UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Sede Amministrativa: Università degli Studi di Padova

Dipartimento Territorio e Sistemi Agro-Forestali

Scuola di Dottorato Di Ricerca In Territorio, Ambiente, Risorse E Salute

Ciclo XXVI

THE ROLE OF GEOGRAPHICAL ATTRIBUTES IN CONSUMERS' WILLINGNESS TO PAY FOR ARGENTINEAN MALBEC. INSIGHTS FOR INTERNATIONAL PROTECTION

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Questo libro è dedicato a quanti hanno compreso che si beve per ricordare, non per dimenticare. Ciò che rende unico il vino ancora così misterioso, ancora tutto da esplorare, è la sua capacità di evocare, parlare, tradurre, narrare.

(Cipresso & Negri, 2010)

Abstract

Origin related attributes, such as geographical indications, have been largely identified as good proxy indicators of wine quality and are therefore useful tools both for producers and consumers to address information asymmetry. For Argentina, a New World wine producer with an interesting growing pattern in international markets, the understanding of the role of geographical indications is a key issue. Despite the current success of the grape-variety based differentiation strategy, there is an increasing debate on its long-term suitability. Meanwhile, most Argentinean wineries do include non-protected geographical names and vineyard indications on their product label.

Through the hedonic pricing methodology we estimated marginal willingness to pay for a wide variety of geographical names present on Argentinean Malbec wine labels sold in foreign markets. New World and Old World markets –well-known classification based on wine production and consumption traditions- have been included in the analysis, in an attempt to provide a comprehensive picture. The United States and the United Kingdom were considered from the former group while the Netherlands and Germany were considered for the latter. For a superior assessment of marginal willingness to pay, analyses were carried out for a Retail data set and an Free on Board data set, which is a novel approach in hedonic pricing. With the former data set we were able to estimate consumers' willingness to pay for high- to medium-priced Malbec wines sold mostly in specialized shops. The latter data set extended estimates to all price segments sold in the wide diversity of off-trade or on-trade stores, giving insights into intermediates' marginal willingness to pay.

Overall, results indicate that both in New World and Old World countries, consumers are willing to pay for specific origin based wines when buying Argentinean Malbec wine. Differences between countries indicate that their 'telescopic ability' to differentiate geographical names and their willingness to pay vary substantially. United States' consumers are willing to pay a price premium for many different geographical names, located in all the wine producing regions of Argentina. A similar but weaker behavior pattern was observed for English consumers. In the Netherlands and Germany, a reduced number of geographical names are appreciated by consumers and a strong concentration on specific areas was verified. The observed appreciation of vineyard indication - which is not controlled by law but simply defined by the vintner- in all four markets gives further support to conclusions. Both consumers and intermediate buyers are interested in the origin of the product and thus employ available tools to simplify their difficult purchasing decision.

The revealed appreciation overcomes the lack of effective national and international protection of Argentinean wine geographical indications. Notwithstanding the importance of possible bilateral or multilateral agreements -for enhancing consumers' 'telescopic ability' to recognize and discriminate among *terroir*-related wine attributes- the assessment of geographical indications territorial governance indicates a lack of collective management of resources. An actual change in producers' mentality is required for the implementation of an effective geographical indiactions governance system able to benefit from the revealed appreciation. Adequate investments in human capital will be crucial to effectively implement this substantially new strategic approach based on an appropriate collective management of geographical indication property rights.

Riassunto

Nell'attuale scenario agro-alimentare mondiale le indicazioni geografiche costituiscono tra i più diffusi elementi di differenziazione dei prodotti in termini di origine. Attraverso un particolare legame tra origine geografica e caratteristiche intrinseche o estrinseche, le indicazione geografiche in quanto proxy di qualità aiutano a ridurre l'asimmetria informativa tra produttori e consumatori. Inoltre a definire l'importante ruolo di questi modelli, c'è anche la protezione della proprietà intellettuale che essi garantiscono. La differenziazione attraverso l'origine è stata la strategia vincente dei paesi europei nel settore vitivinicolo, mentre i nuovi paesi produttori hanno seguito una strategia basata sulla varietà dei vini. L'Argentina, che nell'ultima decade è passata da rappresentare solo l'1% del mercato mondiale del vino fino a quasi il 4%, ha seguito il modello della varietà – sulla base della varietà Malbec – ma sempre più spesso si interroga sulla sostenibilità di lungo termine di questo approccio. Nel frattempo una gran quantità di cantine ha iniziato a includere nel labelling dei vini i nomi geografici, anche se non protetti come indicazioni geografiche.

A livello internazionale la protezione delle indicazioni geografiche è data da diversi accordi bilaterali e multilaterali che confluiscono, anche se in maniera debole, sugli aspetti dell'accordo dei diritti di proprietà intellettuale attinenti al commercio (TRIPS) – allegato dell'Accordo conclusivo dell'Uruguay Round del WTO del 1994. Il documento prevede un grado di tutela base per i prodotti alimentari in generale e una tutela forte per i vini e le bevande alcoliche. In termini generali, i paesi firmatari hanno l'obbligo di predisporre strumenti legislativi volti ad impedire l'uso scorretto di un'indicazione geografica, determinando ognuno le modalità più appropriate a seconda delle rispettive normative nazionali. Questo ha dato luogo a diversi metodi d'implementazione, tra i principali troviamo il sistema *sui generis* europeo di protezione delle indicazioni geografiche e il sistema dei *trademarks* e marchi collettivi presente negli Stati Uniti. L'Argentina segue il modello europeo in termini legali, ma la sua scarsa diffusione e il suo utilizzo scorretto, mostrano come ci sia una limitata conoscenza del sistema e una scarsa consapevolezza dei suoi potenziali benefici. Per il vino, la legge nazionale 25.163 del 1999 prevede la tutela delle denominazioni di origine, delle indicazioni geografiche e le indicazioni di origine. Anche se il registro ufficiale presenta 86 indicazioni geografiche e 2 denominazioni di origine, la loro presenza sul mercato interno è marginale e sul mercato esterno si scontra con l'assenza di accordi bilaterali o multilaterali per la sua protezione. La governance del sistema di indicazioni geografiche, sia dal

punto di vista legale che dal punto di vista della realtà osservata, è caratterizzato da deboli performance, con istituzioni organizzate esclusivamente intorno ai produttori e obiettivi a breve termine molto più orientati al mercato esterno che non al territorio.

Attraverso il metodo dei prezzi edonici, basato sul valore implicito degli attributi che costituiscono un bene, si è stimata la disponibilità a pagare dei consumatori per i nomi geografici -non protetti da indicazione geografica- dei vini Malbec venduti nel mercato internazionale. I mercati analizzati rispondono all'analisi di mercato condotta, che considera le diverse tipologie di vino vendute (sfuso o imbottigliato), il tasso di crescita dell'ultima decade, i prezzi medi e l'importanza per l'Argentina in termini di *share*. Inoltre, i mercati scelti, consentono di fare un'analisi cross-country tra i paesi del *Old World* e quelli del *New World*, classifica che distingue i paesi a seconda della tradizione di produzione e consumo. Per il *Old World* sono stati considerati la Germania e i Paesi Bassi, mentre per il *New World* sono stati scelti gli Stati Uniti e il Regno Unito. Per realizzare un'analisi più mirata e critica sulla disponibilità a pagare per le indicazioni d'origine, si sono presi in considerazione due data set diversi: prezzi *retail* e prezzi *free on board*. Questo approccio costituisce una novità nel metodo dei prezzi edonici e permette un'analisi più accurata dell'impatto di ogni nome geografico sul prezzo e un confronto tra la disponibilità marginale a pagare del consumatore e dei distributori/importatori. L'analisi congiunta dei due data set ha permesso inoltre di conoscere il ruolo dei nomi geografici sia per i vini con prezzi medio-alti, venduti attraverso negozi specializzati, sia per vini venduti nei diversi punti vendita per ogni livello di prezzo. Per di più l'analisi doppia consente di identificare tracce del potere di negoziazione degli intermediari in confronto ai produttori.

I risultati indicano che tanto nei paesi del *Old World* quanto in quelli del *New World* esiste una disponibilità a pagare per i nomi geografici al momento dell'acquisto di vino Malbec argentino, disponibilità che supera la mancanza di protezione legale a livello internazionale. Si è notata una valutazione diversa da parte del consumatore, che risponde al sistema di classificazione dei paesi vitivinicole tra *Old* e *New World*: mentre nel *New World* i consumatori apprezzano una maggiore quantità di indicazioni – per tutte le regioni vitivinicole dell'Argentina – e lo fanno con grande intensità, nei paesi del *Old World* sono meno disposti a pagare per i nomi geografici; questa disponibilità è molto concentrata in specifiche regioni del paese. Dall'altro lato i risultati indicano una forte disponibilità a pagare, in tutti i paesi considerati, per l'indicazione del vigneto d'origine. Sebbene questo non abbia le caratteristiche dell'indicazione geografica, per la mancanza del

legame tra qualità e origine, e non sia neanche regolato per legge -ogni produttore può decidere come nominare il suo vigneto- rappresenta senz'altro un segnale dell'importanza attribuita all'origine del vino nell'acquisto del Malbec argentino.

Nonostante i mancati accordi internazionali per la tutela delle indicazioni geografiche e l'attuale debolezza del sistema argentino di protezione, i risultati indicano gli effetti positivi della tutela derivanti dall'evidente disponibilità marginale a pagare dei consumatori stranieri per specifici nomi geografici. Per un adeguato sistema di protezione, il cambiamento non può limitarsi agli aspetti legislativi, ma deve includere necessariamente un cambio d'approccio, andando verso una governance collettiva dei beni comuni. Il percorso da seguire prevede adeguati investimenti sul capitale umano nelle regioni vitivinicole, al fine di acquisire la consapevolezza e le conoscenze necessarie per le gestione delle GI come diritto di proprietà intellettuale comune e come modo per valorizzare il territorio.

Studi futuri potrebbero essere indirizzati verso l'analisi della costruzione del prezzo, confrontando il prezzo retail con il prezzo FOB, considerando l'impatto dei rincari (*mark-up*) e dei dazi. Insieme alle indicazioni d'origine potrebbero essere analizzati anche l'effetto della marca, le attività promozionali e le variabili sensoriali, al fine di migliorarne la comprensione. La reputazione individuale e quella collettiva sono altre variabili da considerare per le attività di ricerca future.

Questo lavoro parte da una revisione della letteratura esistente sui prezzi edonici del vino, raggruppando i contributi a seconda del mercato d'origine del vino e del mercato di destinazione nel *New* e nel *Old World* (Capitolo II). Sebbene ci sia una vasta e crescente letteratura per il vino del *New World*, questa è rivolta esclusivamente ai mercati del *Old World*, lasciando un importante gap di ricerca. Per di più le analisi si limitano a stimare la disponibilità a pagare su un singolo mercato, eliminando così la possibilità di confronto tra diversi mercati, aspetto fondamentale nello scenario commerciale attuale.

Il terzo capitolo riguarda la metodologia dei prezzi edonici. Sulla base dei modelli proposti da Lancaster e Rosen si analizzano le principali variabili da includere, considerando come presupposto di base il fatto che queste variabili vadano a influenzare il comportamento dei consumatori. Le forme funzionali più diffuse, sia parametriche che non parametriche, sono presentate. Vengono infine discussi i limiti al modello dei prezzi edonici, così come le possibili soluzioni.

Nel capitolo IV viene presentata e discussa la natura delle indicazioni geografiche, i vantaggi e gli svantaggi per i produttori e i consumatori, così come la normativa internazionale per la tutela. È stata poi approfondita la normativa europea, considerando il percorso storico di tutela delle indicazioni geografiche per i prodotti alimentari in generale e per il vino in particolare. Successivamente viene presentato il sistema di protezione degli Stati Uniti, come esempio di modello dei *trademarks*. Alla fine del capitolo viene esaminata la normativa argentina, insieme a una valutazione della governance territoriale del sistema delle indicazioni geografiche.

Nel capitolo successivo (V) sono presentate l'analisi del mercato mondiale del vino e la performance Argentina, guardando in particolare al trend dei consumi, produzione e commercio. L'analisi è svolta sia per il vino imbottigliato che per il vino sfuso, proprio per capire le sue particolari dinamiche in termini di tasso di crescita e di prezzo medio. La performance argentina viene successivamente esaminata, dedicando una sezione particolare alla varietà emblematica Malbec.

Nel capitolo VI sono presentati i risultati della stima edonica sui dati al dettaglio, che include vini Malbec con prezzo medio-alto venduti attraverso negozi specializzati. Si presenta un modello per gli Stati Uniti e un altro per i paesi europei, prendendo in considerazione variabili relative a: prezzo, nome geografico, età, punteggio (score), mono o multi-vitigno, rosso o rosé, gamma dei vini e indicazione del vigneto. Le conclusioni preliminari sono presentate e discusse.

Come definito dagli obiettivi, per avere un approccio più mirato, si analizzano nel capitolo VII i dati all' export forniti dall'ufficio doganale argentino. Attraverso un unico modello per i quattro paesi e con variabili confrontabili con quelle utilizzate nella stima precedente, si analizza la disponibilità marginale a pagare dei distributori/importatori. Le conclusioni preliminari e i confronti principali sono presentati e discussi.

Il capitolo conclusivo contiene una riflessione sulla politica di tutela desiderabile per i vini argentini e sulla disponibilità marginale a pagare di consumatori e intermediari per i nomi geografici nei quattro paesi considerati. Vengono presentate anche alcune linee guida, in termini di governance, per i sistemi delle indicazioni geografiche.

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Chapter I: Introduction

Wine is an ancient alcoholic beverage that has shaped the world in many different ways. The worlds of politics, piracy and romance are only some of the scenarios in which wine has been the protagonist. As for natural endowments, wine has always been subject to intense trading. The United Kingdom has been probably the engine of increasing trade as its thirsty population was constrained to importing wine. Concerns over wines' quality, origin and authenticity have gone hand in hand with this increasing trade.

As the real quality of wine remains unknown before consumption, consumers face a complex purchasing decision. There are even some characteristics that will never be verified, the so called credence attributes, that induce ulterior complexity. From the supply side, wineries' dynamism over the centuries has lead to a present of an almost infinite number of differentiated wines. Consumers' facing wine purchasing are at least overwhelmed. Geographical indications (GIs) constitute, both for historical reasons and for their widespread presence, critical attributes for wine differentiation. These distinctive signs are based on a *terroir*-linked quality and by turning a credence good into a search good they are able to tackle information asymmetry between producers and consumers.

In this scenario of increasingly complex purchasing decisions, the hedonic price model offers a valid way to identify quality attributes influencing consumers' marginal willingness to pay. By estimating the implicit price of attributes, the hedonic model provides useful information for producers and intermediates to improve their productive and marketing strategies. Moreover, regional and national promotional agencies can better design their marketing activities if they are able to understand the differences in consumers' willingness to pay for specific attributes in different countries. In terms of GIs, hedonic models are able to identify the best valued areas by consumers and by estimating their implicit price they constitute a key issue to assess the convenience of legally protecting GIs at a national and international level.

So far, the hedonic price model in wine has been widely applied. This has been done following different approaches depending on the authors' objectives. Some authors have focused their analyses on specific wine varieties, others have concentrated on a specific region or country; whereas others have analysed time series and others the impact of different retail shops on consumers' marginal willingness to pay. All these research has been carried out with a single market approach. That is, wines from a single or multiple region region have been analysed in one

single final market. To the best of our knowledge, no cross country research has been done. This has reduced the utility of information for producers, intermediates, promotional agencies and governments.

In general terms, the understanding of New World wines' performance in Old World countries is also an unexplored subject. Since Old World countries are still the biggest markets for wine it is central to understand the attributes influencing their consumers' decisions. Finding the similarities and differences among New and Old World consumers could be extremely useful for the whole wine industry.

In the case of Argentina, a New World wine producer, wine is a particularly important product in the country's economy and has has undergone great changes in the last decades. From a productive point of view major changes involved modernization of wine facilities whereas from the point of view of the demand the scenario has been shaped by decreasing domestic consumption. Both factors define a scenario with important challenges for an increasing number of wineries. Foreign markets represent *the* competitive arena if the Argentinean wine industry is expecting a bright future.

Major markets for Argentinean wine are the United States and the European Union, accounting for more than 70% of all wine exports. If the growth rate and success in the retail scenario is intended to be maintained, the Argentinean wine sector needs to understand which are the quality attributes influencing consumers' decision in the different markets.

In terms of GIs, Argentina is in an early stage of development. Currently, as many as 86 PGIs and 2 PDOs coexist in Argentina. In the domestic market, the former have obtained little consumer recognition, while the latter are beginning to capture consumers' attention. In the international context, this system is virtually absent, since Argentina has not signed any bilateral or multilateral agreements for GI recognition. Hence, Argentinean GIs are only protected by collective intellectual property rights established by the Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS). Nevertheless, most wineries do include non-protected geographical names (GNs) in the product label as a quality signal when exporting their products. This unregulated approach towards GI protection in the international market limits their use as quality signals for consumers and entails a significant risk of misuse by other producers. Collective reputation is not secured against counterfeiting. Consequently, Argentinean wineries' long-term economic sustainability could be threatened in this arena.

The scope of this research is to fill the research gap for Argentinean wine, exploring the different attributes influencing consumers' decisions. The role of GIs will be specially assessed and we attempt to identify the main differences and similarities among selected markets: the United States, the United Kingdom, the Netherlands and Germany. With this cross country analysis we attempt to fill the gap for wine hedonic analysis in general.

On the basis of the previously described scenario, three main research questions have been formulated:

i. Which are the attributes influencing marginal willingness to pay for Argentinean Malbec wine?

ii. Is there a difference between consumers and intermediates' marginal willingness to pay for Argentinean Malbec wine in selected markets?

iii. Which is the role of GIs in the willingness to pay for Argentinean Malbec wine? Are there differences among countries?

The general research objective of this thesis is to understand the role of GIs in consumers' marginal willingness to pay in selected Old and New World wine markets, providing insights for better national and international protection.

Specific objectives are:

i. To review the existing literature on wine hedonic pricing, identifying common patterns and possible research gaps, using the well-known classification scheme of Old and New World wine countries.

ii. To understand the nature of GIs as quality signals and compare the different international and national frameworks for their protection.

iii. To evaluate the quality of Argentinean territorial governance of GIs.

iv. To analyse the world wine market of bottled and bulk wine identifying main threats and opportunities for Argentinean wine.

v. To estimate the impact of different wine attributes in consumers' purchasing decision in selected European markets and the United States.

vi. To analyse the impact of specific geographical names in consumers' marginal willingness to pay.

vii. To estimate the impact of different wine attributes in intermediate buyers' purchasing decision in selected European markets and the United States.

viii. To analyse the impact of specific geographical names in intermediates' marginal willingness to pay.

ix. To identify the differences and similarities in the attributes influencing consumers and intermediates' marginal willingness to pay for Argentinean Malbec wine.

x. To give insights for improved national and international protection of geographical indications and give marketing recommendations.

To assess these objectives, the hedonic pricing methodology will be employed. With a previous analysis of world wine markets and the legislation of GIs, the hedonic estimates will give us useful insights into consumers and intermediates' willingness to pay for wine attributes, with specific reference to geographical names.

The remainder of the thesis is organized as follows. In Chapter II a detailed literature review is carried out on wine hedonic pricing research. Results are organized following a widely known classification of countries - based on wine production and consumptiontradition- that distinguishes Old World wine countries from New World wine countries. Comparative tables provide clear pictures of the state of the art.

In Chapter III the hedonic pricing methodology is described. Based on Lancaster and Rosen initial contributions, the selection of attributes is analysed together with the functional forms generally employed. Main critics to the hedonic model and their solutions are also provided in this chapter.

In Chapter IV a complete overview of GIs is presented. First, GIs are analysed as collective intellectual property rights. Then costs and benefits are presented. International and national protection frameworks are later described. A special focus is given to the extensive European experience in GIs protection. The Argentinean GI legislation is also introduced, despite its scarcity, together with an analysis of the territorial governance of the Argentinean wine industry. Bilateral agreements for GI protection are later presented. The last section includes estimations of GI trade value and consumer perception in European markets.

In Chapter V an outlook of the world wine market and Argentina's performance is provided. Consumption and production trends are analysed together with the increasing trade that is shaping the world industry. Exports and imports are analysed for bottled and for bulk wine,

specifically aiming at understanding their diverse dynamics in terms of growth rates and average prices. The Argentinean wine industry is later presented, describing main producing regions, consumption trends, exports and imports. A special section is devoted to Argentina's flagship variety: Malbec. The analysis is completed with bulk and bottled export data, indicating concerns over the economic sustainability of the current model.

In Chapter VI, the results of retail data from high- to medium-priced Argentinean Malbec wines sold in specialised shops is presented. The United States and the selected European markets are presented with two different hedonic models. Both data sets include information on price, geographical name, destination market, age, score, blend or single-variety, red or rosé, range of products and vineyard indication. Additional information on the quantity of 9-litre cases is included in the United States data set. Preliminary conclusions are then presented.

In Chapter VII results from the export data set are presented, based on Argentinean Customs Office files. A unique hedonic model is presented for all four markets. For each wine, the data set includes information on: Free on Board price, destination market, variety, geographical name, age, blend or single-variety, red or rosé, range of Malbec wines exported by the winery, range of Malbec wines over range of total wines exported by the winery and the quantity of 9-litre cases exported by the winery for the specific wine. Preliminary conclusions are presented.

Chapter VIII includes main conclusions on consumers and intermediate buyers' willingness to pay for geographical names. Differences among selected countries are also assessed. Insights on policy and trade issues are provided. Marketing tips are derived from the different appreciation of each geographical names in each market for enhanced consumer recognition. Finally, areas for further research are proposed.

Chapter II: The Wine Hedonic Price Models In The "Old And New World": State Of The Art

1. The hedonic price model – the case of wine

A hedonic price function describes the equilibrium relationship between the economically relevant characteristics of a product and its price. The price of a good is assumed to be a function of its defining characteristics plus a random error term. These hedonic prices can be used to predict prices for new goods, to adjust for quality changes in the price of a good and to measure consumer and producer valuations of differentiated products (Hulten, 2003).

Being wine a highly differentiated product, the hedonic price model suits perfectly and allows the identification of attributes having the biggest impact in consumers' marginal willingness to pay. With this information it is possible to build hedonic implicit prices, allowing producers and intermediates to estimate the impact of product quality or labelling changes.

1.1. The hedonic price model – goods and characteristics' selection

As the hedonic price concept relies on the hedonic notion of a good, it is necessary to decide which commodities fit under one category of good as a first step. As sustained by Brachinger (2002, p. 5) the hedonic hypothesis allows a precise definition of a good: "a good is characterized by the set of all those models or variants which fit under one and the same hedonic equation, i.e., a good is characterized by the set of all variants which prices can be explained by the same set of characteristics and the same structure of a certain parametric family hedonic regression functions". However, such a specification of characteristics can be hard to reach sometimes. In the case of wine, there is an open discussion on which should be the alcoholic beverages included in the wine commodity group. In some countries, considering the occasion for consumption, beer or spirits could be included in the same group as wine. In some other countries, with a stronger wine culture, the commodity group could be reduced to include only red wines or white wines. Different price segments can also be used as a criterion for classifying wines.

As for Brachinger (2002), knowing the product is the basic recommendation to fulfil this first task. Regarding the selection of the goods' characteristics, Lancaster (1966) and Rosen (1974) offer little detail over which characteristics need to be considered. Hedonic theory suggests that a characteristic should be included in the analysis if this characteristic influences consumer and producer behaviour. This implicitly assumes that consumers and producers consider the same set

of attributes when they value a good and this is difficult to sustain. In wine, for example, the consumer may be interested in winery reputation or labelling design while the producer may focus on chemical attributes or vineyard management. Furthermore, different consumers may base their purchasing decisions on different sets of characteristics or assign different weights to each of them. As most products eventually end up in private households, even though they will pass through a number of intermediate markets on their way from producer to end user, it seems logical to focus on consumers decisions (Kotler & Keller, 2009). The marginal value the consumer puts on the goods or services limits what everyone else can get from the value chain and this fact forces consumer-oriented strategies in most models dealing with consumers' behaviour. The hedonic model also follows this approach and considers those characteristics that could be important for consumers when making a purchasing decision.

Despite previous considerations, the misspecification of variables is frequently associated with the hedonic price model as well as the correlations between the variables[1].

Under the assumption that one can build a unique list of characteristics, for consumers and producers, these characteristics can be classified in intrinsic and extrinsic ones. As defined by Mathis, Fawcett and Konda (2003) it is absolutely necessary for these characteristics to be defined accurately and completely through indicators[2]. Intrinsic characteristics are the ones bundled in the good and define the nature of the physical product. On the other hand, extrinsic characteristics are those influencing consumer´s appreciation of the good but not belonging to the product itself. For the most widely investigated housing market, intrinsic characteristics are square meters, number of rooms and bathrooms, building material, among others. Most used extrinsic characteristics are air and noise pollution, access to parks or open spaces and nearby school´s quality. In the case of wine, intrinsic characteristics considered in hedonic models are grape-variety, vintage, alcohol content and other technical quality attributes. An extrinsic characteristic is, for example, the landscape of a particular wine region such as Chianti or Cafayate or the jury grade received by a wine.

Following the consumer oriented approach, some authors sustained that technical quality issues should not be employed in the hedonic price models. In the case of wine, for example, grape

[1] For a detailed explanation of the misspecification of variables and correlations among variables, see Chapter III.

[2] It is necessary to identify and measure an indicator variable that accurately reflects the value of a certain characteristic.

attributes are of primarily interest for grape growers and winemakers, but could not be valued by consumers when facing the purchasing decision because these characteristics are not fully known, specially when this information is not included in the label. At least, the vast majority of consumers do not have access to information or knowledge on technical qualities of grapes and so these may not impact significantly on their willingness to pay for a certain wine. As defined by Unwin "*when purchasing a particular bottle of wine for the first time, most consumers do not have any idea at all about the precise level of fine tannins in it, its firmness of attack, its colour intensity or its astringency"* (1999, p. 99).

Generally, consumer face an information problem in the evaluation of the utility of different products supplied in the market. Getting information about quality is generally expensive, limiting the willingness of the consumer to search for it. In the case of wine, this search procedure does not seem appropriate and consumers may plausibly use other attributes to infer quality. As a signaling factor, reputation could help to overcome the lack of information of consumers in repeated purchasing decisions. Reputation is often referred to as the "goodwill" value of the firm's brand name. For Stigler "reputation is a world which denotes the persistence of quality and reputation commands a price because it economizes search" (Stigler, 1961, p. 224)[3].

Shapiro (1983) developed a theoretical framework to examine the effects of the individual producer reputation on prices. The author considered reputation as common knowledge or public information and the result of consumers' evaluation of goods' quality produced by the firm in the past. This information is used as an indicator of present or future quality. The main assumption is that all consumers communicate with each other to share information about products (also through publications), but that such information necessarily comes with a time-lag. This sharing information process could take place through wine guides or wine publications and, in the actual era of internet and social media, also web-pages, blogs and forums.

[3] According to Nelson (1970), search is the basic activity for getting information and refers to any way of evaluating alternatives, subject to some restrictions:"(1)the consumer must inspect the option, (2) inspection must occur prior to purchasing.." (p. 312). Experience is the information process by which a consumer purchases brands for consumption and after several purchases determines which brand he prefers. Credence attributes are "those which, although worthwhile, cannot be evaluated in normal use. Instead the assessment of their value requires additional costly information (…)The line between experience and credence qualities of a good may not always be sharp, particularly if the quality will be discerned in use, but only after the lapse of considerable period of time" (Darby & Karni, 1973, p. 69). Through labeling, experience and credence attributes are transformed into search ones.

1.1.1. Independent variables in the wine hedonic model

When applying the hedonic price model to the wine market, different attributes have been considered by authors to estimate the implicit price of wine´s characteristics. There are interesting differences in the set of variables chosen and also their estimated impacts on the willingness to pay for a certain wine.

Table 1 Search, experience and credence attributes of wine

	Intrinsic	Extrinsic
Search	Colour (red, white, rosé) Type of wine (still, sparkling) Brand Alcohol Content **When reported on label:** Vintage Variety Place of origin Special decriptors	Jury Grade Cellaring potential Medals, prices Quality certificates Promotional Agency Special descriptors Bottle characteristics
Experience	Visual characteristics Olfactory characteristics Gustatory characteristics	
Credence	**When not reported on label:** Vintage Variety Place of origin Special decriptors	

Source: our elaboration

Membership to a promotional agency could be considered as a search attribute for wine if consumers appreciated this member status. Few authors have explored this issue and it is not clear whether it could be a relationship between this attribute and a higher consumer willingness to pay.

1.1.1.1. Place of origin and grape variety

Following the classical discussion on the relevance of the Old Word wine model -place of origin- and the New World wine model –grape variety- in the definition of price, these variables have been intensively studied through the hedonic price model (Lockshin, 2003). Both in Old World wine countries and in New World Wine countries, both variables have shown to have a positive impact on price, even if the magnitude of these impacts varies considerably. The specific geographical area to which place of origin refers to varies among authors and it generally

corresponds to the national geographical-political divisions or to more specific growing traditional areas. In the case of Europe and the United States quality schemes such as American Viticulture Area (AVA), Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) have been analysed. Country of origin has also been analysed in hedonic price models, looking to understand consumers' willingness to pay for certain wine producing countries.

1.1.1.2. Colour

Colour has also been used by some authors. Schamel (2003a) has worked over a comparative analysis between red vine varieties and white ones, finding interesting differences in factors affecting prices. For instance, the estimated premium for high-end[4] producers was found to be 4% larger for white wines than for red wines, while the discount for lower-end producers was 2.5% smaller for red wine than for white wines.

1.1.1.3. Vintage

The variable vintage or the derived one "age" have also been widely used. It is worth noticing the difference between the analysis of the vintage year and the analysis of the age. The vintage year is able to capture the effect of a single vintage on price thus considering the specifi weather conditions of the year. Whereas, age is able to capture the effect of ageing on wine maturation.

Most studies have found a significant positive relationship between the age and vintage of the wine and it`s price. Oczkowski (1994) reported a price premium as high as 763% for the 1970 vintage in comparison to the 1992 one in the Australian market.

The effect of an unspecified vintage has also been analysed. Results confirm that, both for bottle wine and for bulk wine, there is a negative impact of lacking information on vintage (Davis, 2005; Rabkin & Beatty, 2007).

By estimating segmented hedonic functions for wine prices, Costanigro, McCluskey and Mittelhammer (2006) show that for the commercial (less than U$D 13), semi-premium (between U$D 13-21) and premium classes (between U$D 21-40) wines, age exhibits decreasing marginal returns. Whereas, for ultra-premium wines (above U$D 40) the implicit price of ageing increases over the full range of data.

[4] Using sensory wine quality ratings Schamel derived an indicator for high-end and low-end quality producers. He calculated the deviation of a producer's average quality rating from their respective regional average.

However, other methodological approaches, analysing price-quality dispersion, suggest that producers are willing to offer a discount for older wines in an attempt to free-up space or gain liquidity (Storchmann, Mitterling, & Lee, 2012). This is especially true for table wines (Haeger & Storchmann, 2006) but less for age-worthy wine, suggesting an ambiguous overall effect.

1.1.1.4. Special descriptors

The presence of special descriptors for wine has also been included in the hedonic price models. This variable refers to the presence of words that give the wine a distinctive characteristic. Generally, the words “reserve”, “grand reserve”, “vineyard”, “estate”, “premium” are considered. Some authors have considered the presence of these words on the label and some others have considered them when they were included in wine magazines, such as Wine Spectator. The difference between observing these special descriptors at the retail shop or in the wine magazine has not been taken into consideration and thus, most studies are hardly comparable for this variable.

1.1.1.5. Cellaring potential

Cellaring potential is considered as a variable indicating the number of bottles a winery could possibly produce or the number of bottles a winery is actually producing. As defined in the general demand model, an increase in volume leads to a decrease in price. Additionally, the number of cases a winery is producing could be valued inversely by consumers as a degree of exclusivity of the wine. It has been used in most cases with Wine Spectator data set since this information is included in the regular data the magazine publishes.

For measuring the cellar potential, some authors have included a dummy variable for identifying large wineries. No effect was found on the price of the wine based on being produced in large commercial wineries (Rabkin & Beatty, 2007).

When analysed for different price-segments, Costanigro et al. (2006) show that larger productions slightly decrease the market price of commercial wines whereas the decrease is more pronounced for semi-premium and premium categories and even stronger for ultra-premium wines.

1.1.1.6. Producer’s name and retailers

Some other authors, like Florkowski, Carew and Senshui (2008) analysed the impact of the company´s name on price. Steiner (2002) worked over a data base where wine was described as a combination of brand, producer, retailer, among others. These variables were analysed through

the hedonic model and each retailer was found to have a different impact on wine prices. Those with significant negative impact belong to the category of hypermarkets outlets and the strongest positive impact corresponds to a large retailer outlet. Boatto, Defrancesco and Trestini (2011) dealt with retailer's information provision and concluded that consumers buying at large-scale retailers are willing to pay a higher price premium for "umbrella" quality signals (such as PDO or PDI) than those buying in specialized shops. Gergaud (1998) analysed the impact of different distribution channels on price. Considering supermarkets as the baseline distribution channel, the author concluded that consumers are willing to pay the highest prices in wine followed by wineries' cellars.

1.1.1.7. Bottle weight, closure and size

The bottle weight was a variable included by Gonzalez and Melo (2008) in their analysis of supermarket wine prices. This data was obtained by weighting bottles in supermarkets in Santiago de Chile and a strong positive correlation was found between the weight of the bottle and the price of wine. Mueller Loose and Szolnoki (2012) analysed the impact of bottle closure and bottle form, concluding both could only explain a low price variance. Di Vittorio and Ginsburgh (1996) estimated that consumers are willing to pay a price premium for bigger bottles. The authors explain this fact by describing the reduced oxygenation that occurs in big bottles that implies higher quality. Additional argumentation is given by denoting the exclusivity phenomenon of big containers, plausibly of interest for wine collectors. These results and comments are best understood in light of the employed data set, the Grand Crus from Haut-Medoc, and therefore cannot be considered a valid general assessment of the impact of bottle size on wine prices.

1.1.1.8. Membership to a promotion agency

The variable "promotional agency" indicates the affiliation of the winery to some promotion institution. Most wines in the market do not indicate this membership and thus it is very difficult to consider that this attribute could be influencing the price consumers are willing to pay for a certain wine. Moreover, there are different categories of membership inside each organization, from the wineries just sharing market information to the wineries involved in strategy-definition. In the studies where this variable have been used (San Martin, Brummer, & Troncoso, 2008; Troncoso & Aguirre, 2006) no explanation of these aspects has been included. It is possible that the authors have considered that belonging to this organization is reflected in certain promotional

activities and merchandise, useful for building reputation or generate awareness. None of these has been explained.

1.1.1.9. Jury grades

A wine rating is the valuation or grade a jury gives after tasting the wines. This variable has been analysed in three different but related ways in hedonic price models: the wine rating at the moment of the wine tasting; the wine future rating after aging; and the wine or winery reputation.

- The present wine rating is the result of the valuation a jury gives over the present conditions of a certain wine. Most authors using wine guides as data source have regressed price on this variable. Others have organized a blind taste of a wine sample requiring experts to give marks for the quality of the wine (Cardebat & Piguet, 2004). In some cases this jury grade results in a medal (golden, silver, etc.) that has also been used as a quality signal and analysed for its influence on price (Lima, 2006).

  Alternatively, Horowitz and Lockshin (2002) developed a model in which the current wine-quality rating is considered the dependent variable in the regression-based analysis whereas price is considered one of the independent variables.

- The future wine rating is understood as the predicted wine quality after aging and when the future grade exceeds the present grade is because the wine was considered worth storing for further maturation. On the contrary, the present grade exceeds the future if the wine should be immediately consumed (at the moment of the tasting). The two grades are equal if the wine was considered at its optimum. Combris, Lecocq and Visser (2000) included this variable in their analysis and found the price rises if the jury thinks the wine will improve with aging.

- Wine reputation: Following Shapiro´s model, Landon and Smith (1997; 1998) considered reputation variables in their analyses of Bordeaux wines. They concluded that the best model for describing consumer behaviour is the one that combines firm reputation with collective reputation variables. Even if they confirm the positive impact of current quality on price, they estimated that the impact of reputation is approximately 20 times greater than that of current quality. The price premium associated with firm reputation was estimated to be as large as that associated to collective reputation.

Costanigro, McCluskey and Goemans (2010) analysed the effect of firm and collective reputation on different wine price categories, concluding that reputation *premia* migrate from collective to specific names (firms) as prices increase. The authors explain this phenomenon through the idea of increasing search costs. When buying cheap wines consumers may find on collective reputation a sufficient quality cue whereas for an expensive purchase consumers may be willing to invest more time in searching information and they will search on a winery or brand level.

Combris, Lecocq and Visser (1997) opened a discussion over the validity of including jury grades (past and future) in the vector of explanatory variables of the hedonic equation. The authors considered that the jury grade is not a characteristic of the wine but rather a quality index that depends on the attributes of the wine. Even if this argument is subject to discussion it is quite clear that if bottles are purchased before the tasting takes place, the jury cannot have any influence on the price level. Even if this could be true it hides the fact that wineries may suggest the price having in consideration certain jury tasting and expected grade (especially when special wines have been prepared for contests). Moreover, wineries could use previous jury grades to define a future quality-price for certain wine.

Oczkowski (2001) verified that reputation is more economically important and statistically significant than quality, especially when factor analysis and two-stage least squares estimator techniques are employed.

Additionally, jury grades have been employed for creating variables such as country prestige. Berrios and Saens (2012) used the number of wines per country rated outstanding by Wine Spectator to build a collective reputation variable. Results show that that there is a critical mass of outstanding quality wines that a country need to produce and sell in a market to raise the country's image and consequently increase average prices.

1.1.1.10. Sensory variables

Several studies have included sensory attributes among the characteristics with possible impact on consumers' willingness to pay. In most cases, sensory variables deal with olfactory, gustatory and visual appreciation. In general terms olfactory examination refers to aromatic intensity, finesse and complexity of the aromas. Gustatory findings refer to flatness, harmony between the components, the finish, etc. Additionally, general remarks done by tasters are considered among sensory variables. These include comments on alcohol level, necessity of further keeping, etc. In

general terms, no relation has been found between these quality attributes and consumers' marginal willingness to pay.

1.1.1.11. Other variables

Gonzalez and Melo (2008) introduced an important novelty by considering in the hedonic function the mean of wine prices in different supermarkets along the country and socio-demographic information for the population living in the supermarket's surroundings. Different hedonic models were estimated for different districts along the country. With this approach, the authors aimed at understanding the influence of attributes in the different social classes. Grape variety, bottle colour, place of origin and alcohol content, for instance, were found to be more valued in the higher socio economic classes than in the lower ones.

The effect of second labels on price has also been analysed. In their research on Bordeaux wines, Landon and Smith (1997) included a dummy variable that indicates that a wine has been produced by a firm that produced second label wines. The negative impact of the second label wines is explained with consumers' relative quality perception of these wines.

The organic attribute of a wine has also been analysed through the hedonic model. Corsi and Strom (2013) estimated the hedonic price functions of Piedmont organic and conventional wines. They concluded that organic wines tend to obtain higher prices and that the organic quality modifies the impact of other variables on price. Certification of environmental practices and disclosure of an eco-label have also been analysed. Delmas and Grant (2010) showed that eco-certification leads to a price premium whereas the eco-label does not.

Research has also included the evaluation of consumers' valuation of quality certifications. For instance, Rabkin and Beatty (2007) analysed Vintners Quality Alliance (VQA) certified wine concluding consumers are willing to pay a premium for VQA red and white wines.

Weather conditions have also been included in hedonic analyses. For instance, Ashenfelter, Ashmore and Lalonde (1995) showed that the quality of the vintage for red Bordeaux wines and their prices can be predicted by the weather during the growing season. Di Vittorio and Ginsburgh (1996) confirmed these results for Haut-Medoc wines. Jones and Storchmann (2001) worked on a more refined model analysing the effect of weather on Cabernet Sauvignon-dominated wine prices and Merlot-dominated wine prices. The authors found a different influence of weather conditions in each type of wine and also a different price sensitivity to Parker-point ratings.

The impact of grape growing and winemaking techniques on price has also been analysed through hedonic models. Through interviews with the chief winemakers of selected wineries, Wood and Anderson (2003) assess the contribution of vineyard management techniques (irrigation, fertilisation, artificial drainage, windbreaks, etc.) and winemaking techniques (blending, type of oak and length of maturation) on quality variation and price.

1.2. Prices data set selection

The selection of the price data set has been, through all literature, a critical and controversial aspect. Underlying this choice is the need to collect data over most quality attributes influencing consumers' willingness to pay. Moreover, prices need to be as close as possible to the real retail ones in order to get a correct estimation of attributes' implicit prices.

Through literature, two main approaches have been adopted. Some authors have built their data set with observed prices and some others have simulated a market to understand consumers' purchasing decisions. The choice of observed prices as the input for the data set is mainly explained by the idea that these are the prices considered by consumers and thus are the prices affecting their willingness to pay. The simulated market approach is generally adopted when the research goal is to test new product attributes, such as organic or environmental friendly production processes for agro -food products.

1.2.1. Observed prices

Observed prices are the ones obtained through surveys on retail markets or from direct information on the product (catalogues, publications, guides). Sources for observed prices are diverse and, if distinguished from closest to distant from consumer, these would be: retail prices; FOB prices; en primeur prices and suggested prices.

An interesting novelty was introduced by Costanigro et al. (2006) by segmenting the data set of suggested prices based on price ranges. Therefore, the authors estimated consumers' marginal willingness to pay for attributes in each wine category (commercial, semi-premium, premium and ultra-premium).

Table 2 Wine hedonic models based on observed prices

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Ockowski (1994)	Australia	Australia	Suggested Price	Wine Guide	Shield and Meyer wine guide (1991 and 1992)
Nerlove (1995)	World	Sweden	FOB + markup	Import data	Monopoly Vin och Sprit (102 week period, 1989-1991)
Ashenfelter, Ashmore and Lalonde (1995)	France (Bourdeaux)	France (Bourdeaux)	Retail price	Wine guide	Liquid Assets: The International Guide to Fine Wines (published October 1991 and December 1992)
Di Vittorio and Ginsburg (1996)	France (Haut-Médoc)	France (Haut-Médoc)	Auction price	Auctions	Christie'London (1980-1992)
Combris, Lecocq and Visser (1997)	France (Bourdeaux)	France (Bourdeaux)	Retail price at winery	Consumer Report	Report "50 Millions de consommateurs" (December 1992)
Landon and Smith (1997)	France (Bourdeaux)	France (Bourdeaux)	Suggested Price	Wine Guide	Wine Spectator special issue on Bordeaux wines (vintages 1987-1991)
Landon and Smith (1998)	France (Bourdeaux)	France (Bourdeaux)	Suggested Price	Wine Guide	Wine Spectator (vintages 1989 and 1990)
Gergaud (1998)	France (Champagne)	France	Retail price at winery	Combined data	Report "50 Millions de consommateurs" (1986-1994) and Magazine “Que Choisir” (1986-1993)
Combris, Lecocq and Visser (2000)	France (Burgundy)	France (Burgundy)	Retail price at winery	Consumer Report	Report "50 Millions de consommateurs" (November 1993)
Angulo, Gil, Gracia and Sanchez (2000)	Spain	Spain	Suggested Price	Wine Guide	Guia de Vinos Gourmet (1998)

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Ockowski (2001)	Australia	Australia	Suggested Price	Wine Guide	Penguin, Halliday, Oliver and Bradley guides (1999 and 2000)
Jones and Stochmann (2001)	France (Bourdeaux)	France (Bourdeaux)	Auction price	Auctions	Worldwide auctions (1996-1997)
Steiner (2002)	World	Great Britain	Retail Price	Scanner data	AC Nielsen (August 1994)
Morilla Critz and Martinez (2002)	Spain	Spain	Suggested Price	Wine Guide	Peñin Guide for Spanish wine (1999 and 2000)
Schamel (2003a)	New World	United States	Suggested Price	Wine Guide	Wine Spectator (published January 2011-October 2002)
Schamel (2003b)	Germany	Germany	Suggested Price	Wine competition	Wines admitted to the German annual national wine competition (published 2001)
Schamel and Anderson (2003)	Australia and New Zealand	Australia and New Zealand	Suggested Price	Wine Guide	James Halliday's wine ratings (1992-2000 Australian vintages and 1993-2000 New Zealand vintages) and Wine State magazine (1992-1999 Australian vintages and 1994-1999 New Zealand vintages)
Bombrun and Sumner (2003)	United States	United States	Suggested Price	Wine Guide	Wine Spectator (published January 1995- December 2001)
Brooks (2003)	Argentina, Australia, Chile, France, Germany, Italy, Spain and US.	United States	Suggested Price	Wine guide	Wine Advocate (1992-1998)

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Ling and Lockshin (2003)	Australia	Australia	Suggested Price	Wine Guide	James Halliday (1999) and The Australian & New Zealand Wine Industry Directory (2001)
Wood and Anderson (2003)	Australia	Australia	Auction price	Combined data	Langston's Australian Fine Wine Investment Guide (1988-2000) and Australian Bureau of Meteorology
Steiner (2004)	Australia	Great Britain	Retail Price	Scanner data	AC Nielsen (August 1994)
Durham, Pardoe and Vega-H (2004)	World	United States	Restaurant Retail Price	Survey	Direct Survey (April-September 1998)
Cardebat and Figuet (2004)	France (Bourdeaux)	France (Bourdeaux)	Retail Price	Survey	Direct purchase and blind tasting (vintages 1996-1999)
Van Rensburg (2004)	South Africa	South Africa	Suggested Price	Wine Guide	Wine Magazine and John Platter's South African Wine Guide (2007)
Melo, Buzeta and Marshall (2005)	Chile	Chile	Retail Price	Survey	Direct Survey (1-15 September 2003)
Bicknell, Friesen and MacDonald (2005)	New Zealand	New Zealand	Suggested Price	Wine Guide	Michael Cooper‟s annual series of Buyer's Guide to New Zealand Wines (1994- 2003)
Davis (2005)	Australia	Australia	Retail price	Bulk wine publication	Brokers' publications
Lecocq and Visser (2006)	France (Bourdeaux and Burgundy)	France (Bourdeaux and Burgundy)	Retail price at winery	Consumer Report	Report "60 Millions de consommateurs" (December 1992 for the Bordeaux I sample, November 1993 for the Burgundy sample, and October/November 2001 for the Bordeaux II sample)

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Troncoso and Aguirre (2006)	Chile	United States	Suggested Price	Wine Guide	Wine Spectator (vintages 1979-2002)
Lima (2006)	United States	United States	Suggested Price	Wine Tastings	Californian Tastings. California Wine Winners (1996)
Schamel (2006)	World	United States	Suggested Price	Wine Guide	Wine Spectator (published October 2001 -October 2002)
Bentzen and Smith (2006)	Germany	Scandinavian countries	Retail Price	Combined data	VSOD, Vinmonopolet, Systembolaget and Wine guide from Gault Millau (2004)
Davis and Ahmadi-Esfahani (2005)	Australia	United States	Retail Price	Retail Price	US online liquor stores (vintages 1998-2003)
Haeger and Storchmann (2006)	United States	United States	Suggested Price	Combined data	Wine Spectator (1998–2003), California Department of Water Resources (2004) and Oregon Climate Service (2004).
Miller, Genc and Driscoll (2007)	United States (California)	United States (California)	Suggested Price	Wine Guide	Wine Spectator (vintage 2001)
Ali and Naughes (2007)	France (Bourdeaux)	France (Bourdeaux)	Primeur Price	Auctions	Broker house in Bordeaux (vintages 1993-1998)
Rabkin and Beatty (2007)	British Columbia (Canada)	Canada (British Columbia)	Retail Price	Retail Price	Monopoly British Columbia Liquor Distribution Branch (May 2002 - April 2004)
Costanigro, McCluskey and Mittelhammer (2006)	Unites States (California)	Unites States (California)	Suggested Price	Wine Guide	Wine Spectator (published 1991-2000)

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
San Martin, Brummer and Troncoso (2008)	Argentina	United States	Suggested Price	Wine Guide	Wine Spectator (vintages 1977-2005)
Florkowski, Carew and Senshui (2008)	France (Burgundy)	Canada (British Columbia)	Retail Price	Retail Price	Monopoly British Columbia Liquor Distribution Branch (April 2002 May 2004)
Gonzalez and Melo (2008)	Chile	Chile	Retail Price	Combined data	La Cav Magazine (2004) and retail prices in supermarkets (2004-2005)
Lutzeyer (2008)	South Africa	South Africa	Suggested Price	Wine Guide	Wine Magazine and John Platter's South African Wine Guide
Pavese and Zanola (2008)	Italy	Italy	Suggested Price	Wine Guide	Veronelli and Espresso wine guide (vintages 1999-2006)
Panzone and Simoes (2009)	Portugal	Portugal	Retail Price	Retail Price	Portuguese retailer: Continente Hypermarket. Online data (July 2007)
Benfratello, Piacenza and Sacchetto (2009)	Italy	Italy	Retail Price	Combined data	Direct Survey (July-September 2002), Wine Spectator and Duemila Vini (vintages 1995-1998)
Cardebat and Figuet (2009)	France (Alsace, Beaujolais and Provence)	France	Retail Price	Survey	Direct purchase and blind tasting (vintages 1999-2001)
Bicknell and MacDonald (2009)	New Zealand	New Zealand	Suggested Price	Wine Guide	Michael Cooper‟s Buyer's Guide to New Zealand Wines (2007) and Wine Show
Luppe, Lopes Fàvero and Prado Belfiore (2009)	Argentina, Brazil and Chile	Brazil	Retail price	Retail price	No available data

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Ortuzar-Gana and Alfranca-Burriel (2010)	Chile	Chile	"Regular Price"	Scanner data	AC Nielsen (September 2004-September 2006)
Carew and Florkowski (2010)	France (Burgundy)	Canada (British Columbia)	Retail Price	Retail price	Monopoly British Columbia Liquor Distribution Branch (April 2002-May 2004)
Delmas and Grant (2010)	Unites States (California)	United States (California)	Suggested Price	Wine Guide	Wine Spectator (vintages 1998-2005)
Costanigro, McCluskey and Goemans (2010)	Unites States (California)	United States (California)	Suggested Price	Wine Guide	Wine Spectator (vintages 1991-2000)
Boatto, Defrancesco and Trestini (2011)	Italy	Italy	Retail Price	Survey	Direct Survey (June-December 2006)
Brentari and Levaggi (2011)	Italy	Italy	Suggested Price	Wine Guide	Guida di Vini prepared by Altroconsumo (Italian Independent Consumer Association, 2006-2008)
Yoo, Florkowski and Crew (2011)	Argentina, Bulgaria, Chile, Croatia and Hungary	Canada (British Columbia)	Retail Price	Retail Price	Monopoly British Columbia Liquor Distribution Branch (108 weeks, April 2002 May 2004)
Kwong , Kushner and Ogwang (2011)	Canada (Ontario)	Canada (Ontario)	Retail price	Retail Price	Ontario's Monopoly: Liquor Control Board of Ontario (vintages 1998-2007)
Schroeter, Ritchie and Rickard (2011)	World	United States	Suggested Price	Wine guide	Wine Spectator (vintages 1997-2009)

Table 2 Wine hedonic models based on observed prices *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	PRICE	DATA	SOURCE
Panzone (2011)	Eastern European countries	United Kingdom	Suggested Price	Wine Guide	Malcolm Gluck's Superplonk Website (collected April-June 2006)
Mueller Loose and Szolnoki (2012)	World	United States	Retail Price	Scanner data	AC Nielsen (July 2007-July 2008)
Berrios and Saens (2012)	Argentina, Australia, California, Chile, Burgundy and South Africa	United States	Suggested Price	Wine Guide	Wine Spectator (vintages 1997 -2005)
Bicknell and MacDonald (2012)	New Zealand	New Zealand	Suggested Price	Wine Guide	Michael Coopers's Buyer Guide to New Zealand Wines (1994-2007)
Priilaid and Van Rensburg (2012)	South Africa	South Africa	Suggested Price	Wine guide	Wine Magazine and John Platter's South African Wine Guide (2007)
Cardebat and Figuet (2013)	France, Spain and United States	World	Retail Price	Combined data	winedecider.com (vintages 2001-2010) and meteorological conditions (2000-2010)
Corsi and Strom (2013)	Italy (Piedmont)	Italy (Piedmont)	Retail price at winery	Survey	Ad hoc survey of organic farms in Piedmont, Italy (2006)
Roma, Di Martino and Perrone (2013)	Italy	Italy	Suggested Price	Wine guide	Wine Spectator, Vini d'Italia, Duemila Vini, Annuario dei Migliori Vini Italiani (2010).
Cuellar and Claps (2013)	United States	United States	Retail Price	Combined data	AC Nielsen (December 2004-February 2009) and scores from Wine Spectator

Source: our elaboration

1.2.1.1. Retail prices

Retail data sets are built on market prices at the retailer. Underlying this decision is the idea that the prices to be included in the hedonic analysis are the ones consumers actually face when making purchasing decisions. Whether this information is gathered through direct surveys or by specialized agencies (such as AC Nielsen) depends, generally, on the objective of the research and its funding.

For retail prices, different authors have selected different data sources. Many have chosen AC Nielsen panel data, which generally covers a wide range of retail stores and with enough detail to estimate an appropriate hedonic function. Others have preferred to conduct direct surveys, in large-scale retailers, wine shops or in restaurants.

A special case is the one studied by Ortuzar-Gana and Alfranca-Burriel (2010) that decided to build a hedonic price model considering the "regular price". The regular price is the baseline price which can be found in the most usual conditions (Gupta, 1988) and the authors calculated it by considering the one standard deviation criterion over the discount percentages options. Underlying this decision is their idea that "prices collected from stores may be promotional prices which are not associated with product's characteristics from the seller's perspective, due to the objective of selling more items in a shorter time period" (Ortuzar-Gana & Alfranca-Burriel, 2010, p. 874). The authors found the hedonic estimation based on regular prices performed better (comparing to one based on current prices) because it displayed a better consumer appreciation of each wine attribute.

Benfratello, Piacenza and Sacchettos (2009) worked over a special dataset. The variables used were collected by inspecting two published sources (Wine Spectator and Duemila Vini Guide) and through direct interviews with the wine producers. Retail price data and aging period in barrels data was obtained from producers. Jury grade, alcohol content, sensorial traits, vintage, special denomination of label were retrieved from Wine Spectator and Duemila Vini Guide (edited by the Italian Association of Sommeliers). The validity of this dataset for the estimation of attributes influencing consumers' willingness to pay is dubious. If a consumer was looking for such a complete information for a wine purchasing decision, search costs would be too high.

1.2.1.2. FOB prices

Wine's retail price has also been included in the data base after the addition of some items to the import FOB price. Nerlove (1995) worked with this approach and calculated price with a markup formula which included taxes and estimated marketing costs. The model developed by

Nerlove included not only the regression of price on a vector of quality attributes but also a regression of quantity sold (adjusted for weeks of availability) on price and quality attributes.

1.2.1.3. En primeur prices

An *en primeur* wine market is a forward market where wine is sold as a future, while it is still very young, unblended and unbottled. These prices are chosen by each individual producer and depend on the reputation of the *chateau* as well as on short-term changes in quality due to the climatic conditions. Ali and Nauges (2007) analysed the impact of primeur prices on bottle wine prices and estimated that a 10% increase in the former increases by 3% the latter's price. The authors also estimated that Parker's ratings have a very small impact on final prices concluding that primeur prices act as quality signals for consumers.

1.2.2. Suggested prices

Suggested prices are the ones recommended by the producer or by a certain publication or wine guide. These prices are not necessarily found in the market but rather the suggestion given by different agents – e.g. producers and wine experts -, after some technical quality attributes have been considered.

For recommended prices, two different sources have been used through literature. The most widely used source has been wine guides or wine publications. This choice has been generally explained by the data´s accessibility to the wine consuming public at large. Moreover, as sustained by Ortuzar-Gana and Alfranca-Burriel (2010) these recommended prices could be useful because they do not take into account the seasonal discounts and are independent of the retailer characteristics.

Even if widely used, wine guides have been considered inappropriate for estimating hedonic price equations by many authors (Combris et al., 1997; Gustafson & Sumner, 2011; Boatto et al., 2011; Yoo et al., 2011). Basically, the authors find some necessary conditions not being fulfilled. First, all wines that are tasted should be included in the sample, regardless of whether the wine is considered good or bad. In wine guides the wines of lower quality are often deliberately under-represented for marketing and commercial reasons. High-quality wines, on the contrary, are generally over represented. Wine Spectator, for example, "when it comes to wines that we ´re going to feature – especially in the magazine, where the space is finite- we tend to focus on the wine we´re recommending (…) *Only* in our full database you´ll find wines that scored below the 80 point mark[5]". Second, bottles that are specially prepared to

[5] Dr. Vinny response for Wine Spectator to the question "Is there a "gentleman´s agreement" not to publish the really bad scores?"

participate in a wine contest/rating should be avoided, as they are not, in general, representative for the overall production of the winery. Third, in a concern for objectivity, wines should be evaluated and tasted by independent experts. In wine guides it is often the author who evaluates the wines. Many guides are sponsored by wine producers or intermediates so the possibility of judges 'objectivity could be reduced drastically. Schamel (2003a) adds: "... not to mention the regional or variety "fashion" trends in wine consumption that these publications may determine". Fourth, tasting should occur blindly. In evaluating a wine, the members of a jury must not be influenced in advance by the name of the winery, the appellation, the grape variety or the vintage. In some cases, this evaluation is done blindly but not in all of the cases. Fifth, all the wines in the sample must be bought under the same conditions. Differences in price levels between bottles of wine should reflect differences in wine characteristics, and not differences in purchase circumstances. Even if this situation cannot be verified for wine guides a sampling scheme in which part of the bottles are bought directly at the winery and another part at a wine shop or supermarket should be avoided. In the case of the widely recognized magazine Wine Spectator, "most of the wines reviewed are specifically requested by the editors and supplied by producers or importers. In order to achieve our goals for coverage, *Wine Spectator* also spends thousands of dollars each year purchasing wines to review. In addition, "we receive many unsolicited samples" (Wine Spectator, n.d.).

Another important risk in using wine guides is the possibility of failure to meet Rosen's assumption of market equilibrium. This is so as wine guides prices are suggested prices and not real market prices and thus it is not possible to know if the price is a market clearing one.

Additionally, the assumption of data´s accessibility to the wine consuming public at large cannot be taken for granted. In certain markets, for certain price-range wines and special vintages this assumption could be true but it is far from being the general norm.

The most widely used wine publication in hedonic research has been Wine Spectator. This choice is based on its characteristic of being the world's largest circulation wine magazine[6]. The key advantage of this guide, as established by Landon and Smith (1998) is that it includes a large number of different wines, the quality index[7] is quite clear for all type of audiences, it

[6] Wine Spectator is published 15 times a year, with an estimated circulation of over 450.000 and a readership of about 2.5 million.

[7] Wine Spectator scale:

95–100:classic; a great wine.

90–94: outstanding; superior character and style.

80–89: good to very good; with special qualities.

provides prices and simultaneous quality ratings for each wine and it reflects the results of tastings that take place at the same time each year.

Most authors working with Wine Spectator as source of data have considered in the hedonic model variables such as: judge rating; place of origin; varietal; vintage; colour; number of cases; maturing potential and special expert selections. Some of these authors have added variables such as the belonging to a promotional agency (Troncoso & Aguirre, 2006; San Martin et al., 2008).

Other wine guides, with a more local approach, have also been used as source of information for hedonic price models. This selection has been done on the belief that these local guides are the ones with major impact on local consumers as source of data.

1.2.3. Simulated markets

As consumer behaviour is very complicated, some authors have considered useful to work over simulated market data to identify factors influencing consumers' willingness to pay for a certain good's attribute. Generally, this approach is used to identify the impact of new attributes in consumers' willingness to pay. This is the case of experiments set to test new healthy products, functional products or environmentally friendly production processes.

Gustafson and Sumner (2011) developed an experiment in a wine retail setting with a different approach. After consumers have freely chosen a certain wine, they were asked to participate in the investigation. Based on their primary wine selection six different wines were offered to each consumer (a special software was developed and it created a list of wines based on wines available in the store). This second wine selection was analysed using a hedonic approach together with a demographic questionnaire consumers were asked to complete.

These experimental works have been criticized by some authors on their belief that the consumer may pay closer attention to the object of study than they would do in actual settings, thus inflating apparent preference effects. Additionally, when price is considered some consumers tend to underestimate its importance, in their effort to seem price-insensitive.

70–79 : average; drinkable, may have minor flaws.
60– 69 : below average; drinkable, not recommended.
50–59 : poor; undrinkable, not recommended.

1.3. The implicit price of wine attributes

As already depicted, wine has been subject to vast hedonic research. Among the wine quality attributes considered in hedonic models, some show a relatively stable and uniform performance in different markets and for different time periods whereas some others show specific positive or negative impact on price depending on the considered market.

In this literature review, a distinction will be made considering the origin of the wine and the final market. For this purpose we have classified markets, both origin and destination, in Old World countries and New World countries. France, Italy, Spain, Portugal, Germany, Austria, Switzerland, Belgium, Greece, Bulgaria, Hungary and Romania will be considered as part of the Old Word. United States, Australia, New Zealand, South Africa, Canada, Argentina, Chile, Brazil, Mexico and Uruguay will be considered the New World countries[8].

As explained by Parcero and Villanueva (2011), all those countries which are not included neither in the New World nor in the Old World are countries with little tradition of wine consumption and practically inexistent tradition of wine production. However, from 1961 till today they have significantly increased their imports relatively to the world's total imports of wine. Among these countries stand out the United Kingdom, Denmark, Sweden, Holland, Russia, Belgium, Japan, China and India. This group of countries is defined as "new buyers". Following the consumer oriented classification previously defined, these new buyers will be considered among the New World countries.

1.3.1. New World wine in New World Markets

Most of the hedonic research in the wine market has been done regarding New World wines sold in New World countries. These can be possibly explained by the increasing participation of these actors in the world wine scenario. While in 1970, New World wines represented only 18% of world production, in 2010 this participation have grown to more than 37%. From the supply side, this grown has been driven by Australia, Chile and New Zealand. From the demand side, the growth in consumption in the United Kingdom and the United States have changed the market. Under this trend, New World markets will continue to increase consumption and will hence define the new market conditions.

[8] These designations of Old and New World are very common in the wine literature; they can be found in countless newspaper articles, publications and academic studies of different fields: Agronomy, Oenology Business, Economics and Law. Some examples are Anderson (2001) Anderson, Norman and Wittwer (2003), Campbell and Guibert (2006), Hussain, Cholette and Castaldi (2008), Duncan and Greenaway (2008) and Simpson (2009).

As described in Table 3, most hedonic model estimation have found that New World wines' rating (jury grade), vintage and place of origin have a significant positive impact on consumer's willingness to pay in New World markets.

Table 3 New World wines in New World markets

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Ockowski (1994)	Australia	Australia	Semi-logarithmic	+	+	+ -
Ockowski (2001)	Australia	Australia	Semi-logarithmic	+ +	+	
Schamel (2003a)	New World	United States	Semi-logarithmic	+		+ -
Schamel and Anderson (2003)	Australia and New Zealand	Australia and New Zealand	Semi-logarithmic	+		+
Bombrun and Sumner (2003)	United States	United States	Semi-logarithmic	+ -	+ -	+
Ling and Lockshin (2003)	Australia	Australia	Semi-logarithmic	+ +		+ +
Wood and Anderson (2003)	Australia	Australia	Reciprocal Square Root		+	
Steiner (2004)	Australia	Great Britain	Semi-logarithmic		+	+ -
Van Rensburg (2004)	South Africa	South Africa	Linear	+		
Melo, Buzeta and Marshall (2005)	Chile	Chile	Semi-logarithmic		+	+ -
Bicknell, Friesen and MacDonald (2005)	New Zealand	New Zealand	Semi-logarithmic	+		+ -
Davis (2005)	Australia	Australia	Semi-logarithmic			+ -
Troncoso and Aguirre (2006)	Chile	United States	Semi-logarithmic	+	+	+
Lima (2006)	United States	United States	No information	+	+	

Table 3 New World wines in New World markets *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Davis and Ahmadi-Esfahani (2006)	Australia	United States	Semi-logarithmic		+	+
Haeger and Storchmann (2006)	United States	United States	Semi-logarithmic	+ +	+	
Miller, Genc and Driscoll (2007)	United States (California)	United States (California)	Semi-logarithmic	+	+	
Rabkin and Beatty (2007)	British Columbia (Canada)	Canada (British Columbia)	Semi-logarithmic		+	
Costanigro, McCluskey and Mittelhammer (2006)	Unites States (California)	Unites States (California)	Inverse square root	+ ++	+	+ -
San Martin, Brummer and Troncoso (2008)	Argentina	United States	Semi-logarithmic	+	+	+ -
Gonzalez and Melo (2008)	Chile	Chile	Semi-logarithmic	+	+	
Lutzeyer (2008)	South Africa	South Africa	Semi-logarithmic	++	+	+-
Bicknell and MacDonald (2009)	New Zealand	New Zealand	Semi-logarithmic	+ -		+
Luppe, Lopes Fàvero and Prado Belfiore (2009)	Argentina, Brazil and Chile	Brazil	Semi-logarithmic	+		
Ortuzar-Gana and Alfranca-Burriel (2010)	Chile	Chile	Semi-logarithmic			
Delmas and Grant (2010)	Unites States (California)	United States (California)	Semi-logarithmic	+	++	
Costanigro, McCluskey and Goemans (2010)	Unites States (California)	United States (California)	Semi-logarithmic	++	+	

Table 3 New World wines in New World markets *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Kwong , Kushner and Ogwang (2011)	Canada (Ontario)	Canada (Ontario)	Semiparametric partially linear model	+		
Bicknell and MacDonald (2012)	New Zealand	New Zealand	Semi-logarithmic	++		+ -
Priilaid and Van Rensburg (2012)	South Africa	South Africa	Dummy styled non linear	++		
Cuellar and Claps (2013)	United States (Napa & Sonoma)	United States (Napa & Sonoma)	Semi-logarithmic	+ -		+ -

Source: our elaboration

Notes: empty cells indicate a non-significantly different from zero coefficient or not analysed; relative impact on price: + or - weak, ++ or – moderate.

A strong consensus (Steiner, 2004; Melo et al., 2005; San Martin et al. 2008) has risen over the fact that the more specific the labelling of the place of origin, the higher the price. Moreover, a positive trend has been distinguished towards a more regional differentiation.

The influence of jury grades on consumers' willingness to pay has also risen high consensus. Most authors have found this variable to have a significant and positive impact on purchasing decisions. However, the evolution of this impact is subject to different interpretations. For instance, Schamel and Anderson (2003) identify the winery rating as having a positive but downward trend while Bicknell, Friesen and MacDonald (2005) and Bicknell and MacDonald (2012) found the variable's impact has increased over time. The latter authors explained this upward trend by the increasing consumer's awareness of the information provided by wine ratings. They also argue that internet may have reduced the impact of information provided by speciality wine stores' employees by offering great accessibility to wine ratings. As could be expected, in the United States -were Wine Spectator has the strongest influence and profile- the impact of its grades is consistently more important than in other markets.

Vintage has been identified as significantly affecting consumers' buying decisions but presenting differences for red and white wines, for certain varieties and for different price-categories.

The role of brands has also been considered thoroughly, specially by Schamel (2006) who argued New World countries have still much work to do in the regional differentiation but realized leading brands are able to pick up much of the price differential. The author suggested regional quality leaders could benefit from emphasizing origin in their own marketing.

1.3.2. Old World wine in Old Word markets

Old World countries, both in production and in consumption, are still the most important actors in the global wine market. Being Italy, France and Spain the most important countries, most studies have been done for these wines.

Table 4 Old World wines in Old World markets

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Ashenfelter, Ashmore and Lalonde (1995)	France (Bourdeaux)	France (Bourdeaux)	Semi-logarithmic		+ -	
Di Vittorio and Ginsburg (1996)	France (Haut-Médoc)	France (Haut-Médoc)	Semi-logarithmic		+	
Combris, Lecocq and Visser (1997)	France (Bourdeaux)	France (Bourdeaux)	Semi-logarithmic	+		+ -
Landon and Smith (1997)	France (Bourdeaux)	France (Bourdeaux)	Reciprocal Square Root	++	+	
Landon and Smith (1998)	France (Bourdeaux)	France (Bourdeaux)	Reciprocal Square Root	+		
Gergaud (1998)	France (Champagne)	France	Quadratic Box Cox	+		
Combris, Lecocq and Visser (2000)	France (Burgundy)	France (Burgundy)	Semi-logarithmic	+	+	
Angulo, Gil, Gracia and Sanchez (2000)	Spain	Spain	Multinomial Logit model	+	+	+
Jones and Stochmann (2001)	France (Bourdeaux)	France (Bourdeaux)	Semi-logarithmic	+	+	
Morilla Critz and Martinez (2002)	Spain	Spain	Semi-logarithmic	+	+	+ -

Table 4: Old World wines in Old World markets *(Cont.)*

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Schamel (2003b)	Germany	Germany	Semi-logarithmic	++	+	++
Cardebat and Figuet (2004)	France (Bourdeaux)	France (Bourdeaux)	Semi-logarithmic	+		
Lecocq and Visser (2006)	France (Bourdeaux and Burgundy)	France (Bourdeaux and Burgundy)	Semi-logarithmic	+		
Ali and Naughes (2007)	France (Bourdeaux)	France (Bourdeaux)	Semi-logarithmic	+ -	+	
Pavese and Zanola (2008)	Italy	Italy	Semi-logarithmic	+ -		
Panzone and Simoes (2009)	Portugal	Portugal	Semi-logarithmic			+
Benfratello, Piacenza and Sacchetto (2009)	Italy	Italy	Box-Cox transformation	+		
Cardebat and Figuet (2009)	France (Alsace, Beaujolais and Provence)	France	Semi-logarithmic		+	+
Boatto, Defrancesco and Trestini (2011)	Italy	Italy	Semi-logarithmic	+	+	
Brentari and Levaggi (2011)	Italy	Italy	Semi-logarithmic			+
Corsi and Strom (2013)	Italy (Piedmont)	Italy (Piedmont)	Semi-logarithmic			
Roma, Di Martino, Perrone (2013)	Italy	Italy	Semi-logarithmic	+	++	++

Source: our elaboration

Notes: empty cells indicate a non-significantly different from zero coefficient or not analysed; relative impact on price: + or - weak, ++ or – moderate.

For those studies considering different places of origin as explanatory variables of the hedonic models, results indicate a strong positive influence. It should be noted that many studies refer to a special grape producing region. In this cases, place of origin does not need to be included in the analysis. This is the case of Boatto et al. (2011), Landon and Smith (1998), Lecocq and Visser (2006) and Ali and Naughes (2007). Panzone and Simoes (2009) set an interesting point when referring to the Portuguese market. They observed that a PDO labelling is not a factor attracting a price premium *per sé*, but rather that it is the interaction between the PDO and the region of production that actually gives a premium. They, thus, propose a discussion over the economic viability of the PDO label in certain regions.

The influence of rating/jury-grade has also risen consensus in these markets. In this case, however, this variable does not indicate necessarily a present jury grade but rather a reputation index or a future jury grade. The most notable case is the one studied by Landon and Smith (1998) who founded that reputation (built with individual and collective reputation indexes) has a significant positive impact on price, 20 times bigger than current quality (measured by present jury-grade).

1.3.3. Old World wine in New Word markets

In a scenario of New World countries increasing per-capita consumption and Old World countries reducing it, it seems logical for Old world producers to focus on these more dynamic markets. However, not much research has been done in this area.

In Florkowski et al. (2008) Barbaresco and Barbera brands were found to have a significant impact on consumers' willingness to pay. This impact was found to be positive for some brands and negative for some others.

For French wines in British Columbia, certain geographical areas were found to have a significant but different impact on willingness to pay (Carew & Florkowski, 2010). Even if regions are geographically contiguous, their wines exhibit quality differences due to village geography, climate, among others. The ranking scheme showed significant positive impact, with "Premier" and "Grand Cru" designations showing a premium for most wines.

Table 5 Old World wines in New World markets

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Bentzen and Smith (2006)	Germany	Scandinavian countries	Semi-logarithmic			+
Florkowski, Carew and Senshui (2008)	France (Burgundy)	Canada (British Columbia)	Semi-logarithmic		+	+ -
Carew and Florkowski (2010)	France (Burgundy)	Canada (British Columbia)	Semi-logarithmic		+	+ -
Panzone (2011)	Eastern European countries	United Kingdom	Box-Cox transformation		+	+-

Source: our elaboration

Notes: empty cells indicate a non-significantly different from zero coefficient or not analysed; relative impact on price: + or - weak, ++ or – moderate.

1.3.4. Mixed situations

An interesting array has been taken by some authors, looking to understand the complexity of a market. In these cases, a single market has been analysed for wines of different origin. In the case of the Swedish market, where a monopoly was responsible for import, export, production and retail sale of all alcohol beverages[9], rating seems to be the most important variable affecting price. In the United States, the jury grade plays a key role in defining consumers' willingness to pay. This responds basically to the market orientation or preference for wine guides such as Wine Spectator.

[9] The state owned Vin & Sprit was responsible, until 1995, for imports, exports, production and retail sale of all alcohol in Sweden. Nerlove's research was done at this time. Nowadays, only the retail monopoly remains.

Table 6 Mixed situations

AUTHOR	ORIGIN COUNTRY	FINAL MARKET	FUNCTIONAL FORM	RATING /JURY GRADE	VINTAGE	PLACE OF ORIGIN
Nerlove (1995)	World	Sweden	Double-Logarithmic	+		
Steiner (2002)	World	Great Britain	Semi-logarithmic		+	+ -
Brooks (2003)	Argentina, Australia, Chile, France, Germany, Italy, Spain and US.	United States	Semi-logarithmic		+	++
Durham, Pardoe and Vega-H (2004)	World	United States	ZIP Model			
Schamel (2006)	World	United States	Mixed log-linear functional form	+	+	+ -
Yoo, Florkowski and Crew (2011)	Argentina, Bulgaria, Chile, Croatia and Hungary	Canada (British Columbia)	Semi-logarithmic			+ -
Schroeter, Ritchie and Rickard (2011)	World	United States	Semi-logarithmic	+	++	++
Mueller Loose and Szolnoki (2012)	World	United States	Semi-logarithmic			++
Berrios and Saens (2012)	Argentina, Australia, California, Chile, Burgundy and South Africa	United States	Double-logarithmic		+	+ -

Source: our elaboration

Notes: empty cells indicate a non-significantly different from zero coefficient or not analysed; relative impact on price: + or - weak, ++ or – moderate.

1.4. Relevance to Argentina`s wine industry

Despite Argentina's increasing participation in the world market little is known about the main determinants of its price, both in the domestic and in foreign markets. Limited research has been done on this subject, reducing the ability of producers to adjust to different market requirements or preferences.

San Martin et al. (2008) estimated a hedonic price function for Argentinean wines in the United States market in order to evaluate the effect of the most important attributes of wine on price. The analysis was done with a Wine Spectator data set and consisted in a sample of 1,102 observations. The authors found that labelling information with specific product characteristics (which are immediately visible to the potential buyer) are key variables in price determination. The impact of special descriptors on the label, however, was only statistically significant for two descriptors while for the other two no impact was verified. The retail price was also strongly affected by blends. The analysis suggested that the industry should prefer blends over varietals, especially those that include Malbec and Cabernet Sauvignon. A surprising finding for the author was the fact that belonging to the promotional organism "Wines of Argentina" has a negative price differential. The authors believe there is not enough information to be conclusive over this subject. The data base corresponds to 2005, only 2 years after a strong promotional campaign of Argentinean wines was initiated in the American market. Moreover, according to a research developed by Corporación Andina de Fomento (2010), there is enough evidence to sustain that the promotional activities organized by Wines of Argentina have a positive influence both on volume and on price of exported wine.

The results of San Martin`s analysis confirm that objective characteristics have a relatively stronger impact than subjective characteristics. The price of the good 'wine from Argentina' seems to be determined much more by the reputation which is conveyed through location, variety, and labelling, than by the score obtained from expert tastings.

Chapter III: The Hedonic Pricing Methodology

1. Theoretical framework

Etymologically, the term "hedonics" is derived from the Greek word *hedonikos*, which means "pleasurable", from *hedone* "pleasure", related to *hedys* "sweet". In the economic context, it refers to the utility or satisfaction one derives through the consumption of goods and services.

Even if different authors have worked on the hedonic price estimation (Court A. , 1939; Court L. M., 1941; Houthakker, 1952; Griliches, 1961; Roy, 1950; Ridker & Henning, 1967) two main approaches have contributed greatly towards the theoretical framework on hedonic prices. The first approach derives from Lancaster's consumer theory (1966), and the second one has been proposed by Rosen (1974). Both of these approaches aim to price product attributes, considering them as the elements generating utility for the consumer.

Lancaster believed that the traditional theory of consumer behaviour, which considers that goods are the direct object of utility and that there is no differentiation among these goods, was inappropriate to explain consumers' utility function. The novelty of Lancaster's theory was to introduced the idea that properties and characteristics of a given good produce utility to consumers, as opposed to considering goods as direct objects of utility. Accordingly, consumers' preferences are exercised on goods' characteristics, and not directly on goods. Consumption is considered an activity in which goods are inputs and in which output is a collection of characteristics (product's attributes).

The model proposed by Lancaster states that each characteristic can be associated to one or more goods. The utility maximizing consumer decision underlying the buying decision is:

$$\text{MAX } U\ (\boldsymbol{z})$$

$$\text{Subject to } \boldsymbol{P}\ \boldsymbol{x} \leq K$$

$$\text{With } \boldsymbol{z}\ = \boldsymbol{B}\ \boldsymbol{x}$$

where ***U(z)*** is the consumer utility to be maximized, $\boldsymbol{z}$ is the vector of ***i*** characteristics ***(i=1,….,n)*** describing a vector of goods $\boldsymbol{x}_j$ ***(j=1,….,m). P*** are the prices of the defined good and ***K*** is the budget constraint experienced by the consumer and is defined on the goods-space $\boldsymbol{x}$**.** The relationship between the collection of products' characteristics and the collection of goods available is considered linear. The equation system $\boldsymbol{z}\ = \boldsymbol{B}\ \boldsymbol{x}$ represents a transformation between goods-space and characteristics-space.

The main assumptions of Lancaster`s model are:

- The good, *per sé*, does not give utility to consumers; it possesses characteristics and these characteristics give rise to utility. Goods characterized by the same intrinsic attributes belong to a same commodity group (intrinsic group).
- In general, a good will possess more than one characteristic, so that the simplest consumption activity will be characterized by joint outputs. Moreover, the same characteristic may be included among the joint outputs of many consumption activities. In this way, two goods which are apparently unrelated in some characteristics may be related in some other characteristics.

  Underlying this assumption is the general idea that all consumers appreciate the same set of characteristics of a good, which are present in the same quantities. In this way, the subjective component of the consumer decision arises when a collection of attributes and not when allocating the characteristics to a given good.
- Goods in combination may possess different characteristics from those pertaining to individual goods.

Even if Lancaster's work was focused on existing goods and their characteristics, he also analysed the case of the introduction of new products. In particular, he considered the case of new products strictly speaking and the case of differentiated goods. The model for new goods proposes simply to add an activity to the consumption technology. With this inclusion, it is possible to predict the performance of the new good in the market. In general terms, if a new good has a set of characteristics in the same proportion as an existing good it would simply go out of the market if its price is too high or it would replace the existing one if the price is lower. In the case of a new differentiated good, Lancaster included it in an existing intrinsic commodity group as a new product. A successful differentiation will occur, according to the author, when a welfare improvement is observed, pushing the efficiency frontier outward and enabling consumers to reach their preferred combination of characteristics more efficiently.

Lancaster completed his analysis of consumer's behaviour by giving some insights on information advertising. He considered advertising and information flows as a consumers' requirement in a modern economy with new goods appearing constantly. When new products or new characteristics are introduced, the consumption technology changes and consumers are willing to pay to be informed of the change. According to the author, the idea of value needs to be examined from the point of view of the consumer. Some consumer segments value certain good's attributes more than others and marketing specialists need to consider this premise when designing communication and promotion activities.

Based on Lancaster's work, Rosen suggest there are competitive implicit markets where implicit prices for embodied product attributes are defined and that consumers evaluate product attributes when making purchasing decisions. Therefore, the observed price of a given good is the linear combination of the quality attributes where the implicit prices are the attributes' weights. Product x_j market implicitly reveals a function $P_j = P_j(z_1, z_2, \ldots, z_n)$ relating prices P and characteristics z. Rosen supported his view on the idea that "when goods can be treated as tied packages of characteristics, observed market prices are also comparable on those terms" (Rosen, 1974, p. 54).

The main assumptions of Rosen`s model are:

- Each good is represented by a vector of characteristics $z = (z_1, z_{2,\ldots,} z_n)$ where z_i measures the amount of the i^{th} characteristic contained in the good. In Rosen's model the components of z are objectively measured in the sense that all consumers' perceptions of the characteristics embodied in each good are identical, though of course consumers may differ in their subjective appreciation of the attributes. Moreover, it is assumed that the preferences of the economic actors with respect to any good are solely determined by its corresponding characteristics vector.
- Pure competition: consumers are supposed to make their decisions on the basis of perfect information.
- A sufficiently large number of differentiated products are available so that the choice among various combinations of characteristics z can be considered continuous for all practical purposes.
- Possibilities for resale of used items in second-hand markets are ignored, either by assuming that these markets do not exist or, alternatively, that goods represent pure consumption.
- Differentiated products are sold in separate, though of course highly correlated, markets.
- Indivisibility of packages: packages cannot be untied. Sellers cannot repackage existing products or do not find it economically attractive to do so.
- Consumers act competitively in spite of the fact that marginal cost of quality is not necessarily constant. As many units as desired can be purchased of any good without affecting price.

- Firms are competitors and not monopolists even though marginal cost of attributes are not necessarily constant. All establishments observe the same prices and cannot affect them by their individual production decisions.
- Market equilibrium

For a given product $\boldsymbol{j}$ the model proposed by Rosen under market equilibrium is:

$$\boldsymbol{P_j = f_j(z_{j1}, z_{j2}, \dots z_{jn}, Y_{j1})} \text{ for demand}$$

$$\boldsymbol{P_j = g_j(z_{j1}, z_{j2}, \dots z_{jn}, Y_{j2})} \text{ for supply}$$

$\boldsymbol{P_j}$ is the marginal willingness to pay for a product j and the marginal revenue for the firm respectively. $\boldsymbol{z_{ji}}$ are all jointly dependent variables and $\boldsymbol{Y_{j1}}$ and $\boldsymbol{Y_{j2}}$ are exogenous demand and supply shift variables. The second equation defines the equilibrium endogenous variables $\boldsymbol{P_j}$ and $\boldsymbol{z_{ji}}$. The model estimation requires a two-step procedure. As a first step, one needs to regress observed differentiated product's prices $\boldsymbol{P_j}$ on its characteristics $\boldsymbol{z_j}$. This needs to be done using the best fitting functional form. This procedure econometrically duplicates the information acquired by agents in the market, on the basis of which they make their decisions. As a second step, the implicit marginal prices must be calculated, $\frac{\boldsymbol{\partial P_{ji}}}{\boldsymbol{\partial z_{ji}}} = \boldsymbol{P_j(z_{ji})}$ for each attribute and for each buyer and seller, evaluated at the numerical values of $\boldsymbol{z}$ actually bought or sold. Finally, the method consists in the estimation of marginal prices $\boldsymbol{P_j(z_{ji})}$ as endogenous variables in the second-stage simultaneous estimation of demand and supply equations.

Market equilibrium conditions determine the set of hedonic prices, which are the implicit prices of attributes for the specific amount of each characteristic - as they are revealed to economic agents from observed prices. Rosen estimated intersections of the demand curves of different consumers with varying tastes and the supply functions of different producers with diverse technologies of production. The implicit estimated prices for quality attributes provide the implicit marginal valuation that consumers and producers place on the vector of characteristics. Considering a vector of good´s characteristics $\boldsymbol{(z_{j1}, z_{j2}, \dots z_{jn})}$

$$\text{MAX } U\ (\boldsymbol{z})$$

$$\text{subject to } \boldsymbol{P\ z} \leq K$$

where $\boldsymbol{K}$ denotes the consumer's budget constraint and $\boldsymbol{P}$ is the vector of marginal market prices the consumer is willing to pay for the $\boldsymbol{z}$ attributes. The corresponding first-order conditions for a given product $\boldsymbol{j}$ are:

$$\frac{\partial P_{ji}}{\partial z_{ji}} = P_{ji} = \frac{\partial U / \partial z_{ji}}{\partial U / \partial P_{ji}} \quad \forall i \ \forall j$$

Rosen included an analysis of the effect of budget constraints on the utility function. He affirms that, in general, there is no reason why overall quality should always increase with income. However, he finds natural trends towards market segmentation in the sense that consumers with similar value functions purchase products with similar specifications.

Both Lancaster and Rosen share the basic argument that goods are characterized by a myriad of attributes that are combined to form bundles of utility-affecting attributes. However, there are some important differences between the two authors. The Lancaster model assumes that goods can be grouped and that some or all of these goods can be consumed in combinations, subject to the consumer's budget constraint. For Lancaster, the main reason explaining consumer choice is the "love for variety", in the sense that increased variety improves his welfare. In comparison, Rosen's model assumes there is a range of goods, but a consumer typically does not acquire preferred attributes by purchasing a combination of goods. Rather, each good is chosen from the spectrum of brand and is consumed discretely. According to Rosen's model, a consumer will choose one good among others, considering its utility-bearing attributes turning the whole subject into a leading "garden-variety" maximization problem.

Another difference between both authors regards their consideration of consumers. For Lancaster, goods do not possess final consumption attributes but rather are purchased as inputs into self-production functions for their ultimate characteristics. In contrast, Rosen`s model assumes that buyers and sellers exchange information in the market; in this way producers adjust their goods to embody the final characteristics desired by customers, in order to gain returns for serving this economic functions as intermediates.

Lancaster's theory also assumes a linear relationship between the price of the goods and the characteristics contained in those goods. Implicit prices are constant over ranges of certain amounts of characteristics. They can only change when there is a change in the combination of the demanded goods. In contrast, Rosen stated that unless it is possible for consumers to arbitrage attributes by untying and repackaging them, a nonlinear relationship between the price of goods and their inherent attributes would be more probable. A nonlinear price function means that the implicit price is not a constant, but a function of the quantity of the attribute being bought and a function of the other attributes associated with the good (depending on the actual functional form of the equation).

Moreover, the understanding of the characteristic's price is also different between Lancaster and Rosen. Lancaster related the implicit price of the attribute to consumers' willingness to pay for the characteristics – a demand point of view. Instead, Rosen related the hedonic function to the supply and demand for individual characteristics, that is, "the function relates to the demand curves of consumers with heterogeneous tastes for the different combinations of characteristics in each variety, and to the corresponding supply functions for each characteristic" (Hulten, 2003, p. 7).

2. Goods' attributes selection

The notion of a good is a basic concept for the development of most economic theoretical results. However, there are lots of different commodities in the market and to define a good one has to decide which of these goods may still count as a variant of a certain good and which may not. Every variant comprises characteristics which could go further than the basic idea of that good. As sustained by Brachinger (2002, p. 5) the hedonic hypothesis allows a precise definition of a good: "a good is characterized by the set of all variants whose prices can be explained by the same set of characteristics and the same structure of a certain parametric family hedonic regression functions". The existence of this variety is actually the *raison d´être* of the price hedonic model (Hulten, 2003). This differentiation can be useful for certain purposes but it is not efficient for other analysis. When the number of underlying characteristics defining the good is small in relation to the number of goods, it is useful to consider each subtype as a set of characteristics and each good as a set of attributes' quantities. This formulation leads to a definition of product quality in terms of the amount of each attribute included.

Regarding the selection of the goods' characteristics, Lancaster and Rosen offer little detail over which characteristics need to be considered. Hedonic theory suggests that a characteristic should be included in the analysis if this characteristic influences consumer and/or producer behaviour (Malpezzi, 2002). This implicitly assumes that consumers and producers consider the same list of attributes when they value a good and this is difficult to affirm. In wine, for example, the consumer may be interested in winery reputation or information and labelling design while the seller may focus on chemical attributes or vineyard management. As Griliches affirms, these characteristics may not be desired for their own sake but rather correlated with "some more basic dimension which may be more difficult to measure" (Griliches, 1961, p. 175).

Furthermore, different consumers may base their purchasing decisions on different sets of characteristics or assign different weights to them. As most products eventually end up in private households, even though they will pass through a number of intermediate markets on their way from producer to end user, it seems logical to focus on consumers (Kotler & Keller, 2009). The value the consumer puts on the goods or services limits what everyone else can get from the value chain and this fact forces consumer-oriented strategies in most models dealing with consumers' behaviour. The hedonic model also follows this approach and considers those characteristics which could be important for consumers when making a purchasing decision. However, the criterion for ultimate variable inclusion is often quite nebulous (Andersson, 2000). It ranges from the classical techniques to its Bayesian counterpart. In most wine hedonic price models, the Bayesian model has been employed, using empirical results from previous studies as well as other theoretical and intuitive information to select the independent variables. This fact has driven some authors to criticize the hedonic price model applied to wine (Unwin, 1999).

Despite previous considerations, the misspecification of variables is frequently associated with the hedonic price model. Misspecification is the situation where an irrelevant independent variable is included (over-specification), or where a relevant independent variable (attribute of a product) is omitted (under-specification). Since the hedonic price model deals with the implicit prices of quantities of attributes of a product, the problem of misspecification of variables is inevitable. Over-specification gives estimated independent variables that are both unbiased and consistent but inefficient because of the inclusion of the irrelevant variable, whereas under-specification results in estimated coefficients that are both biased and inconsistent. Measurement errors may also arise if proxy variables are used in the hedonic price model when actual data is unavailable. Consequently, the results generated will be biased and inconsistent (Burgess & Harmon, 1991).

Another difficulty when identifying variables concerns the extent to which correlations between the variables themselves influence the overall significance of the regressions. In order to overcome this problem, Unwin (1999) suggested a preliminar cluster analysis. However, no results have been obtained when using this approach, as seen in Costanigro et al. (2006).

3. Functional form

For the choice of the functional form, no restrictions are placed by the theory of hedonic prices (Stanca, 2008). There are several basic functional forms that have been applied such as linear, semi-logarithmic, logarithmic, double-logarithmic, Box-Cox transformation, among others.

Even if Rosen does not specify a particular functional relationship between the attributes and goods, he adopted the semi-logarithmic one and this has been the most widely used in empirical studies.

If assumed linear, the hedonic function is:

$$\boldsymbol{P_j = P_j\,(z_j)}$$

This function specifies the hedonic relationship or hedonic regression typical for the good $\boldsymbol{j}$.

$$\boldsymbol{P_j = B_{jo} + \ B_{j1}z_{j1} + B_{jn}z_{jn} + \varepsilon_j}$$

The hedonic weight $\boldsymbol{B_{ji}}$ is the marginal contribution of the characteristics $\boldsymbol{z_{ji}}$ to the overall price of the good $\boldsymbol{j}$. It is usually defined as the implicit price of the corresponding characteristic:

$$\boldsymbol{\frac{\partial P_j}{\partial z_{ji}} = \ B_{ji}}$$

Another functional form is the exponential one:

$$\boldsymbol{P_j = B_{jo}\prod_{i=1}^{n}\exp(B_{ji}z_{ji})}$$

or

$$\boldsymbol{\ln P_j = \ \ln B_{jo} + \sum_{i=1}^{n} B_{ji}z_{ji} + \varepsilon_j}$$

that is the semi-logarithmic function in the linear specification.

The corresponding hedonic prices are:

$$\boldsymbol{\frac{\partial P_j}{\partial z_{ji}} = \ B_{ji}P_j}$$

The coefficient $\boldsymbol{B_{ji}}$ $\boldsymbol{(i = 1, \dots, n)}$ indicates the rate at which the price increases when a given characteristic $\boldsymbol{i}$ increases.

This semi-logarithmic functional form has been widely used for hedonic price analysis due to the important advantages it offers in comparison to the linear form. The coefficients of each single variable can be interpreted as the percentage variation of the dependent variable (price) due to a unitary variation in the independent variable. Thus, the implicit price of any good's characteristics will not depend on the presence and level of the other good's characteristics. Another advantage of this functional form is the ability to reduce the risk of heteroskedasticity,

or changing variance of the error term. Latest contributions in wine hedonic pricing have reinforced the use of the semi-logarithmic functional form. In their research on Sicilian wine prices, Roma et al. (2013) compared the linear, semi-logarithmic and double logarithmic specifications and found that the semi-logarithmic was the most suitable form.

A third possible functional form is the power function:

$$\boldsymbol{P_j = B_{jo} \prod_{i=1}^{n} z_{ji}^{B_{ji}}}$$

or

$$\boldsymbol{\ln P_j = \ln B_{jo} + \sum_{i=1}^{n} B_{ji} \ln z_{ji} + \varepsilon_j}$$

that is the double-logarithmic function in the linear specification.

The corresponding hedonic prices are:

$$\boldsymbol{\frac{\partial P_j}{\partial z_{ji}} = \frac{B_{ji}}{z_{ji}} P_j}$$

In this approach, the regression coefficients can be interpreted as partial elasticities. In other words, the coefficient $\boldsymbol{B_{ji}}$ $\boldsymbol{(i = 1, \dots, n)}$ indicates the percentage price $\boldsymbol{P_j}$ increases at a certain level if the characteristic $\boldsymbol{z_{ji}}$ increases by one percent.

Another less frequent model specification is the logarithmic one:

$$\boldsymbol{P_j = B_{jo} + \sum_{i=1}^{n} B_{ji} \ln z_{ji} + \varepsilon_j}$$

The corresponding hedonic prices are:

$$\boldsymbol{\frac{\partial P_j}{\partial z_{ji}} = \frac{B_{ji}}{z_{ji}}}$$

Some other authors (Capozza, Green, & Hendershott, 1996) have proposed more flexible functional forms, such as the trans-log, the Box-Cox transformation or the quadratic Box-Cox transformation (Stanca, 2008).

The trans-log functional form is:

$$\boldsymbol{\ln P_j = B_{jo} + \sum_{i=1}^{n} B_{ji} \ln z_{ji} + \frac{1}{2} \sum_{i=1}^{n} \sum_{l=1}^{n} \gamma_{jil} \ln z_{ji} \ln z_{jl} + \varepsilon_j}$$

The Box-Cox transformation is:

$$\frac{P_j^{\theta_j} - 1}{\theta_j} = B_{jo} + \sum_{i=1}^{n} B_{ji} \frac{z_{ji}^{\lambda_j} - 1}{\lambda_j} + \varepsilon_j$$

The quadratic Box-Cox transformation is:

$$\frac{P_j^{\theta_j} - 1}{\theta_j} = B_{jo} + \sum_{i=1}^{n} B_{ji} \frac{z_{ji}^{\lambda_j} - 1}{\lambda_j} + \frac{1}{2} \sum_{i=1}^{n} \sum_{l=1}^{n} \gamma_{jil} \frac{z_{ji}^{\lambda_j} - 1}{\lambda_j} \frac{z_{jl}^{\lambda_j} - 1}{\lambda_j} + \varepsilon_j$$

Some simulated tests have been done to examine the goodness of fit of these different functional forms (Cropper, Deck, & McConnell, 1988) concluding that whether or not all attributes are observed by the researcher significantly affects the performance of functional forms. When all attributes are observed, linear and quadratic functions of Box-Cox transformed variables provide the most accurate estimates of marginal attribute prices. Instead, when certain variables are not observed (or a variable is replaced by a proxy) a simple linear hedonic price function is better. This evaluation is based on the normalized mean and standard deviation of the error criteria. Additional drawbacks of the Box-Cox functional form are analysed by Cassel and Mendelsohn (1985). The authors explain that the large number of coefficients estimated with the Box-Cox functional form reduces the accuracy of any single coefficient, leading to poor estimates of specific prices. Additionally, with this model the calculation and interpretation of implicit prices can be difficult.

Some authors (Meese & Wallace, 1991; Pace, 1993; Mason & Quigley, 1996) have undertaken a wider approach and have dealt with non-parametric specifications, allowing the data to determine the appropriate functional form of the hedonic model. However, non-parametric models are difficult to interpret, especially when many independent variables are considered. Moreover, non-parametric estimators tend to be less precise if the number of observations is small or if the number of independent variables is large (Ullah, 1988).

Attempting to overcome the weaknesses of the parametric and non-parametrical approaches, some authors have proposed semi-parametric models (Anglin & Gencay, 1996; Gencay & Yang, 1996). By incorporating some parametric information into the non-parametric form, the semi-parametric model offers an attractive trade-off between robustness to misspecification and potential efficiency (Pace, 1993). These semi-parametrical models have been largely tested for residential housing prices. For instance, Anglin and Gencay (1996) compared the predictions of a parametric model and a semi-parametric one by deriving the distribution of the predicted price and calculating the associated prediction intervals. The authors found that as a result of a smaller variance of residuals, the prediction interval for the semi-parametric model is tighter than that of the parametric one. Even if both models generated a concave function, the semi-

parametric model outperformed significantly. By analysing the out-of-sample mean squared prediction errors, Gencay and Yang (1996) confirmed that semi-parametric techniques fit the data better than the parametric specifications. The authors compared an ordinary least square regression, a Box-Cox transformation, a Wooldridge transformation and a semi-parametric regression. They found that the mean square prediction error of all parametric models was larger than the semi-parametric one, indicating greater accuracy of the semi-parametric model in terms of price predictions.

A semi-parametric partially linear model can be specified as:

$$\boldsymbol{P_j = B_{ji} z_{ji} + m\,(z_{xi}) + \varepsilon_j}$$

where $\boldsymbol{z_{ji}}$ are the independent variables incorporated in the parametric/linear part of the model and $\boldsymbol{z_{xi}}$ are the independent variables that appear in the non-parametric part of the model. The exact functional form of $\boldsymbol{m}\,(\cdot)$ is not known in the non-parametric part of the semi-parametric regression.

Table 7 Coefficient interpretation for main functional forms

FUNCTIONAL FORM	**COEFFICIENT INTERPRETATION** B_{ji}
Linear	$\boldsymbol{B_{ji}}$ indicates the marginal change of the price with respect to a change on the $\boldsymbol{z_{ji}}$-th characteristics of the good.
Semi-logarithmic	$\boldsymbol{B_{ji}}$ can be interpreted as growth rates, it indicates the rate at which the price increases at a certain level, given the characteristics $\boldsymbol{z_{ji}}$.
Double-logarithmic	$\boldsymbol{B_{ji}}$ can be interpreted as partial elasticities, it indicates the percentage price increase at a certain level if the $\boldsymbol{z_{ji}}$-th characteristic $\boldsymbol{z_{ji}}$ changes by one percent.

Source: our elaboration, based on Stanca (2008)

As defined by Stanca (2008), the parametric approach offers maximum efficiency when models are correctly specified while a non-parametric approach allows the reduction of incorrect specification but giving up efficiency. Parametric models and specifically log-linear models have been widely used in the estimation of wine hedonic prices giving further support to its application, notwithstanding the possible strengths of other approaches.

4. Dummy variables

In some cases, the independent variable which defines a quality attribute does not refer to its level but rather to its presence or absence in a certain good. If this is the case the variable $\boldsymbol{z_{ji}}$ is considered a dummy variable. In the semi-logarithmic functional specification Kennedy (1981) demonstrated that the price percentage increase due to the presence of a certain dummy attributes is biased when estimated by: $\boldsymbol{g = \exp(B_{ji}) - 1}$ as indicated by Halvorsen and Palmquist (1980).

Kennedy (1986) suggests following Goldberger (1968) and estimating a less biased estimator g:

$$\boldsymbol{g = \exp\left(B_{ji} - \frac{1}{2}\, Var(B_{ji})\right) - 1}$$

where $\boldsymbol{Var(B_{ji})}$ is the estimated variance of $\boldsymbol{B_{ji}}$.

When the interaction between two different dummy variables is considered $\boldsymbol{B_j^* = B_{jk} + B_{jd}}$, the less biased estimator of $\boldsymbol{g}$ is:

$$\boldsymbol{g = \exp\left(B_j^* - \frac{1}{2}\, Var(B_j^*)\right) - 1}$$

where $\boldsymbol{Var(B_j^*) = Var(B_{jk}) + Var(B_{jd}) + 2\, Cov\,(B_{jk}B_{jd})}$

5. Limits and solutions

Even though the hedonic model has been widely used in wine studies, some important issues have been criticized. It was Unwin (1999) who provided the first formal critique to the hedonic price techniques used to understand wines'implicit prices. He argued that the application of this model is highly problematic and that much further direct research (interview and focus group techniques) on consumers' perceptions of wine quality is required.

According to Unwin, the application of the hedonic model to the wine market seems inappropriate for various reasons. Firstly, the way data is chosen seems to be "driven primarily by the availability of data, rather than by any rigorous attempt to identify and measure optimum attribute variables" (Unwin, 1999, p. 97). Multicollinearity among variables is also addressed as a difficulty. For instance, the fact that not all grape varieties are suitable to cellar ageing limits the overall estimation. When sensory characteristics (such as colour, aroma and taste of wine) are used the problem becomes even greater. A third difficulty defined by the author is that consumers may not be aware of most variables when making a purchasing decision. A distinction is done between first time and repeat buying behaviour. Unwin focuses on the fact that many studies use sensory variables for estimating willingness to pay while first

time buyers cannot have any knowledge on the subject. For repeated purchases, instead, sensory variables could have a greater impact than the objective ones but most studies have not considered these differences. For Unwin, objective characteristics (those considered by first-time buyers) should be reduced to bottle shape, size, colour and images on labels. A final problem with data occurs when "wine quality" is addressed through expert judges. These could themselves have an important influence on price (as is the case of Robert Parker) and therefore cannot act as an independent variable. This fact entails a fundamental difficulty when using wine guides and their scores as independent variables.

These tough critiques have generated debate and Thrane (2004) finally gave a response in his paper "In Defence of the Price Hedonic Model in Wine Research". Regarding the criterion for data selection, the author agrees with Andersson (2000) in his belief that using prior information has the advantage of generating awareness on the possible impact of certain variables: "if twenty studies have estimated a negative association between variables (…) it seems reasonable to trust a hypothesis of a negative effect" (p. 295). In the case of the wine market, hedonic literature has been prolific (Estrella Orrego, Defrancesco, & Gennari, 2012) and this fact could allow new hedonic research to be based on previous studies for the selection of variables. For the multicollinearity problem, Thrane suggests using the appropriate techniques but bearing in mind that its "a fact of life that two explanatory variables (i.e. wine attributes) in real life share a high correlation" (Thrane, 2004, p. 125). The author found some difficulty when addressing the issue of consumers' awareness of variables. He partially agreed with the lack of relevance of sensory variables on first-time consumers but he treated this problem as a communication limitation of the research. In other words, Thrane suggests hedonic wine research would benefit from communicating results in non-academic settings. Some important considerations need to be done on this issue. Firstly, this view distorts the whole hedonic approach which intends to describe the equilibrium relationship between the economically relevant characteristics of a product and its price. The hedonic method does not intend to alter consumers' behaviour but rather to explain and describe it. Secondly, the first-time consumers' problem could be soften if non-sensory variables (i.e. objective variables) are included. However, repeated purchases are undoubtedly influenced by previous experience. Bearing in mind that no causal relationships should be raised for the hedonic model but rather descriptive and predictive ones (Thrane, 2004), this problem would be solved by an adequate selection of variables.

Additional comments on the validity of the hedonic model for wine have been done. The first deals with the functioning of the wine market and its price definition. In order to meet Rosen's

criterion the market should be competitive and function perfectly. Otherwise, if consumers' preferences influence the price of wine, the dependant variable would be influenced by a variable not included among the explanatory variables (misspecification error). Analysing the wine market it seems reasonable to argue that consumers' influence on wine prices is quite insignificant. Therefore, "the price of wine could in most instances be empirically modelled exclusively in terms of supply factors" (Thrane, 2004, p. 126). Another important critic deals with the link between price hedonic models and consumer behaviour. For Unwin, hedonic models are able to capture the influence of certain attributes on wine prices rather than on consumer behaviour. However, if prices included in the analysis are real sale prices, it can be assumed that the market (i.e. consumers) is willing to pay for the product's attributes, allowing conclusions on consumer behaviour and attitude towards certain variables.

Table 8 Critiques and comments to the hedonic price model for wine

CRITIQUES	COMMENTS
Criterion for data selection	Previous studies represent the basis of the analysis. Additional variables have proven not to influence wine price (e.g. alcohol content)
Multicollinearity	Appropriate techniques should be used but bearing in mind not all correlation can be avoided. Tests: Lejser, Separman, Breusch-Pagan, White
Consumers' unawareness of variables	No causal aspirations should be raised for the hedonic model but rather descriptive and predictive ones. A combination between sensory and objective variables seems to be the best choice, to assess first-time consumers as well as repeated purchases.
Wine quality assessed by jury-grades	When using data sets which include jury-grades, some qualifications need to be kept in mind when interpreting results.[10]

Source: our elaboration

[10] see Chapter for more details on data sources.

Chapter IV: Geographical Indications

1. Geographical indications: definitions and overview

Geographical indications are formally considered as intellectual property (IP) rights[11] since 1883, when the Paris Convention for the Protection of Industrial Property referred to "indications of source" and "appellations of origin" as objects of industrial property. After the conclusion of the Paris Convention numerous efforts were done for defining these two terms as well as for increasing their multilateral protection: the Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods in 1891, the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration in 1958 and the TRIPS Agreement in 1994.

For the World Intellectual Property Organization (WIPO) an indication of source can be defined as "an indication referring to a country, or to a place in that country, as being the country or place of origin of a product" (World Intellectual Property Organization (WIPO), 2003, p. 4). Under this concept, there is no legally enforceable expectation as to the quality of the product[12]. When the quality-origin nexus is further included, the concept of appellation of origin emerges. It follows that every appellation of origin is an indication of source, but not viceversa (Hughes, 2006). The Lisbon Agreement defined by Article 2 an appellation of origin as:

"the geographical denomination of a country, region, or locality, which serves to designate a product originating therein, the quality or characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors"

Together with these two terms, indications of source and appellations of origin, an increasingly diverse terminology has emerged. According to the World Trade Organization[13] (WTO) 23 distinct national definitions coexisted by 1994: denominación de origen, denominación

[11]Intellectual property rights are those given to persons over the creations of their minds. They give the creator an exclusive right over the use of his/her creation for a certain period of time. The TRIPS Agreement introduced intellectual property rules into the multilateral trading system for the first time in the Uruguay Round of 1986-94. Intellectual property rights can be divided into two main types: (a) copyright and rights related to copyright and (b) industrial property. The former refers to rights of authors of literary and artistic works while the latter refers to the protection of distinctive signs, patents, lay-out designs, and trade secrets, among others. Trademarks and geographical indications are included among this latter type of intellectual property.

[12]The meaning of quality is at least vague and in permanent change. For the European Union it was at first a matter of objectively measured characteristics, then a reputation fact, an evocative issue and later on a matter of consumers needs' satisfaction (Ferrari & Izzo, 2012).

[13]Review under Article 24.2 of The Application of the Provisions of the Section of the Trips Agreement on Geographical Indications. Annex B Special Definitions of IGOs

específica, quality wines produced in specified regions, viticultural areas, appellation d'origine contrôlée, indication de provenance, geographical indication, protected geographical origin, recognised geographical origin, among others. These concepts "were developed in accordance with different national legal traditions and within a framework of specific historical and economic conditions" (WIPO, 2003)

It was the TRIPS Agreement, negotiated at the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994, which defined the current framework for international protection of GIs, including its precise definition (Article 22):

> *"indications which identify a good originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin"*

Accordingly, all products labelled with a GI must have a specific link between the place of production and the product's quality, characteristics or reputation.

In most regulations, the main exception to the protection of GIs is for those names considered generic. If a term has become 'customary' for the product in a country it cannot be granted GI status in its territory. However, differences arise between countries as there is no international list of generic names. When a producer group attempts to register such names, the corresponding court must show that consumers do not associate the name to a specific geographical area but rather consider it as the product category.

The reasons explaining the surge and recent increase of origin-labelled products and specially GI products around the world are various. Firstly, in developed countries income has risen strongly increasing consumers' concerns about food quality, safety and traceability. The desire for variety has also grown together with a higher demand on high-quality and regional specialty products. Secondly, there is a pattern change in agricultural policy leading to great support to food quality standards. All these have fuelled the interest in GIs for agricultural products (Herrmann & Teuber, 2011).

According to the *Guide to Geographical Indications* from the International Trade Center there are currently more than 10.000 protected GIs in the world, 90% from the developed countries and only 10% from developing countries (Table 9). The estimated trade value of these GIs was more than US$ 50 billion in mid 2000s. The European Union has the greatest number of GIs in the world, most of them being wines and spirits. The market value for French GI products is estimated in €19 billion, almost 10% of the national food market's total value. Italian GIs

generate a value of some €12 billion while Spanish GIs generate approximately €3.5 billion (International Trade Center (ITC), 2009).

Table 9 Number of PDOs and PGIs products in elected countries

COUNTRY OR GROUP	Wines		Food and foodstuff	Legislation
	PGIs	PDOs	PGIs & PDOs	
European Union	537	1,340	1,4390	EU 1151/2012
Italy	135	502	296	
France	135	395	246	
Spain	45	100	206	
Greece	117	33	107	
United States	830		80	Lanham Trademark Act of 1946
Chile	-	80	2	National Law 19.996
Argentina	86	2	2	National Law 25.163

Source: our elaboration based on E-Bacchus, Door, INV, ITC 2009 (up-dated November 2013)

GI registration and protection may be done in many different forms: formal sui generis systems, trademarks, certification marks and collective marks. In many cases, GIs are protected in one country but not in another or the scope of protection is different from one country to another. For example, Marsala and Champagne are protected in the European Union but not in the United States as these designations have been considered generic by the US Alcohol and Tobacco Tax and Trade Bureau.

2. Geographical indications as collective intellectual property rights and their governance

In their juridical nature, protected GIs are intellectual property rights and they specifically integrate the industrial property rights body of law (World Intellectual Property Organization (WIPO), 2008). These distinctive signs are based on a product-quality-origin links which are the result of local communities' actions over a long period. This entails a heritage-cultural dimension of the product which cannot be privately owned or transferred. The product-quality-origin link may lead to high reputation, distinguishing producers and products from others. Therefore, no single person has the exclusive authority to determine how these resources are used but is the whole community who "owns" the GI. This community is entitled to confer the right of exclusive use of the PGI to those producers who comply with a defined code of practice and are located within the demarcated region. In this way, PGIs transform the resources (traditional knowledge or natural resources) that give rise to the product's specific quality or reputation into a collective intellectual property (Tregear, Arfini, Belletti, &

Marescotti, 2004). Even if this collective property right belongs to the local community it's producers' groups, organizations or associations that *hold* the right.

As a collective property right, European GI legislation does not provide for the right to license and the product-quality-origin link bans transferring the indication to producers outside the defined region (World Intellectual Property Organization (WIPO), 2012). Verification of compliance with the product specification by the competent authorities (Art. 37 EU 1151/2012) protects this collective property right from usurpation by competitors, thus operating as an exclusion mechanism (Bramley, 2011).

In terms of type of good, following the neoclassical approach, GIs can be considered as club goods (Thiedig & Sylvander, 2000; Torre, 2002) characterized by partial non-rivalry and excludability. The first attribute refers to the fact that the use of the indication by one agent does not reduce the opportunity of use by other agents. The excludability attribute refers to the need for producers to respect certain specifications (code of practice) to be allowed to use the protected GI. Sometimes, this excludability characteristic goes beyond the specific PGI product. France, for example, passed a law on July 2nd 1990 for protecting Appellation d'origine contrôlée (AOC)'s reputation by limiting the use of the geographical name to any product where such use is likely to misappropriate or weaken the reputation of an Appellation d'Origin. This regulation derived in the Comité of Champagne and the Institute national de l'origine et de la qualité's victory in their case against Yves Saint Laurent launch of a perfume called "Champagne". It is this general exclusion mechanism that basically prevents GIs as being considered a pure public good[14]. Instead, GIs "can be considered a public good *only* for the respective residents and stakeholders" (ITC, 2009, p. xi).

Their classification as club goods also means that its use is derived from a voluntary process driven by members' foreseeing that the benefits of belonging to the club are bigger than the losses from remaining out. As described by Torre for the French AOC system "the appellation is a matter of choice and that no one is forced to join against his will. Membership is based exclusively on voluntary participation" (2002, p. 46). However, these foreseen benefits are not absolutely clear or defined as they depend on the entire group actions, generating uncertainty to possible new entrants. Another characteristic of club goods is the high frequency of occurrence of congestion problems. These occur when club goods enjoy great success or when the particular governance system is not adequately managed. At a sectoral level too many PGIs can erode consumers' trust in PGI's better quality. At an individual level, it is possible that

[14] A public good is a good whose consumption does not reduce the quantity available to others, is non-subtractable and its difficult to exclude potential users (McKean, 2000)

wines with completely different quality levels are sold under the same designation deteriorating the image of the GI. This in turn can derive in quality drop and consequently in a loss of interest from quality producers to be part of the PGI system (Torre, 2002).

Geographical indications are, by definition, directly tied to territory (Allaire & Sylvander, 1997). As territory -as a social construction and as a source of reputation- is a common resources, its management its subject to the "*Tragedy of the Commons"* that describes how users can get "locked into a destructive pattern of competition" if they are left by their own managing common resources (Christy , Field, Leal, Schlager, & De Alesso, 1998, p. 2). Under this scenario, each actor maximizes its short term welfare, free-riding on others reputation for example, bringing the ruin for all (Hardin, 1968). If no cooperation is possible among actors, the solution to the tragedy of the commons derives from turning management to the government or privatizing the commons. However, as sustained by Runge and Defrancesco (2006, p. 1717) "the fact that many common property regimes do survive and prosper (..) suggests an alternative paradigm" in which individuals can cooperate for designing and implementing its own collective management system for the common resources. In *Governing the Commons,* Ostrom (1990) describes the factors that characterize successful experiences in collective managing common resources. These factors include: (i) clearly defined group boundaries, (ii) rules governing the use of collective goods well matched to local needs and conditions, (iii) participation of most individuals affected by these rules in modifications to the rules, (iv) respect by external authorities of the rights of community members to devise their own rules, (v) a system for monitoring member's behaviour, (vi) a use of graduated system of sanctions. These features have been identified in some cases of long dating successful common property institutions (Runge & Defrancesco, 2005) and most of them have been incorporated into the GI legislations worldwide, as indicators of good governance.

Specifically in terms of management of GIs, collective organizations play a fundamental role. Even if the TRIPS Agreement does not mention collective organization as a prerequisite for GIs, the vast European experience suggest collective organizations are an essential actor for GIs' management. These entities must be able to maintain common vision, align practices, prevent opportunistic behaviours, inform consumers about the special quality of their products, among others. In doing so the collective organization needs to create added value, obtaining price premium for the producers' goods. The fact that most resources still remain as producers' private property defines a sensible situation as they must commit resources for a collective purpose. This partially explains why a collective organization for a GI cannot be imposed by policy makers but it should rather emerge as a desire/need of producers. The role of the

government is, instead, to establish the legal framework for GI protection and the incentives to move towards it (Nazzaro, Marotta, & Pascucci, 2012). There are many reasons that explain why producers engage in collective organizations. The expected economic benefit is for sure the main driver. Small and medium farmers have realized by now that selling standardized quality products at lower price is not sustainable (cost leadership strategy). As many of these producers are characterized by producing good quality, traditional and typical products they see in collective action the possibility of better negotiating a price premai at the consumer-level. As sustained by Reviron, Thevenod-Mottet and El Benni (2009) GI organizations can create and distribute added value among producers if they manage to efficiently implement a marketing strategy and have a good organizational performance. Social and identity expectations also push producers to engage in a GI collective organization. Many farmers are willing to preserve and enhance their home-rural territory, their values and their cultural identity while maintaining their quality of life. Common social values constitute the cornerstone of collective organization and should remain strong and active during the whole life cycle of the organization. The creation of a collective organization (and any political or economic institution) is also the result of the need of agents to coordinate expectations (Runge C. , 1984). A collective organization can give assurance to its members on the behaviour of other members, reducing uncertainty and giving incentives to participate in the collective approach.

The following step, once local stakeholders have gained awareness of the potentiality of the product and decided to protect the GI, is to focus on the governance system. If the governance system is adequate it will enhance producers' performance, protecting collective reputation whereas if the governance system is fragile the GI's reputation could be jeopardized. As stated by Skilton and Wu the "effectiveness of PGI systems depends to a large extent on the formal governance regimes deployed to control them" (2013, p. 145). Barjolles, Chappuis and Sylvander (1998) propose a four scale frame for analysing types of governance systems for AOCs: pure sectorial governance, sectorial governance, weak territorial governance and strong territorial governance (Table 10). Even if territorial governance conforms the best for GIs, for the intrinsic relationship between GI and territory, some GIs seem to operate with sectorial governance regimes (Café de Colombia PGI, as reported by Skilton & Wu, 2013).

Table 10 Four types of AOC systems

	Pure sectorial governance	AOC sectorial governance	Weak Territorial Governance	Strong Territorial Governance
Objectives	Contradictory objectives: market share, profits, cannibalism	Product valorisation, better if located in the AOC region	Maintain or develop a local activity	Maintain or develop a local activity
Coherence between means and objectives	Absent	Strong	Weak	Strong
Management of diversity	Individual, scarce diversity	Individual, vast diversity	Individual , vast diversity	Collective, vast diversity
Management of quality	More individual than collective	More individual than collective	Collective, weak encouragement of quality	Collective, strong encouragement of quality
Management of production	Non-existent	Diverse use of raw materials	Non-existent	Collective
Management of promotion	More individual than collective	Individual	Collective, scarce resources	Collective, vast resources
Research & Development	Strong coordination sutained by public policies	Weak	Weak	Collective, important support of public policies
Economic coordination	Weak	Strong and not formalized	Weak	Strong and formalized

Source: Barjolles et al. (1998)

Territorial governance is defined as the cooperation among agents in a productive network in a delimited area[15] (Perrier-Cornet & Sylvander, 2000) and it's what makes possible for territories to operate as collective actors (Davoudi, