al., 2007). Friedman et al. (1994) demonstrated that people express higher agreement when this rate is located in the left-hand side of the questionnaire. Hofmans et al. (2007) found that people adopt one of the two following response strategy: extreme null point strategy or middle null point strategy. The former means that respondents report perceived intensities that monotonically increase from 'fully disagree' to 'fully agree', while the latter implies that the highest perceived intensity coincides with the extreme qualifiers of the scale and the lowest is registered in the middle. Finally, how could one 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).

Conversely, when using **ranking scales**, the researcher fixes an origin within which respondents give a judgment (Darmon and Rouzies, 1999) to each alternative from the 'most preferred' to the 'least preferred'. Hence, the ranking technique provides the most appropriate conceptual mapping to conceptions of values (Alwin and Krosnick, 1985). In this sense, Whelan and Tapley (2006) stated that ranking scales offer an advantage even in comparison to a DCE, as people may express their preferences not only on the most preferred alternative, but also on all the options proposed to the respondent. However, the same authors also reported that several studies show that ranking data can be unreliable after the fourth-ranked option as respondents tire or find the experiment increasingly difficult. Alwin and Krosnick (1985) indicated that other typical limitations of ranking techniques are that (a) they are often difficult for respondents, as they demand considerable cognitive sophistication and concentration; (b) they are time-consuming and may therefore be more expensive to administer; (c) they are difficult to conduct through telephone surveys; and (d) there is often the case that the set of ranked items are linearly dependent, hence it is not always possible to employ conventional statistical techniques in the analysis of the latent content of ranked preference data.

When adopting the **constant-sum method**, respondents are required to divide 100 points among all the alternatives, with the most important ones receiving the greatest number of points. Any number between zero and 100 can be used, and it is possible to assign zero points to the least important alternatives (Fontenot et al., 2007). The main advantage of the constant-sum method, as opposed, in particular, to the rating scale, is that it is able to capture smaller differences in consumer preferences and, therefore, it shows even small changes in respondents' judgments (Malhotra and Birks, 2002). Hamilton-Gibbs et al. (1992), Lee et al. (2000) and Matzler and Sauerwein (2002) agreed on this consideration, but they also stress that the greater the number of attributes included, the more difficult it becomes to assign a given sum of points, thus reducing the ability to discriminate. As a result, respondents may start using only a subset of all the alternatives presented, which in turn implies that the latter are not seen as completely

independent, hence generating spurious correlations sometimes (Lee et al., 2000).

By using the **method of paired comparisons**, respondents are asked to choose the preferred option for pairs of stimuli, whose number varies according to the number of alternatives chosen in the study. These factors are then ranked according to the number of times each factor is preferred over its counterparts (Gaiva Kappia et al., 2007). According to Böckenholt (2006), given that this task imposes minimal constraints on response behaviour, it can be used in a wide range of applications. Moreover, the method of paired comparisons represents the easiest way available for eliciting comparative judgments as it utilises people inherent familiarity with and ability to make comparisons (Brown et al., 2008; 2009). Marrin et al. (2004) wondered whether the method of paired comparison guarantees respondents to be consistent in their choices. In solving this issue, Brown et al. (2008; 2009) stated that another advantage of this method is the fact that it provides information on the reliability of a respondent's choices, as the internal reliability of each respondent's set of choices can be measured. Moreover, the same authors suggested that another benefit in using the method is that it generates an ordinal relation among the items. Consequently, although the theoretical support is still lacking, it is often accepted that ordinal scales also have interval properties for the mean scores, therefore allowing for the use of segmentation techniques, such as ANOVA and LCA. Beyond these advantages, the method presents one major limitation. According to Böckenholt (2006), it is not possible to recover the origin of the stimulus evaluations if based on pairwise judgments. One stimulus may be judged more positively than another, but this does not allow drawing conclusions about whether either of the stimuli are attractive or unattractive.

4.2.1.2. Limitations of CA

The CA characteristics outlined above could be summarised in one main consideration, which also represents the major limitation for this choice paradigm. CA is a pure mathematical approach and deals with the behaviour of numbers not the behaviour of humans. Using different elicitation techniques, the analyst

determines the degree of preference for the attributes' levels. The latter, in case these numbers satisfy certain axiomatic and/or statistical conditions, are then summed in an additive way, thus generating the overall preference for the selected alternative. Unfortunately, the total value of an alternative is calculated 'as if' individuals evaluate one option at a time, although this is not often true. Every person tends to evaluate several alternatives simultaneously; therefore, the overall value of each option may vary according to that of the others. This, in turn, influences the preferences towards the constituting elements of each alternative. In addition, the presence/absence or different degrees of a certain level may increase or decrease the preference towards other attributes' levels. Moreover, the timing of choices (choose now *versus* choose later), the quantity chosen and the frequency of choice may influence the value of these levels (Louviere, 2000).

4.2.2. DCA

In contrast to CA, DCA is based on a sound and well tested behavioural theory of decision making and choice behaviour: the Random Utility Theory (RUT). The theory was originally developed by Thurstone in 1927 (Thurstone, 1927), but it was brought to success by McFadden (1974, 2000), who extended Thurstone's original idea based on comparisons of pairs of options to comparisons and options among multiple alternatives (Louviere, 2000).

RUT assumes that the choice between the alternatives it is driven by an underlying, latent construct called 'utility'. This can be broken down into two components: a deterministic and a stochastic component. The former is a function of (a) the characteristics of the alternatives, (b) the characteristics of the individuals and (c) a set of unknown parameters, while the second corresponds to the error term (Alberini et al., 2006). This can be more formally written as follows:

$$U_{in} = V_{in} + \varepsilon_{in} \,, \forall i \in C_n \qquad (1)$$

where U_{in} is the total utility of alternative i for decision maker n, V_{in} is the systematic component of utility, ε_{in} is the stochastic component (error) of utility (theoretically known to the decision maker, but not to the analyst), and C_n is the

choice set of *J* objects (Swait, 2006). This additive decomposition, though certainly not unique, is flexible enough for the purposes of this thesis.

The probabilities of choice can be derived from (1), once the distributions for the ε are specified. If we take for instance the binary case ($C=\{i,j\}$), the probability of individual *n* choosing *i* is given by:

$$P_{in} = Pr\left(U_{in} > U_{jn}\right) = Pr\left(V_{in} + \varepsilon_{in} > V_{jn} + \varepsilon_{jn}\right) = Pr\left(\varepsilon_{jn} - \varepsilon_{in} < V_{in} - V_{jn}\right) = Pr\left(\varepsilon^*_{i:j,n} < V_{in} - V_{jn}\right) \qquad (2)$$

Consequently, the probability of choosing *i* from *C* is determined by the relative systematic attractiveness of *i versus j*, as well as by a new random variable $\varepsilon^*_{i:j,n}$, defined as the difference in stochastic utility between the alternatives. From the distribution functions of the individual error terms, it is possible to derive the distribution function of $\varepsilon^*_{i:j,n}$, and from that the specific model form for the choice probability (Swait, 2006). When generalised to the case of three or more alternatives, one obtains the famous Multinomial Logit Model (MNL) model, as shown by Ben-Akiva and Lerman (1985):

$$P_{in} = \frac{exp(\mu V_{in})}{\sum_{j \in C} exp(\mu V_{jn})} \qquad (3)$$

where V_{in} and V_{jn} are described as above.

As with all statistical models, some assumptions must be made. The first relates to the distribution of the *errors* in the model. In the MNL model, it is assumed that the errors are independent and have identical variances, a concept that goes under the famous acronym IID (independent and identically distributed) (Bakken and Frazier, 2006). Another fundamental assumption is that of the independence of irrelevant alternatives (IIA). This property implies that the relative choice probabilities between any two alternatives of the choice set *J* are not affected by the inclusion or the exclusion of other alternatives in the same set. Unfortunately, this assumption does not often hold true, as it frequently happens that there are unobserved correlations between the choice alternatives. In other words, it sounds reasonable that someone who prefers Italian wines is more likely to choose other wines coming from this country over French wines, so that if a

new Italian brand is introduced in the market it will draw share from other Italian wines rather than from French ones. However, because of the IIA, the MNL model predicts that a new Italian brand will draw shares from each brand in proportion to the current MS, an event that may very rarely happen (Bakken and Frazier, 2006). A third assumption relates to the systematic component of the utility function. Several authors demonstrated that when the systematic utility function is linear-in-parameters ($V_{in}=\beta X_{in}$, where β is the unknown taste vector and X_{in} is a conformable vector of attributes) it is not possible to separately identify the impact of the scale factor from that of tastes; one can only identify the product ($\mu\beta$). In the basic MNL model, it is assumed that $\mu=1$, but in more advanced evolutions of it, this is not true anymore (Swait, 2006).

4.2.2.1. The BW Method

A recent evolution in the family of DCA models is represented by the BW method (Marley and Louviere, 2005), also often called 'maximum difference scaling'. The BW 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 – as indicated in Figure 4 (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 (BIBD) (Louviere, 2006).

Fig. 4: Example of a BW Choice Set

Least		Feature	Most
☐	1	Alcohol level below 13%	☐
☐	2	Waiter recommended	☐
☐	3	I have had the wine before and liked it	☐
☐	4	Region	☐

The relative choice probability of a given pair of BEST and WORST choice is assumed to be proportional to the distance between the two chosen attributes on a latent utility scale. The cognitive process, seen from a statistical perspective, is equivalent to identifying every possible pair of attributes available, calculating the difference in utility between the two attribute levels in every pair (this consists of a fixed component plus a random component), and finally choosing the pair that maximises the difference in utility between them (Flynn et al., 2007). Thus, these distances between attribute levels are modelled differently (Cohen, 2003; Cohen and Neira, 2003).

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 is chosen as the most important (BEST). In order to standardise the result, this number is divided by the number of respondents and by the frequency each attribute appears in the choice sets, as indicated in equation 4.

$$BW\ Score = \frac{Count_{Best} - Count_{Worst}}{n} \quad (4)$$

where

$Count_{Best}$=total number of times an attribute was MOST important

$Count_{Worst}$=total number of times an attribute was LEAST important

n=number of questionnaires completed

The standardisation allows different groups of respondents to be comparable. This way of calculating the BW score is considered less theoretically precise than the estimation obtained by fitting a MNL model to the data (Finn and Louviere, 1992). However, it was demonstrated that the outcomes of the BW method prove to be about 95 per cent as accurate as when using a MNL model, which models the same data (Auger et al., 2007). Moreover, this basic way of calculating the score is definitely easier to implement even for those who do not have a strong mathematical background or cannot access software that is more sophisticated, though easily commercially available (Bednarz, 2006).

4.2.2.1.1. The Advantages of the BW Method

The benefits of the BW method can be summarised in the following points.

- From a conceptual perspective, its main advantage is that it lays its theoretical foundations in a well tested theory of human decision making, the RUT, as the method represents a recent evolution in the family of DCA models (Bednarz, 2006).
- Second, the method can be considered flexible, as it offers the possibility to include a reasonable number of choice attributes, combined according to a proper choice set design (Cohen, 2003).
- This flexibility guarantees this method a higher forecasting ability, as it is able to give comments and suggestions on potential drivers of consumers' choices.
- The BW method has higher cost efficiency than any other RP methods due to the multiple number of choice sets per respondent.
- BW overcomes the systematic tendency of rating based scales of producing distort ratings, as the BW rating is obtained through a standardisation of raw scores (Lee et al., 2007).
- Researchers may obtain as much information on consumers' backgrounds as they want, given that they will be the solely responsible of the questionnaire creation.
- Finally, the BW generates an ordinal ranking of the items for each respondent (Goodman et al., 2005), but, as previously mentioned in relation to the paired comparison technique, it is often accepted that ordinal scales also have interval properties for the mean scores, hence a variety of methods (for example, ANOVA and LCA) can be applied to the data to obtain a deeper understanding of the differences among the groups analysed.
- A preliminary observation of data is easy to conduct and understand (Goodman et al., 2005), making it a useful instrument for managers.

4.2.2.1.2. The BW Method in the Wine Marketing Literature

The application of the BW method to wine marketing is very recent, therefore accounting for several conference papers (Ben-Nun and Cohen, 2009; Cohen et al., 2008; Goodman et al., 2005; 2006; 2008; Mueller et al., 2008; Mueller and Lockshin, 2008; Remaud and Lockshin, 2008), but not many journal publications (Cohen, 2009; Goodman, 2009; Mueller and Rungie, 2009; Remaud and Lockshin, 2009). Many of them were derived from an important research project named 'Mapping the Influences of Consumer Choice for Wine Selection (On and Off-Premise) in Key Export Markets', begun by the University of South Australia. The project involved researchers from twelve countries of both NW and OW countries. The same questionnaire, translated and adapted in different languages, was used to create an international database regarding the elements influencing more and less the choice of wine in both the retail and the on-premise setting.[8]

The overall project results relative to the retail sector showed that in many markets, with the exception of China and Brazil, a previous tasting of a wine stimulates future choices. The latter, conversely, are guided by the brand name, a very weak choice factor for Germans and Austrians. France is more influenced by food matching suggestions, together with Brazil, Austria, Israel and Germany, while having someone recommending a wine is more appreciated in Germany, Taiwan and the US than in the UK, China and Israel. Grape variety leads choices in Austria and New Zealand, while Chinese and English consumers do not care a great deal about it. Australia, the UK, China and Germany rely on the origin of the wine, in contrast to Israeli consumers. Medals tend to be good influencers in Australia and China, but they appear to be feeble in Germany, the UK and Israel. Finally, wineries willing to successfully 'conquer' German and English consumers should pay a lot of attention to back label information, as these populations highly rely on them (Goodman, 2009). Although the author does not conduct any

[8] The author of this thesis was in charge of all data collection and analysis in Italy. Therefore, this section presents the most relevant outcomes and methodological techniques utilised by some of the researchers involved in this project in foreign countries, while all the questionnaire details will be presented in Chapter 5 and in Appendix A.

segmentation analysis on these results, he recommends that this could be done using socio-demographic variables such as income, gender and involvement.

With regards to consumer preferences in the on-premise sector, results of only three countries (Australia, France and the UK) have been published thus far. In particular, Cohen et al. (2009) applied a Principal Component Analysis (PCA) and positioning maps primarily to observe sample differences between the three countries and then socio-demographic divergences between national-based sub-groups of the population. The authors first identified five factors: 'promotion', 'recommendation', 'explore or try different', 'previous experience', and 'suggestion by another'. French consumers tend to choose wines they previously tried or recommended by someone, especially the waiter, in a way that they can match them well with the food they chose. English consumers appear to be generally low on all these dimensions, while Australians reveal the most explorative attitude among the three countries. A more detailed analysis of these results shows that two socio-demographic variables among others generate differences in consumers' preferences: age and gender. More specifically, recommendations are more important for French consumers under 55, but not for older people, while promotions stimulate the choices of young English and Australian consumers only. The latter are more attracted by looking for something different, than their 'parents'. If one looks at gender differences, Australian women are closer to British women than to Australian men on the promotion factor. Conversely, income and consumption frequency do not show any linear relation between the sub-groups of the population.

Another interesting study is that conducted by Mueller and Rungie (2009) on on-premise wine preferences of English consumers. The authors first identify with a BW scaling that the attributes able to stimulate more wine consumption are a previous experience with a wine and food matching suggestions, while the least interesting factors are the alcoholic content of a wine and the opportunity to choose a half-bottle format. After this, the authors performed a variance and covariance analysis on BW raw scores to find those attributes that are perceived to have different importance for different consumers and those others that,

conversely, jointly drive consumers segments. Sample heterogeneity emerged from this analysis, suggesting segmenting the population in a smaller number of more homogeneous subgroups. This was modelled with a LCA, obtaining four segments of the population. Conversely, the variance and covariance analysis showed that some choice factors seem to simultaneously move together, thus a PCA was run on the same data in order to reduce the variability of the thirteen choice attributes in a fewer (five) more manageable factors. Finally, the results of the PCA were cross-tabulated with that of the LCA, finding that the four segments are highly distinctive with regards to the five choice factors, but not that much in respect to socio-demographic variables.

Moving out from the international research project described thus far, the BW method was also used to understand how a wine region (the Riverland in South Australia) should develop and position its brand (Remaud and Lockshin, 2009). The combinatory design and the number of attributes utilised was the same as for the above-mentioned studies, but the authors changed the attributes into considerations, in order to fit them to the purposes of the study. Moreover, instead of interviewing only consumers, Remaud and Lockshin (2009) also asked wine stakeholders to complete the questionnaire. A first interesting result was that consumers' opinions on the features that the Riverland could activate to raise the profile of the region almost coincide with those of stakeholders. However, the Riverland cannot think that a geographical name is sufficient to characterise, brand and promote itself. Other features, such as the Murray River, the good value for money and the fruity style of its wines should be added to the geographical name to help consumers choosing wines from this region.

4.2.3. Segmentation Techniques

The characteristics of the DCA, in particular those relative to the BW method, and the advantages that this choice paradigm offers compared to CA when one wants to observe consumer preferences prior to the purchase of a good have been presented thus far. However, from what emerged in the literature review chapter (Chapter 3) and from the above-mentioned applications of the BW method in the

field of wine marketing, it is clear that consumers are often heterogeneous in respect to their preferences. Therefore, it can be useful after identifying the overall sample preferences with a SP method, such as the BW, to segment the population in a discrete number of homogeneous sub-groups, which can be targeted with specific marketing activities.

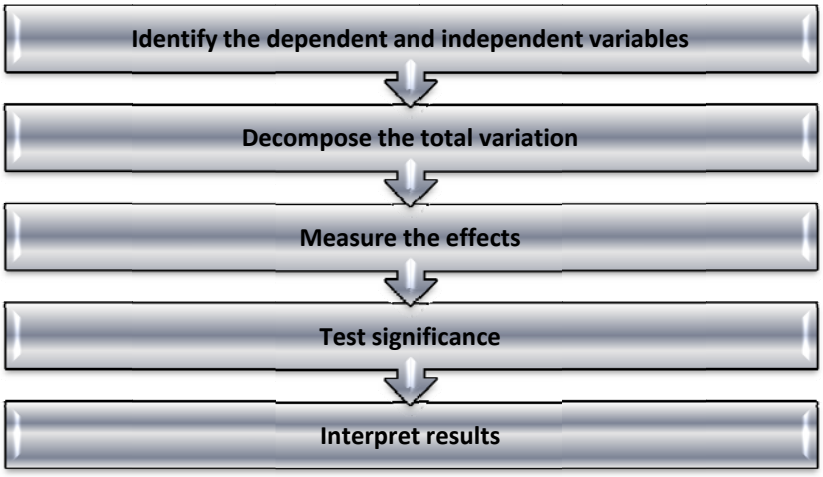
Following the classification between *a priori* and *post-hoc* segmentation paradigms, it is possible to present two techniques, which respectively belong to these two approaches: ANOVA and LCA.

4.2.3.1. ANOVA

ANOVA represents a technique used for examining whether the differences in the mean values of a dependent variable associated with the effect of the controlled independent variable, after taking into account the influence of the uncontrolled independent variables, are solely due to sampling errors or are a signal of a real differences in group means in the population (Malhotra and Birks, 2002).

Following the explanation given by Malhotra and Birks (2002), it is important to undergo the following steps in order to perform an ANOVA (see Figure 5).

Fig. 5: Summary Scheme to Conduct an ANOVA



Source: Malhotra and Birks (2002), p. 488

Literature generally denotes the dependent variable by *Y* and the independent variable by *X*. *X* presents *c* categories (for example, low-income, medium-income

or high-income). Each Y for each category c_i (i=1, 2, …, n) of X presents n observations. Therefore, the sample size for each category c_i is n, while the total sample size is N=n*c.

Once the variables are identified, the next step involves the decomposition of the total variation observed in Y. This variation is measured by the sum of squares (SS) of the distance from any observation collected Y_i, to the mean of the dependent variable $\bar{Y}$. This total variation is indicated by SS_Y. The latter, in turn, can be decomposed in two components: $SS_{between}$ and SS_{within}. $SS_{between}$ represents the portion of the sum of squares related to the independent variable X, therefore it is often indicated as SS_x, while SS_{within} is the portion of the sum of squares within each category of X, which is not accounted for by X, therefore it is often indicated by SS_{error}. Mathematically:

$$SS_Y = SS_X + SS_{error} \tag{5}$$

where

$$SS_Y = \sum_{i=1}^{N}(Y_i - \bar{Y})^2 \tag{6}$$

$$SS_X = \sum_{j=1}^{Nc}\left(\bar{Y}_j - \bar{Y}\right)^2 \tag{7}$$

$$SS_{error} = \sum_j^c \sum_i^n \left(Y_{ij} - \bar{Y}_j\right)^2 \tag{8}$$

and

Y_i=individual observation

$\bar{Y}_j$=mean for category j

$\bar{Y}$=mean over the whole sample or grand mean

Y_{ij}=i-th observation in the j-th category.

Once the total variation is decomposed, it is possible to estimate the effects (η^2) that X has on Y. This can be done as follows:

$$\eta^2 = \frac{SS_X}{SS_Y} = \frac{SS_Y - SS_X}{SS_Y} \tag{9}$$

The value η^2 varies between zero and one. If the value is equal to zero, this means that X has no effect on Y, therefore all the category means μ_i are equal,

while if it is equal to one, there is no variability within each category of *X*, but there is some variability between them. This effect can be test for significance.

The null hypothesis H_0 of this test is that all the category means μ_i are equal in the population. More formally:

$$H_0: \mu_1 = \mu_2 = \mu_3 = \cdots = \mu_c \quad (10)$$

If this is true, SS_X and SS_{error} come from the same source of variation. Therefore, the estimate of the population variance S_Y^2 can be based either on between-category variation or within category variation. Mathematically, this is equal to:

$$S_Y^2 = \frac{SS_X}{c-1} = mean\ square\ due\ to\ X = MS_X = MS_{between} \quad (11)$$

$$S_Y^2 = \frac{SS_{error}}{N-c} = mean\ square\ due\ to\ error = MS_{error} = MS_{within} \quad (12)$$

H_0 can be tested by the *F* statistic based on the ratio between these two estimates:

$$F = \frac{\frac{SS_X}{c-1}}{\frac{SS_{error}}{N-c}} = \frac{MS_X}{MS_{error}} = \frac{MS_{between}}{MS_{within}} \quad (13)$$

This statistic follows the *F* distribution, with *(c-1)* and *(N-c)* degrees of freedom. Following the relative *F* distribution table, for a specified level of *a*, one can verify whether the null hypothesis holds true.

If H_0 is rejected, this means that the differences in the mean value for the different groups of the population are not due to sampling errors, but to real differences between them.

4.2.3.2. LCA

LCA (Wedel and Kamakura, 1999; Bond and Morris, 2003; Popper et al., 2004; Scarpa and Thiene, 2004; Thiene et al., 2006; Ruto et al., 2008) is based on the assumption that individual behaviour can be explained by a series of observable attributes and a latent heterogeneity, which therefore is not directly observable, able to explain the behaviour of consumers. Despite this, it is possible to study other variables, associated with the latent one, which demonstrate that the latter is

the real source of co-variation (Thiene et al., 2006).

