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Heterogeneity of consumers' wine preferences in Catalonia: A Dual Response Choice Experiment Approach

Thesis Proposal

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Castelldefels, June 2013

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ABSTRACT

The main objective of this Thesis is the determination of consumers' wine preferences heterogeneity in Catalonia, paying special attention to the origin of the wine. A successful determination of consumers' wine preferences heterogeneity can assist in the development of marketing strategies for each identified target. This could benefit the Catalan wine industry by increasing their sales and, thus, help improving the Catalan quality wine market share in Catalonia. To fulfil our main goal two surveys were implemented. Methodologically, this determination is performed by means of a Choice Experiment. However, this Thesis includes a variation of the "Dual Response Choice Experiment" (DRCE) design. This design allows the simultaneous analysis of what consumers "would prefer" and what they "would purchase". The econometrical model implemented is the Heteroscedastic Extreme Value (HEV) model.

1. INTRODUCTION

After France and Italy, Spain is the third largest wine-producing country in the world. In 2010, Spain produced more than 35 million hectolitres of wine (OIV, 2011). Wine production in Catalonia accounts for more than 3.4 million hectolitres and has slightly increased in recent years (DAAM, 2010). The wine sector in Catalonia, as well as that in overall Spain, accounts for an important fraction of the agriculture and food industry of the country. Its relevance is multifunctional and lies in its contribution to the economy, the social identity, and the landscape. In Catalonia, there are 12 Designations of Origin (DO), including the DO Cava[1]. The Catalan DO represents more than 90% of the grape-growing surface (IDESCAT, 2007), which exhibits specialised production for quality wine.

The household wine consumption in Catalonia has decreased from 21.86 litres per capita in 2000 to only 12.42 litres in 2012 (MAGRAMA, 2013). However, during the same period, the consumption of quality wine increased by 10.7%. These data show how consumers are experiencing a change of habits by increasing their demand for higher-quality wines while decreasing their consumption of other wines, specifically table wines. Furthermore, the market share of the Catalan DO wines in retailer channels and in the HORECA[2] sector in Catalonia is low. Catalan DO wines represent 27.7% of the total quality wine consumption in Catalonia (Nielsen Panel, 2008). Thus, although consumers are shifting their preferences to high-quality wines, the demand for quality Catalan wines in Catalonia is low, and their main competitors are (some) Spanish quality wines, such as “La Rioja".

In turn, the exportation of Catalan quality wines has maintained an increasing trend in recent years both in volume and value (DATACOMEX, 2012), which shows how Catalan quality wines are appreciated beyond our borders. However, despite this growth and the change in the consumers’ preferences toward the consumption of more quality wines, the Catalan quality wines represent a low market share in Catalonia. Therefore, we are interested to analyse the wine preferences of consumers in Catalonia to understand why Catalan wines have such a relatively small market share.

[1] The DO Cava exclusively produces Cava, which is a quality sparkling wine produced using the Traditional method (also called the *Champenoise method*, although this terminology was outlawed in Europe in 1994).
[2] HORECA is the acronym for Hotel, Restaurant, and Catering businesses.

1.1 OBJECTIVES OF THE THESIS AND CONTRIBUTION

The main objective of this Thesis is the determination of consumers' wine preferences in Catalonia, paying special attention to the origin of the wine. While an undifferentiated (mass) marketing approach has been generally accepted as "unrealistic" by the wine marketing industry (Sanchez and Gil, 1998), the determination of the heterogeneity of consumers can assist in the development of marketing strategies for each identified target. A wine marketing strategy which will thoroughly consider the heterogeneity of consumers' preferences shall benefit the Catalan wine industry by increasing their sales and, thus, help improving the Catalan quality wine market share in Catalonia.

There is a relatively large number of research studies on wine consumers' segmentation, in particular those carried out by Bruwer *et al*. (2002), Bruwer and Li (2007) and Johnson and Bruwer (2004). However, a market segmentation of wine consumers in Catalonia has not been previously performed. Also, in this Thesis, consumers' heterogeneity will be defined in basis of consumers' willingness to pay for the main wine cues. This is, to our knowledge, the first attempt in the wine literature.

To assess consumers' heterogeneity, the following variables are taken into account: respondents' socio-demographical variables (gender, age, social class, and place of birth), wine consumption frequency, wine involvement, and attitude toward Catalan wines. From this set of variables, the wine involvement is especially of our interest; it is known that according to different levels of involvement, consumers use wine cues differently (Lockshin and Hall, 2003). Thus, in this Thesis, a measuring scale is developed to determine the consumers' wine involvement. This measuring scale includes an update of the issues related to wine involvement according to the literature.

The emotions that occur when consuming and consumers' personal values in life are also considered in our segmentation. The importance that marketers give to emotions and personal values is every time greater and, up-to-date, few research has been published on emotions in relation to food and, more specifically, to wine (Ferrarini, R. *et al.*, 2010).

Furthermore, other issues arise when analysing consumers' wine preferences. Traditional marketing does not always explain the complexity of today's consumer. In this sense, it is known that consumers are occasion-based and demand a different quality according to the occasion during which they plan to

consume the wine (Quester and Smart, 1998; Lockshin and Hall, 2003). Besides, as many consumers perceive wine as a complex product, they will likely exhibit some forms of risk reduction behaviour during its purchase (Johnson and Bruwer, 2004). Both of these issues are addressed in this Thesis.

Another issue that marketers and companies face is the investment in an advertisement campaign. As it is known, advertisement campaigns are costly and sometimes their benefits are not easily measured. This is especially arduous when we deal with a generically designed advertisement campaign, as it would be the case when promoting Catalan quality wines. Moreover, due to the economical crisis of the present times, consumption patterns have changed in Catalonia and in Spain. Therefore, it is interesting to analyze how the crisis is affecting consumers' wine preferences and their willingness to pay.

Taken all this in consideration, the specific objects of this Thesis are listed below:

- To determine the main cues that consumers use when choosing wine and their willingness to pay for them. In this respect, special attention will be paid to the origin of the wine.
- To analyze the wine involvement level shown by Catalan consumers and, specifically, to identify targets with a higher degree of involvement and potential.
- To identify relations between psycho-social variables and consumers' wine preferences. In this respect, special attention will be paid to the emotions that consumers experience when consuming wine, and their personal values.
- To determine the differences in the willingness to pay for a wine and for its main cues depending on the consumption occasion.
- To identify consumers risk reduction strategies in their wine shopping. According to these, recommendations to diminish risk in wine shopping shall be specified.
- To analyze the impact of an advertisement campaign that promotes the qualities of wines from Catalonia.
- To identify whether there is a change in consumer wine preferences in a period of time, linked to the economical crisis. In this sense, we will pay special attention to consumers' willingness to pay for the product.

To achieve our goals two surveys are implemented to a consumers' sample. To determine the willingness to pay the Choice Experiment (CE) was used, due to

its suitability for the analysis of consumers' preferences toward "complex" goods (i.e., goods that include several descriptors or attributes). In this Thesis we follow a variation of the Dual Response Choice Experiment design proposed by Brazell *et al.* (2006) that allows the comparison of the results obtained from forced and non-forced responses within a sample. To the best of our knowledge, this is the first attempt that analyses the preference heterogeneity using the DRCE design for a complex product such as wine.

All things considered, this Thesis is relevant to the study of consumers' preferences associated with wine purchases in Catalonia, where the place-based and the region-of-origin branding attempt to influence the consumers' final decisions.

This Proposal is structured as follows: section 2 discusses the previous literature which includes consumers' wine preferences and forced and non-forced choices; section 3 discusses the methodological framework, which details the empirical application, the modelling and design of the choice experiments, and the definition of the variables introduced for the market segmentation. The proposal ends with the working schedule and the publications in the field.

2. LITERATURE REVIEW

2.1. CONSUMERS' PREFERENCES TOWARDS WINE

2.1.1. WINE AS A DIFFICULT PRODUCT TO CHOOSE

It is been stated that consumers face certain difficulties and confusion when choosing a wine (Lockshin *et al*., 2006). The main reason for this difficulty is the immense number of cues that are associated with wine compared with many other products. First, wine can be differentiated by its type: red, white, rosé, sparkling, liquored, and others. However, the amount of cues is still very large within these categories. Wine cues range from the country and the region of origin to the brand name, price, awards, and packaging. Moreover, intrinsic cues, such as quality and taste, grape variety (or varieties), vintage, and alcohol content, are also relevant. Moreover, there is a large range of wines that are available in the market, which generates a more complex choice compared with many other food products. Such complexity also entangles the determination of the factors that affect the consumer's decision making. This varied nature of wine as a product contributes to the high risk associated with the wine purchase decision compared with other alcoholic drink choices (e.g., beer and spirits) (Wansink *et al*., 2006; Lacey *et al*. 2009). Thus, because many consumers perceive wine as a complex product, some form of risk reduction behaviour is likely to be exhibited during its purchase (Johnson and Bruwer, 2004).

Taste is the main factor of choice for wine consumers (Lockshin and Hall, 2003). More specifically, when wine is linked to a specific consumption situation, such as its consumption in a restaurant, taste is the primary reason why consumers select a specific wine (Hall *et al*., 2001; Jaeger *et al*., 2010; Bruwer *et al*., 2011). However, wine is an experience product: its quality (taste) cannot be assessed until the product has actually been consumed (Mueller *et al*., 2009; Mueller *et al*., 2010, Bruwer *et al*., 2011; amongst others). Therefore, consumers will rely on extrinsic cues for the assessment of wine quality (Lockshin and Hall, 2003; Lockshin and Halstead, 2005; Lockshin *et al*. 2006; Remaud and Lockshin, 2009) and will make their decision based on the information available on the label and bottle (which are proxies or indications of what lies inside the bottle) (Lockshin *et al*., 2006). Thus, to increase the incidence of purchase of a particular wine, it is essential to understand how consumers utilise the product cues (Lockshin and Halstead, 2005).

Moreover, wine consumption can be explicitly related to a specific situation and to context (Bruwer *et al.* 2002); thus, consumers will demand a different quality according to the occasion during which they plan to consume the wine (Quester and Smart, 1998; Lockshin and Hall, 2003). It is been noted that different consumption situations can amplify or mute the importance of different wine attributes, such as price (Lockshin and Hall, 2003; Lockshin *et al*. 2006). Hall and Lockshin (2000) determined that low prices were determinant when the occasion was to relax at home by oneself or for entertaining at an informal party or BBQ and that high prices were relevant when the consumer wanted to create an impression on a business associate or to celebrate a special anniversary.

2.1.2. MAJOR CUES FOR WINE CHOICE

Consumers only use a small amount of the information available to make a decision (e.g., Foxall, 1983; Lockshin and Hall, 2003). Taking this into account, brand names are capable of acting as a surrogate for a number of attributes (including quality) and might help address risk while providing product cues (Lockshin and Hall, 2003). Brand names have even been considered to be the key unit of the decision making process (Ehrenberg, 1988). Consumers develop a small brand repertoire, which may well be a collection of true brands and generic types (Lockshin and Hall, 2003; Gluckman, 1990). Generic types can be built on the region of origin and/or the grape variety. Lockshin and Halstead (2005) determined that an unknown brand lessens the likelihood of purchase when well-known brands are also available for purchase, and the same is true for regions of origin. Furthermore, Johnson and Bruwer (2004) showed that consumers tend to rely on favourite brands, i.e., those that have previously satisfied their needs, when choosing inexpensive wine. Similar results were obtained by Lockshin *et al*. (2006) in their choice experiment. These researchers concluded that the brand effect is not as important for more expensive wines.

The origin of the wine also plays a key role in the consumers' decision-making process (Keown and Casey 1995; Gluckman 1990; Skuras and Vakrou 2002). Consumers use the origin of the wine as one indicator of the overall quality of the product. Some regions of origin have become luxury brands in themselves (Nerlove, 1995; Landon and Smith, 1998; Remaud and Lockshin, 2009). There is a broad consensus of research that contends that the wine region of origin adds value in the consumers' eyes (Gil and Sanchez, 1997; Quester and Smart, 1998; Angulo *et al*., 2000; Lockshin *et al*., 2006; Remaud and Lockshin, 2009,

amongst others), although its importance depends on the country of study (Lockshin *et al*., 2006; Goodman *et al*., 2007; Lockshin and Halstead, 2005).

In Europe, the country of origin is a primary and implicit consideration of consumers in their decision to purchase wine (e.g., Skuras and Vakrou, 2002; Lockshin *et al*., 2006; Lockshin and Halstead, 2005; Remaud and Lockshin, 2009). Previous research in Europe has shown that the region is the most important attribute in the European wine-producing countries compared with the countries that do not produce wine. Specifically, it is been shown that older and more established wine cultures that are based on regional designations rely on the region of origin as the most important wine attribute (Perrouty *et al.,* 2006). For example, Tzimitra-Kalogiani *et al.* (1999) found that one of the most important wine attributes for Greek consumers was the designation of origin. Another case study in Greece revealed that information that links the place and the product is very important and at the top of the list of information sought by wine consumers on wine labels (Dimara and Skuras, 2005; Johnson and Bruwer, 2007). In Spain, Angulo *et al*. (2000) stated that the region of origin and the vintage are the main determinants of price. In other studies, the region of origin was found to be a primary consideration of consumers in their decision to purchase wine (Gil and Sanchez, 1997; Mtimet and Albisu, 2006)

Price has been shown to be a very important attribute that affects wine choice. It is an important cue used to infer the quality of a product when there are a small number of other cues available, when the product cannot be evaluated before purchase, and when there is some degree of risk of making a wrong choice (Lockshin and Hall, 2003; Spawton, 1991; Mitchell and Greatorex, 1988; 1989; Zeithaml, 1988). Batt and Dean (2000) found that price was the most important factor that influences the consumer's decision to purchase wine from retail liquor stores in Australia. However, price was more important for those consumers who drank wine less frequently and for those who tend to purchase more inexpensive wines. In a recent study, Bruwer and Buller (2012) showed that Japanese consumers consider price to be the most significant extrinsic wine attribute, which indicates that it is an important factor that has a strong influence in the wine buying decision.

Notwithstanding, several studies have shown how wine can perform as a Veblen good to a certain extent, i.e., it can become more desirable as it increases in price. Mtimet and Albisu (2006) obtained a concave price-utility curve, which indicates an increase in the consumers' utility when the price is increased; however, this is only true up to a certain price level. At higher prices,

the consumers' utility decreased when the price increased. This confirmed previous results obtained by Lockshin *et al*. (2006), who stated that the wine demand increases as the price increases and decreases at the highest price points. However, the point at which the demand drops depends on the different products attributes. Lockshin and Halstead (2005) also found that consumers are positively influenced by the wine price when choosing mid-priced wines compared with wines that have either a low or a very high price tag.

As previously stated, a generic type or brand may also be built upon grape varieties. These are a major factor in the wine choice in the New World (Lockshin and Hall, 2003). In Spain, these do not determine the prices of quality red wine (Angulo *et al*., 2000); however, according to Mtimet and Albisu's (2006) choice experiment, consumers prefer Cabernet Sauvignon over other Spanish grapes. Other possible attributes of relevance for consumers are the wine's vintage, the alcohol content, the presence of awards, and the labelling and packaging.

In accordance with Spanish wine culture, Spanish consumers relate quality to vintage, i.e., an older wine has a better quality (Angulo *et al*., 2000; Mtimet and Albisu, 2006; and Barreiro *et al*., 2008). Furthermore, the alcoholic content is not an important determinant of the price of quality red wines (Angulo *et al*. 2000). With respect to the awards or medals displayed (a practice that is not widely used in the Spanish wine market), it is been found that these can have a positive effect in the eyes of Australian consumers (when gold medals were shown) (Lockshin and Halstead, 2005). However, the potential increase in the market share was only found to be effective at lower prices.

The packaging is an attribute that is widely considered in wine marketing and promotion (Lokshin and Hall, 2003). Wine is an experience product; therefore, good packaging can play an important role in the consumers' perception because the first taste is almost always with the eyes (Mueller *et al*., 2009). However, contradictory evidence has been found from the comparisons of wine packaging with other extrinsic cues[3]. According to Mueller *et al*. (2009), graphical presentations may add clarity and precision to visualisation and information processing. Thus, the visual presentation of the product may ensure that the direct activation from the visual attributes is captured in the consumers'

[3] Goodman (2009) and Mueller *et al*. (2007) concluded that the wine packaging design was relatively unimportant in the consumers' choice, whereas Boudreaux and Palmer (2007) and Orth and Malkewitz (2008) found that strong consumer impressions were evoked by wine packaging design elements (Mueller *et al.*, 2009).

choices (Mueller *et al.,* 2010). Similarly, Mueller and Szolnoki (2010) found that the packaging is relevant only when it is visible in the experiment but was not recorded when not it mentioned or explicitly included.

2.1.3. RISK REDUCTION STRATEGIES (RRS) IN WINE CHOICE

Amongst other factors, all of the complexities that wine encompasses, the enormous amount of labels that are available in the market, and the perceived formality of wine have led to the suggestion that the choosing of a wine can be intimidating (Lockshin and Halstead, 2005). In 1988, Mitchell and Greatorex conducted the first structured research study to identify the types of risk that affect wine consumers in the UK. Four types of risks were identified, and a fifth was included later (Schifman and Kanuk, 2006 in Bruwer and Rawbone-Viljoen, 2012). Because many consumers perceive wine as a complex product (Bruwer *et al*. 2011), some form of risk reduction behaviour is likely to be exhibited during its purchase (Johnson and Bruwer, 2004). In a recent work, Bruwer and Rawbone-Viljoen (2012) compiled the main risk reduction strategies (RRS) for wine choice from the literature. These are summarised below:

1. ***Information search*:** The information is obtained from assistants, waiters, wine editorials, tasting notes, product packaging, word-of-mouth, family and friends, and opinion leaders (Mitchell and Greatorex, 1988). Information seeking is largely dependent on the level of consumer involvement.
2. ***Brand loyalty:*** Brand loyalty is also closely correlated with involvement. Uniformed buyers possess small brand repertoires and gravitate toward the safety of bigger brands that offer consistency in taste and quality (Lockshin and Spawton, 2001). Wine enthusiasts are likely to be more experimental.
3. ***Store image:*** This becomes more important when looking for expensive and infrequently purchased items (Hisrich *et al*., 1972).
4. ***Well-known brands.*** These brands are more likely to be trusted when consumers have no experience with the product (Mitchell and Greatorex, 1989).
5. ***Price***: Price becomes more important when no other information about the product is available (Mitchell and Greatorex, 1989). If the consumer perceives a high price to quality relationship, he/she will buy a more expensive wine with the belief that it will have a higher quality (Gluckman, 1986). A common fallacy is that knowledgeable

consumers always spend generously, but these consumers often recognise good value and trade down (Bruwer *et al.,* 2002).

6. ***Seeking reassurance:*** Reassurance is sought mainly through tastings and information seeking behaviour. The very act of wine tasting should be regarded as information gathering (Mitchell and Greatorex, 1989). Batt and Dean (2000) found that prior experience had the most influence on the purchase of wine. Although sales assistants can play an important advisory role, some studies have shown that sales people are often held in low esteem (Sweeny *et al*., 1999; Bruwer and Johnson, 2005).

Johnson and Bruwer (2004) concluded that the main RRS used by consumers when purchasing high-priced wines are reassurance and information seeking. Both of these strategies could be tantamount to an increase in consumers' knowledge. Lockshin and Hall (2003) remarked that the main RRS are selecting a known brand, recommendations, advice from retail assistants, undertaking wine appreciation tastings, and samples. Furthermore, according to Lockshin and Halstead (2005), consumers will choose a wine that has been previously purchased and tasted, has an "informal" or "formal" endorsement from a third party, and originates from a previously purchased region of origin or a previously known grape variety. Moreover, consumers use prior tasting experience and recommendations as their main selection cues when buying wine in retail stores (Thach, 2008). Therefore, the abovementioned authors agree that previously known or experienced wines and recommendations are the main drivers for wine choice that are used to reduce consumer's risk. In addition to these, Bruwer and Buller (2012) also include the information provided by a company via its marketing strategies as an important factor.

Risk behaviour is influenced by personality. Thus, risk-seeking consumers will show an internal desire to seek variety, which at the same time will reduce future uncertainty and risk by increasing their experience with unfamiliar products (Khan, 1995). As a result, risk-seeking behaviour can also be considered an RRS in the same way as risk-avoidance behaviour (Lacey *et al*. 2009).

2.1.4. WINE INVOLVEMENT

Involvement can be defined as the personal relevance of a purchase decision to a buyer (Rothschild, 1984). In the case of wine, the consumer's level of

involvement will condition his/her attitudes toward the product (Charters and Pettigrew, 2006).

In the literature, high- and low-involvement wine buyers have been shown to behave differently (Lockshin *et al*., 2006). Lockshin *et al*. (2001) compared French and Australian wine consumers and demonstrated that involvement was a better predictor of wine choice behaviour than the nationality of the wine consumers. The level of product involvement affects the strength of the attributes in the wine choice behaviour (Lockshin and Halstead, 2005). More-involved consumers utilise more information and are interested in learning more, whereas low-involved consumers tend to simplify their choices and use risk reduction strategies (Lockshin and Hall, 2003; Lockshin *et al*. 2006). Thus, different levels of involved consumers use wine cues differently, and it would be advisable to study these groups of consumers separately (Lockshin and Hall, 2003).

2.2. FORCED VERSUS NON-FORCED CHOICE

The Choice Experiment technique is one of the most frequently used methods for the analysis of individual preferences for complex goods. This technique belongs to the stated preference method and attempts to simulate the "purchasing stated preference" by asking individuals which product they would purchase from a set of competitive products at a different price. The CE method involves the characterisation of the object of study through a series of descriptors (attributes and their levels) that can be combined using an experimental design that creates different hypothetical scenarios of the product (alternatives). These scenarios differentiate the analysed product in one or more attribute levels. Respondents are faced with several of these scenarios (choice sets) and are asked to select their preferred product while implicitly making a trade-off between descriptors. One of the attributes is usually defined in monetary terms (frequently the price), which allows the researcher to gain an understanding of the monetary values associated with the attributes and the attribute levels.

In the application of the Choice Experiment methodology, researchers usually use two approaches for the construction of their choice sets. The first approach relies on forcing participants to select a product from a set of alternatives, whereas the second approach includes a "fixed alternative" in the choice set and thus allows a no-choice response. This option can be defined as an opt-out

option (null-option or outside option), in which neither the hypothetical product nor the alternatives are preferred. The use of a forced versus a non-forced-choice in the CE technique used to analyse consumers' preferences has been addressed by several studies over the past decades (e.g., Batsell and Louviere, 1991; Huber and Pinnell, 1994; Dhar, 1997; Dhar and Simonson, 2003; Bech and Gyrd-Hansen, 2005; Brazell *et al*., 2006; Vermeulen *et al*., 2008; Parker and Schrift, 2010; Kallas and Gil, 2012). Based on a literature review, the implications of forcing or not forcing consumers in their choices can be summarised in the answer to the following questions:

a. Under which conditions should a researcher include a fixed option?

The use of forced or non-forced CE will depend on the objective of the study (Dhar, 1997; Dhar and Simonson, 2003; Bech and Gyrd-Hansen, 2005; Carlsson *et al*., 2007), although it is now a common practice to include a no-choice option in most CE studies[4] (Parker and Schrift, 2010). Although it is less realistic than the non-forced choice for capturing consumer behaviour in the marketplace (Haaijer *et al*., 2001), the forced choice option should be applied when the following conditions are present: (1) the interest of the study is to compare levels and attributes or alternatives (Carlsson *et al*., 2007), (2) the cost of delaying the choice is damaging, i.e., the product is needed in a very short term (Dhar and Simonson, 2003; Parker and Schrift, 2010), and (3) the potential "greater easy way out" is to be avoided (Blamey and Bennett, 2001 and Parker and Schrift, 2010). However, a "no-purchase" option is important to measure market penetration (Carson *et al*., 1994) and to examine the shift from a usually purchased product to the analysed one (Carlsson *et al*., 2007). An opt-out option is also included when researchers need to increase the realism of the hypothetical simulated market (Batsell and Louviere, 1991; Carson *et al*., 1994). In this context, including an opt-out option allows consistency with demand theory and improves the theoretical validity of the welfare estimates (Bateman *et al*., 2002; Adamowicz and Boxall, 2001; Batsell and Louviere, 1991).

b. What are the econometric implications of both approaches (with and without opt-out option)?

Including or excluding the opt-out alternative in choice experiments also has some econometric implications on the marginal trade-off between the attributes' levels (Kontoleon and Yabe, 2003). The introduction of a fixed alternative may

[4] Some types of valuations can only be realistically performed using forced choice experiments, e.g., Hensher *et al.* (2005) and Rigby *et al.* (2010).

cause correlation across the use of the alternatives and thus violate the IID assumption (error term is distributed independently and identically) underlying the Multinomial Logit Model. As a result, the IIA (Independence of Irrelevant Alternatives) property also tends to be violated when the fixed alternative is introduced because this fixed alternative tends to eliminate a greater share from certain options rather than from others that individuals tend to select under forced-choice conditions (Dhar, 1997; Dhar and Simonson, 2003; Brazell *et al*., 2006). Another econometric implication of excluding the fixed alternative is the overstatement of the likelihood that individuals would actually choose one alternative from a choice set (Boyle *et al*., 2001, Ruby *et al*., 1998). Therefore, the non-forced approach improves the statistical efficiency of the estimated choice parameters (Louviere *et al*., 2000; Anderson and Wiley, 1992).

c. Why do respondents select a fixed alternative as their preferred option?

Respondents may choose the opt-out option for several reasons. According to rational theory, individuals reject making a choice when there is no compelling rationale for that choice. This can be caused by the difficulty associated with selecting the best alternative, either because neither alternative is relevant (Dhar and Simonson, 2003; Dhar, 1997; Baron and Ritov, 1994) or due to the desire to save time and effort (Dhar and Simonson, 2003). In addition, when the choice options are not sufficiently different (i.e., a choice set containing relatively homogeneous options or not meeting a minimum acceptable standard for the respondents), the respondents may also choose the opt-out option (Huber and Pinnell, 1994). This can occur despite the presence of sufficiently good alternatives when no clear best alternative exists, which reveals preference uncertainty (Carlsson *et al*., 2007; Dhar, 1997). In this context, according to psychological theory, when respondents are uncertain of their choices, they may tend to select the fixed alternative because it is less likely to be observed as an error (Simonson and Tversky, 1992). In other words, respondents may prefer the consequences of inaction rather than those of wrong action (Baron and Ritov, 1994), and the opt-out option can be used as an easy way to not answer (Vermeulen *et al*., 2008).

When respondents are confronted with a forced-choice set, they will try to choose the best available option (i.e., picking the winner), which would therefore reveal the consumers' preference structure. In this case, an attribute-based evaluation may take place, and respondents choose between alternatives by comparing them attribute-by-attribute (Parker and Schrift, 2010). In such an approach, some options may not be taken into account, e.g., when options in

the choice set have some shared and some unique features (Dhar and Nowlis, 2004). In contrast, when the opt-out option is available, respondents not only need to determine which alternative is the winner but also whether any or all of the alternatives are worth choosing (Parker and Schrift, 2010). As such, facing a non-forced-choice should trigger a relatively more evaluative type of judgment, in which the consumer evaluates each alternative one at a time in a holistic way. Thus, respondents are focused on determining whether each individual alternative should be chosen at all (Parker and Schrift, 2010). This type of judging is known as alternative-based evaluation.

d. Are there other sorts of implications when including a fixed option?

There are other miscellaneous implications of the inclusion of the "no-choice" option. First, this option provides a less conflicted decision-making process and releases the respondents from negative emotions (Luce, 1998) and psychological discomfort (Dhar and Simonson, 2003). In addition, if the choice is difficult, respondents may behave by selecting a) a compromised alternative, b) a dominating alternative, or c) a high-quality, high-price alternative. Additionally, the presence of the opt-out option allows the modelling of the choice between the attributes and the levels while determining the respondents' will to participate in the choice (Batsell and Louviere, 1991; Carson *et al*., 1994). Furthermore, when the opt-out option is not included, the results may be biased by the masking of the individual's true preferences (Dhar and Simonson, 2003; Dhar, 1997; Huber and Pinnell, 1994). Moreover, non-forced choice makes the implementation of the experimental design easier (Anderson and Wiley, 1992; Brazell, *et al*., 2006). However, the optimal designs for CE with or without the no-choice option are equal (Street and Burgess, 2004).

2.2.1. THE DUAL RESPONSE CHOICE EXPERIMENT DESIGN (DRCE)

The inclusion or exclusion of the no-choice option in the CE sampling design usually leads to the use of a split sample, as described by Dhar and Simonson (2003), Enneking (2004), and Carlsson *et al*. (2007). The first sample is faced with the traditional Single-Stage Free-Choice Experiment (i.e., with the opt-out option), whereas the second sample is faced with a forced-choice. This approach might suffer from budgetary and time constraints because the experiment is usually repeated to allow comparison. Nevertheless, a within-sample approach using the Dual Response Choice Experiment design (DRCE)

may allow obtaining both forced- and non-forced-choices simultaneously (Brazell *et al*., 2006).

In the classical design of the DRCE approach, respondents are first asked to choose from a set of available alternatives in a forced-choice task (without a no-choice option). Later in the same questionnaire, the choice exercise is repeated with the no-choice option. Brazell *et al*. (2006) empirically compared this DRCE approach with the traditional Single-Stage Free-Choice Experiment and obtained more efficient coefficient(s)[5] in the former approach. In this study, we used a DRCE design. However, a variation of the original design was introduced. Similarly to the protocol described by Kallas and Gil (2012), the respondents were first asked to select their preferred alternative in a forced-choice scenario and then whether they are willing to purchase the selected alternative within the same exercise (Figure 1).

Figure 1: The Dual Response Choice Experiment Design

Choice set	**Alt. "A"**	**Alt. "B"**
Attribute 1 (A_1)	Level 1 ($L_{1.1}$)	Level 2 ($L_{1.2}$)
⋮	⋮	⋮
Attribute n (A_n)	Level 3 ($L_{4.3}$)	Level 1 ($L_{4.1}$)
1. Considering that "A" and "B" are the <u>only</u> available products, which product would you choose? "A" ☐ "B" ☐		
2. Would you <u>purchase</u> your chosen product? Yes ☐ No ☐		

2.2.2. THE ADVANTAGES OF A PURCHASE/NO-PURCHASE SCENARIO WITHIN THE DRCE

Introducing a follow-up question in the DRCE after forcing consumers to select their preferred product (step 2 in Figure 1) is significant because it allows the respondents to face a "purchase/no-purchase" decision, which may have the following advantages:

[5] Brazell *et al*. (2006) measured the efficiency by the root mean squared error of the individual coefficients. However, their results were based on simulation exercises. In this sense, further research on this field would be required to assess whether the DRCE design improves the efficiency.

- The purchase/no-purchase scenario may better mimic the circumstances under which actual choices are made in a market situation (Ryan and Skatun, 2004).
- It has also been demonstrated that the purchase/no-purchase scenario is less open to ambiguity than the opt-out alternative from the traditional CE (Carlsson *et al.*, 2007).
- This approach (in comparison with the traditional CE design) is able to analyse both what consumers really "would purchase" and what they "would prefer" from a choice set. For example, if I am forced to choose between two products (A and B), A costs €5 and B costs €6, and my maximum willingness to pay is €4, then, in the traditional CE design, I would select the opt-out option (neither of them). However, I may "prefer" one over the other (Ryan and Skatum, 2004). Thus, "preferred" options may not match the respondents' willingness to purchase (Hu and Cox, 2009). Therefore, the inclusion of the purchase/no-purchase scenario within the DRCE allows researchers to analyse both aspects, i.e., what consumers "would choose" and what they "would prefer".
- The follow-up question in the DRCE increases the reliability of the results because it more accurately reveals the consumers' preferences and thus improves the overall performance of the model (Hu and Cox, 2009). This improvement occurs because the respondents are approached twice for information on their preference: once with a conditional choice question and once with an unconditional purchase question.
- The DRCE attempts to mimic the choice process of consumers. In the presence of unsatisfied needs, the consumer behaviour in the marketplace typically entails making two decisions, and the actual choice is a joint consequence of these decisions (Dhar and Nowlis, 2004). The first decision is related to the selection of the preferred choice of the available options (step 1 in the DRCE), and the second decision is which of the preferred alternative(s) will be purchased (step 2 in the DRC) (Dhar and Nowlis, 2004).
- The purchase/no-purchase decision after a forced-choice increases the share of the no-choice option compared with when it is available in the initial choice set (Dhar and Simonson, 2003). This can be explained by the respondents' greater commitment to an option when it is selected freely (Dhar and Simonson, 2003). Thus, an advantage of the DRCE design may

be derived from a smaller degree of the respondents' commitment to any of the options.

- Asking consumers whether they are willing to purchase the product emphasises the purchasing context, which leads the respondents to focus more on their budget constraints by considering the price. In contrast, in the traditional single-stage CE, the respondents can be driven by reason and logical arguments rather than by price considerations (McKenzie, 1993).
- The respondents are more likely to decide their preferred option using a holistic alternative-based evaluation (Dhar and Nowlis, 2004) rather than an attribute-based approach, which minimises the undesired lexicographic preferences[6] in Choice Experiments.

[6] Lexicographic preferences were observed when respondents choose alternatives based on a single criterion or attribute. These respondents always choose the alternative with the higher or lower value of a certain attribute, regardless of the values of the other attributes.

3. METHODOLOGICAL FRAMEWORK

3.1. SURVEY AND SAMPLING

To accomplish the objectives specified in the first chapter of this Proposal, two surveys are implemented. Every survey is preceded by an extended literature review in order to explore the state of the art related to wine preferences and choice experiment design. The research is based on scientific publications from specialised journals and data bases. Research from books and congresses is also taken into consideration. Nevertheless, newer literature is continuously up to dated during the entire process to build up this Thesis.

The surveys are carried out to collect the primary information that will respond to our goals. They are implemented by means of face-to-face questionnaires based on a series of coherent and articulated questions which will guarantee that the obtained information can be analyzed by quantitative methods. Furthermore, the results from the sample must be comparable to a population while specifying a sampling error and a confidence level (Fernandez *et al.* 2005). Both surveys exhibit many common issues. This will allow us to obtain the evolution of consumers' wine preferences, on a time in which they might have changed as a consequence of the economical crisis. In this sense, we will pay special attention to consumers' willingness to pay for the product.

For both surveys the questionnaires collect: a) consumers' attitudes and opinions towards wine consumption, b) their perceptions towards quality wines, c) their knowledge about wines with Designation of Origin (spontaneous notoriety, fame and fidelity), d) their attribute preferences for Catalan wines and purchasing intentions and d) consumers' willingness to pay for wine's attributes (Choice Experiment). Besides, they also collect a large amount of consumers' variables that will help to determine consumers' heterogeneity.

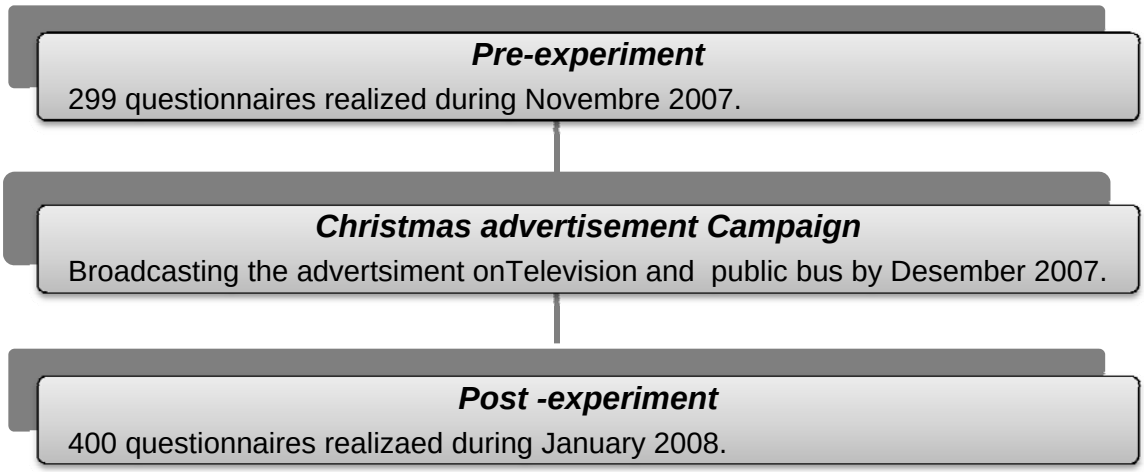
Data collection takes over a 4-week period and a quota sampling procedure stratified by gender, age, and postal district with proportional allocation to each stratum is defined. The selection criteria are that respondents should be at least 18 years of age (legal drinking age), should have purchased a bottle of wine within the last 3 months, and should be the main wine purchase decision makers in their household. The recruitment of respondents takes place in major supermarkets and in one of the central streets of the city of Barcelona. The fieldwork is subcontracted to a company specialized in marketing research. Each respondent is given 20€ to participate in the experiment. The control of

the questionnaire is fourfold and performed by means of a pilot sample of six different consumers each time and subsequently revised to improve readability and understanding.

For survey number 1, one of the main goals is to assess the impact of information and advertisement on consumers' wine preferences for a special occasion, being taken as a case study Christmas in Catalonia. In order to achieve this goal, the survey is conducted in two stages: before and after the advertising campaign (pre- and post- advertisement) with 299 and 400 consumers respectively. The purchase is defined for a red quality wine for home consumption during Christmas. This is done in order to avoid possible consumers' misspecifications, such as respondents thinking of different specific occasions or different wine products, which could result in biased responses.

The pre- and post- advertisement questionnaires are identical with the exception that the post- advertisement questionnaire contains multimedia information (videos and graphical documents of the advertisement campaign) to present to consumers in order to recall them the launched campaign[7]. Figure 2 summarizes the two stages of survey number 1.

Figure 2: summary of the two stages of survey number 1.



The same procedure was followed for survey number 2. In this case, data is collected from 400 consumers only in one step. A summary of the technical

[7] The advertising campaign consisted of a television advertisement and the exhibition of posters placed on the urban city buses of Barcelona

sheet for surveys number 1 and number 2 is shown in Table 1 and 2, respectively.

As it is been stated, both surveys collect similar information to allow comparability in time. However, survey number 2 includes consumer's variables related to the emotions that occur when consuming the product and, consumers' personal values in life. As mentioned earlier, consumers' heterogeneity related to these variables is one of the objectives of this Thesis. They were included as a result of an extended literature review which gave evidence of their increasing importance in the marketing field. Furthermore, survey number 2 is also focus in determining the differences in consumers' wine preferences depending on the consumption occasion. As it has been stated, the comparison between consumers' heterogeneity depending on the consumption occasion is also one of the objectives of this Thesis In this sense, respondents are faced with two choice experiments within a questionnaire: a first one determining consumers' wine preferences for a wine for a special occasion and, a second one for which the consumption occasion is casual, as to relax by oneself at home.

Once the obtained information of the surveys is introduced and reviewed, a descriptive analysis is performed as a first step. However, the main technique analysis of this Thesis shall be the Choice Experiments, which belong to the multivariate analysis.

Table 1: Survey 1 technical sheet

	Pre - advertisement	***Post - advertisement***
Population	Consumers over 18 years who purchase regularly food and are residents in the metropolitan area of Barcelona.	
Sample design	Stratified sample by gender, age and postal district using proportional affixation to the number of persons by stratum	
Field	Metropolitan area of Barcelona	
Sample Size	299	400
Sampling error	± 5.66	± 4.90
Confidence level	95.5% (k=2)	95.5% (k=2)
Sample Design	Stratified sample by age and postal districts using proportional affixation to the number of persons by stratum.	
Control measure	Pilot survey (24 questionnaires)	
Date of field work	November 2007	January 2008

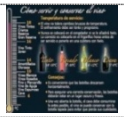
Table 2: Survey 2 technical sheet

Population	Consumers over 18 years who purchase regularly food and are residents in the metropolitan area of Barcelona
Sample design	Stratified sample by gender, age and postal district using proportional affixation to the number of persons by stratum
Field	Metropolitan area of Barcelona
Sample Size	401
Sampling error	± 4,90%
Confidence level	95.5% (k=2)
Control measure	Pilot survey (24 questionnaires)
Date of field work	September 2010

3.2. THE CHOICE EXPERIMENTS (CE)

The Choice Experiment technique is one of the most frequently used methods for the analysis of individual preferences for complex goods. This technique belongs to the stated preference method and attempts to simulate the "purchasing stated preference" by asking individuals which product they would purchase from a set of competitive products at a different price. The CE method involves the characterisation of the object of study through a series of descriptors (attributes and their levels) that can be combined using an experimental design that creates different hypothetical scenarios of the product (alternatives). These scenarios differentiate the analysed product in one or more attribute levels. Respondents are faced with several of these scenarios (choice sets) and are asked to select their preferred product while implicitly making a trade-off between descriptors. One of the attributes is usually defined in monetary terms (frequently the price), which allows the researcher to gain an understanding of the monetary values associated with the attributes and the attribute levels. An example of a choice set for wine alternatives can be seen in Figure 3.

Figure 3. Example of a choice set for wine alternatives

ELECTION # 1	**Alternative "A"**	**Alternative "B"**
Origin (A_1) 	Catalonia	Spain (outside Catalonia)
Knowledge (A_2) 	Personal experience	Recommended
Grape Variety (A_3) 	Merlot	Cabernet Sauvignon
Price (A_4) 	€6	€10
Considering that "A" and "B" are the only available products, which product would you choose? A □ B □		
Would you purchase your chosen product? Yes □ No □		

The conceptual foundations of CE rely on Lancaster's Theory of Value (Lancaster, 1966), which proposes that utilities for goods can be decomposed into separable utilities based on their characteristics or attributes, as well as on Random Utility Theory (Thurstone, 1927), which characterises the choices made between pairs of offerings. Within this theoretical framework, subjects choose between alternatives according to a utility function with two components: a systematic (i.e., observable) component and a random term (unobservable to the researcher). The Multinomial Logit Model is the model that is most frequently used for choice data, and it is formulated as follows (McFadden, 1974):

$$P_{in} = \frac{e^{\mu V_{in}}}{\sum_{i=1}^{i=I} e^{\mu V_{in}}} \qquad \forall i \in C_n \qquad (1),$$

where V_{in} is the systematic component of the utility provided by alternative *i* and μ is a scale parameter that is inversely proportional to the standard deviation of the error terms and is assumed to be equal to one (Ben-Akiva and Lerman,

1985). This model underlies the restrictive assumption of IIA (Independence of Irrelevant Alternatives), which implies that the extent of variation in the unobserved factors that affect the utility is the same all of the alternatives. However, the IIA assumption is often violated, especially when the fixed alternative is included (Dhar, 1997; Dhar and Simonson, 2003; Brazell *et al*., 2006).

3.2.1. ECONOMETRIC MODELLING: THE HETEROSCEDASTIC EXTREME-VALUE (HEV) MODEL

Of the models that relax the restrictive IIA property, the Heteroscedastic Extreme-Value (HEV) model allows the indirect verification of the accomplishment or violation of this assumption. This model also allows the use of different scale parameters for different alternatives and a non-identical random components distribution (Bhat, 1995, 2000). The HEV model assumes that the alternative error terms are distributed with a type I extreme value distribution and that the variances of the alternative error terms are allowed to be different across all alternatives. Thus, the scalar parameter μ is different across alternatives (μ_i) and thus represents the uncertainty associated with the expected utility (the observed part of utility) of an alternative. This model has been recently introduced in food economics applications in studies on beefsteak (Lusk and Schroeder, 2004), canola oil (Hu *et al*., 2006), functional children's snacks (Krystallis and Chrysochou, 2011), and rabbit meat (Kallas and Gil, 2012).

To determine the relative importance of the attributes within the alternatives, the functional form of V_{in} must be defined. Because one of our main goals in this research study was to analyse the consumers' heterogeneity, the relationship between the valuations of the attributes and the respondents' particular characteristics (social, demographic, and behavioural variables) should be included. The most common assumption of this function is that it is separable, additive, and linear. Within this methodological framework, the sample heterogeneity was introduced into the utility function as the separate interaction of all of the attributes with the considered characteristics of the individuals because these variables do not change with the choice alternatives (Equation 2).

$$V_{in} = ASC_0 + \sum_k \beta_k X_{ki} + \sum_k \sum_p \alpha_{kp} (X_{ki} \times S_{pn}) \qquad (2)$$

where

ASC_0 is the Alternative Specific Constant of the opt-out option (specified only in non-forced choice scenarios);

$i = 1…I$ represents the selected alternative i within the set of alternatives (C_n);

$k = 1…K$ represents the attributes which characterise alternative j;

β_k is the model parameter of attribute k;

X_{ki} is the value of attribute k in alternative i;

p = 1…P represents the variables that characterise individual n;

α_{kp} is the coefficient of interaction between attribute k and characteristic p; and

$X_{ki} \times S_{pn}$ is the interaction of attribute k in alternative i (X_{ki}) with characteristic p of individual n (S_{pn}).

After the parameters are estimated, the Marginal Rate of Substitution (MRS) between the attributes can be obtained. Because one of the attributes is monetary, it is possible to determine its "implicit price" (IP), i.e., part-worth. Taking into account the interaction of attribute k and characteristic p of individual n (S_{pn}), the IP is obtained using the following equation (3):

$$IP_{attribute} = -\left(\frac{\beta_{attribute} + \alpha_{attribute} \times S_1 + \ldots + \alpha_{attribute} \times S_p}{\beta_{monetary\_attribute} + \alpha_{monetary\_attribute} \times S_1 + \ldots + \alpha_{monetary\_attribute} \times S_p} \right)$$

3.3. IDENTIFICATION OF ATTRIBUTES AND LEVELS FOR THE CHOICE EXPERIMENT

The first important step is the identification of the main attributes and levels that consumers consider when purchasing wine. The literature review performed allowed us to identify a set of major attributes that affect the wine choice. These attributes were subsequently discussed in a focus group formed by university lecturers in the field of marketing and representatives from consumers' associations in Catalonia to determine the final set of attributes used in the study. There is a large range of wines available in the market, and there are numerous factors that have been found to have an impact on the wine selection

process (Lockshin and Hall, 2003). However, some of these attributes had to be eliminated because the design complexity of a choice experiment exponentially increases with the number of attributes and levels. Thus, to reduce the wine choice complexity, in survey number 1, we delimited our wine selection by focusing on a red wine purchased for a special occasion, such as Christmas. In survey number 2, two consumption occasions are introduced. They are specified as a special occasion (such as Christmas) versus a casual occasion (such as relax by oneself at home). The specification of the occasion of consumption is important because it changes the consumers' preferences when choosing a wine. Consumers will demand a different quality according to the occasion during which they plan to consume the wine (Quester and Smart, 1998; Lockshin and Hall, 2003). By specifying when the wine will be consumed, we lead our respondents to think of the same context.

As was stated in the introduction, one of our goals was to analyse the relative importance of the Catalan origin and its preference heterogeneity. Thus, the wine origin is the factor that interested us the most, and "Catalan wine" was used as an attribute level. The other introduced levels were "Spanish wine", which implies any wine produced in Spain with the exception of those produced in Catalonia, and, as a third level, "foreign wine". The grape variety was also considered. This attribute is a major factor in wine choice, as determined by Lockshin and Hall (2003). However, mixed results are found in Spain: Angulo *et al*. (2000) stated that it is not important to determine the prices of quality red wine, whereas Mtimet and Albisu (2006) found that the consumers chose the only possible French variety that was presented (Cabernet Sauvignon). In our choice experiment, two French varieties were introduced (Cabernet Sauvignon and Merlot), and a typical traditional Spanish variety (Grenache). Through these options, we aimed to determine whether the consumers' preferences are for French wines in general or for the Cabernet Sauvignon grape in specific.

Many consumers perceive wine as a complex product (Bruwer *et al*. 2011); accordingly, some strategies of risk reduction are likely to be exhibited during its purchase (Johnson and Bruwer, 2004). Johnson and Bruwer (2004) concluded that the main risk reduction strategies (RRS) used by consumers when purchasing high-priced wines are reassurance and information seeking. When our wine is a product to be consumed on a special occasion (and therefore introduced in our experiment with "high" market prices) reassurance and information seeking may be the main RRS. Therefore, some wine characteristics that influence risk reduction were included as the third attribute of our experiment with the following levels: a previously known wine, a

recommended wine, and a prestigious wine. Through this last level, we attempted to ascertain the effect of a known brand name (prestigious) on the other two alternatives. There was no context specified for the "recommended wine", i.e., it could have been recommended by any person. We decided not to specify this because recommendations have been found to act as a RRS (risk reduction strategy) regardless of the source, e.g., assistants, waiters, word-of-mouth, family, and friends. This third attribute was denoted "Wine References".

Wine packaging can also play an important role in consumers' perception (Mueller *et al*., 2009). However, contradictory evidence has been obtained from the comparison of wine packaging with other extrinsic cues[8]. Mueller and Szolnoki (2010) found that packaging is relevant only when it is visible in the experiment, but not recorded when it is not mentioned or explicitly included. Consequently, we decided that wine packaging would not be included in the experiment. Nevertheless, we will keep it in mind for our future research. Additionally, the brand name was also eliminated from our choice experiment. Brand names are capable of performing as a surrogate for a number of attributes and might help address risk while providing product cues (Lockshin and Hall, 2003). However, the large amount of existing brands and the difficulty that entails a representative selection of some of them (discriminating against others) encouraged us to not directly include this factor in the choice set. However, the brand concept was implicitly expressed in some of the levels.

The set of attributes included in our experiment were the following: Wine Origin (Catalonia (regional), Spain (national), and imported (international)), Wine References (previously experienced, recommended, and prestigious), Grape Variety (Cabernet Sauvignon, Grenache, and Merlot), and Price. Regarding the Price attribute, for a conventional occasion, the prices included in the choice sets were chosen in order to cover the demand of wine market prices in Catalonia (€3.00, €6.00, and €9.00). In contrast, price levels that were used for the special occasion (Christmas or another) do not reflect the mean wine market prices in Spain for conventional wines (€6.00, €10.00, and €14.00)9. These identified attributes and levels were endorsed by all of the participants of the focus group. A pilot questionnaire was then implemented to check for

[8] Goodman (2009) and Mueller *et al*. (2007) concluded that the wine packaging design was relatively unimportant in the consumers' choice, whereas Boudreaux and Palmer (2007) and Orth and Malkewitz (2008) found that strong consumer impressions were evoked by wine packaging design elements (Mueller *et al*., 2009).

[9] The prices included in the choice sets were chosen using information provided from the pilot survey, which was implemented to cover the middle 90% of the observed values (Kaninen and Kriström, 1993; Cooper, 1993).

consistency.

Following a full factorial design, a total of 81 hypothetical products were generated, which resulted in a set of 34x34 (6,561) possible combinations (choice sets). To decrease the cost of the analysis, we performed an orthogonal fractional factorial design considering only all of the main effects of the attributes, which enabled us to reduce the number of choice sets to nine.

3.4. PREFERENCE HETEROGENEITY VARIABLES

The notion of a single, homogeneous market is both a stereotype and a fictional market concept that never really existed (Bruwer *et al*. 2002). An undifferentiated (mass) marketing approach has therefore been generally accepted as "unrealistic" by the wine marketing industry (Sanchez and Gil, 1998). Consumers heterogeneously use extrinsic cues (Gracia *et al.,* 2009); thus, an aggregated analysis of consumers' wine preferences can mask the interesting heterogeneity in a consumer sample, which could potentially result in misleading conclusions (Mueller and Szolnoki, 2010). There are a relatively large number of research studies on wine that focuses on the consumers' segmentation, particularly those performed by Bruwer *et al*. (2002), Bruwer and Li (2007) and Johnson and Bruwer (2004).

In this Thesis, to determine the heterogeneity of the consumers' preferences several variables are taken into account. These include the respondents' socio-demographical variables (gender, age, social class, and place of birth), wine consumption frequency, wine involvement, and attitude toward Catalan wines. In our second survey, as a result of an extended literature review, other heterogeneity variables were included. These were related to emotions arisen when consuming the products and personal life values.

Many studies have used the involvement construct defining the consumer's engagement with wine (Bruwer and Johnson, 2010). In this Thesis, a measuring scale is developed to determine the consumers' wine involvement. This measuring scale includes an up to date of the issues related to wine involvement according to the literature. It is based on the expectation that more-involved consumers are more interested in learning more (Lockshin and Hall, 2003; Lockshin *et al.* 2006) and would thus have better knowledge of the product (Cox, 2009; Bruwer and Buller, 2012). It is also taken into account the work performed by Charters and Pettigrew (2006), who found that involved consumers are information-seeking individuals and have often been wine

tourists; and the definitions of involved and uninvolved consumers developed by Lockshin *et al.* (2001), who found that the high-involved consumers enjoy learning about wine and the low-involved consumers do not read back labels. It is chosen not to measure the wine involvement on basis of the individuals' perceived subjective knowledge because some characteristics, such as age, can affect this subjective knowledge (e.g., youngsters are more optimistic of their knowledge and vice versa) (Mueller and Szolnoki, 2010).

Finally, to achieve a wine involvement index, the constructed scale provides a series of statements assessed by respondents on a Likert scale from 0 to 10[10], in which 10 means complete agreement and 0 means complete disagreement with each statement (Table 3).

Table 3: Wine involvement Measuring scale

I like to read the information that is on the label
I visit / I like to visit wineries in the production areas
I read the information about wines published in the press
I attend / I like to attend wine tasting courses
I read wine journals
I regularly receive wine information sheets or catalogues
I look up information on Internet wine sites

The consumer's attitudes towards Catalan wine are also included in a similar way as the approach used to assess the wine involvement. To achieve an "attitudes towards Catalan wines" index, the constructed scale provides a series of statements assessed by respondents on a Likert scale from 0 to 10[11], in which 10 means complete agreement and 0 means complete disagreement with each statement (Table 4). The items that were used to measure the attitude towards Catalan wines assessed their notoriety and prestige, intrinsic quality, diversity, design, and price. Using these attributes, we attempted to collect the most relevant wine attributes noted from the literature review. It is noteworthy that to ensure the reliability of all the measuring scales, Cronbach's alpha needs to be calculated.

[10] Before constructing the index, the results of a Principal Component Analysis (PCA) is discarded when the explanation of the total variance of the variables is low. This has happened in all cases up to the date.
[11] Before constructing the index, the results of a Principal Component Analysis (PCA) is discarded when the explanation of the total variance of the variables is low. This has happened in all cases up to the date.

Table 4: Attitudes towards Catalan wines Measuring Scale

Catalan wines…
Have a good taste, texture and palate
Are related to well-known and prestigious brands
Have a reasonable price
Present complete and attractive labels
Supply a great variety of wines
Present attractive bottling

The emotions that occur when consuming wine, and the consumers' personal values in life are also considered in our segmentation. The importance that marketers give to emotions and personal values is every time greater and, up-to-date, few research has been published on emotions in relation to food and, more specifically, to wine (Ferrarini *et al.*, 2010). The inclusion of emotions in this Thesis will test whether the emotions evoked by the consumption of a wine have any influence on the consumer's decision structure.

Consumers emotion are measure in this Thesis by means of the consumption emotions set established by Richins (1997). The constructed scale provides a series of emotions assessed by respondents on a Likert scale from 0 to 10, in which 10 means that the emotion is complete triggered and 0 means that the emotion is complete not triggered when consuming wine (Table 5).

Table 5: The Consumption Emotions Set (Richins, 1997)

Anger	Peacefulness
Discontent	Contentment
Worry	Optimistic
Sadness	Joy
Fear	Excitement
Shame	Surprise
Envy	Guilty
Loneliness	Proud
Romantic love	Eager
Love	Relieved

Rokeach (1973) showed certain parallelism amongst emotions and personal values. Defined values are end states, which play a dominant role in guiding choice patterns (Fotopoulos *et al.*, 2003; Costa *et al.*, 2004; amongst others). In this Thesis, consumers personal values were also taken into account by means of the Rokeach Value Survey (RVS), and later modified in the LOV (list of values) proposed by Kahle (1985). The constructed scale provides a series of personal values assessed by respondents on a Likert scale from 0 to 10, in which 10 means that it is completely important and 0 means that is complete unimportant in their lives (Table 6).

Table 6: LOV (list of values) proposed by Kahle (1985), and later modified in the Rokeach Value Survey (RVS)

Fun, pleasure and enjoyment
Enhancement of my quality of life and safety
Heightening my emotions
Becoming more successful
Get a sense of social belonging
Enhancing my relations with others
Get a sense of self-fulfilment and accomplishment
Feel more respected by others
Get a feeling of peace of mind and self-respect

4. WORKING SCHEDULE

On the next page it follows the working schedule of this Thesis. As it is shown in the planning the academic years dedicated to the fulfilment of this Thesis may be longer than usual. In this context, it is important to notice that the dedication of the PhD student is half-time. Besides, two temporary interruptions of the studies are pointed out on the plan. These two interruptions are related to maternity leave of the PhD student.

Furthermore, other research subjects related to this Thesis have been explored during the academic years. The results of these will be later shown under the following subsection *"Publications related to the field of study"*. This subsection will also include those publications directly related to this Thesis.

As it is shown the PhD student is enrolled under the PhD program Sustainability, Technology and Humanism from the UPC (Polytechnic University of Catalonia) since the academic year 2011/12.

ACADEMIC YEAR AND TERM	2006/07	2007/08		2008/09		2009/10		2010/11		2011/12		2012/13		2013/14		2013/14		2014/15	
	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term
Teaching phase																			
Research project 1 and 2																			
Literature Review (state of the art)																			
Questionnaire design																			
Experimentation																			
Data Analysis																			
Advanced Studies Diploma Research work																			
Presentation of the Research work					June														
Exploring other research subjects related to the Thesis																			
Research project 3																			
Literature Review (state of the art)																			
Questionnaire design																			
Experimentation																			
Data Analysis																			
Results and Discussion and Publication *(paper nr. 1)*																			
Extension of the Literature Review (state of the art) *(paper nr. 2)*																			
Data Analysis *(paper nr. 2)*																			
Results and Discussion and Publication *(paper nr. 2)*																			
Working on the Thesis proposal																			
Presentation of the Thesis project																			
Extension of the Literature Review (state of the art) (paper nr. 3)																			
Data Analysis *(paper nr. 3)*																			
Results and Discussion and Publication *(paper nr. 3)*																			
Working on the Thesis Document (Making of and Directors' Review)																			
Thesis deposit and Reading																			

Temporary Interruption of the Studies

Temporary Interruption of the Studies

Enrolment on the PhD program Sustainability, Technology and Humanism

4.1. PUBLICATIONS RELATED TO THE FIELD OF STUDY

Below, it is shown a list of the publications developed – or under development – up to the date. While every one of them is related to the field of study, only some will be included on this Thesis. Those publications to be part of this Thesis have been boldly highlighted. Furthermore, congress communications are also listed below.

Publications:

Escobar C. and Gil J.M *(foreseen for 2013). "Marketing strategies for small wineries. How to appeal wine distributors"*.

Escobar C., Kallas Z. and Gil J.M (2012). *"Estudi de Posicionament dels Productes Aqüícoles Catalans per part del Consumidor a Catalunya"*. Ed. IRTA (Institut de Recerca de Tecnologia Agroalimentària). ISBN: 978-84-940022-1-2. 2012.

Escobar, C; Kallas, Z.; and Gil, J.M. (2012). *"Catalonia Consumers Prefer Wild Mussels. Study Finds Knowledge Of Mussel Farming Limited".* The Global Aquaculture Advocate, 15(3), 55-57.

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Kallas Z., Escobar C. and Gil J.M. *"Analysis of Consumers' Preferences for a Special-Occasion Red Wine: A Dual Response Choice Experiment Approach".* Food Quality and Preference (accepted. In print).

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