The rationale of LCA assumes that individuals are implicitly sorted into a set of S classes, but the analyst does not know which class contains any particular individuals, whether known or not to that individual. The behavioural model for a discrete choice among J alternatives by an individual q of class s is equal to:

$$P_{iq|s} \quad s = 1, 2, \dots, S \tag{14}$$

It is also possible to construct a classification model as a function of some individual-specific attributes to explain heterogeneity across classes. Moreover, equation (14) does not only allow estimating $P_{iq|s}$ for S, but also predicts the probability H_{qs} as individual q being in class s. After this, it is possible to estimate the unconditional probability of choosing alternative i (Shen, 2005):

$$P_{iq} = \sum_{s=1}^{S} P_{iq|s} H_{qs} \tag{15}$$

The significant issue at this point is that economic theory was still not able to explain where the number, the source and the dimension of the different sample segments created come from (Menzel and Scarpa, 2005). Moreover, some tools generally used in cluster analysis, such as the Likelihood Ratio, the Lagrange Multiplier, or the Wald Test cannot be considered valid for this kind of segmentation (Scarpa et al., 2007). However, as indicated by Scarpa et al. (2007), it is possible to utilise some information criteria to decide what the best number of groups to segment the sample is. The criteria $C = -2lnL + J\ k$ is such that lnL represent the log likelihood (LL) of the model at convergence, J is the number of the parameters estimated in the model and k is a constant that can assume different values according to the criterion utilised. When k=2 one obtains the Akaike Information Criterion (AIC); when k= ln(N+1) we obtain the Consistent AIC (cnAIC), when k= ln(N) one obtains the Bayesian Information Criterion (BIC), which by construction is very similar to the cnAIC. Finally, for k= $2(J+1)(J+2)/(N-J-2)$ one obtains the Corrected AIC (crAIC), which increases the penalty for the number of extra parameters estimated (Scarpa and Menzel, 2005). However, whatever the criterion is, it is important to remember that the best segmentation is the one that corresponds to the lowest values of the information

criteria. In the present thesis, the BIC will be used in analogy with several other studies (Agarwal, 2003; Green and Hensher, 2003; Magidson et al., 2003; Popper et al., 2004; Scarpa et al., 2007).

4.2.3.2.1. The advantages of LCA

The use of this segmentation technique offer several advantages, as *a priori* segmentation methods present some limitations.

- A solution is always found, even when individuals do not naturally fall in distinct groups (Orme and King, 2008).
- The results of the segmentation depends on the settings and on the clustering methodology (such as minimum distance, maximum distance and centroids) chosen by the researcher (Orme and King, 2008).
- It is not often easy to decide whether a solution with, for example, three groups is better (or anyway justified by the data) than a solution with four segments (Menzel and Scarpa, 2005).
- Collinearity problems may arise if interactions are several (Breffle and Morey, 2000).

In addition, one must remember that when one segments *a priori* starting from the results of a study realised with discrete choice methods (for example, the BW) one has to face three main limitations if one wants to observe the heterogeneity of consumers' preferences (Thiene et al., 2006).

- Socio-demographic variables do not vary between choice alternatives, although there exists methods that allow them to be considered.
- It is assumed that individuals who are part of the sample have homogeneous tastes with regards to the attributes investigated.
- When repeated choices are observed, these models admit the stochastic component of the utility function is IID for all choices, aside from the individual that makes them. As a consequence, (a) it not possible to take into account the correlations between the errors associated to the different choices

repeated by the same individual and (b) it is not possible to estimate the coefficient of the individual characteristics in the utility indirect function, as the terms that do not vary between alternatives, do not enter in the calculus of probabilities.

- The relationship between the choice probability of two alternatives does not depend on the number or on the characteristics of the alternatives present, given the IIA assumption.

Conversely, if one utilises *post-hoc* segmentation techniques, one obtains the following advantages.

- The estimation process is easier and more intuitive (Scarpa and Thiene, 2004).
- It is not necessary to convert data in a metric scale to measure the distances between the clusters one wishes to create. This allows managing models that utilise different measuring levels (Cohen, 2003).
- The choice of the number of classes in which it is more appropriate to segment the sample is based on standard statistical tests (Lusk and Briggeman, 2008).
- Cases with missing data can be easily handled (Cohen, 2003).
- One overcomes the IIA assumption (Boxall and Adamowicz, 2002).
- Respondents are assigned to the different segments with a probability of belonging to the different segments, rather than with a certainty (Cohen, 2003).
- The *post-hoc* segmentation process appears to be more stable and enduring over time (Wedel and Kamakura, 1999).

4.3. Methodology for RP Data

After having described the methodology and techniques through which it is possible to analyse and segment SP data, it is necessary to present the methods through which one can study consumers' loyalty towards product attributes, and interaction and correlation effects between them in determining overall behavioural loyalty. When these two methods are applied to the same population of consumers purchasing the same products/brands over two different interval

periods, it is possible to measure how loyalty, interaction and correlation effects evolve over time.

4.3.1. The Polarization Index (φ)

The polarization index, as introduced in Chapter 1, is derived from the application of the BBD model to the purchases made by consumers in different fascias of the same product category and in a defined interval time. In particular, it is possible to identify as many φ values – also called in literature *marginal* φ or *BBD values* – as the number of brands or levels of the attribute in a category. These values express the loyalty levels of consumers in the marginal choice between each of these brands (or level of the attribute) and all the other brands (or other levels of the same attribute) in the category. The analysis can then focus on the deviations of the loyalty for each brand (or level of the attribute) from the average or benchmark loyalty level for the brands (or the various levels of the same attribute) in the category.

The benchmark value (also called category polarization index (φ_c) or DMD value) represents the multivariate counterpart of the BBD. It can be calculated as follows where S is defined as in (18):

$$\varphi_c = \frac{1}{1+S} \tag{16}$$

φ_c is considered a robust indicator of the consistency in consumer choice. Under some conditions it may remain constant over brands or attributes levels of a category (Rungie and Goodhardt, 2004). It ranges from 0 (complete heterogeneity in choice) to 1 (maximum homogeneity in choice). It is possible within each category to identity the brands with higher or lower loyalty levels compared to a benchmark level by comparing the polarization for each brand (BBD) with the polarization for the category (DMD).

In order to solve (16), it is necessary to derive the value of *S*. This is obtained as the sum of the probabilities of choosing a brand or attribute level *j*, conditional on the purchase on the category of belonging of that brand or attribute level (Jarvis et al., 2006). In analogy with Mosimann (1962), cell probabilities of a

multinomial distribution distributed according to a multinomial distribution with parameters k, r_1, r_2, r_3,…, r_h are distributed according to a multivariate beta distribution – or DMD – with parameters a_1, a_2, …, a_h. Every *j-th* probability associated with the choice of a brand or attribute level j, conditional on the purchase on the category of belonging of that brand or attribute level can be calculated as follows:

$$E(p_j) = \frac{\alpha_j}{\alpha_1+\alpha_2+\cdots+\alpha_h} \text{ with } j=1, 2, \ldots, h \quad (17)$$

In order to estimate the values of parameters a_1, a_2, …, a_h one can use the method of marginal moments (Rungie, 2000), discrete choice models (Guimaraes and Lindrooth, 2005) or, as in this thesis, methods that apply theories on the estimation of maximum likelihood (Rungie, 2003).

Once the estimation of parameters a_1, a_2, …, a_h are obtained for the DMD, the notion S is used to indicate the sum of the *j-th* values of a.

$$S = \alpha_1 + \alpha_2 + \cdots + \alpha_h \quad (18)$$

At the same time, S defines the heterogeneity level in the choice of brands for the population of shoppers. The S value ranges from 0 to +∞. When S=0, then the homogeneity is at its peak, while if it tends to +∞ one has complete heterogeneity. Once S and φ_c are known, one can derive each marginal φ value using the same approach. The only difference is that, instead of having j probabilities to sum together, one has only two: the first relates to the probability of choosing the *j-th* brand or attribute level in a category, the second represents the probability of choosing all other brands or attribute levels belonging to the same category. In this way the DMD is reduced to its bivariate counterpart, that is the BBD.

The analysis of BBD and DMD distributions allow researchers to look at two different phenomena: Brand Positioning and the Dirichlet model.

4.3.1.1. Brand Positioning

The comparison of BBD and DMD polarizations opens the discussion on

brand positioning in the market as niche or change-of-pace brands. The literature devoted special attention toward brands holding low MS. They not only hold a small proportion of the market, but they also tend to be bought less often than their competitors (Goodhardt et al., 1984). The phenomenon defined as double jeopardy (Goodhardt et al., 1984; Uncles et al., 1995; Ehrenberg et al., 2004) was well described by Riebe (2003):

> The double jeopardy pattern in loyalty rates has generally been observed for repertoire buying (i.e. in markets such as grocery products and store choice) where buyers have steady propensities to buy various brands but a range of brands from which they buy which may vary considerably between individuals. The phenomenon is explained as a statistical outcome from asymmetries in familiarity and distribution. That is, smaller brands have less people who know of them than bigger brands, and they are used by these fewer customers less often. This is because the customers of small brands also know of and use the bigger brands in the market. Their purchases from the category are split between the big brands and the small brands, whereas many of the big brands' customers are not aware of the smaller brands and so do not have to spread their category purchases out amongst brands.

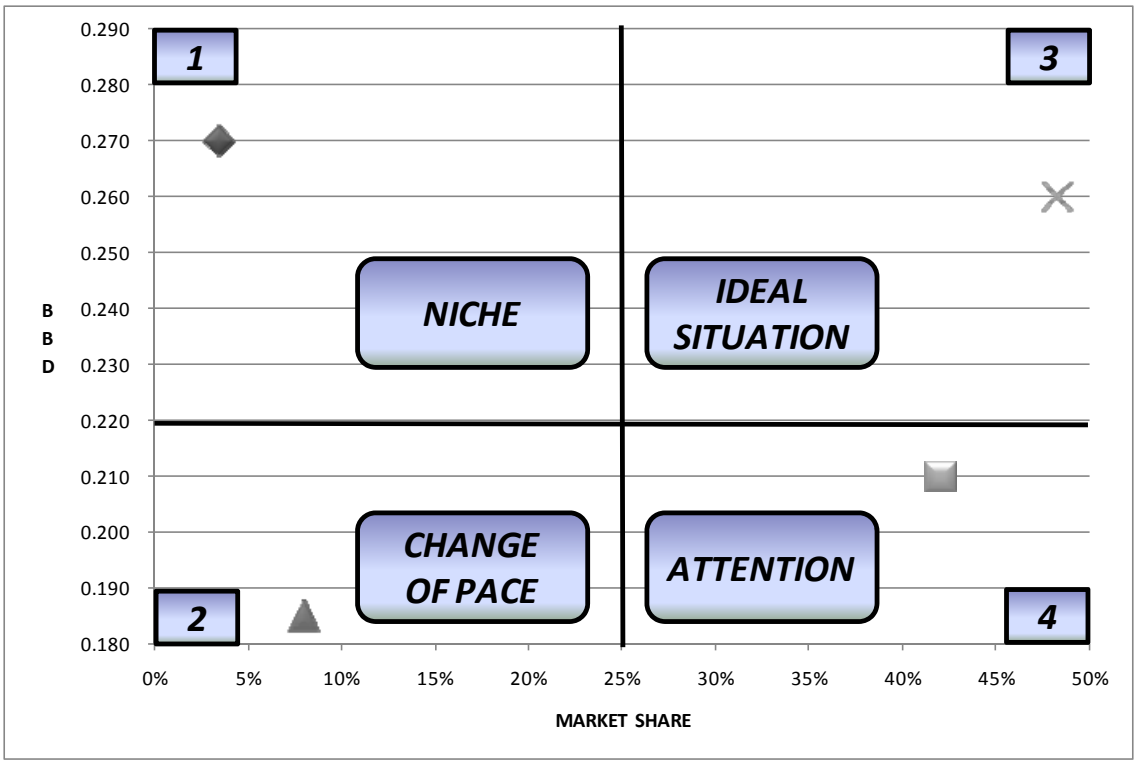
This statement affirms that smaller brands tend to have less purchasers, a lower purchase frequency[9] (given that a higher proportion of consumers is directed toward bigger brands) and a higher percentage of 100 per cent loyal consumers. These customers often are also shared with the bigger brands. Conversely, brand leaders show a higher penetration,[10] that is, a higher number of consumers who buy them more frequently (Jarvis and Goodman, 2005). In order for a brand to be classified as a niche product it should have a low penetration level compared to its purchase frequency. That is, it has to show a loyalty level higher than the average level shown by all the products belonging to the same category. This also means that the ratio between the consumers who buy a brand and the total number of those that buy in the same product category has to be low compared to the ratio between the total number of purchases of that particular brand and the total number of consumers who buy it.

[9] Purchase frequency is defined as the average amount a buyer purchases of a certain brand *i* (Kahn et al., 1988).
[10] Penetration is defined as the proportion of the population buying brand *i* (Kahn et al., 1988).

Literature offered a useful instrument to analyse these phenomena: the $w_i(1 - b_i)$ constant, with w_i representing the purchase frequency of a brand and b_i its penetration. Kahn et al. (1988) demonstrated that within each product category some brands deviates from the constant, showing a value ±10 per cent different from the category constant. Brands behaving in these ways were called by the authors 'niche' and 'change-of-pace' respectively. However, the authors also noted that the simple observation of these deviations does not allow to state whether a brand is really niche or change-of-pace. On the contrary, this analysis represents only the first step of a deeper understanding of these behaviours through the analysis of brand performance measures, the purchase frequency and the repeat purchase rate of a brand (Kahn et al., 1988). Moreover, it is important to remember that literature studied this relationship only for brand analysis, not for attribute analysis (Kahn et al., 1988; Fader and Schmittlein, 1993; Bhattacharya, 1997; Ehrenberg et al., 2004). These considerations brought researchers to analyse these phenomena putting in relation the BBD values with their respective MSs. A graph is built with MS on the x axis and φ values on the y axis. Then the graph is hypothetically divided into four segments, where the horizontal axis is represented by the φ of the category, while the vertical axis falls around the middle of the graph (see Figure 6). Hence:

- If a brand is located in the top side of the graph (1) and (3) one could think about a brand showing excess loyalty.
- If a brand is located in the down side (2) and (4) of the graph the brand show a loyalty inferior to that of the category.
- If a brand is located in the right side of the graph (3) and (4) one could think about a brand showing high MS.
- If a brand is located in the left side of the graph (1) and (2) one could think about a brand showing low MS.
- If a brand is located in the top left part of the graph (1) it is possible to think about a niche behaviour.
- If a brand is located in the down left part of the graph (2) it is possible to think about a variety seeking behaviour and change-of-pace.

Fig. 6: Brand Positioning



4.3.1.2. The Dirichlet Model

Finally, one considers a wider range of models for repeated choice. The DMD distribution represents one of the two probability density functions that, together with the negative binomial distribution (NBD), explain the Dirichlet model. Prior to the studies on the BBD values for conditional choice, Ehrenberg (1959) and Chatfield and Goodhardt (1975) modelled the total number of repeated purchases of brands by each consumer using the NBD. Bass et al. (1976) studied the conditional choice between brands using an approach linked with the utility that purchases generate on consumers. These were eventually combined into one model by Goodhardt, Ehrenberg and Chatfield (1984). Ehrenberg et al. (2004) further explained the assumptions of the model, but for the purposes of this thesis, it is only important to note that these assumptions allow researchers to affirm that the purchase rate of the product category is distributed as an NBD on the population of consumers. The NBD is derived specifying that the purchases made by each consumer follow a Poisson process based on the propensity toward the category. These propensities have a gamma distribution on the population of shoppers. The purchases of brands are distributed according to a DMD, which is

conditional on the category purchase rate. However, the NBD and DMD are assumed to be independent and the parameters have no associations between them. Let K be the random variable that represents the purchase rate of the category for the population of consumers. The Dirichlet model assumes that the purchase rate of the category accommodates a NBD that is K follows a NBD. For each consumer i it is possible to define his/her purchase rate k_i. The NBD is characterised by two parameters, both positive:

- a shape parameter γ;
- and a scale parameter (which also influences the shape) β.

Let the category have h brands. On the population of purchasers, let the purchase rate of each brand be represented by the random variables R_1, R_2, R_3, …, R_h. Hence, the sum of these purchase rates represents the category purchase rate $R_1+R_2+R_3+\ldots+R_h = K$. If one considers that the purchases of a brand are dependent from the category purchase rate, they will accommodate a DMD, that is R_1, R_2, R_3, …, R_h dependent from K, accommodate a DMD. Moreover, in respect to the population of shoppers, $R_1+R_2+R_3+\ldots+R_h$ represent random variables for which one observes r_1, r_2, r_3,…, r_h brand purchase rates. Thus, one needs first to calculate all the parameters of the Dirichlet model – γ, β – and all the *j-th* α to find S and the category polarization index.

The approach used in this thesis can be compared with the Dirichlet model. Like the DMD side of the Dirichlet, the researcher considers consumers' repeated choice between brands conditional on the category purchase rate. However, there are two major differences in this approach. First, the Dirichlet model assumes that the loyalty levels for all brands are equal. One DMD distribution is fitted to all brands generating one polarization. Conversely, a separate BBD distribution for each brand is fitted here. One has a polarization for each brand. The Dirichlet has only one polarization for the whole category. Second, the Dirichlet focuses only on the repeated purchases of brands. Other attributes are considered here, such as variety and denomination. The literature supports the inference that loyalty levels might be constant across the brands in a category. However, there is much less evidence that the same relationship might hold for other attributes. On the

contrary, for attributes of wine, such as the variety, the polarization for the various levels (i.e. for different varieties) can vary considerably. This approach recognises, measures and analyses this variation. By comparison, any application of the Dirichlet model to attributes, other than brands, implicitly, inappropriately and uncritically assumes that loyalty levels are constant.

4.3.2. The QMD

A general limitation of the polarization methodology is that it cannot analyse the relationships between product attributes. It can only analyse loyalty levels of one attribute at a time. However, it is known that when consumers make a choice they take several product attributes (such as price, brand and label) into consideration, either consciously or unconsciously (Kotler and Keller, 2007). The choice of a product is based on the evaluation of several attributes together, but each with its own relative importance.

Given the innovativeness of the model, it is only possible to refer to a recent study of Rungie et al. (2009) in order to explain this methodology. When a researcher wishes to study regularities and variations over a population of consumers for the analysis of consumer behaviour and discrete choices, a useful way to conduct these studies is to apply *ad hoc* statistical distributions. As indicated several times in this thesis, two of them are the MNL and the DMD, as they both present unique and useful characteristics. The former is able to accommodate variable choice sets and deconstruct choice into utilities and partworths. The DMD is considered the multivariate extension of a BBD, which is applicable when consumers make repeated choices from the same binary choice set. The DMD conceptualises each choice by each individual as a Bernoulli trial and his/her repeated choice as a multinomial trial based on a fixed latent conditional choice probability for the consumer. Over the population, these probabilities have a Dirichlet distribution. Hence, the DMD is a multinomial mixed by a Dirichlet. This feature is unique in choice modelling and the main outcome is that the properties of the repeated choice (DMD) and the latent conditional choice probabilities (Dirichlet) can be estimated from the data. This

means that variances are known, thus the DMD allows identifying reliability, partitioning the variance and establishing loyalty levels. However, this distribution presents a limitation, as an implicit assumption of the DMD is that there is no variation in the underlying loyalty toward the levels assumed by a brand or attribute. This explains the necessity to apply the BBD to each single item *j*, to analyse the loyalty expressed as a binary choice between it and all the other items in the choice set.

MNL and DMD have extraordinary properties, but each has some that the other has not. Hence, a new distribution is needed (a) to let the MNL identify reliability, separately measure the between and within consumer variance and analyse the impact of choice sets and attributes on loyalty and (b) to bring to the DMD variable choice sets and remove the undesirable implicit constraint on loyalty. In addition, this new distribution uses repeated choice for the identification of the structure of partworths in a way similar to structural equation modelling. This new distribution is called QMD.

The main assumptions are summarised here: (a) repeated bivariate binary choice; (b) the functional form that links variable partworths to latent conditional choice probabilities through variable choice sets is logit; (c) the sequence of choices for each consumer is independent and the partworths stationary; (d) the partworths have a Gaussian distribution; and (e) the interaction partworths are independent. These assumptions are specifically derived for a bivariate binary choice, but it can easily be transformed in its multivariate counterpart. Consider now a bivariate binary choice, where individuals rate two choice attributes, A and B, as high or low. From the MNL each individual *i* has:

- a partworth $w_{a,i}$, which accounts for the difference between high or low on attribute A;
- a partworth $w_{b,i}$, which accounts for the difference between high or low on attribute B; and
- a partworth $w_{c,i}$, which accounts for the interaction.

In the QMD, these partworths are constant for each consumer, but they vary between consumers. Therefore, these partworths have distributions over the population of consumers, as in mixed logit models (Train, 2003). In particular, over the population of consumers the partworths are considered as random variables W_a, W_b and W_c and $f(w_a, w_b, w_c)$ represents the probability density function. For the QMD, it is assumed that W_a, W_b and W_c have Gaussian distributions with means μ_a, μ_b and μ_c and standard deviations σ_a, σ_b and σ_c. For the three partworths, there could potentially be three correlations. It is also assumed that the interaction effect W_c is independent from the attributes W_a and W_b. In addition, it is necessary to specify the correlation between the two attributes W_a *and* W_b, which can be called ρ. Hence, the QMD requires specifying seven parameters μ_a, μ_b, μ_c, σ_a, σ_b, σ_c and ρ. The outcomes of the model are similar to those of an MNL; the QMD shows partworth values and the evaluation of competing models is done through the analysis of likelihood ratios. Moreover, the variability of the partworths is expressed as standard deviations. However, the differences are that: (a) there is also an estimation of the correlation (interaction) between the two attributes A and B; (b) the variances are all separately identified, estimated and evaluated (something that the MNL cannot do); and (c) it is possible to identify reliability, partition the variance and identify loyalty for any choice set (the DMD can do it but only for one choice set at a time). Finally, the impact of each choice set can be evaluated, as well as the impact of any attribute or changes in the level of the attribute, when selecting the appropriate choice set.

4.4. Conclusion

This chapter showed that the methodologies proposed in this thesis are potentially able to identify the extent to which the advantages and disadvantages of SP and RP can be considered valid when applied to the wine marketing literature. However, in order to practically demonstrate what theoretically emerged in this chapter, it is important to explain how the data necessary to conduct the analysis are collected. The next chapter (Chapter 5) will explain this in detail.

5. Data Collection

5.1. Introduction

The present chapter describes the data used in this thesis and the way they are collected. First of all, an overview of SP data relative to the elements able to influence consumers' choices when choosing a wine in a retail setting will be offered, followed by an explanation on the way they will be treated in order to run segmentation analyses.

Second, the database utilised to investigate consumers' loyalty towards product attributes, their evolution over time and interaction and/or correlation effects between them in determining overall loyalty will be presented. Along with this, it will be described how AC Nielsen, the panel provider, selects the households, which are part of the Consumer Panel utilised in this thesis.

5.2. SP Data

As indicated in Chapter 4, SP data are collected within the project 'Mapping the Influences of Consumer Choice for Wine Selection (On and Off-Premise) in Key Export Markets'.

An international group of experts in the sector of wine marketing identified the thirteen most influential attributes for the choice of a wine in both the retail and the on-premise setting, analysing a large database of studies in the area of consumer behaviour for wine, part of which were indicated in the literature review. In Italy, as well as in other collaborating countries, data were collected for the observation of preferences related to both the retail and the on-premise sector. However, for the purposes of this thesis, attributes and data only relative to the analysis of the retail sector will be presented and described. The attributes chosen for the combinatory design are the following: (1) promotional display in store; (2) grape variety; (3) origin of the wine; (4) information on the shelf; (5) alcohol level below thirteen per cent; (6) matching food; (7) information on back label; (8) medal/award; (9) an attractive front label; (10) brand name; (11) someone recommended it; (12) I read about it; and (13) tasted wine previously.

As for Italy, data were collected in two distinct Italian regions, Veneto and Le Marche, 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, the average GDP per capita is higher in Veneto than in Le Marche – €28,286 and €24,277, respectively. However, while the GDP at constant prices increased by four per cent in Le Marche from 2000 to 2004, in Veneto it only grew by 1.7 per cent. Veneto has four times the number of inhabitants than Le Marche and the three main economic sectors, primary sector, industry and service sector, are different in importance. They account for 3.7 per cent, 38.8 per cent and 57.5 per cent of the total workforce in Veneto (Sistema Statistico Regionale – SISTAR – Veneto, 2007), while the three sectors represent 4.4 per cent, 28.2 per cent and 67.4 per cent of the total workforce in Le Marche (SISTAR Le Marche, 2007). In terms of wine making activity, Veneto has 72,460 hectares of vineyards, while Le Marche only 19,187 hectares. This leads to a production of around eight million hectolitres of wine and must in Veneto in 2007, while in Le Marche it is ten times lower. Narrowing the analysis down to quality wines, these two regions produced 2,281,000 hectolitres and 380,000 hectolitres of DOC-DOCG wines. It is not by chance that Le Marche and Veneto hold sixteen and 37 GI-DOC-DOCG denominations respectively (ISMEA, 2008). However, it should be noted that ISMEA (2008), analysing the ratio volume/value of the production, classified Le Marche 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 (such as wine or beer) in the past twelve months is higher than in Le Marche (74.9 per cent *versus* 73.4 per cent), but in the latter region there are more people who daily drink alcoholic beverages (32.1 per cent *versus* 38.7 per cent). This tendency is either valid in respect to gender and units of alcohol drunk daily. Only females from Veneto who drink more than three units of alcohol per day are more than the respective category in Le Marche (2.1 per cent *versus* 1.7 per cent). Veneto has a higher number of people who tend to consume alcohol outside meals (12 per cent *versus* 6.3 per cent) and

also more people who drank more than six units of alcohol in one occasion at least once in the past twelve years (10.8 per cent *versus* 7.7 per cent). It is interesting in this context that while Veneto tends to have a higher percentage of people who drink beer and other alcoholic beverages than Le Marche, the latter proportionally has more people who drink wine (62.7 per cent *versus* 60 per cent). In particular, Le Marche has more people who consume one to two glasses of wine per day than Veneto and more people who have a daily intake of wine above 0.5 litres.

Data collection took place at two cycles of cultural meetings organised in these two regions by an entertainment agency, as discussed in Chapter 1. A total of 314 questionnaires[11] were collected in Le Marche from July to September 2007. Respondents received a complete questionnaire and a pen. Each interviewee was informed about the technique, asked to complete the questionnaire and return it before leaving the meeting. Those who completed the questionnaire properly could take part in a draw 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 draw, respondents simply had 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 were able to guarantee the anonymity of the responses given by interviewees, while the latter had an incentive to participate to data collection.

After a preliminary part in which respondents provided some information about their habits towards the wine world, respondents were asked to evaluate the thirteen attributes through thirteen different choice sets and the respondents were asked to choose the attribute that influences him/her the MOST and the attribute that influences him/her the LEAST while choosing wine for a dinner at home with his/her friends. The combinatory design for the BW section follows the criteria of the Balanced Incomplete Block (BIBD) design, adopted by Auger et al. (2004). This kind of design ensures that each attribute appears four times across all choice sets and, within each set, each pair of attributes appears only once.

[11] The complete questionnaire is presented in Appendix A.

The final part of the questionnaire asked information about gender, age, income, number of people in the household and some information about the last bottle of wine bought.

In terms of segmentation analysis, it was only necessary to prepare the sample in order to perform the ANOVA, given the *a priori* nature of this segmentation technique. LCA does not require arranging the sample in any further way, but those necessary for the software to read the data. Therefore, in order to perform the ANOVA, the sample was divided in different groups based on the geographic area (Veneto and Le Marche), the income level, age, involvement and frequency of drinking. In particular, three age groups (18-40, 41-55, and 55+ years old) were created. Then, three income levels were defined according to the per capita income taken from the ISTAT. The average GDP per capita of Italy was €26,025 in 2008. Consequently, the sample was classified in the 'below average' group, where respondents who declared to have an income of less than €22,000 were inserted, in the 'about average' group, for those with an income between €22,000 and €32,000, and in the 'above average' group, for 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 one to five (Lockshin et al., 2006). The sample was divided into three categories (about one-third of the sample in each category) based on the sum of the three questions. People with scores of less ten points were classified as 'low-involved' consumers, from eleven to thirteen 'medium-involved' and above thirteen 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 a 76 per cent 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 were considered frequent drinkers. Those who consume wine less often were grouped in the low frequency group. The average BW score (dependent variable) for each attribute was compared across the different geo-demographic groups (independent variables).

5.3. RP Data

RP data was derived from the part of the AC Nielsen Consumer Panel relative to wine purchases.[12] The purchases were recorded for six years (2003-2008) and, for the purpose of this thesis, they were classified in two different ways.

First, the sample was split in two three-year periods: 2003-2005 and 2006-2008, in order to analyse loyalty levels towards three product attributes – price, format and quality designations – and their evolution over time. The first sub-sample accounts for 5,299 households, while the second comprises 6,394 families. A further sub-sample was extracted from each of the two groups, in order to include only those households with somewhat regular purchase behaviour. The sub-samples include the families who (a) bought wine on more than one occasion in each of the two three-year periods and (b) bought more than ten units of wine in each of the two interval times. This has brought the number of families to 3,858 and 4,643 respectively, and, while in 2003-2005 the final sub-sample purchased 366,413 litres of wine, in the latter period the population bought 411,638 litres.

More specifically, regarding prices it was decided to adopt the Rabobank classification (Heijbroeck, 2003). This splits wines in basic (≤€3), popular premium (€3-≤€5), premium (€5-≤€7), super-premium (€7-≤€14), ultra-premium (€14-≤€150) and icon (>€150). The first three price ranges represent 68.2 per cent, 25.2 per cent and 4.5 per cent of the Italian off-trade market for 0.75 litres bottles. The other three were combined, as they account for 2.1 per cent of the market (IRI Infoscan, 2007). Hence, the classification adopts the following levels: (1) <€3, (2) €3-≤€5, (3) €5-≤€7, and (4) >€7.

For quality designations, an adapted version of the Italian quality classification system (Law n. 164/1992) was used, in order to include foreign wines. Moreover, DOC and DOCG wines were grouped together, as the

[12] The database includes all the purchases of Italian and foreign wines with an EAN code made by the AC Nielsen Consumer Panel. These data do not include non-EAN wines and the following categories: champagne, marsala, sherry, port, grape must, wine-based aromatised beverages, sangria, aromatised wines, natural sparkling wines, fortified wines, and the *spumante* category. Hence, the data represent, for AC Nielsen, the 71 per cent in volume and the 78 per cent in value of the wine purchased in Italy (average 2005-2009) in the retail channel.

production regulations for these wines are more restrictive than GI wines (Segre, 2003). Hence, products are classified as: (1) Foreign Wine, (2) GI, (3) DOC-DOCG, and (4) Table Wine.

For formats, wines in 0.75 litres bottles are grouped together. Another cluster was created to represent dessert/fortified/special occasions wines that are generally sold in bottles of 20 centilitres up to 0.5 litres. The other two groups were organised in order to account for the sales of one litre carton wines, a format largely used in Italy, and larger formats, including three-litre bag-in-box (BIB) wines. Hence, the four groups are: (1) <0.75 litres, (2) =0.75 litres, (3) >0.75 litres and ≤1.5 litres, and (4) >1.5 litres.

The procedures described by Rungie (2003) were applied to these attributes. The polarization index φ has been calculated for each level of each attribute from the BBD. Then, the combined polarization φ_c has been derived for any one attribute (with h levels) according to the following formulas:

- $S = \sum_{j=1}^{h} \alpha_j$
- $\varphi_c = \frac{1}{1+S}$

The second part of the analysis will be conducted within each of the two three-year periods, in order to observe interaction and correlation effects between wine attributes and their impact on loyalty for each of the two interval times, applying the QMD. It is important to observe that the QMD could be applied in a multivariate way, but, given the innovativeness of the methodology, it was decided to use it in a bivariate binomial way, hence analysing two attributes with two levels at a time.

Regarding prices, it was defined to consider two price ranges: <€3 and >€3. Segmentation according to denominations classified wine based on the presence/absence a quality designation. Thus, wines were catalogued as 'GI-DOC-DOCG' *versus* 'NOT GI-DOC-DOCG'. In relation to formats wines in 'up to 0.75 litres bottles' were grouped together. The other group was organised in order

to account for the sales of one litre carton wines and larger formats, including three-litre bag-in-box wines.

For the purpose of this part of analysis, the partial relationships, from now onwards called '2x2 analysis', between the three attributes and levels (price X quality designation, price X format, quality designation X format) are studied. Then, the comprehensive analysis, from now onwards called '2x2x2 analysis' (price X quality designation X format), was run.

The QMD model estimates the parameters of four variants of the QMD. The 'base model' only shows the means and the variance of the attributes, but it does not include interaction or correlation effects. Conversely, the 'full model' takes into account both effects, hence it presents seven parameters – means and variance of the two attributes, means and variance of the interaction effect and the parameter relative to the correlation effect.

The second step is looking at the means (μ_1, μ_2, μ_3), which represent the partworth utility consumers show when moving from one level of the attribute to the other, and the standard deviations (σ_1, σ_2, σ_3,– which (a) express the extent to which consumers differ in the utility they attach to each attribute and (b) tell what attributes drive more loyalty (Rungie et al., 2009) – of the 2x2 and the 2x2x2 analysis.

The means (μ_4, μ_5, μ_6) and the standard deviations (σ_4, σ_5, σ_6) of the interaction section and the correlation coefficient (ρ) tell if there is a positive or negative interaction/correlation effect when the attributes are combined together.

Once the nature of the relationship between attributes and levels is defined, it is then possible to examine the loyalty levels that singular attributes and levels – in case the model suggest the absence of interaction or correlation effects – or combinations of them (either 2x2s or 2x2x2) – in case the QMD detects some kinds of relationships – stimulate consumers.

5.3.1. The AC Nielsen Consumer Panel

The sample represents the universe of the *de facto* Italian households (22.7

million). With the term 'household', the panel refers to the group of resident people who permanently live together, so that purchasing behaviour can be attributed to the household (one-person households are included). Out of home consumptions are not included (for example, hospitals and tourist locations), as well as extra-domestic ones (either on-trade or second home).

The households, which are part of the AC Nielsen Consumer Panel, are recruited through the mailing (postal or electronic) technique. AC Nielsen periodically contacts Italian households through a random procedure, through the complete address list of the universe of Italian families.

The informative material contains a preliminary description of the objectives of the *Home*Scan* AC Nielsen system, together with a brief explanation of the kind of requested collaboration and other information on incentives to households. The interested family completes a form of adherence, where detailed data relative to the household are requested.

All the adhesions are preliminarily evaluated by the AC Nielsen Statistical Office, which checks the characteristics of potential collaborators. The choice of potential households is made balancing the sample concerning first and second level socio-demographic variables. The adhesion forms of all those collaborators who pass the preliminary selection process undergo a second selection, done by a department that takes care of the relationships with the sample. This procedure consists of direct contact by telephone with a member of the potential household, to whom more detailed information on the tasks he/she will be asked to accomplish are provided. An important issue is that families who are part of other research samples or people involved in market research or related fields (for example, marketing, advertising, promotions and sales) are not allowed to enter this database.

If the household also passes this second phase and is still willing to continue with the selection process, it is considered eligible to be part of the sample, and data gathering instruments are sent to it. AC Nielsen verifies whether the family received the material and whether it correctly understood how to record

purchasing data. A toll-free number is always active to help the family, together with an instruction manual and a demonstrative DVD.

All the purchases recorded by the potential family are checked by the Statistical Office when they arrive at the central server on a weekly basis. After a trial stage (generally not less than six weeks), the data recorded by the household goes effectively into the sample and the family moves from being 'potential' participant to 'collaborator'. In case the quality of communicated data decreases, a procedure is immediately activated, suspending data entry and activating a direct check by telephone to understand the causes of the anomaly. If the problems persist, data gathering material is revoked to the household.

When data are transmitted to the central server, they undergo a validation process, which consists of the following phases.

- **Cross Coding**: bar codes coming from the recorder are recognised and translated in an AC Nielsen code to which all product characteristics are related.

- **Price Estimation**: prices relative to products purchased in supermarkets, hypermarkets and free-service stores are imputed through data coming from the Outlets Panel. Outliers are checked and eventually corrected.

- **Basket Validation**: all the products purchased are analysed, verifying the consistency between them and the communicated store type.

- **Private Brand Validation**: the consistency between branded products and private labels purchased by the household in different store types is verified.

- **Outliers Check**: as for prices, it is checked whether abnormal product quantities are purchased.

The process elaborates data on a weekly basis. Based on the quality and on the duration of the collaboration with the household, the producible sample is defined and the corresponding expansion factors are calculated every four weeks. Therefore, the sample is able to provide accurate indications on the behaviours of the universe of Italian households.

The measure of the accuracy of this estimation is given by the standard error.

The standard error represents a measure of the sampling error, that is, the difference between real data (unknown) and collected data (known). The total error is made by a systematic and a stochastic component. The standard error gives the probability that real values are comprised in a determined interval of estimated values: it, therefore, exists a certain probability level x that the real value is within $\pm y$ per cent of the estimated value. The definition of the standard error reports a range where the real value has a probability equal to 68 per cent to fall within.

5.4. Conclusion

Chapter 5 offered an overview of the nature of the data utilised in this thesis relative to stated and revealed preferences and on the way they were collected and set up in order to run secondary analyses. The results obtained from them will be presented in the following chapter (Chapter 6).

6. Results

6.1. Introduction

This chapter will show the main results generated by the application of the methodologies illustrated in Chapter 4. Similar to previous chapters, this chapter will be divided in two parts: the former will be relative to SP, while the latter will be dedicated to actual purchases.

Concerning SP data, the section will first present the main socio-demographic characteristics of the sample, to show that there are enough respondents in each sub-group to conduct an ANOVA. Second, the BW score for the whole sample will be illustrated to identify the ranking of importance respondents give to the thirteen attributes. Then, the outcomes of an ANOVA conducted across five socio-demographic variables (age, frequency of drinking, geographical area, income, and involvement) will be shown, followed by those relative to a LCA. In particular, the average BW scores for the thirteen attributes and their respective standard deviations will be calculated, in order to understand whether the sample is heterogeneous enough to hypothesise that differences exist in the way the population rates the thirteen choice factors. If so, the researcher will consider whether the attributes are distinct choice drivers, or whether they are jointly significant for some population segments, through the observation of their correlation matrix. If so, the results of a PCA will explain how the thirteen attributes can be reduced in a lower number of choice factors. Finally, the results of the LCA will be presented, describing how the groups obtained from it vary in respect to the judgment expressed towards every choice factor.

The second part of the chapter will describe how loyalty towards three product attributes (format, quality designation and price) characterise consumers' choices in two three-year periods, 2003-2005 and 2006-2008, and how it evolves over time. Then, the nature and the effects of the relationship between the three product attributes in determining the overall loyalty consumers devote to them during both interval times will be discussed. In particular, further results will clarify whether partial analysis (2x2) are sufficiently accurate to provide a real

picture of the relationship generating this loyalty, or whether one needs to look at the results of a 2x2x2. Finally, observed and estimated MS, polarization values and repeat rates of the resulting alternatives will be illustrated.

6.2. SP

6.2.1. BW Score

Table 16 shows the number of responses per category in both geographic areas and demographic groups. Some differences appear in the sample collected in the two regions, but overall there are enough respondents in each demographic to conduct comparative analysis.

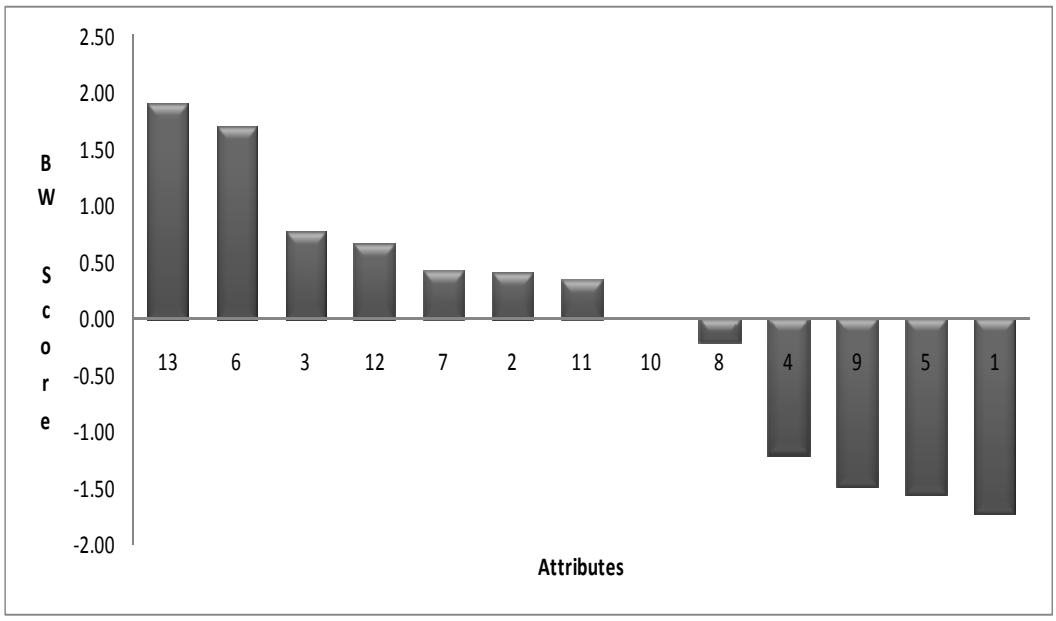
Tab. 16: Respondents per Category

Variable	Levels	# of respondents	
		Le Marche	Veneto
TOTAL		100	214
Age	18-40	41	68
	41-55	31	78
	Over 55	28	68
Income	Below Average	21	33
	About Average	31	39
	Above Average	48	142
Involvement	Low Involvement	6	18
	Medium Involvement	35	84
	High Involvement	59	112
Frequency of drinking	Low	42	81
	High	58	133

The BW analysis shows that in the retail segment (see Figure 7) when consumers choose wine for a dinner at home with their friends, they first tend to select a wine they have tried previously. Hence, familiarity is a fundamental attribute in choosing wine (Perrouty et al., 2006; Atkin et al., 2007). The second most important attribute is matching the wine with food, which provides evidence of the strong association of wine and food in Italy. In contrast to 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 reveals that the vast majority of people from Veneto bought wines produced in their region, the same as respondents from Le Marche did. Conversely, there seems to be scarce concern about promotional displays in store, a behaviour that is in line with the high interest towards already tasted wines. In a sense, if consumers tend to buy what they have already tried, they can select it in any case, whether the product is promoted or not. The alcoholic level of the wine is another attribute that is given limited attention. However, it should not be forgotten that while in several countries associations against binge drinking proliferate, in other countries, like Italy or France, only recently have some politicians proposed the inclusion of warnings on wine labels and they were fiercely criticised by diverse lobbying groups. An interesting aspect of 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 the conclusions of several other researchers (Barber et al., 2006; Atkin et al., 2007; Seghieri et al., 2007) concerning the importance of the front label. However, it is significant to note that these studies used Likert type scale questions to measure the importance consumers derive from front labels, with all the limits presented before. It is necessary to investigate further this aspect for Italian consumers, to understand whether the different evaluations of this product attribute are the result of sample bias or methodological issues.

Fig. 7: BW Retail



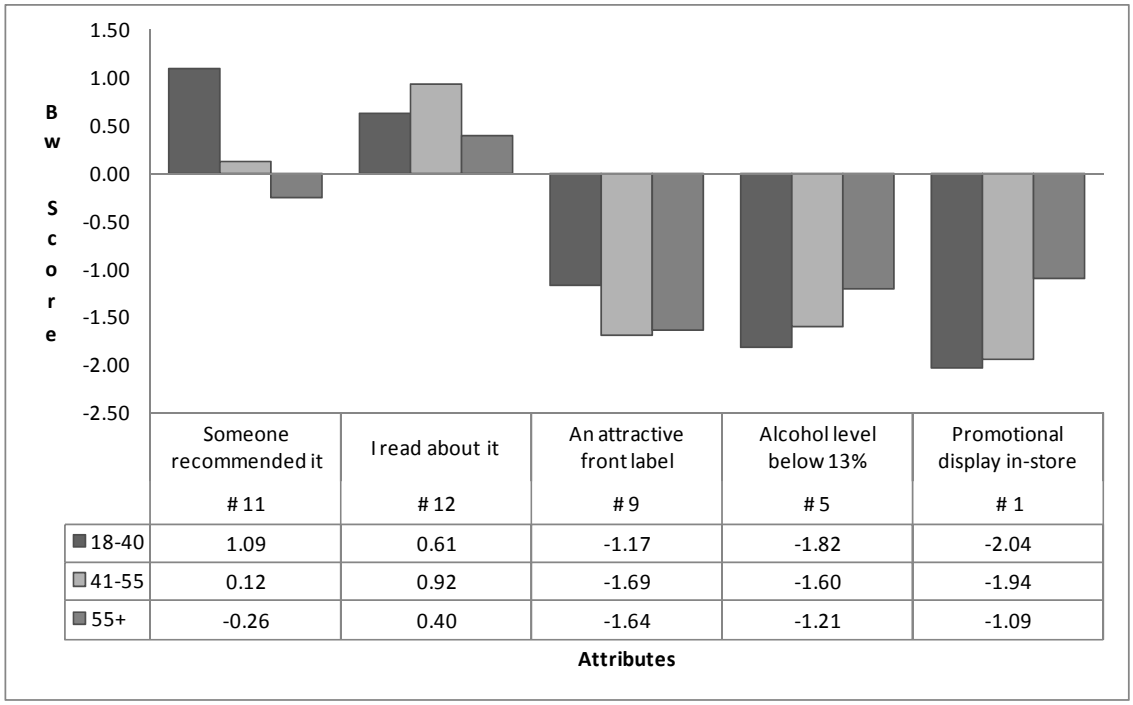
6.2.2. *A Priori* Segmentation

Once the BW score for the entire sample is defined, it is then possible to observe in detail where the differences in attributes' evaluation are located through an *a priori* segmentation technique: the ANOVA. The outcomes show a generally homogeneous behaviour across different geo-demographic groups in the evaluation of the thirteen attributes. This means that the segments of the population tend to rate the attributes almost similarly, converging to the value of the BW score presented above. Significant differences are found between age groups, involvement levels and geographic areas.

The analysis of the BW score for the three age groups shows for younger people (18-40 years old) that recommendation (11) is one of the three most important attributes that drives choice, while older people seem to be less disposal to accept suggestions by others (see Figure 8). The 41-55 years old tier tends to rely more on what they read about a wine (12), while for the over 55 years old segment, the previous experience with wine and the food/wine matching are relatively more important than for the other two segments. It is also interesting to note that the other three attributes where a significant difference in BW scores is observed – an attractive front label (9), alcohol level below thirteen per cent (5) and promotional display in-store (1) – are those that least influence consumers'

choices. While the two categories below 55 years old seem to care less about the alcoholic level of the wine and the presence of promotional displays in-store, older people seem to choose a wine independently from the attractiveness of the front label.

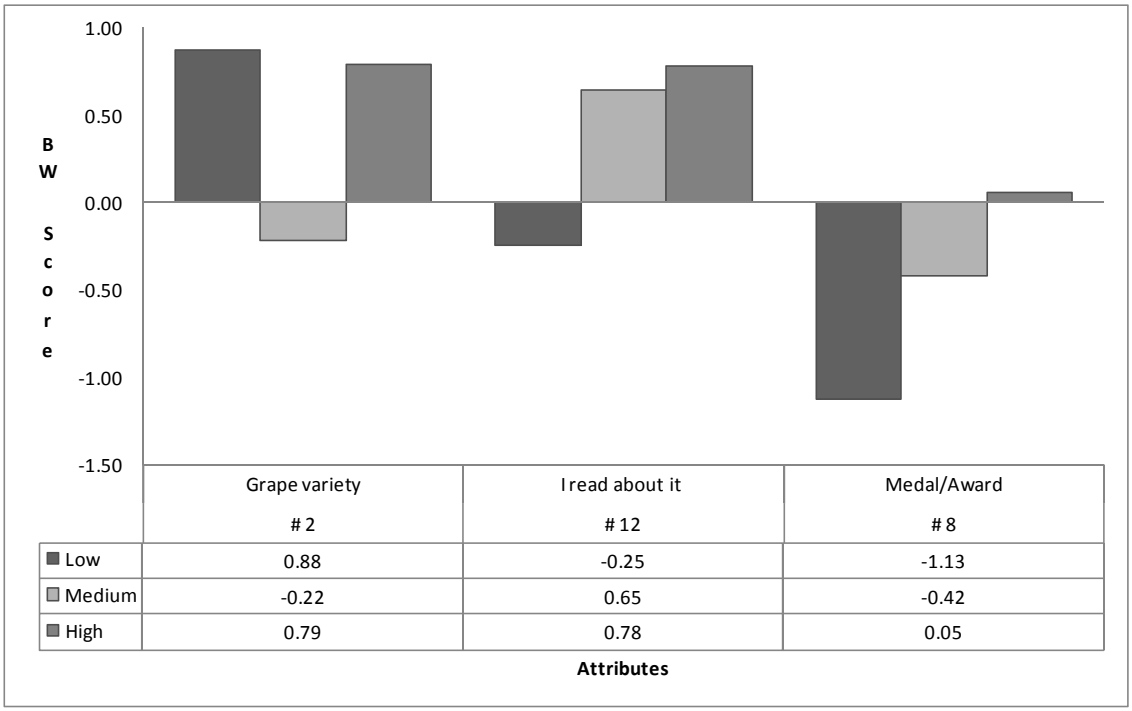
Fig. 8: BW Scores for Age Groups



	Someone recommended it # 11	I read about it # 12	An attractive front label # 9	Alcohol level below 13% # 5	Promotional display in-store # 1
18-40	1.09	0.61	-1.17	-1.82	-2.04
41-55	0.12	0.92	-1.69	-1.60	-1.94
55+	-0.26	0.40	-1.64	-1.21	-1.09

In respect to the three levels of involvement (see Figure 9), the variety of the grape (2) tends to have an overall positive score, for high- and low-involved consumers, but not the middle level. The medal/award attribute (8), which was translated in the Italian version of the questionnaire as a wine receiving a high score in one of most famous wine guides, seems to be considered a very insignificant attribute for low-involved consumers, while with an increase in the level of involvement the score improves. In line with this, reading about wines (12) is positively rated only by medium- and high-involved consumers. However, this does not demonstrate that medium- and high-involved consumers only consult wine guides, as they may be only one part of their favourite readings.

Fig. 9: BW Scores for Involvement Segments



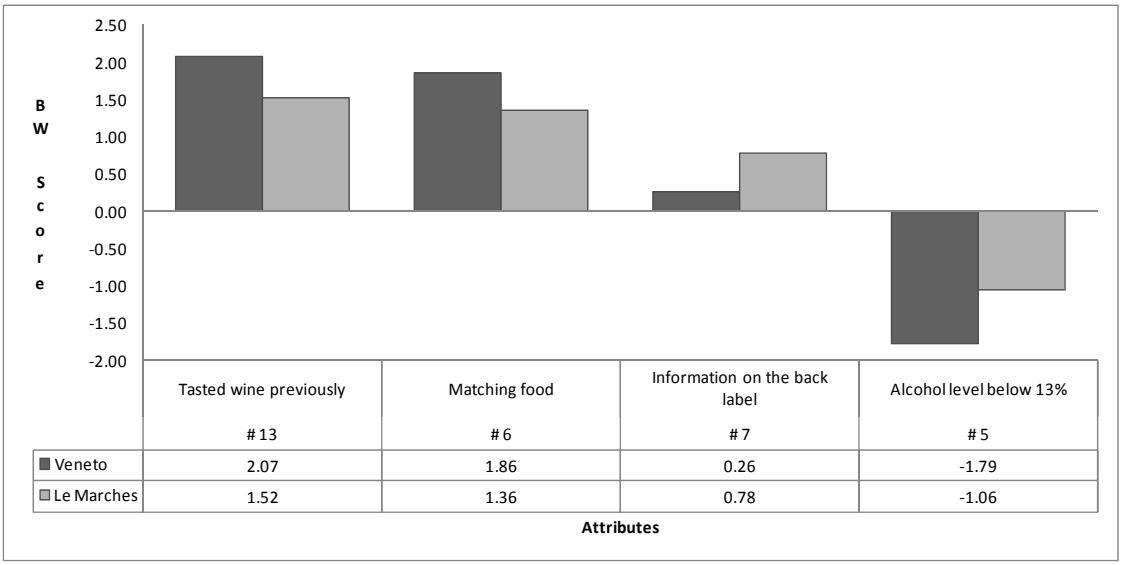
	Grape variety # 2	I read about it # 12	Medal/Award # 8
Low	0.88	-0.25	-1.13
Medium	-0.22	0.65	-0.42
High	0.79	0.78	0.05

The analysis by geographic areas (see Figure 10) 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 Marche and especially the area in which the vast majority of the interviews were collected are the land of *Verdicchio di Matelica*: a rich and full-bodied white wine that, apart from the Reserve typology, has a %Vol. of around twelve to 12.5 per cent. 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 plays an important role. Nevertheless, of course, the Verdicchio may be matched more easily than Amarone. Second, one has to consider that Veneto developed an important eno-gastronomic culture, greater and earlier than Le Marche with the result that the attribute 'matching with the food' is evaluated more as a BEST attribute from people of Verona than from people of Matelica. It must also be considered that the average price for wine with an appellation of origin (DOC/DOGC) in Veneto is higher than in Le Marche (ISMEA, 2007). In

particular, it is well known that a good *Amarone della Valponicella* may be found in the ultra-premium price range, while a nice *Verdicchio di Matelica* will not cost more than €20 – even in the top Reserve category. This could explain why consumers might 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 continue to choose a wine they already know, instead of risking a bad purchase. Third, it is not by chance that people from Veneto tend to evaluate the attribute 'alcohol level below thirteen per cent' (5) worse than people from Matelica. Although this attribute is 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 influential attribute for consumers in Le Marche is 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 Marche seem to be more curious about the wines they buy. This information may be found on the back label; hence, this explains the importance of having clearly described cues to the wine. Moreover, this could help the promotion activities of a wine and consequently the awareness of a wine region.

Fig. 10: BW Scores for Geographical Areas



	Tasted wine previously	Matching food	Information on the back label	Alcohol level below 13%
	#13	#6	#7	#5
Veneto	2.07	1.86	0.26	-1.79
Le Marches	1.52	1.36	0.78	-1.06

6.2.3. *Post-Hoc* Segmentation

The *a priori* segmentation helps identifying where significant differences in the evaluation of the thirteen attributes are located, but it does not provide information on how to interpret particular values of the BW score, like those close to zero.

A result like this could be generated by a diffuse indifference towards a certain attribute, such that no respondent chose it either as the most or as the least important for the choice of a wine. Alternatively, a similar situation could occur if a group of consumers that judges a certain attribute of strategic importance is well balanced by another group of consumers that find it irrelevant. These extreme scenarios open two different perspectives in terms of market segmentation and choice of the better segments to target. If a score close to zero is accompanied by a variance and a standard deviation close to zero, this implies that the entire sample consistently judges that attribute as being insignificant. On the contrary, if a variance and a standard deviation are very high, this would mean that interviewees are heterogeneous with regards to choice attributes. However, this heterogeneity could be better explained maximising differences between groups and minimising those within each of them, thus creating homogeneous segments within the sample, developing different marketing strategies for each of them.

In addition, it can be argued whether the influence of the researcher in defining *a priori* the classes within which segmenting the population, to find differences between the sub-groups, does generate a biased interpretation of the reality. In order to overcome these main two issues, a *post-hoc* segmentation will be conducted.

6.2.3.1. Heterogeneity in Preferences

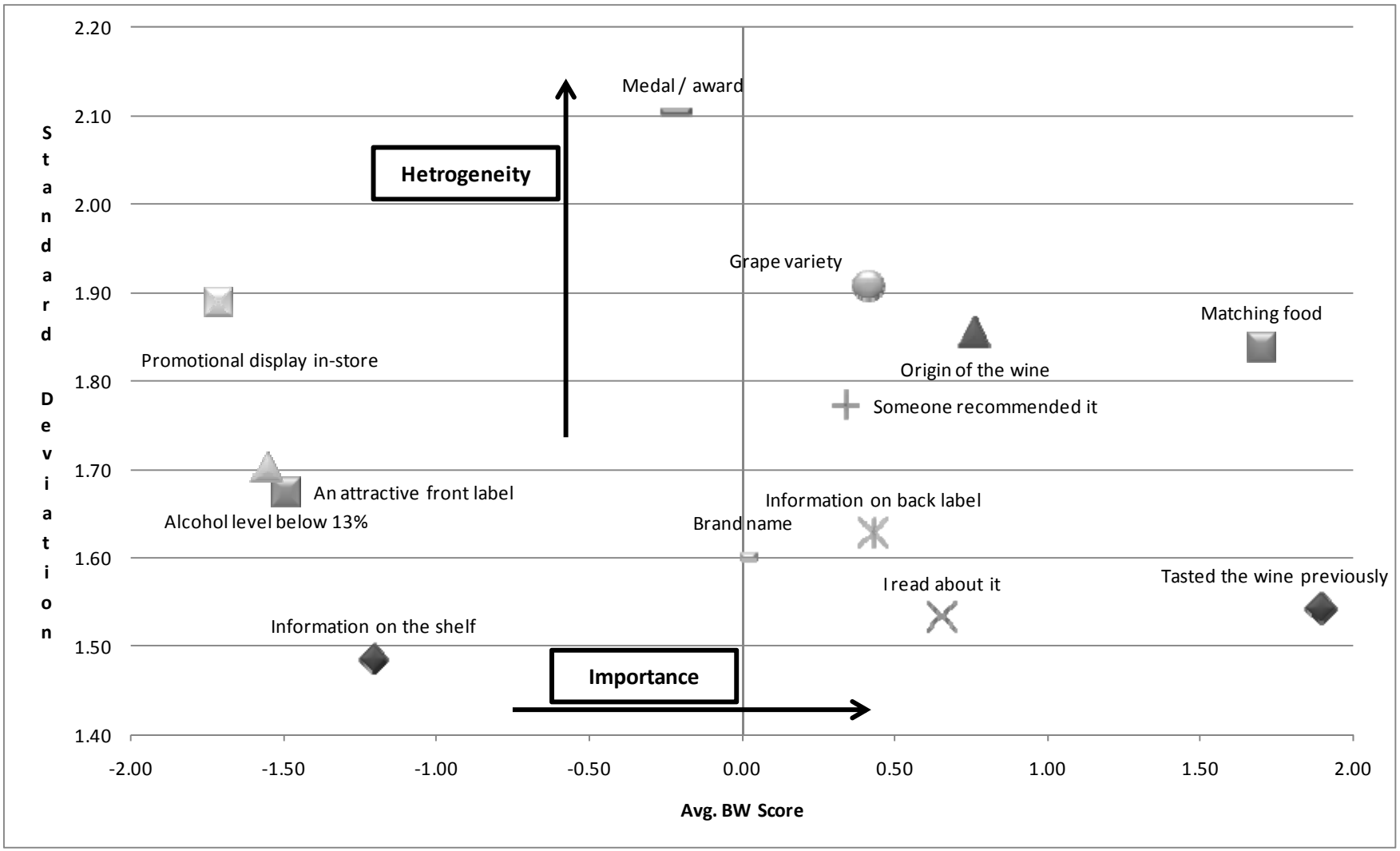
Table 17 and Figure 11 show the average of the BW score and the standard deviation associated with choice attributes respectively. As every attribute appears four times across all choice sets, it can only be chosen four times as the most important and four times as the least. Consequently, the BW score could range between +4 and -4. For the same reason, the standard deviation associated with

each attribute cannot be higher than 4, as this represents the extreme case where exactly half the sample judges an attribute as the most important every time it appears in a choice set and the other half thinks it is the least important. In the present thesis, all standard deviations are higher than one and, concerning the attribute 'medal/award' (8), the value is over two. Consequently, in analogy with the evaluation of Mueller et al. (2008), it is possible to affirm that a certain degree of heterogeneity exists for the sample. However, it should be highlighted that it does not exist a relation between the fact that an attribute has a high average score, either positive or negative, and a lower standard deviation. If one observes, for example, the first two most influencing factors, that is 'tasted the wine previously' (13) and 'matching food' (6), one notes that the first present a factor of the lowest standard deviations, while the second presents one of the highest. Despite the fact that the promotional activity associated with a wine is judged as one of the attributes that least influence the choice, the sample does not seem to consistently agree with this opinion. Once again, this highlights how fundamental it is to deepen the analysis through a *post-hoc* segmentation, to avoid misleading conclusions.

Tab. 17: Average and Standard Deviations Relative to the Importance Given to Choice Attributes

#	Attribute	Avg. BW Score	St. Dev.
13	Tasted the wine previously	1.89	1.54
6	Matching food	1.70	1.84
3	Origin of the wine	0.76	1.86
12	I read about it	0.65	1.53
7	Information on back label	0.43	1.63
2	Grape variety	0.41	1.91
11	Someone recommended it	0.34	1.77
10	Brand name	0.00	1.60
8	Medal / award	-0.22	2.11
4	Information on the shelf	-1.21	1.48
9	An attractive front label	-1.49	1.68
5	Alcohol level below 13%	-1.55	1.70
1	Promotional display in-store	-1.72	1.89

Fig. 11: Graphical Representation of the Average Values and of the Standard Deviations Relative to Choice Attributes



Once the existence of a certain degree of heterogeneity in consumers' preferences is demonstrated, it is important to understand whether the thirteen attributes represent distinct choice drivers for different population groups, or whether they are jointly significant for some segments. For this purpose, it was decided to create a correlation matrix for product attributes. The correlation matrix (see Appendix B) is easier than the variance-covariance matrix in terms of interpretation, as the values appearing on the diagonal are all equal to 1, while all other values range between +1 and -1. The more these values move away from zero, the stronger is the correlation between the attributes.

The literature judges a correlation inferior to 0.35 as a low value, while if it is above 0.45, it is considered from medium to medium-high. However, as affirmed by Mueller et al. (2008), if one uses these threshold values, one risks losing the information associated with some attributes. Consequently, a lower limit value will be taken in this thesis.

The attributes towards which one observes the highest degree of positive correlation are 'tasted the wine previously' (13) with 'someone recommended it' (11) (0.288) – once again confirming that a positive past experience with a wine is fundamental for the next choice – and 'brand name' (10) with 'an attractive front label' (9) (0.248) – proving evidence of the strong relationship between the brand one wants to communicate and trade and the packaging through which the message is spread (Orth and Malkewitz, 2008).

It is also interesting to observe a strong negative correlation between the attributes characterising a past experience with a wine (11, 12 and 13) and those playing a significant role when a consumer is in front of a supermarket shelf: the 'alcohol level' (5), the 'information on back label' (7), the 'brand name' (10), the 'region of origin' (3) and 'medal/award' (8). It is also strong the negative correlation between 'promotional display in-store' (1), 'grape variety' (2) and 'matching food' (6).

6.2.3.2. PCA

The analysis of the correlation matrix shows that some attributes drive jointly

consumers' preferences. Therefore, it appears more reasonable to reduce the thirteen attributes in a lower number of choice factors.

A PCA with varimax rotation and Kaiser normalisation was conducted, obtaining four factors able to explain 48 per cent of the variance.[13] This result supports the hypothesis that these attributes do not constitute distinct and independent choice drivers, but they are correlated and could be grouped in a certain number of choice factors. Each factor is defined by those attributes that rotate either very positively or very negative around the factor. It is important to highlight that the positive and negative values associated with each attribute do not represent a measure of the degree of preference of respondents, but they do constitute the extremes within which one characterises each factor. Table 18 reports the factor loadings associated with each attribute and the percentage of the variance explained by each factor.

The first factor shows the dichotomy between a choice mainly based on a personal experience or that of a trusted person and a choice based on extrinsic product attributes such as the back label, award logos or the alcoholic content. Consequently, it was decided to call this factor 'consolidated recall', as consumers showing a high positive regression coefficient in respect to this factor represent those whose choice is exclusively based on past experiences. In contrast to the first factor, the second shows the fundamental role occupied by experience. Together, other elements come into play, such as food matching, the information present on the shelf and those appearing on the back label. Conversely, factor loadings relative to the attractiveness of the front label, the brand name and the region of origin emerge in the opposite direction. Therefore, it was decided to call this factor 'aided recall', as those consumers showing a high positive regression coefficient with regards to this factor will definitely give a weight to the previous experience with a wine, but they will also need a series of information relative to wine and food pairings present on the back label and on the shelf in order to confirm themselves that the chosen wine is exactly the one that they looked forward to

[13] In social sciences, a value for the explained variance equal to 48 per cent could be considered acceptable, as reported by some studies (Stevens et al., 2006; Gangemi et al., 2007).

drinking. The third factor relies on the differences between a more rational consumption, on the one hand, and retailers' stimuli/suggestions, on the other. The attractiveness of the front label, the name of the brand, the presence of a promotional campaign on a wine and the information on the shelf rotate in one direction. Food matching, grape variety and the region of origin rotate in the opposite direction. Using the same principle applied above, it was decided to call this factor 'brand strength'. Finally, the forth factor moves between the borders of involvement and simplicity. One observes the factor loadings relative to having read about a wine in a guide or specialised review and those relative to medal/awards obtained (given, eventually, by the same magazine/guide/review) stand out. Conversely, the attributes characterising a more relaxed approach with a wine, that is choosing a wine looking in particular to the information present on the shelf and on the back label, particularly those inherent to wine and food pairings and the region of origin of a wine. For this reason, the last factor was called 'honest curiosity'.

Tab. 18: Factor Loadings of Choice Attributes Obtained with the PCA

Utility Factors	1	2	3	4
Variance explained by the factor	14.3%	13.8%	10.2%	10.1%
	Consolidated Recall	***Aided Recall***	***Brand Strength***	***Honest Curiosity***
Someone recommended it	**0.753**	0.159	-0.028	0.030
Tasted the wine previously	**0.593**	**0.378**	0.080	0.154
An attractive front label	**0.320**	**-0.591**	**0.269**	0.050
I read about it	0.102	0.157	-0.093	**-0.685**
Matching food	0.061	**0.268**	**-0.458**	**0.267**
Promotional display in-store	-0.045	0.027	**0.695**	0.099
Information on the shelf	-0.054	**0.509**	**0.291**	**0.393**
Brand name	-0.068	**-0.612**	**0.273**	0.255
Grape variety	-0.121	-0.026	**-0.710**	-0.066
Origin of the wine	-0.178	**-0.593**	**-0.215**	**0.239**
Medal / award	**-0.258**	0.100	0.047	**-0.735**
Information on back label	**-0.486**	**0.203**	-0.077	**0.233**
Alcohol level below 13%	**-0.519**	0.103	0.034	-0.084

6.2.3.3. LCA

The factors obtained with the PCA represent distinct utility dimensions

identical to and universal for all respondents, but every consumer or, more properly, every homogeneous segment of the population varies with regards to the relative importance given to each single factor. It is now necessary to classify every respondent or group of respondents in respect to the four utility dimensions, where positive values associated with a factor indicate the ability of the latter to guide the choice of a particular group of consumers, while a negative score discourages them.

Prior to this, it is necessary to identify the best number of groups in which the sample can be segmented. It was decided to apply a LCA (Latent Gold 4.0 – Statistical Innovations Inc.), where the difference between the number of times an attribute was chosen as the most important and the number of times it was chosen as the least important for each of the thirteen attributes and for each consumer are the dependent variables, obtaining three segments[14] (see Appendix C).

Each respondent now belongs to one of the three groups. A table was created (see Table 19) in which the factors extracted above appear on the columns, while the three segments obtained through the LCA appear on the rows. The values inside the table represent the average of the regression coefficients of each factor relative to each group. An ANOVA was also run on these scores and the results demonstrate that the segments are well distinct between them. A further proof of the advantages of the use of a PCA in combination with a LCA, as a method able to identify in the easiest and most correct possible way the elements driving consumers' choices, is provided in Appendix D. There, one can find the average BW scores relative to the thirteen attributes for the three groups. Although possible, the definition of these tendencies is far more complicated.

[14] This decision was taken by observing the BIC, which shows the lowest value in correspondence to the three segments solution.

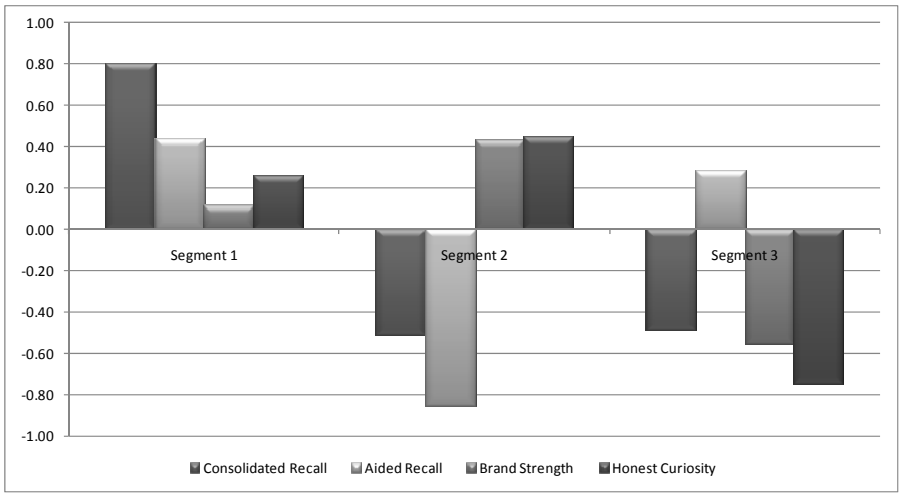
Tab. 19: Average of Regression Coefficients Relative to the Four Factors with Respect to the Three Segments

		Segment 1	Segment 2	Segment 3	ANOVA	
n		120	95	99		
n (%)		38%	30%	32%		
#	Factor				F	Sign.
1	Consolidated Recall	0.81	-0.51	-0.49	105.358	0.000
2	Aided Recall	0.44	-0.85	0.28	72.396	0.000
3	Brand Strength	0.12	0.43	-0.55	29.113	0.000
4	Honest Curiosity	0.26	0.45	-0.75	55.898	0.000

The first and most numerous segment assigns to past experiences with a wine a fundamental importance (see Figure 12). The products these consumers had the chance to appreciate either in person or through a suggestion by someone they trust drive future choices. However, sometimes memory is not enough, therefore when these consumers are in front of a shelf, they rely on additional information such as informative displays, information on back labels, or wine and food pairings, to be sure that the wine chosen is the one they tried previously. It is possible to affirm that these consumers are very risk adverse, as once they identify a product they like, they tend to remain loyal to it. In contrast to the first segment, the second group prefers the information found in shops and tends to trust retailers' advice. The respondents belonging to this segment carefully examine promotional campaigns in store and are not greatly influenced by wine guides or specialised magazines. Nevertheless, it would be a mistake to think that these consumers are only sensitive to prices. It is probably more correct to describe them as 'contemporary' shoppers: a group of consumers curious enough to spend a bit of time in the wine isle of a supermarket in order to evaluate different labels, the information present on the shelves and on back labels (such as region of origin, food and wine pairings and the producer's name), without being naïve. Finally, the third segment is a group of consumers who appear to be more conscious about the choices they make. These respondents tend to prefer wine they previously experienced, but they also rely on other information (such as grape variety, region of origin, information on back labels, and medal/awards) in order to be sure that the wine chosen is the one they tried previously. This could represent the signal

that these consumers prefer to move in a well known pattern, but they are willing to experiment new products, if they are satisfied by certain kind of information, in particular that relative to awards, grape varieties and regions of origin.

Fig. 12: Comparison of Regression Coefficients Obtained for the Three Segments



6.3. RP

Once the elements able to drive the choice of a wine prior to a purchase are identified and the population was segmented into a defined number of more homogeneous subgroups, it is now possible to illustrate the results relative to the factors able to influence the loyalty towards product attributes and the relations (interaction or correlation) between them in determining the overall loyalty towards wine attributes.

6.3.1. Loyalty to Product Attributes and Their Evolution over Time

First, it is important to remember that the polarization index (φ) varies between zero and one, where a higher value of φ indicates higher loyalty and low values are a signal of a low repeat rate, as indicated in Chapter 4. A preliminary analysis of loyalty levels (see Table 20) shows that in the three-year period 2006-2008, a significant decrease in the loyalty Italian consumers devote to the wine attributes under analysis occurred in respect to the former interval time. In particular, the highest loss characterises prices, as the φ_c relative to 2006-2008 registers a decrease by twelve per cent, followed by formats (-8 per cent) and by quality designations (-5 per cent). Nevertheless, the format in which the wine is

purchased continues to represent the attribute to which Italian consumers devotes the highest loyalty (0.49 in the three-year period 2003-2005 and 0.45 in 2006-2008). This is followed by the quality designation that appears on the label (0.37 and 0.35 respectively) and by price tiers (0.33 and 0.29).

Tab. 20: Category Loyalty 2003-2005 and 2006-2008

Attribute	Loyalty		Diff.
	2003-2005	2006-2008	%
Format	0.49	0.45	-8
Quality Designation	0.37	0.35	-5
Price	0.33	0.29	-12

In particular, the analysis of marginal φ values (see Table 21) reveals that the worsening of formats' performances was mainly caused by the >1.5 litres group. In the last three years, this format moved from showing the highest BBD value among all the attributes and levels studied in this work (0.58) to a marginal φ (0.37) similar to that of <0.75 litres format (0.36). However, while this latter group, which mainly includes 0.375 litres bottles, remained almost stable between 2003-2005 and 2006-2008 both in terms of MS (1.8 per cent and 2.8 per cent) and BBD value (0.36 for both periods), the >1.5 litres tier lost a considerable portion of the market (20.4 per cent and four per cent). The other two groups, 0.75 litres and >0.75 litres and ≤1.5 litres, moved from owning 75 per cent of the market to more than 90 per cent, but they inverted their positions in the ranking, with the former becoming the most purchased format (from 30.5 per cent to 52.7 per cent), while the latter lost seven per cent circa of MS (from 47.3 per cent to 40.5 per cent). In terms of loyalty, while the 0.75 litres format has been continuing to show excess loyalty, that is a marginal φ higher than the category φ_c, it is interesting to note that the tier >0.75 litres and ≤1.5 litres, although stable across the two periods (0.47 for both interval times), reached the same condition only in the last three years.

The results about quality designations show that the situation slightly worsened, especially due to the loss of loyalty towards table wines (from 0.46 to

0.45) and DOC-DOCG wines (from 0.40 to 0.37), not compensated by a growth towards GI wines (from 0.24 to 0.25) and foreign wines (from 0.09 to 0.12). Despite this, table wines and DOC-DOCG wines still show excess loyalty, while the other two segments suffer from low loyalty levels. On the contrary, one notes a radical change in terms of MSs. Table wines approximately lost seven per cent (from 53.1 per cent to 38.4 per cent), a share partly absorbed by DOC-DOCG wines (from 30.6 to 37.5 per cent) and GI wines (from 15.7 per cent to 23.1 per cent). Finally, foreign wines remained stable across the two three-year periods (from 0.6 per cent to one per cent).

Wines sold in the basic tier continue to represent the favourite purchasing group, both in terms of MS and loyalty, but they lost a significant share on both sides. This price range shrank the total purchases by eight per cent and the BBD value passed from 0.45 to 0.37. The premium (€5-€7) category did not perform well over time. The loss appears to be more limited regarding MS (from 6.1 per cent to 4.1 per cent), but the same cannot be said in respect to loyalty, as the respective marginal φ moved from a value of 0.25 to 0.19. A situation opposite to that is faced by the popular premium (€3-€5) tier. This increased by almost nine per cent in terms of MS (from 13.3 per cent in 2003-2005 to 22.7 per cent in 2006-2008), although loyalty to this category remained almost stable (0.29 and 0.30 respectively). Finally, >€7 wines remained steady either in terms of MS (1.6 per cent and two per cent) and loyalty (0.19 and 0.18) over the two periods.

Tab. 21: Attribute Levels Loyalty and MS 2003-2005 and 2006-2008

Attribute	MS		DMD		BBD	
	%		φc		φ	
	2003-2005	2006-2008	2003-2005	2006-2008	2003-2005	2006-2008
Format						
<0.75litres	1,8	2,8	0,49	0,45	0,36	0,36
=0.75litres	30,5	52,7	0,49	0,45	0,50	0,48
>0.75litres&≤1.5litres	47,3	40,5	0,49	0,45	0,47	0,47
>1.5litres	20,4	4,0	0,49	0,45	0,58	0,37
Quality Designation						
Table Wine	53,1	38,4	0,37	0,35	0,46	0,45
GI	15,7	23,1	0,37	0,35	0,24	0,25
DOC/DOCG	30,6	37,5	0,37	0,35	0,40	0,37
Foreign Wine	0,6	1,0	0,37	0,35	0,09	0,12
Price						
≤€3	79,1	71,3	0,33	0,29	0,45	0,37
>€3 & ≤€5	13,3	22,7	0,33	0,29	0,29	0,30
>€5 & ≤€7	6,1	4,1	0,33	0,29	0,25	0,19
>€7	1,6	2,0	0,33	0,29	0,19	0,18

6.3.2. Interaction and Correlation Effects between Product Attributes and Their Evolution over Time

After having identified how loyalty levels to single attributes evolved from the three-year period 2003-2005 to 2006-2008, the analysis of the results relative to the presence of joint effects between product attributes in determining consumers overall loyalty shows a general presence of interaction effects (see Table 22). The observation of the LL tests for each of the three 2x2 analyses, illustrates that the model able to explain best what kind of relationship exists among attributes levels is the one that includes the presence of interaction effects, but excludes the presence of correlation. This means that for any of the 2x2 combinations, the levels that determine an increase in consumers' utility (which also means an increase in customer loyalty) should be present together in order to generate the highest loyalty levels.

These considerations are formulated by looking at the four variants estimated through the QMD. The base model only shows the means and the variance of the attributes, but it does not include interaction or correlation effects. Conversely, the full model takes into account both effects; hence, it presents seven parameters: means and variance of the two attributes, means and variance of the interaction

effect and the parameter relative to the correlation effect. The lower the LL corresponding to each variant of the QMD model is, the better it fits the data (Edwards, 1976; Eliason, 1993). Table 7 shows that the interaction model and the full model have the lowest LL values, with the latter always being slightly better the former, apart from the 2x2 analysis 'price X format' for the three-year period 2006-2008.

Tab. 22: LL Values of the Four Variants of the QMD

2003-2005	ALTERNATIVES	MODEL	NO. OF PARAMETERS	LOG LIKELIHOOD
PRICE x FORMAT	Base	No Correlations; No interaction	4	237005.1560
	Correlation	Main correlation, No interaction	5	235023.5508
	Interaction	No correlation; Interaction	6	195920.2753
	Full	Main correlation, Interaction	7	195915.5720
PRICE x DESIGN.	Base	No Correlations; No interaction	4	259292.1317
	Correlation	Main correlation, No interaction	5	258067.2106
	Interaction	No correlation; Interaction	6	234671.7133
	Full	Main correlation, Interaction	7	234630.5650
DESIGN. X FORMAT	Base	No Correlations; No interaction	4	275402.0889
	Correlation	Main correlation, No interaction	5	274406.2504
	Interaction	No correlation; Interaction	6	244204.0983
	Full	Main correlation, Interaction	7	244202.5184
2 x 2 x 2	Interaction	No correlation; Interaction	12	301022.8573

2006-2008	ALTERNATIVES	MODEL	NO. OF PARAMETERS	LOG LIKELIHOOD
PRICE x FORMAT	Base	No Correlations; No interaction	4	343680.0601
	Correlation	Main correlation, No interaction	5	343060.5407
	Interaction	No correlation; Interaction	6	329770.8576
	Full	Main correlation, Interaction	7	329772.4985
PRICE x DESIGN.	Base	No Correlations; No interaction	4	353957.8220
	Correlation	Main correlation, No interaction	5	353050.9094
	Interaction	No correlation; Interaction	6	333572.1498
	Full	Main correlation, Interaction	7	333557.7491
DESIGN. x FORMAT	Base	No Correlations; No interaction	4	345170.6670
	Correlation	Main correlation, No interaction	5	343228.8119
	Interaction	No correlation; Interaction	6	298296.5876
	Full	Main correlation, Interaction	7	298293.2296
2 x 2 x 2	Interaction	No correlation; Interaction	12	418482.8411

Hence, it can be argued whether the difference in LL between the two alternatives is significant enough to choose the interaction instead of the full model. Table 23 helps to solve this problem. This table demonstrates what happens to the fit of the QMD when interaction/correlation effects are removed from the full model. In all of the four simulations relative to both three-year periods, it can be clearly seen that removing correlation from the full model or adding correlation to the base model does not change the values of the likelihood

ratio test, while an addition or a subtraction of the interaction effect causes a consistent modification of these values. However, the fact that every change is statistically significant should not be a source of concern. Rungie et al. (2009) point out that when using very large datasets, it is normal that both correlation and interaction effects, although small, emerge as statistically significant. Hence, it is important to estimate their impact according to the database used. As (a) the two databases account for 366,413 and 411,638 records for the 2003-2005 and 2006-2008 period respectively, and (b) changes in LL from the full to the interaction model are very small, while those relative to correlation are much bigger, it is reasonable to state that the interaction model provides the best representation of the relationships between attributes for all the eight simulations run.

Tab. 23: Likelihood Ratio Tests

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
PRICE X FORMAT 2003-2005	1	Correlation	Add correlation to base model	3963	1	0.0000
	1	Interaction	Add interactionto base model	82170	2	0.0000
	1	Both	Add both to base model	82179	3	0.0000
	3	Correlation	Take correlation from full model	78216	2	0.0000
	2	Interaction	Take interaction from full model	9	1	0.0022

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
PRICE X DENOM 2003-2005	1	Correlation	Add correlation to base model	2450	1	0.0000
	1	Interaction	Add interaction to base model	49241	2	0.0000
	1	Both	Add both to base model	49323	3	0.0000
	3	Correlation	Take correlation from full model	46873	2	0.0000
	2	Interaction	Take interaction from full model	82	1	0.0000

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
DENOM X FORMAT 2003-2005	1	Correlation	Add correlation to base model	1992	1	0.0000
	1	Interaction	Add interaction to base model	62396	2	0.0000
	1	Both	Add both to base model	62399	3	0.0000
	3	Correlation	Take correlation from full model	60407	2	0.0000
	2	Interaction	Take interaction from full model	3	1	0.0755

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
PRICE X FORMAT 2006-2008	1	Correlation	Add correlation to base model	1239	1	0.0000
	1	Interaction	Add interaction to base model	27818	2	0.0000
	1	Both	Add both to base model	27815	3	0.0000
	3	Correlation	Take correlation from full model	26576	2	0.0000
	2	Interaction	Take interaction from full model	-3	1	0.0701

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
PRICE X DENOM 2006-2008	1	Correlation	Add correlation to base model	1814	1	0.0000
	1	Interaction	Add interaction to base model	40771	2	0.0000
	1	Both	Add both to base model	40800	3	0.0000
	3	Correlation	Take correlation from full model	38986	2	0.0000
	2	Interaction	Take interaction from full model	29	1	0.0000

	Base alternative	Effect	Description	Likelihood Ratio LR	Degree of Freedom df	Significance p
DENOM X FORMAT 2006-2008	1	Correlation	Add correlation to base model	3884	1	0.0000
	1	Interaction	Add interaction to base model	93748	2	0.0000
	1	Both	Add both to base model	93755	3	0.0000
	3	Correlation	Take correlation from full model	89871	2	0.0000
	2	Interaction	Take interaction from full model	7	1	0.0096

After having clarified the nature of the relationship between product attributes, it is important to investigate how these interactions contribute to the overall loyalty consumers devote to them. The means (μ_1, μ_2, μ_3) represent the partworth utility consumers show when moving from one level of an attribute to another, relative to 2x2 and 2x2x2 analyses for both the three-year period 2003-2005 and 2006-2008.

With regards to the first interval time (see Table 24), it is possible to observe that consumers show a positive utility when moving from a higher to a lower price when the latter is modelled together with format (1.4104), quality designation (1.2792) and in the 2x2x2 analysis (1.2491). Similarly, panel members attach higher utility to GI-DOC-DOCG wines when quality designation interacts with price (0.6201), format (0.1030) and in the 2x2x2 analysis (0.4558). Thus far, these results seem to demonstrate that there is no point in conducting a 2x2x2 analysis, as already with 2x2 analyses, the results are all consistent. However, if one shifts the attention to formats, one notes a decrease in utility passing from a smaller to a bigger format (-0.6303), when the latter is analysed together with price. At the same time, one observes an increase in utility (0.3281) when the latter is analysed together with quality designation. These results appear to be in contradiction. However, when one looks at the mean value of format in the 2x2x2 analysis, one sees a value of -0.0077, which is approximately equal to zero. In such a situation, the 2x2x2 provides more information than those obtained by studying format with a 2x2 analysis. The 2x2x2 suggests that the two levels really divide the population in two segments, one loyal to smaller formats, and the other loyal to

larger ones. The 2x2 analysis gives some clue by showing two opposite results, but due to some latent components (that the 2x2 is not able to notice), it is not possible to know exactly what to conclude from these results. Only the 2x2x2 allows a clear picture of consumers' preferences in respect to the format chosen from a loyalty perspective.

Tab. 24: Parameters Estimates (μ_1, μ_2, μ_3 – σ_1, σ_2, σ_3) for the Three-year Period 2003-2005

2003-2005		ATTRIBUTES					
		PRICE		FORMAT		DENOMINATION	
		μ1	σ1	μ2	σ2	μ3	σ3
2 x 2	**PRICE** HIGH to LOW			1.4104	1.0754	1.2792	1.2429
	FORMAT SMALL TO BIG	-0.6303	1.3489			0.3281	1.4848
	DESIGNATION TABLE TO GI-DOC-DOCG	0.6201	0.9512	0.1030	1.0272		
2 x 2 x 2	**PRICE** HIGH to LOW			1.2491	1.0094	1.2491	1.0094
	FORMAT SMALL TO BIG	-0.0077	1.6572			-0.0077	1.6572
	DESIGNATION TABLE TO GI-DOC-DOCG	0.4558	0.8914	0.4558	0.8914		

A much clearer and easier situation to evaluate is relative to the three-year period 2006-2008 (see Table 25), as the changes in partworth utilities for all the product attributes are consistent between them. Reductions in the price at which wines are purchased always generate an increase in the utility (1.0019 when prices are analysed together with format, 1.1404 for the 'price X quality designation' analysis, and 1.0164 for the 2x2x2). In line with this, consumers attach a higher utility to smaller formats (up to 0.75 litres), than to either one litre cartons or bag-in-boxes (0.5591 when format is observed in conjunction with prices, 0.1146 for the 'format X quality designation' analysis and 0.0567 for the 2x2x2 study. Finally, consumers tend to prefer more quality designations than table wines in a retail

setting. In all the three cases – price X quality designation, format X quality designation and the 2x2x2 analysis – in which this attribute is examined, the results always show an increase in utility moving from table to quality wines (0.7717, 0.2691, and 0.6458 respectively).

Tab. 25: Parameters Estimates (μ_1, μ_2, μ_3 – σ_1, σ_2, σ_3) for the Three-year Period 2006-2008

2006-2008		ATTRIBUTES					
		PRICE		FORMAT		DESIGNATION	
		μ1	σ1	μ2	σ2	μ3	σ3
2 x 2	**PRICE** HIGH to LOW			1.0019	0.9723	1.1404	0.9866
	FORMAT SMALL TO BIG	-0.5591	1.3596			-0.1146	1.3486
	DESIGNATION TABLE TO GI-DOC-DOCG	0.7717	1.0653	0.2691	0.9479		
2 x 2 x 2	**PRICE** HIGH to LOW			1.0164	0.9758	1.0164	0.9758
	FORMAT SMALL TO BIG	-0.0567	1.1851			-0.0567	1.1851
	DESIGNATION TABLE TO GI-DOC-DOCG	0.6458	0.8695	0.6458	0.8695		

In addition to the analysis of the means, it is also fundamental to examine the values of standard deviations (σ_1, σ_2, σ_3) relative to both the 2x2s and the 2x2x2, as they (a) express the extent to which consumers differ in the utility they attach to each attribute and (b) tell what attribute drives more loyalty (Rungie et al., 2009). The results relative to the 2003-2005 period (see Table 24) demonstrate that format (1.48) drives loyalty more than quality designation (1.02), price (1.24) dominates over quality designation (0.95), and format (1.34) is stronger than price (1.07). The picture does not change much for the following interval time (see Table 25), as format (1.34) dominates over quality designation (0.94) and price (1.35 *versus* 0.97), but, in contrast to 2003-2005, quality designation (1.06) seems to rule over price (0.98). According to a transitive property, one could be lead to affirm that the order of attribute 'strength' in driving loyalty for 2003-2005 is format>price>quality designation, while for 2006-2008 is format>quality designation>price. However, the results of the 2x2x2 analysis relative to both

periods show a different ranking, with price (1.18) leading over format (1.06) and quality designation (0.84) for 2003-2005 and format (1.18) leading over price (1.01) and quality designation (0.86) for 2006-2008.

These results reinforces the idea that only the 2x2x2 analysis is able to describe correctly how product attributes are related to each other. However, it is important to remember that it is not always the case that a comprehensive (2x2x2) analysis offers a better representation of the connections between product attributes (or brand categories) than partial analyses (2x2s). The QMD allows observing both approaches before deciding what the most suitable one is, due to a series of powerful diagnostic tools.

A further result relates to the strength of the interaction effect (μ_4, μ_5, μ_6 - σ_4, σ_5, σ_6) between product attributes (see Table 26). In the three-year period 2003-2005, price and format turned up to show the strongest interaction (1.5771-0.8061 and 1.1622-0.6836), followed by price and quality designation (1.0842-0.7192 and 0.7490-0.1987), and format and quality designation (0.9319-0.9223 and 0.6696-0.8753). This picture is diametrically opposite to that relative to the three-year period 2006-2008. In this interval time, format and quality designation evidence the highest level of interaction (1.1854 – 0.8608 and 1.0924 – 0.8176), followed by price and quality designation (0.7491 – 0.7285 and 0.7479 – 0.5516), and by price and format (0.4551 – 0.7748 and -0.0254 – 0.7020).

Tab. 26: Parameters Estimates (μ_4, μ_5, μ_6 – σ_4, σ_5, σ_6) for the Three-year Periods 2003-2005 and 2006-2008

2003-2005		INTERACTION					
		PRICE		FORMAT		DENOMINATION	
		μ4	σ4	μ5	σ5	μ6	σ6
2 x 2	**PRICE** HIGH to LOW			1.5771	0.8061	1.0842	0.7192
	FORMAT SMALL TO BIG	1.5771	0.8061			0.9319	0.9223
	DESIGNATION TABLE TO GI-DOC-DOCG	1.0842	0.7192	0.9319	0.9223		
2 x 2 x 2	**PRICE** HIGH to LOW			1.1622	0.6836	0.7490	0.1987
	FORMAT SMALL TO BIG	1.1622	0.6836			0.6696	0.8753
	DESIGNATION TABLE TO GI-DOC-DOCG	0.7490	0.1987	0.6696	0.8753		

2006-2008		INTERACTION					
		PRICE		FORMAT		DESIGNATION	
		μ4	σ4	μ5	σ5	μ6	σ6
2 x 2	**PRICE** HIGH to LOW			0.4551	0.7748	0.7491	0.7285
	FORMAT SMALL TO BIG	0.4551	0.7748			1.1854	0.8608
	DESIGNATION TABLE TO GI-DOC-DOCG	0.7491	0.7285	1.1854	0.8608		
2 x 2 x 2	**PRICE** HIGH to LOW			-0.0254	0.7020	0.7479	0.5516
	FORMAT SMALL TO BIG	-0.0254	0.7020			1.0924	0.8176
	DESIGNATION TABLE TO GI-DOC-DOCG	0.7479	0.5516	1.0924	0.8176		

Finally, once it has been shown that the 2x2x2 analysis is able to best describe how attributes and levels interact in determining consumers' loyalty, it is possible to observe how the QMD estimates the MS, the loyalty level and the repeat purchase rate[15] of each alternative.

First, the goodness of the model can be immediately demonstrated by examining observed and estimated MS for both interval times (see Tables 27 and 28). The values never diverge more than five percentage points, and the majority of the times the difference is even lower than two percentages points.

In the analysis of the former three-year period above, it was demonstrated that the loyalty to single attributes was higher in 2003-2005 than in 2006-2008 (see Table 27). Therefore, consistent with those results, it is not surprising to find that three alternatives – 1 and 6 and 8 – dominate over the others in the three-year period 2003-2005. The latter, made by cheaper (≤€3) table wines sold in larger formats, totalises an MS of 47.5 per cent and an φ equal to 0.5305. At the same time, the presence of a quality designation, either GI, DOC or DOCG, stimulates sales. This element is common for alternative 1 and 6, although inserted in two different contexts. As for alternative 1 (18.4 per cent), the presence of a quality

[15] The estimation of the polarization index allows the analysis of the repeat purchase rate of a brand or attribute level. Rungie and Laurent (2003a, 2003b) showed that the probability of repeating a purchase ρ, or *repetition rate* (r), could be defined as the probability of choosing an alternative j, conditional to a previous purchase of the same alternative j, is strictly linked with the MS In fact:

$r = MS + \varphi - (MS \cdot \varphi)$ where $0 \le r \le 1$.

The polarization index represents the limit for r when the MS effect is eliminated.

designation is accompanied by a higher price and a smaller format, while for alternative 6 (18.8 per cent) the appreciation of a quality designation is made within a lower price and a larger format.

The ability of the QMD (due to its DMD component) to separately estimate MS and loyalty values could be even more appreciated here. Although alternatives 1 and 6 hold similar MS, their polarization values are very different. The former (φ=0.5204) stimulates loyalty more than the second (φ=0.4019) and almost equally to 8. This has a huge impact on the repeat rate of these alternatives, as 1, although holding less than a half of the MS of 8, is able to get to a repeat rate of 63.3 per cent, a value only ten percentage points lower than the latter (73.4 per cent), while 6, not being able to drive much consumers loyalty (φ=0.4019), falls behind in terms of repeat purchase rate (48.6 per cent). The other alternatives, that is 2, 3, 4, 5 and 7, are less influent in the dynamics of the three-year period 2006-2008, as they all together hold less than eighteen per cent of the total MS and they show a linear, though low, polarization and repeat rate values.

Tab. 27: Loyalty Values for the Eight Product Combinations Relative to the Three-year Period 2003-2005

	Alternative	Description	Observed MS	Estimated MS	Polarization	Repeat Rate
2 x 2 x 2 2003-2005	1	≥€3 - GI/DOC/DOCG - ≤0.75l	18.4%	23.5%	0.5204	63.3%
	2	≥€3 - GI/DOC/DOCG - >0.75l	1.1%	2.0%	0.2574	27.2%
	3	≥€3 - NOT GI/DOC/DOCG - ≤0.75l	1.1%	1.7%	0.1936	20.7%
	4	≥€3 - NOT GI/DOC/DOCG - >0.75l	0.1%	0.5%	0.1048	10.9%
	5	<€3 - GI/DOC/DOCG - ≤0.75l	8.0%	8.4%	0.3339	39.0%
	6	<€3 - GI/DOC/DOCG - >0.75l	18.8%	14.0%	0.4019	48.6%
	7	<€3 - NOT GI/DOC/DOCG - ≤0.75l	4.9%	6.5%	0.3668	40.8%
	8	<€3 - NOT GI/DOC/DOCG - >0.75l	47.5%	43.4%	0.5305	73.4%

The results relative to the 2006-2008 period reflect the evolution of consumers tendencies emerged in the previous paragraph (see Table 28). In general terms, one can see that smaller formats and quality designation wines continue to generate a higher utility than larger formats and table wines respectively. In fact, ≤0.75 litres formats (see alterative 1, 3, 5 and 7) accounts for more than 50 per cent of the total MS, as well as GI-DOC-DOCG wines (see alterative 1, 2, 5 and 6) and <€3 wines (see alterative 5, 6, 7 and 8). Lower prices dominate over higher ones,

but it is interesting to observe that, at least in terms of MS, a shift towards >€3 wines could be observed.

However, two main differences characterise this period compared to 2003-2005. First, the consumption of wines in one litre cartons or three-litre bag-in-boxes decreased in the last three years. Table wines sold at less than €3 in larger formats (alternative 8) remain the market leader, either in terms of MS and loyalty, but they significantly lost share on both sides. Moreover, Italian consumers seem to have lost a certain degree of loyalty towards GI-DOC-DOCG wines packaged in cartons or bag-in-boxes sold at a cheaper price (18.8 per cent of MS in 2003-2005 and 6.9 per cent of MS in 2006-2008; φ=0.4019 in 2003-2005 and φ=0.3066 in 2006-2008). Only in cases when these formats contain quality wines at a higher price did MS and loyalty increase in 2006-2008, but the growth is still too small to balance the loss registered for other alternatives. Second, it is interesting to note that if a wine is a GI-DOC-DOCG and it is sold in 0.75 litres, Italian consumers are very prone to purchase it (alternative 1 and 5 together account for 48.9 per cent of the total MS). However, in the period 2003-2005, when consumers tended to trust quality wines sold in regular bottles only when they are sold at higher prices, this link broke for 2006-2008. In the previous three-year period, alternative 1 had a BBD value of 0.5204, while alternative 5 stopped at 0.3339. Conversely, in 2006-2008 the respective values are almost identical (0.4379 and 0.4367). Therefore, consistent with the results shown above, the strongest interaction in 2006-2008 is between format and quality designation, followed by quality designation X price and by price X format.

Consequently, these phenomena, combined with a general loss in consumers loyalty, made polarization values more balanced than they were before, with the result that repeat purchase rate tended to be more similar between them, with the exception of the three market leaders – 1, 5 and 6 – which show a repeat rate of 55.2 per cent, 58.5 per cent and 63.4 per cent respectively.

Tab. 28: Loyalty Values for the Eight Product Combinations Relative to the Three-year Period 2006-2008

	Alternative	Description	Observed MS	Estimated MS	Polarization	Repeat Rate
	1	≥€3 - GI/DOC/DOCG - ≤0.75l	21.0%	20.3%	0.4379	55.2%
	2	≥€3 - GI/DOC/DOCG - >0.75l	4.8%	5.6%	0.3182	35.6%
2 x 2 x 2	3	≥€3 - NOT GI/DOC/DOCG - ≤0.75l	0.6%	0.6%	0.1210	12.7%
2006-2008	4	≥€3 - NOT GI/DOC/DOCG - >0.75l	2.2%	3.2%	0.2618	28.5%
	5	<€3 - GI/DOC/DOCG - ≤0.75l	27.9%	26.4%	0.4367	58.5%
	6	<€3 - GI/DOC/DOCG - >0.75l	6.9%	6.3%	0.3066	35.0%
	7	<€3 - NOT GI/DOC/DOCG - ≤0.75l	6.0%	8.2%	0.3489	40.2%
	8	<€3 - NOT GI/DOC/DOCG - >0.75l	30.6%	29.5%	0.4811	63.4%

6.4. Conclusion

The main outcomes of this chapter are summarised as follows. First, a general analysis of BW scores showed that interviewees find the direct, personal and sensorial experience they had with a wine more important than other attributes. If respondents have already drunk a wine or if a wine matches best with the food they are going to eat, there is a higher probability that this wine will be chosen. Conversely, this thesis found little attention towards the alcoholic content of the wine, promotional activities, and front labels. Second, an *a priori* segmentation analysis of BW scores on five socio-demographic variables evidenced an overall similarity in the behaviour of the segments of the population. However, some differences were present, thus justifying the need to deepen the analysis of the way people judged the thirteen attributes. In particular, the analysis showed that, while choosing wine in retail stores, the level of involvement respondents have toward wine, their age and the geographic region they belong to are the factors that most discriminate consumer preferences. Conversely, differences in terms of income do not seem to segment the market strongly. Third, a *post-hoc* segmentation identified a certain degree of heterogeneity in consumers' preferences and demonstrated that some attributes tend to drive people's choices jointly. Therefore, a PCA was run on BW scores, identifying four distinct utility dimensions (factors), in respect to which the three population segments extracted through a LCA were classified. A first group highly rely on past experiences with a wine, either personal experiences or through a trusted person. Consequently, once conquered, these individuals represent a safe and solid base for future sales, as it will be very hard to modify their choices. Conversely, the second segment

seems to prefer more in-store information and it is more easily convinced to purchase products on promotion. Consumers who carefully check for promotional campaign and who, at the same time, do not care much about how wine guides or magazines rate a wine belong to this group. Finally, the third segment is represented by consumers who need a more 'holistic' approach. These individuals do not only rely on past experience, they also look for specific information on wine and food pairings, grape varieties, regions of origin, and medals/awards before the purchase through the information present on the back label.

Conversely, the observation of loyalty dynamics towards product attributes registered a diffuse loss of reliability, especially in respect to the prices at which wines are purchased. Formats continue to represent the attribute to which Italian consumers devote the highest loyalty, followed by the quality designation that appears on the label and by price tiers. In particular, the bag-in-box format almost disappeared from the market, the purchases of 0.75 litres bottles increased in terms of loyalty and MS, while one litre cartons only lost a few percentage points of share. The consumption of table wines decreased, substituted by DOC-DOCG and GI wines. Concerning prices, wines sold in the basic tier continue to represent the favourite purchasing group in terms of both MS and loyalty, but they lost a significant share on both sides. The premium category did not perform well over time, especially due to a loss in terms of loyalty, while the popular premium tier benefited from an increase in sales, despite remaining stable on a loyalty dimension. Finally, >€7 wines did not vary much over the two three-year periods, still playing a marginal role in the Italian retail wine sector.

The analysis of the nature of the relationships between product attributes in determining overall consumers' loyalty demonstrated that the model best able to explain the overall consumers' loyalty is the model that includes the presence of interaction, but excludes that of correlation. In particular, both the partial (2x2) and the comprehensive (2x2x2) analyses showed that consumers tend to attach a higher utility towards higher prices and quality designations either in the three-year period 2003-2005 or 2006-2008. Moreover, smaller formats are clearly able to increase customers' utility during the latter interval times. In addition, all the

analyses were consistent in affirming that price and format showed the strongest interaction, followed by price and quality designation, and format and quality designation in 2003-2005, while a diametrically opposite situation characterised the following period. However, further outcomes of the QMD model brought two issues to the attention of the researcher, which justified the need to trust the 2x2x2 analysis over the 2x2s.

First, the observation of formats' utility relative to 2003-2005 evidenced a contradicting behaviour. When formats are analysed together with prices, the researcher noted a decrease in utility passing from a smaller to a larger format, while an increase was observed when formats were analysed together with quality designations. Only the 2x2x2 analysis allowed an understanding that the two attributes levels divide the population into two segments, one loyal to smaller formats and the other loyal to larger ones. Second, the partial analyses of the strength of product attributes in determining overall consumers' loyalty highlighted that format drives loyalty more than quality designation, price dominates over quality designation, and format is stronger than price during the former interval times. Similarly, format dominates over quality designation and price in the following three-year period but, in contrast to 2003-2005, quality designation rules over price. Therefore, according to a transitive property, one could be lead to affirm that the order of attribute 'strength' in driving loyalty for 2003-2005 was format>price>quality designation, while for 2006-2008 it was format>quality designation>price. However, the results of the 2x2x2 analysis relative to both periods show a different ranking, with price leading over format and quality designation for 2003-2005 and format leading over price and quality designation for 2006-2008.

Thus, it was decided to present MS, polarization and repeat rate values relative to 2x2x2 analyses, as they are more reliable in terms of consumers' preferences in determining overall loyalty. In particular, results showed that in the former three-year period, two main typologies of consumers could be observed. It is possible to find a group of people loyal towards cheap wines, either table or quality wines, sold in one litre cartons or bag-in-boxes. Conversely, one can also

observe a smaller group of consumers very loyal to GI-DOC-DOCG sold in regular bottles (0.75 litres) at a price higher than €3. However, during the following three-year period the relationship between price and quality designation frayed to a certain extent, while that between the latter and format was reinforced. Consequently, almost half of the wine purchases were made by GI-DOC-DOCG wines sold in regular bottles at a price higher or lower than €3, while consumption of table wines sold in one litre cartons or bag-in-boxes at a cheap price significantly decreased in 2006-2008, despite remaining the market leader among the eight possible alternatives explored.

These results provided answers to most of the core and the conceptual questions outlined in Chapter 1. However, it is necessary to discuss what managerial conclusions one can derive from these outcomes in order to offer a complete overview of the answers to all of the research questions. This overview will be provided in the following chapter (Chapter 7).

7. Discussion

7.1. Introduction

Chapter 7 will discuss the managerial implications of the results provided in the previous chapter. In particular, this chapter intends to offer some advice and suggestions about how Italian wineries could face the challenges that have emerged at international and national levels, and the changes introduced by the new wine CMO.

7.2. Managerial Implications

The information obtained through SP data and an *a priori* segmentation advises producers to be very keen in understating consumers' preferences, to create a wine that matches at best with the food people choose for a dinner with their friends. The task is not easy, as consumers do not pay much 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 Marche 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 provide information on (a) food pairings, (b) region of origin and (c) grape variety (an opportunity that the new CMO also extends to front labels of table wines, although with some limitations) as consumers rated the importance they give to these attributes in this categorical order. Indications about the alcoholic content 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 compensating for the lower capacity to generate awareness about a wine through advertising on wine guides and/or specialised magazines, factors that were evaluated as of importance 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 retail setting. Hence, advertising can be considered the first step

toward the tasting of a wine. If consumers like it, they may be more prone to buy it a second time.

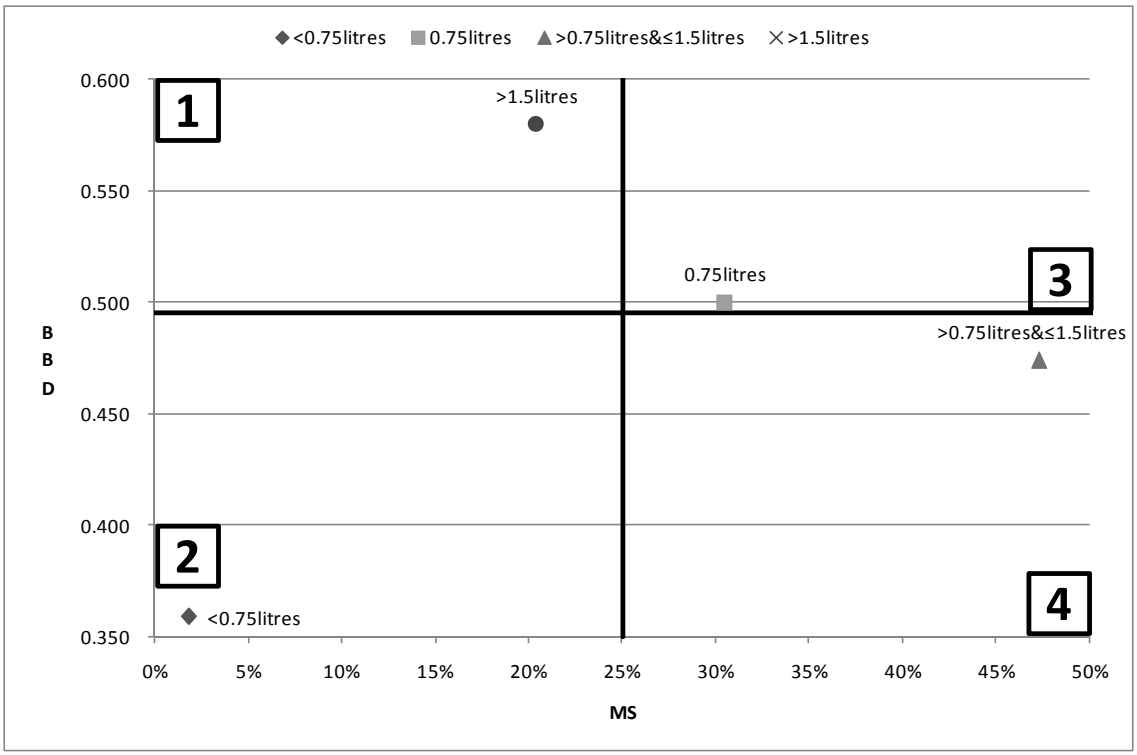
These considerations are reinforced with the *post-hoc* segmentation, which suggests what segments to target using the advice illustrated above. Three main consuming tendencies emerged with the LCA that need different strategic approaches in order to maximise customers' utility and, consequently, wineries' benefits. Easy-to-read and easy-to-understand labels appear to be a fundamental instrument in order to target the first segment of the population. This group is the most difficult to approach, due to the high importance given to past experiences, either personal or that of a friend, they had with a wine. It is also true, however, that once conquered, these consumers represent a solid and safe base for next sales, as it is very difficult to modify their choices. Therefore, it is necessary to act in the aided recall phase, as waiting until the consolidated recall moment could compromise the effectiveness of the strategy. Large producers and distributors should target the second group, as it is constituted by individuals who tend to prefer promotional offers and better information and communication strategies. large producers have the capability to be more present on retail shelves, combining a better placement with more centimetres at their disposal. Moreover, they are able to offer a national distribution coverage, which allows them to put into action promotional and communicative strategies that are practically impossible for small wineries. Conversely, wineries aiming at targeting the third segment should use an approach able to stimulate consumers in a pre-purchase phase. In this respect, advantages could be obtained by (a) participating in wine fairs or competitions, which may win medals/awards, and (b) by carefully describing the grape varieties utilised, the region/territory where the winery comes from and the suggested food and wine pairings either in the above cited wine guides/specialised magazines or on back labels.

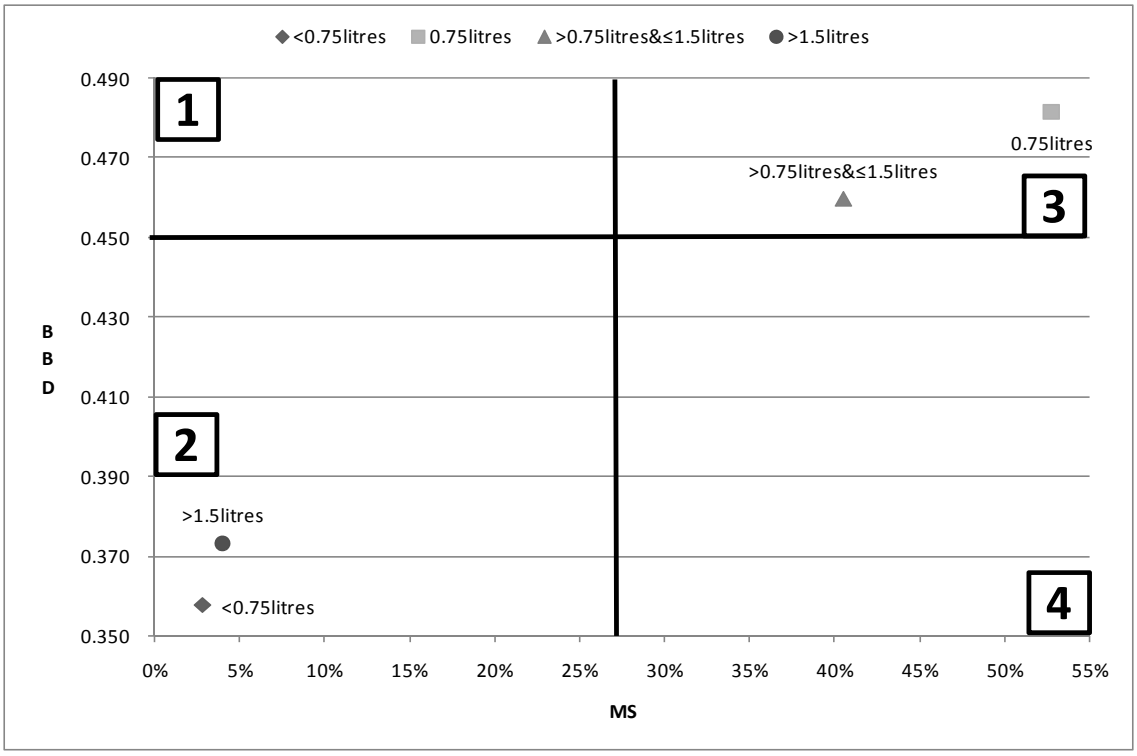
Useful managerial implications could be also obtained through RP data on consumers' loyalty. First, from the analysis of the results shown in Chapter 6, it is suggested that the very negative performances of >1.5 litres format, in terms of loyalty and MS, and by one litre cartons, in terms of MS, caused the decline of

table wines market, rather than the opposite. Although loyalty to formats decreased in the last three years, this attribute is still able to generate a loyalty level appreciably superior to that of quality designations. It is believed that this situation was caused by two main factors. First, the Italian socio-demographic structure has been rapidly evolving. The number of one- and two-member households constitute more than a half of the Italian population. In particular, singles increased from 500,000 in 1995-1996 to 5,100,000 in 2005-2006 and separations/divorces are increasing in the last few years (ISTAT, 2007). In this context, the second mistake was that the Italian wine supply chain was not able to convince consumers that if '[you] live alone, and tend to drink a glass or two of wine during dinner once or twice a week, [it is] not quite enough to go through a bottle of wine before it starts to turn over. What [one can] really like about [BIB] is their claim that it will last several weeks at room temperature' (Santini et al., 2007, p. 222).

Moreover, the degree of homogeneity in wine demand evolved differently when observed from the viewpoint of loyalty towards formats and that of quality designations. Looking at formats (see Figure 13), this trend made relatively more loyal either those consumers who purchased one litre cartons or 0.75 litres bottles during the three-year period 2003-2005. The BBD values shown by these two attribute levels in 2006-2008 are higher than the DMD value of the respective three-year period, more than the marginal φ registered in 2003-2005 in respect to the corresponding category φ_c. More specifically, data evidence that the Italian wine market moved from having three clear segments of the population in 2003-2005 in respect to the format chosen, to only two groups, hence making >1.5 litres and <0.75 litres tiers occasional purchasing formats. Conversely, the demand of quality designations widened in terms of MS. Table wines, DOC-DOCG and GI wines have more balanced MS than they had in 2003-2005.

Fig. 13: Loyalty to Formats in 2003-2005 and 2006-2008

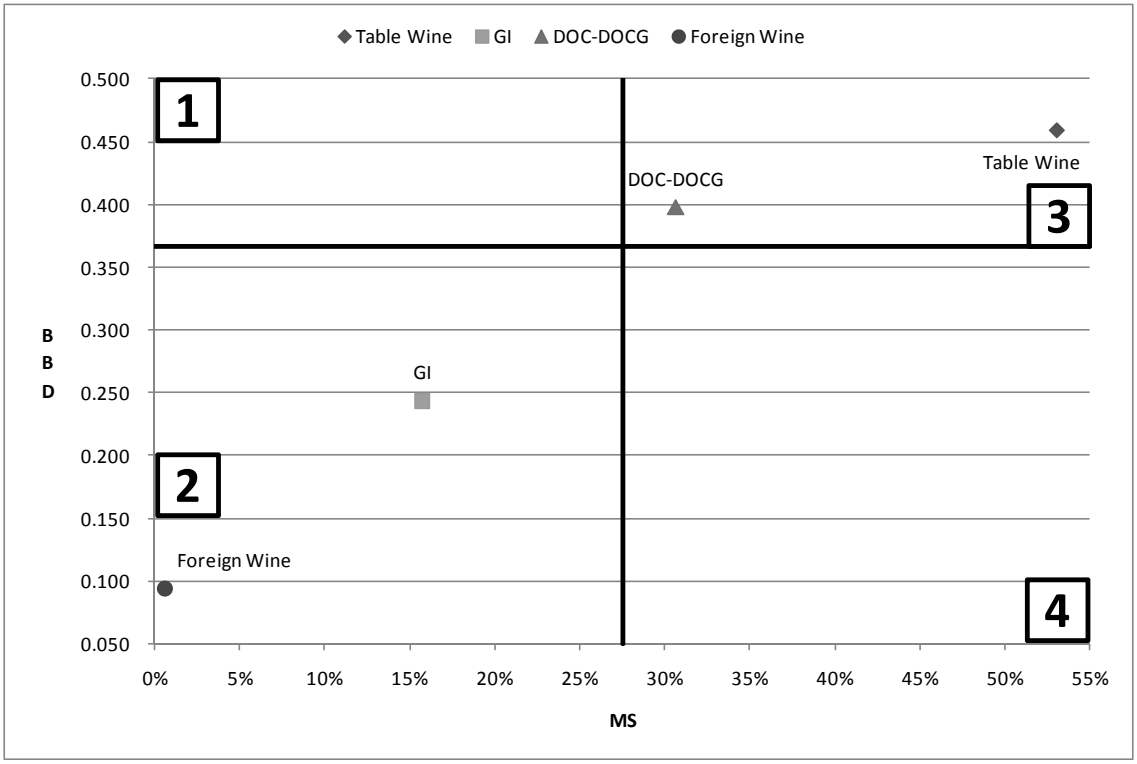


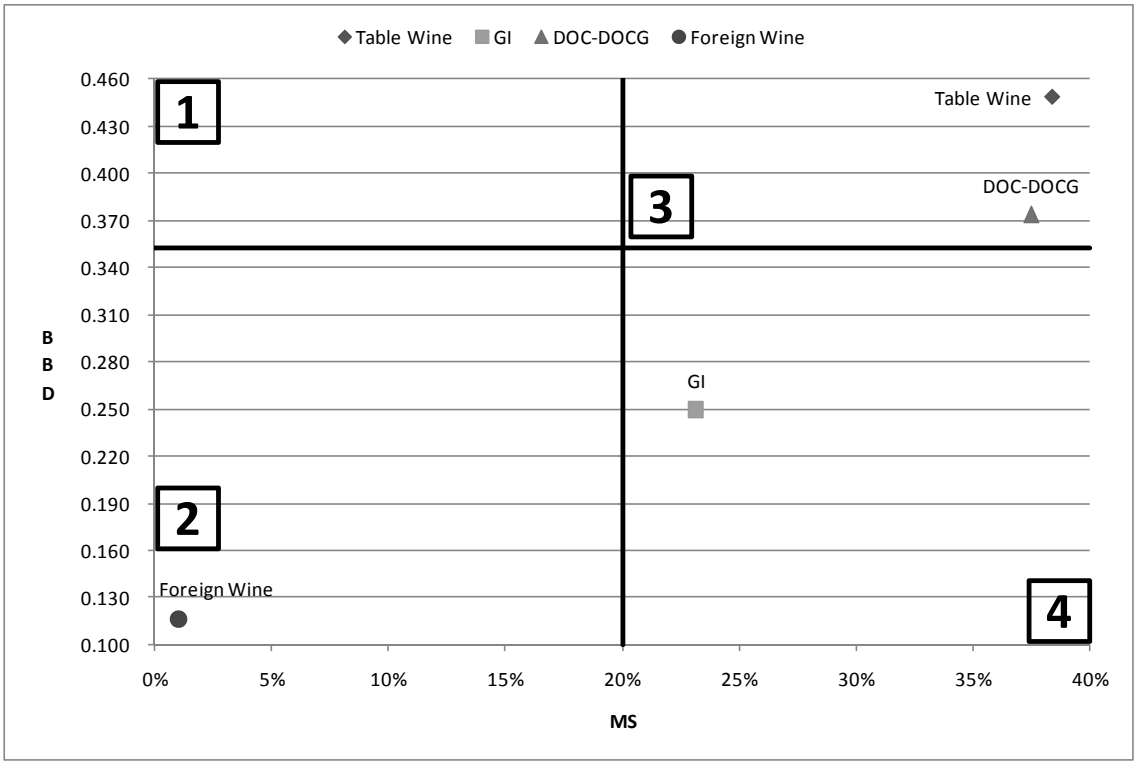


Moreover, by looking at MS quotas of each of the four formats and quality designations levels (see Figures 14 and 15), one notes an almost specular relationship between one litre cartons and table wines (40.5 per cent and 38.4 per

cent respectively), and between 0.75 litres and DOC-DOCG-GI wines (52.7 per cent and 60.6 per cent respectively).

Fig. 14: Loyalty to Quality Designations in 2003-2005 and 2006-2008

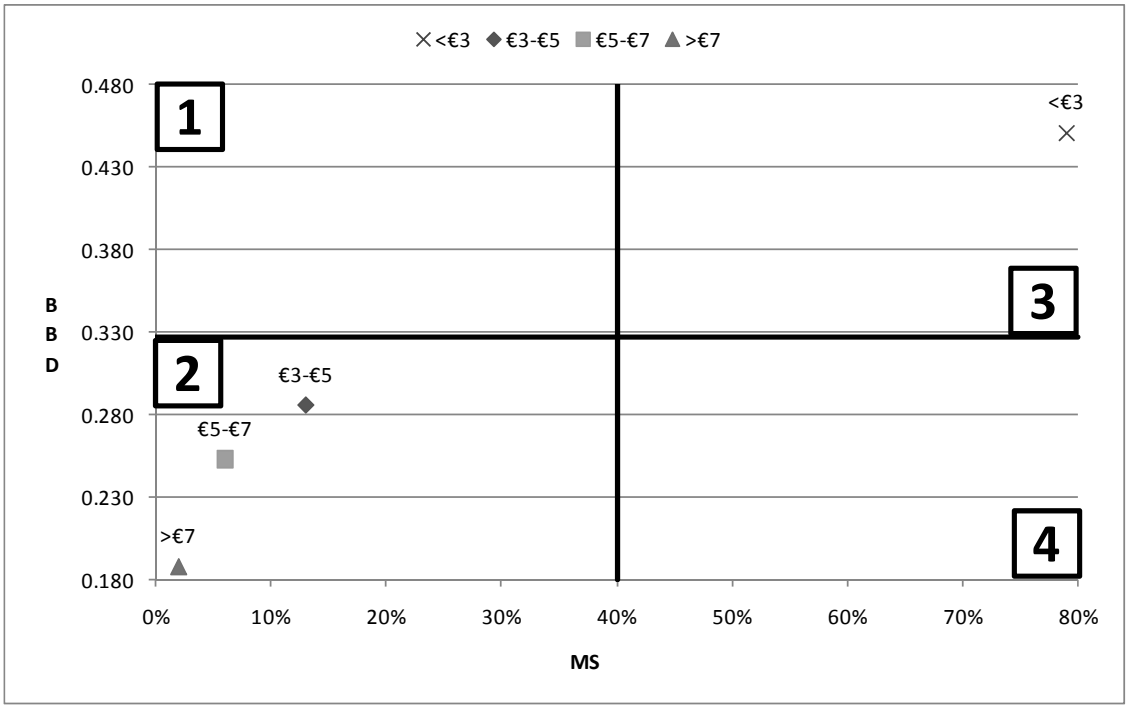


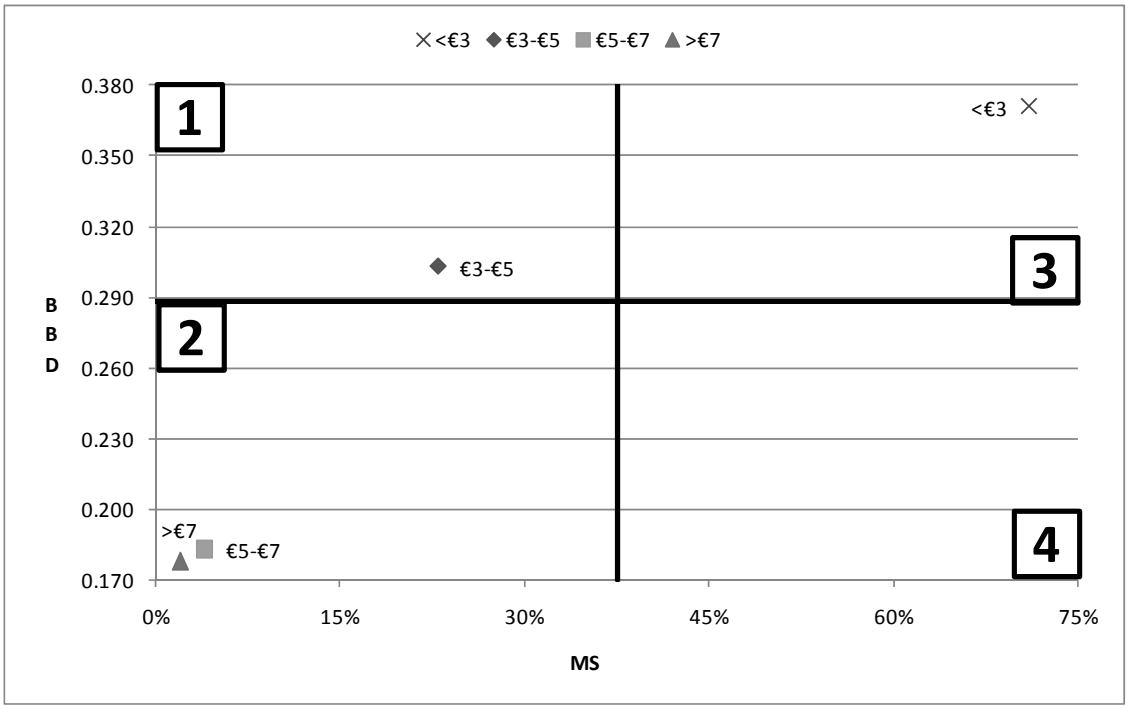


The evolution of loyalty to prices offers an interesting topic for discussion. By looking at the data three main considerations could be made. First, 2003-2005 results showed that the popular premium and the premium price tier have similar loyalty values, although lower to that of the category. When grouped together, however, their BBD value is higher than those of the two taken separately. This suggests that Italian consumers tended to shift from one price level to the other, especially when the price is closed to the delimiting value (€5). Moreover, in case some events occur, (for example, price promotions, higher distributing power of producers, and better placement on the shelf) consumers could be pushed to one tier or the other. Conversely, by examining the 2006-2008 results, it appears probable that part of the MS and definitely most of the loyalty stimulated by the premium price category was cannibalised by the popular premium one. The exaggerate use of promotions made consumers understand that a certain number of premium price brands are always discounted by, for example, 20 per cent, making them becoming popular premium brands. This means that if a certain category of wines, either DOC-DOCG or GI, able to satisfy consumers more or less at the same extent can always be found at a lower price, why should consumers spend more to buy them? Consequently, while waiting the *best-buy-of-the-week*, consumers widened the number of brands they purchased in the latter three years, premium wines reduced their presence in the market and popular premium wines increased both their loyalty and MS. Second, the Italian retail wine sector traded up in the latter three years, moving from a consumption mainly based on lower price wines to popular premium ones, although table wines sold at less than €3 in one litre cartons or bag-in-boxes still remain the current market leaders. Finally, the position of <0.75 litres format and >€7 wines did not change much in the last three years. Not many years ago, Anthony Rose stated that 'as customers spend more on wines, supermarkets need fine wines to raise the image of their ranges' (Rose, 2001). A few years later, his words seem to be still relevant. Super-premium, ultra-premium, icon and foreign wines are present on supermarkets shelves to improve their image, but they continue to represent an exception for a vast majority of consumers, who generally buy products they are more familiar

with or cost less. However, this situation should not worry market analysts. The vast majority of producers of luxury wine brands prefer to target specialised shops and the on-trade sector, as these distribution channels may be more profitable for them.

Fig. 15: Loyalty to Prices in 2003-2005 and 2006-2008





These considerations find confirms in the QMD analysis. If one limited the observation of results to the three-year period 2003-2005, one could suggest wineries follow two main patterns: a basic approach or a premium approach. The former is characterised by wines sold below €3, in one litre carton or three-litre bag-in-boxes, without any denomination of origin. This strategy should be better followed by major producers, as data showed that there is a positive interaction effect between higher brand MS and lower price points. These wines are more capable of facing the national market, as major producers could provide retailers with huge supplies. Moreover, these wines are able to resist better to promotions like discounts and buy-one-get-one-free strategies. These products are already positioned in a high loyalty price tier; hence, the demand associated for them will remain highly inelastic. Smaller wineries in turn could focus more on a premium strategy. This means choosing a 0.75 litres bottle to be priced over €3, in which a GI-DOC-DOCG wine should be poured. In terms of distribution, these wineries should concentrate their efforts in almost the same area of production, instead of trying to be present on the entire territory, in which more well known brands risk strangling them.

This advice could be still considered valid for the three-year period 2006-2008, despite a substantial difference. The link between quality wines and regular bottles was reinforced in the latter three-year period, and this was certainly helped by the efforts put by supermarkets/hypermarkets and by media in promoting this kind of products to the detriment of table wines. It is hypothesised that the phenomenon is destined to continue, although the rules imposed by the new wine CMO may put at risk the strategies adopted by several producers willing to enter or stabilise in the category of quality wines sold in regular bottles. Within the new CMO regulation a parcel of land cannot host more than one designation, either GI, DOC or DOCG. Therefore, despite the consumption of quality wines increasing, all producers, especially smaller ones, of these wines have to think carefully about what they want to produce in the medium- to long-term. It will no longer be possible to move from one designation to another in case the quality of a certain GI, DOC or DOCG does not meet minimum quality standards or the demand is

inferior to the supply in a given year. It will only be possible to declass a GI, DOC or DOCG wine to table wine, an operation that has significant economic and financial implications beyond the loss in terms of image and brand perception that such a choice could determine.

Producers have to understand in advance whether it is convenient for them to keep producing a DOC-DOCG wine or whether it is better to move towards a GI one, a typology of product that also grew considerably in the latter three-year period. A suggested pattern to follow could be to conduct an economic/financial analysis able to provide an indication of the strength of the quality designation one has the rights to produce. In case the results showed that the designation is strong (which is likely to be probable for several DOC-DOCG such as the different typologies of *Chianti*, the *Brunello di Montalcino* or the *Amarone della Valpolicella*), then it could be strategically correct to continue with it. Conversely, if the value of a designation is weak (which is often the case for several of those born in the last ten or fifteen years), the advice is to change to a GI. Conversely, a GI designation is able to offer consumers a clear and evident link with the territory, the grape varieties used and the possible pairings with a dish, all elements found to be important for a choice of a wine. At the same time, a GI will sensibly reduce production costs with respect to a DOC-DOCG, as the rules of production are less restrictive than the latter. Moreover, these rules are not only less restrictive, but they also offer more flexibility, thus giving producers the possibility to adapt a wine according to the ever-changing tastes of the population. Finally, it is important to highlight that if a choice like this will invest the country in its entirety, it will allow a significant rationalisation of the number of DOCs and DOCGs currently active. It would be suicide for the Italian wine sector to maintain, or, even worse, to increase the current number of the 364 DOC and DOCG designations now present in the market. Conversely, a reduction will make them even more exclusive, augmenting the value perceived by consumers.

7.3. Conclusion

The main conclusions one can derive from this discussion is that the consumers of table wines sold at lower prices in one litre cartons or bag-in-boxes should continue to be the target segment only for large producers, for those able to commercialise high volumes of wine at a low price on the entire national territory.

Conversely, small producers should aim at targeting those consumers who prefer quality wines sold in regular bottles. Unfortunately, these consumers are less loyal than before in choosing these kinds of wines only when sold at higher price points. They currently tend to buy them at lower price points. Therefore, due to the recent trends shown at either a national and an international level and to the changes introduced by the new wine CMO, it is highly recommended that these producers analyse carefully the strength of the quality designation they are potentially allow to offer, in order to understand whether this is really able to create benefits for the winery or whether it sound more appropriate to move towards a GI designation. The latter will allow producers to contain more easily production costs and to have more flexibility in the kind of wine they want to obtain, without compromising the advantages generated by the possibility to communicate the information relative to the grape varieties used, to the region where the wine come from, or to food pairings, which are all fundamental choice factors. Consequently, both producers and the entire Italian wine sector could benefit from it. Lower production costs could be translated into a higher sales margin or, alternatively, into the possibility to target a lower price segment. Further, the national wine system will gain in competitiveness through a rationalisation in the number of DOC-DOCG present in the country.

After the presentation of all the managerial implications derived from the results presented in Chapter 6, it is now possible to summarise in Chapter 8 all the answers relative to the background, the core and the conceptual questions formulated in Chapter 1.

8. Conclusion

8.1. Background Questions

To what extent does secondary data confirm the increasing competition between countries and regions in the wine sector under a marketing mix perspective?

Secondary data confirm the increasing competition between countries and regions in order to affirm their leadership on the market. This consideration is supported by several factors. First, the global vine area has not changed a great deal since the beginning of the new millennium, but while Europe has been constantly decreasing the total vineyard under production, America, Asia and Oceania have been showing a positive trend. The production and consumption of wine is decreasing as well, a performance only partially balanced by the positive results registered in America and Asia. Despite this, the role of Europe is still fundamental, as seven out of the ten most important consuming countries are European. In terms of competition, the top ten wine companies only account for fifteen per cent of volume sales, making the sector very fragmented. Moreover, some of the major firms are enlarging their portfolio, to be less reliant on a region or country, which may become out-of-fashion in a short period. Consequently, the entrance of wine multinationals in many markets threatens national players, as they can hardly compete with the former on quantity supplied, price and distribution power. As for this latter point, the off-trade channel accounts for about 70 per cent of global wine sales and this share is forecasted to increase in coming years due to more restricting driving laws and to the lower prices that supermarkets/hypermarkets propose compared to on-trade venues. In the next few years, the market should grow both in volume and value terms. China and Brazil are seen as the key opportunity markets, although the US is also expected to develop in the short-term.

The picture described at a continental level largely reflects the national scenario. During the last 20 years, Italy constantly reduced the vine area under production and wine consumption decreased in volume terms, although its value expanded, signalling that that Italian consumers are moving towards higher

quality products. The number, the volumes and the values of GI and DOC-DOCG wines progressively increased, reaching a total MS of more than 60 per cent. However, as opposed to what is happening at an international level, the ratio production/consumption is in favour of the former, therefore it is fundamental for domestic products to be exported in foreign countries. Conversely, imports are still very limited, as Italian consumers continue to prefer domestic products. Again, like the international scenario, the Italian wine system is highly fragmented, with relative young wine firms, tied to simple corporate forms and not much in favour of a decentralisation of productive structures. Even so, the sector is slowly moving towards a more rational management of production phases. A further similarity relates to distribution channels. The off-trade sector dominates over the on-trade in volume terms, despite the situation radically changes when observed from a value perspective. Future forecasts reveal that still light grape wines will remain almost in line with 2008 levels, while sparkling wines are expected to register a significant growth.

What are the main changes caused by the new CMO for the European and the Italian wine sector?

The main changes introduced by the new wine CMO can be summarised in eight main points, which affect the production of wine at both a European and a national level. First, a financial envelope will be established by each Member State to activate measures dedicated to promotion, innovation, restructuring and modernisation of the productive chain, green harvesting, crisis management and decoupling. Together with this, a series of actions relative to rural development, such as installation aids for young farmers, improvement of trade skills, vocational training, support to producers' organisations, funds dedicated to supplementary expenses, income losses derived from the maintenance of the cultural environment, and pre-retirement, will be put into action. In addition, another consistent part of the budget (over US$1.5 billion) will be used to encourage European producers to grub-up 175,000 hectares of vine. Conversely, a reduced amount of money will be dedicated to crisis distillation, which will be phased-out over the next four years. Three other fundamental novelties relate to planting

rights, chaptalisation and the use of must, and wine-making practices. The former will be abolished by the end of 2015, but they can be maintained at a national level within 2018. Concerning the second, these techniques will continue to be used, but a lower content for sugar and must will be introduced. As for wine-making practices, the European Commission instead of Member States will be in charge of approving new wine making practices or modifying existing ones, evaluating those admitted by the OIV and adding some of them in those allowed by the EU. Finally, the most significative change introduced by the wine CMO is relative to labelling rules. The inspiring principle of the new system is Reg. EC 510/2006, which is the regulation that protects PGI and PDO for agricultural products and foodstuffs. According to the regulation, Italian producers cannot declare a geographical area to more than one designation (either GI, DOC or DOCG), thus completely changing the strategic approach to production they have used thus far. A vast majority of producers used to declare the same vineyard to more than one designation, as in this way they could decide what wine to produce, bottle and label according to several factors (such as climatic conditions throughout the year, and market trends and demands). This change obliges producers to think about what they want to create and where in the medium- to long-term, as they will not be allowed to swap from one designation to the other, but only to table wines if the quality of a GI, a DOC or a DOCG does not meet the quality standard or the market demand in a certain year. From a consumer perspective, the corresponding PDI and PDO labels should appear next to GI and DOC-DOCG captions respectively. Moreover, European table wines will be authorised to indicate the grape varieties used and the vintage year, a strategy already adopted by many NW Countries, but a radical change for the European Community. As a consequence, it must be understood how these modifications will affect the quantity and quality of table wines, GI, DOC and DOCG wines supplied in the next few years and whether these changes will only be perceived by consumers as a graphical modification of the label, or whether they will substantially modify their behaviour towards the different quality designations.

8.2. Core Questions

What are the product attributes that influence the choice of Italian consumers before they buy wine in the retail sector?

Three main conclusions can be made concerning this issue. The analysis of BW scores relative to the entire sample showed that respondents find the direct, personal and sensorial experience they had with a wine more important than other attributes. If respondents have already tasted a wine or if a wine matches best with the food they are going to eat, there is a higher probability that this wine will be chosen. Conversely, this thesis found that little attention is paid to the alcoholic content of the wine, promotional activities, and, surprisingly, front labels. When it comes to segmentation analysis, different results emerged between an *a priori* and a *post-hoc* segmentation. The former showed that while choosing wine in retail stores the level of involvement respondents have toward wine, their age and the geographic region they belong to are the factors that most discriminate consumer preferences. Differences in terms of income, did not seem to segment the market strongly. Conversely, the latter identified three population segments, characterised by different ways in which product attributes influence their choices. A first group highly rely on experiences with a wine, either personal experiences or those of a trusted person. Consequently, once conquered, these individuals represent a safe and solid base for future sales, as it will be very difficult to modify their choices. Conversely, the second segment seems to prefer more in-store information and it gets more easily convinced to purchase products on promotion. Consumers who carefully check for promotional campaigns and who, at the same time, do not care much about how wine guides or magazines rate a wine belong to this group. Finally, the third segment is represented by consumers who need a more 'holistic' approach. These individuals not only rely on experience, they also look for specific information on wine and food pairings, grape varieties, regions of origin, and medals/awards before the purchase through the information present on the back label.

What are the product attributes that influence the loyalty of Italian consumers

in the retail sector? How did they evolve over time?

The analysis of loyalty dynamics relative to the two three-year periods 2003-2005 and 2006-2008 registered a diffuse loss of reliability, especially in respect to the prices at which wines are purchased. More specifically, formats continue to represent the attribute towards which Italian consumers devote the highest loyalty, followed by the quality designation that appears on the label and by price tiers. In particular, the bag-in-box format almost disappeared from the market, the purchases of 0.75 litres bottles increased in terms of loyalty and MS, while one litre cartons only lost a few percentage points of share. The consumption of table wines decreased, substituted by DOC-DOCG and GI wines. Concerning prices, wines sold in the basic tier continue to represent the most favourite purchasing group, in terms of both MS and loyalty, but they lost a significant share on both sides. The premium category did not perform well over time, especially due to a loss in terms of loyalty, while the popular premium tier benefited from an increase in sales, despite remaining stable on a loyalty dimension. Finally, >€7 wines did not vary much over the two three-year period, still playing a marginal role in the Italian retail wine sector.

To what extent do product attributes interact and correlate and what do the phenomena imply for the behavioural loyalty of Italian consumers? How did these relationships evolve over time?

The analysis of the nature of the relationships between product attributes in determining overall consumers' loyalty demonstrated that the model best able to explain it is the one that includes the presence of interaction, but excludes that of correlation. In particular, both the partial (2x2) and the comprehensive (2x2x2) analyses show that consumers tend to attach a higher utility towards higher prices and quality designations both in the three-year period 2003-2005 and 2006-2008. Moreover, smaller formats are clearly able to increase customers' utility during the latter interval time. In addition, all the analyses are consistent in affirming that price and format show the strongest interaction, followed by price and quality designation, and format and quality designation in 2003-2005, while a

diametrically opposite situation characterises the following period.

However, further outcomes of the QMD model brought two issues to the attention of the researcher, which justified the need to trust the 2x2x2 analysis rather than the 2x2s. In particular, results showed that in the former three-year period, two main typologies of consumers can be observed. It is possible to find a group of people loyal towards cheap wines, either table or quality wines, sold in one litre cartons or bag-in-boxes. One can also observe a smaller group of consumers very loyal to GI-DOC-DOCG sold in regular bottles (0.75 litres) at a price higher than €3. However, during the following three-year period, the relationship between price and quality designation frayed to a certain extent, while that between the latter and format was reinforced. Consequently, almost half of the wine purchases were made by GI-DOC-DOCG wines sold in regular bottles at a price higher or lower than €3, while consumption of table wines sold in one litre cartons or bag-in-boxes at a cheaper price significantly decreased in 2006-2008, despite remaining the market leader among the eight possible alternatives explored.

These results suggest that consumers of table wines sold at lower prices in one litre cartons or bag-in-boxes should continue to be the target segment only for large producers, for those able to commercialise high volumes of wine at a low price on the entire national territory. Conversely, small producers should aim at targeting those consumers who prefer quality wines sold in regular bottles. Unfortunately, these consumers are less loyal than before in choosing these kinds of wines only when sold at higher price points. They currently tend to buy them also at lower price points. Therefore, due to the recent trends shown at national and international levels and to the changes introduced by the new wine CMO, it is highly recommended that these producers analyse carefully the strength of the quality designations they are potentially allow to offer, in order to understand whether they are really able to create benefits for the winery or whether it is more appropriate to move towards a GI designation. The latter allows producers to contain production costs more easily, and to have more flexibility in the kind of wine they want to obtain, without compromising the advantages generated by the

possibility to communicate the information relative to the grape varieties used, to the region where the wine comes from, or to food pairings, which are all fundamental choice factors. Consequently, both producers and the entire Italian wine sector could benefit from it. Lower production costs could be translated into a higher sales margin or, alternatively, into the possibility to target a lower price segment. Further, the national wine system will gain in competitiveness through a rationalisation of the number of DOC-DOCG present in the country.

8.3. Conceptual Questions

Within the specific context of the analysis of consumers' behaviour towards wine, to what extent does SP data, compared to RP data:

a) **provide more flexibility?** SP data offer the possibility to insert many more choice attributes than RP approaches, by efficiently combining them through an appropriate design. Moreover, once the general scores for the entire population are determined, one has the opportunity to choose what segmentation technique to use, in order to have a better understanding of consumers' choice behaviour towards wine.

b) **offer more information on consumers' background?** SP approaches allow asking as much information as researchers want on consumption habits, such as quantities purchased, purchase frequency, and typologies of products selected and on socio-demographic variables (such as gender, age, income, and frequency of drinking) relative to every respondent. This part is far more complicated when using RP data.

c) **offer higher forecasting ability?** SP data offer an ampler and more detailed ability to forecast future market and habits developments, as conclusions can be built over a higher number of choice variables and on multiple segmentation techniques, thus allowing for more detailed suggestions aimed at targeting the different stakeholders of the wine supply chain.

d) **offer more cost efficiency?** All data collection including questionnaires printing, pens, reimbursement for the researchers, who conducted the analysis

and incentives for respondents had a cost of approximately €3.500, a value four times lower than the AC Nielsen Consumer Panel. Moreover, one has to consider that the possibility to presents respondents multiple choice sets makes SP approaches more cost efficient than RP ones.

e) **provide more useful information when data on actual choices are difficult to gather?** The AC Nielsen Consumer Panel, although representing of the best and most complete databases about consumers' wine purchases in Italy, is not able to register information about some personal elements influencing choices (for example, previous experience with a wine, friends' suggestions or food matching) or about some extrinsic product attributes (for example, medals/awards, and the alcoholic content of a wine). Conversely, SP data allow asking information about elements, which are not often recorded by panel or scanner data, thus offering the possibility to investigate aspects of consumers' choices that would be unavailable otherwise.

f) **offer better potential for segmentation, when applied to the wine marketing sector?** The analyses conducted in this thesis show that SP approaches provide different techniques able to segment the population of wine consumers in a defined number of more homogeneous segments. Conversely, RP approaches are more limited in the segmenting typologies one can adopt and in their effectiveness either on a theoretical and a managerial point of view due to the reduced number of attributes and levels one can include in the analysis.

Within the specific context of the analysis of loyalty towards wine, to what extent does RP data, compared to SP data:

a) **provide more exact data about what consumers actually did?** RP data comes from the AC Nielsen Consumer Panel, which registers every single wine purchase of the households belonging to the panel. This provides punctual information about actual consumers' choices, which can be further analysed by looking at the different characteristics of the products, given that an identical structural information is registered for every product.

b) **present less problems in deciding what attributes to consider in the research?** SP data offer more flexibility in deciding the product attributes and the socio-demographic variables to be inserted in the study. However, this freedom of choice can also represent a potential disadvantage, in favour of RP approaches. Although it was claimed in this thesis that a high number of articles and publications regarding consumers' wine choices was reviewed, one cannot affirm with certainty that the elements taken into consideration are the most important in influencing consumers' choices. Conversely, RP data, despite not being able to solve this problem completely, at least help to reduce it. Given that the number and the levels of the attributes at researchers' disposal are more limited that with SP approaches, one tends to make use of all them, maximising the efficiency of information sources.

c) **give information on the degree to which consumers are loyal to product attributes?** RP data facilitates the analysis of purchases over a defined interval time, thus giving more opportunities to observe how much behavioural loyalty consumer devote to the wine attributes and levels considered in the study.

d) **analyse how product attributes interact and/or correlate?** SP data also can analyse whether the elements included in a study represent distinct choice drivers for different population segments, or whether they are jointly important for some groups. However, they do not provide any information about what their contribution is in determining different loyalty levels. Conversely, RP data offer the possibility to observe what the relationships between wine attributes and levels are in determining overall consumers' loyalty, offering at the same time a strong theoretical methodology and a sounding and efficient managerial approach.

e) **show how loyalty, interaction and correlation effects between product attributes evolve over time?** RP data offer an easier and quicker way to analyse the evolution of loyalty tendencies over time. If one wants SP approaches to do the same, one needs at least to replicate data collection several times, hence losing some of the advantages previously explained.

8.4. Limitations

This thesis presents some limitations. In terms of the SP data, an international group of researchers carefully selected the attributes to study in the survey, according to the literature. However, it is not possible to state with certainty that these are the thirteen 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 generates a scale that is influenced by the distance between the attribute with the highest raw score and that with the lowest. Third, the sample is still too narrow to extend conclusions at a country-level range. The sample cannot be considered statistically representative of the Italian population, but rather a convenience sample. The people who took part in the research 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'.

In terms of the RP data, the polarization index and the QMD operate with almost the absolute certainty that all the levels for the three attributes under analysis were present when consumers made their purchases given the wide offer that the majority of modern distribution points of sales have for the wine sector. However, this cannot be proved. Moreover, although QMD could be also applied in a multivariate way, which means that one can define loyalty levels, interaction and correlation effects of all the possible combinations of attributes and levels one wants to put in the analysis, it was decided to apply the QMD in a bivariate binomial way, hence analysing two attributes with two levels at a time, due to the innovativeness of the method. In studying the relationship between loyalty and MSs over time, the research could have split the database in three two-year periods, rather than in two three-year periods. In this way, one could have a deeper insight on this phenomenon, by observing where changes happened first,

hence obtaining useful managerial on the sources of changes in consumer preferences.

A final limitation is that this thesis does not provide an analysis, nor a discussion, about the ways in which one can encapsulate in one methodology the advantages and disadvantages of SP and RP data – as it is has already been done in other research fields – within the context of wine marketing literature.

8.5. Recommendations for Future Research

The results and the considerations provided in this thesis, as well as the limitations just presented, offer a base and a stimulus to deepen the analysis of the advantages and disadvantages of SP and RP approaches in observing consumers' choices. In particular, attention will be dedicated to the studies relative to the analysis of consumers' behaviour and to market segmentation applied to the wine sector, and to the extension of the bivariate-binomial analysis to its multivariate counterpart, to have a more realistic representation of the relationships between product attributes in determining people loyalty. In addition, it will be interesting to study a method able to combine the advantages and disadvantages of SP and RP data, as has already been done in other research fields.

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10. Appendixes

10.1. Appendix A

Capire le scelte di acquisto di vino

Le voci del vino

…Dai voce al vino che è in te…

Vinci con il

Verdicchio di Matelica

Stiamo conducendo una ricerca per il Dipartimento di Economia Agraria e delle Risorse Territoriali della Facoltà di Agraria dell'Università degli Studi di Firenze, con la collaborazione dell'UniCeSV, Centro Universitario di Ricerca e Formazione per lo Sviluppo Competitivo delle Imprese del Settore Vitivinicolo Italiano.

Lo scopo di questa ricerca è di scoprire gli elementi che influenzano la scelta di acquisto finale quando si intende comprare una bottiglia di vino.

La presente ricerca non è al servizio di nessuna azienda vitivinicola, esercizio commerciale o ristorante in particolare e non intende perseguire alcuno scopo commerciale.

Il questionario è in forma assolutamente anonima e ti ringraziamo fin d'ora per il tempo che ci concederai per la sua compilazione.

A1. **Quanto sei in accordo o in disaccordo con le seguenti affermazioni?**

		Totale Disaccordo		**Neutrale**		**Totale Accordo**
1.	Ho un forte interesse per il vino	1	2	3	4	5
2.	Il vino è un elemento importante per il mio stile di vita	1	2	3	4	5
3.	Bere vino mi da piacere	1	2	3	4	5
4.	Degustare il vino nel luogo d'acquisto è un elemento importante per la scelta finale	1	2	3	4	5

A2 Compro del **vino** circa:

1 ☐ Non compro vino

2 ☐ Una volta a settimana o meno

3 ☐ Una o due volte al mese

4 ☐ Meno di una volta al mese

A3 Bevo **vino** circa:

1 ☐ Una volta a settimana o meno

2 ☐ Più di una volta a settimana

3 ☐ Bevo vino solo in occasioni particolari

4 ☐ **Non bevo** vino

A4 Negli ultimi 3 mesi in quali negozi avete acquistato del vino?

1 ☐ Solo in un negozio

2 ☐ Anche in altri negozi

3 ☐ In un solo negozio e in altri della stessa catena

4 ☐ In un solo negozio e in altri ma non della stessa catena

A5 Normalmente quando acquisti del vino guardi la retroetichetta?

1 ☐ No

2 ☐ Si – Per favore dai un giudizio alle seguenti affermazioni in base al tuo comportamento abituale

		Mai		**Neutrale**		**Sempre**
1.	Leggo le caratteristiche sensoriali sulla retroetichetta	1	2	3	4	5
2.	Leggo i suggerimenti per gli abbinamenti con il cibo sulla retroetichetta	1	2	3	4	5
3.	Leggo le informazioni tecniche sulla retroetichetta	1	2	3	4	5
4.	Leggo la storia del vino o dell'azienda sulla retroetichetta	1	2	3	4	5

A6 L'ultima volta che hai acquistato una bottiglia di vino

		Barra tutte le opzioni che ritieni opportune
A6-1	É stata una decisione rapida	
A6-2	Ho guardato molto in giro	
A6-3	Ero con il/la mio/mia compagno/a	
A6-4	Ero con un amico/a	
A6-5	Ero con i miei figli	

A7 Prova a ricordare l'ultima volta che hai comprato una bottiglia di vino in un negozio per organizzare una cena a casa con i tuoi amici/le tue amiche.

Quanto hai speso per quella bottiglia?

0	5		10		15		20		25		30		35		40		45		€50		o più

B. Di seguito troverai 13 tabelle suddivise in gruppi da 4 affermazioni ciascuna. Per ogni gruppo di 4 affermazioni, scegli quella che ritieni **PIÙ** importante e quella che ritieni **MENO** importante per spiegare la ragione per cui tu scegli di acquistare una bottiglia di vino. Di seguito troverai un esempio:

ESEMPIO

MENO		ESEMPIO	PIÙ
	1	Mi piace il vino	
x	2	Me lo ha consigliato un amico/a	
	3	Mi colpisce l'etichetta	
	4	Ho letto di questo vino	x

Prova a ricordare l'ultima volta che hai comprato una bottiglia di vino in un negozio per organizzare una cena con i tuoi amici/le tue amiche.

Barra la SOLA ragione che influenza di PIÙ e quella che influenza di MENO la tua scelta

B1

MENO		Caratteristica	PIÙ
☐	1	Attività promozionale in corso	☐
☐	2	Varietà dell'uva/delle uve	☐
☐	3	Informazioni sullo scaffale	☐
☐	4	Nome dell'etichetta	☐

B2

MENO		Caratteristica	PIÙ
☐	1	Varietà dell'uva/delle uve	☐
☐	2	Regione di provenienza del vino	☐
☐	3	Grado alcolico inferiore a 13 %Vol.	☐
☐	4	Qualcuno/a me lo ha consigliato	☐

B3

MENO		Caratteristica	PIÙ
☐	1	Regione di provenienza del vino	☐
☐	2	Informazioni sullo scaffale	☐
☐	3	Abbinamento con il cibo	☐
☐	4	Ho letto di questo vino	☐

Prova a ricordare l'ultima volta che hai comprato una bottiglia di vino in un negozio per organizzare una cena con i tuoi amici/le tue amiche.

Barra la SOLA ragione che influenza di PIÙ e quella che influenza di MENO la tua scelta

B4

MENO		Caratteristica	PIÙ
☐	1	Informazioni sullo scaffale	☐
☐	2	Grado alcolico inferiore a 13 %Vol.	☐
☐	3	Informazioni sulla retroetichetta	☐
☐	4	Avevo provato questo vino in precedenza	☐

B5

MENO		Caratteristica	PIÙ
☐	1	Grado alcolico inferiore a 13 %Vol.	☐
☐	2	Abbinamento con il cibo	☐
☐	3	Alto punteggio in una guida ai vini (Gambero Rosso, Veronelli, Duemilavini, ecc.)	☐
☐	4	Attività promozionale in corso	☐

B6

MENO		Caratteristica	PIÙ
☐	1	Abbinamento con il cibo	☐
☐	2	Informazioni sulla retroetichetta	☐
☐	3	Mi colpisce l'etichetta	☐
☐	4	Varietà dell'uva/delle uve	☐

B7

MENO		Caratteristica	PIÙ
☐	1	Informazioni sulla retroetichetta	☐
☐	2	Alto punteggio in una guida ai vini (Gambero Rosso, Veronelli, Duemilavini, ecc.)	☐
☐	3	Nome dell'etichetta	☐
☐	4	Regione di provenienza del vino	☐

Prova a ricordare l'ultima volta che hai comprato una bottiglia di vino in un negozio per organizzare una cena con i tuoi amici/le tue amiche.

Barra la SOLA ragione che influenza di PIÙ e quella che influenza di MENO la tua scelta

B8

MENO		Caratteristica	PIÙ
☐	1	Alto punteggio in una guida ai vini (Gambero Rosso, Veronelli, Duemilavini, ecc.)	☐
☐	2	Mi colpisce l'etichetta	☐
☐	3	Qualcuno/a me lo ha consigliato	☐
☐	4	Informazioni sullo scaffale	☐

B9

MENO		Caratteristica	PIÙ
☐	1	Mi colpisce l'etichetta	☐
☐	2	Nome del vino	☐
☐	3	Ho letto di questo vino	☐
☐	4	Grado alcolico inferiore a 13 %Vol.	☐

B10

MENO		Caratteristica	PIÙ
☐	1	Nome del vino	☐
☐	2	Qualcuno/a me lo ha consigliato	☐
☐	3	Avevo provato questo vino in precedenza	☐
☐	4	Abbinamento con il cibo	☐

B11

MENO		Caratteristica	PIÙ
☐	1	Qualcuno/a me lo ha consigliato	☐
☐	2	Ho letto di questo vino	☐
☐	3	Attività promozionale in corso	☐
☐	4	Informazioni sulla retroetichetta	☐

Prova a ricordare l'ultima volta che hai comprato una bottiglia di vino in un negozio per organizzare una cena con i tuoi amici/le tue amiche.

Barra la SOLA ragione che influenza di PIÙ e quella che influenza di MENO la tua scelta

B12

MENO		Caratteristica	PIÙ
☐	1	Ho letto di questo vino	☐
☐	2	Avevo provato questo vino in precedenza	☐
☐	3	Varietà dell'uva/delle uve	☐
☐	4	Alto punteggio in una guida ai vini (Gambero Rosso, Veronelli, Duemilavini, ecc.)	☐

B13

MENO		Caratteristica	PIÙ
☐	1	Avevo provato questo vino in precedenza	☐
☐	2	Attività promozionale in corso	☐
☐	3	Regione di provenienza del vino	☐
☐	4	Mi colpisce l'etichetta	☐

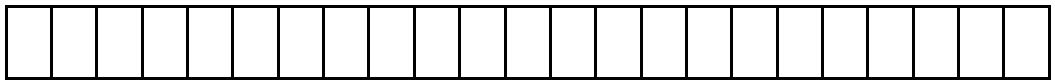
C. L'occasione per cui sarei disposto a modificare i fattori che influenzano le mie scelte d'acquisto rispetto a quelli che ho indicato in precedenza sono:

		Barra tutte le opzioni che ritieni opportune
C1	Non sarei disposto a modificarli	
C2	Un'occasione speciale	
C3	L'avanzare dell'età	
C4	Una serata fuori	
C5	Un weekend	
C6	Un regalo	

D INFORMAZIONI SOCIODEMOGRAFICHE

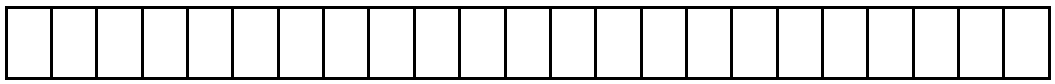
Per favore, barra con una "X" la casella che indica il valore massimo che saresti disposto a spendere per una bottiglia di vino per:

D2. Normale consumo domestico (€):



Oppure: D2a ☐ Non compro vino per il normale consumo domestico

D3 Per un'occasione speciale o un regalo (€):



Oppure: D3a ☐ Non compro vino per un'occasione speciale o un regalo

D4. **Sesso**: Sono: 1. ☐ Maschio 2. ☐ Femmina

D5 **Età**:

18-24	25-40	41-55	55-64	64+
1. ☐	2. ☐	3. ☐	4. ☐	5. ☐

D6 **Reddito:** Per favore indica il reddito complessivo del tuo nucleo familiare:

1. ☐ Sotto €22,000
2. ☐ €22,000 - €32,000
3. ☐ €32,000 - €50,000
4. ☐ €50,000 - €62,000
5. ☐ €62,000 - €75,000
6. ☐ €75,000 - €90,000
7. ☐ Oltre €90,000

D7 Numero di persone del tuo nucleo familiare

1 ☐ Vivo da solo
2 ☐ 2 persone vivono nel nucleo familiare
3 ☐ 3 o più persone vivono nel nucleo familiare

E Acquisti recenti di vino

Per favore, prova a ricordare quale è stata l'ultima bottiglia di vino che hai acquistato.

E1 Quale è stata l'ultima bottiglia di vino che hai acquistato?

_____

Se riesci a ricordarlo, ti chiediamo gentilmente di rispondere – se non riesci a ricordarlo barra la casella corrispondente.

Quale era il/la:

E1(a) Varietà dell'uva/delle uve _____ ☐ Non me lo ricordo (1)

E1(b) Produttore _____ ☐ Non me lo ricordo (1)

E1(c) Nazione _____ ☐ Non me lo ricordo (1)

E1(d) Regione _____ ☐ Non me lo ricordo (1)

E1(e) Prezzo _____ ☐ Non me lo ricordo (1)

E1(bis) Era un vino a denominazione di origine?

☐ Si (1) ☐ No (2) ☐ Non me lo ricordo (3)

E1(tris) Se si, ti ricordi quale denominazione era?

_____

E1(f) Aveva un riconoscimento particolare (tre bicchieri, cinque grappoli, >90/99, ecc.)?

□ Si (1) □ No (2) □ Non me lo ricordo (3)

E1(g) C'era una promozione sul prezzo?

□ Si (1) □ No (2) □ Non me lo ricordo (3)

E1(h) Quale era la gradazione alcolica?

□ 12.5%Vol. o meno (1) □ più di 12.5%Vol. (2) □ Non me lo ricordo (3)

E1(i) Che tipo di tappo aveva?

□ Sughero naturale (1) □ Tappo a vite (2) □ Sughero sintetico (3) □ . Non me lo ricordo (4)

GRAZIE PER LA COLLABORAZIONE

Ci farebbe molto piacere se volessi partecipare al nostro gioco "Le voci del vino: dai voce al vino che è in te", inserendo nell'apposita urna, che troverai all'ingresso della sala, la cedolina sottostante.

Tra tutti i questionari compilati in ogni loro parte saranno estratte:

- **2 confezioni regalo contenenti una selezione di bottiglie di Verdicchio di Matelica, gentilmente offerte dal Consorzio di Tutela del Verdicchio di Matelica DOC, del valore di 100€ cadauna;**
- **10 confezioni da sei bottiglie di "Chianti Classico – Villa Montepaldi", gentilmente offerte dall'Università degli Studi di Firenze, del valore di 40€ cadauna.**

Per partecipare al gioco

"Le voci del vino: dai voce al vino che è in te"

compila la cedolina sottostante

Cognome e Nome (obbligatorio):

……

Telefono (obbligatorio):

……

10.2. Appendix B

Pearson's Correlation Matrix	promo act.	grape var.	region origin	shelf inform.	alcohol content	food&wine Match.	back label	medal award	front label	brand name	someone else	read before	tasted before
Promotional display in-store	1.000												
Grape variety	**-0.284**	1.000											
Origin of the wine	-0.068	0.024	1.000										
Information on the shelf	0.026	-0.189	-0.174	1.000									
Alcohol level below 13%	-0.015	-0.041	-0.052	-0.173	1.000								
Matching food	**-0.209**	-0.002	-0.107	-0.018	-0.020	1.000							
Information on back label	-0.148	0.037	-0.081	0.104	-0.015	-0.091	1.000						
Medal / award	-0.140	-0.028	-0.169	-0.117	0.048	-0.115	-0.102	1.000					
An attractive front label	0.024	**-0.220**	0.034	-0.123	**-0.257**	-0.172	-0.101	-0.187	1.000				
Brand name	0.013	-0.193	0.142	-0.104	-0.038	-0.188	-0.069	-0.181	**0.248**	1.000			
Someone recommended it	-0.093	-0.133	-0.199	0.003	**-0.232**	-0.016	**-0.232**	-0.175	0.029	-0.150	1.000		
I read about it	-0.168	0.012	-0.196	-0.120	-0.098	-0.101	-0.020	0.177	-0.099	**-0.250**	-0.040	1.000	
Tasted the wine previously	0.028	-0.110	**-0.241**	0.069	-0.149	-0.011	-0.191	**-0.236**	-0.107	-0.150	**0.288**	-0.030	1.000

10.3. Appendix C

Number of classes	L^2	LL	BIC(LL)	AIC(LL)	AIC3(LL)	No. Par.	Classification Error
1	11923.21	-7765.53	16105.99	15731.05	15831.05	100	0.000
2	11811.94	-7709.89	16075.22	15647.79	15761.79	114	0.109
3	11721.74	-7664.80	16065.51	15585.59	15713.59	128	0.156
4	11657.90	-7632.87	16082.16	15549.75	15691.75	142	0.156
5	11608.44	-7608.14	16113.19	15528.28	15684.28	156	0.180
6	11553.71	-7580.78	16138.95	15501.55	15671.55	170	0.141
7	11499.18	-7553.52	16164.92	15475.03	15659.03	184	0.138
8	11461.76	-7534.80	16207.99	15465.61	15663.61	198	0.136

10.4. Appendix D

		Segment 1	**Segment 2**	**Segment 3**		
	n	120	95	99	**ANOVA**	
	n (%)	38%	30%	32%		
#	**Attribute**				**F**	**Sig.**
1	Promotional display in-store	-1.48	-1.23	-2.47	13.003	0.000
2	Grape variety	-0.01	-0.17	1.48	26.768	0.000
3	Origin of the wine	0.14	1.72	0.60	22.345	0.000
4	Information on the shelf	-0.91	-1.28	-1.49	4.520	0.012
5	Alcohol level below 13%	-2.02	-1.45	-1.09	8.663	0.000
6	Matching food	1.91	1.29	1.83	3.368	0.036
7	Information on back label	0.10	0.65	0.61	4.011	0.019
8	Medal / award	-1.06	-0.63	1.20	43.018	0.000
9	An attractive front label	-1.51	-0.78	-2.16	18.350	0.000
10	Brand name	-0.45	1.59	-0.98	126.238	0.000
11	Someone recommended it	1.78	-0.64	-0.46	108.994	0.000
12	I read about it	0.54	-0.12	1.53	34.332	0.000
13	Tasted the wine previously	2.95	1.05	1.42	66.580	0.000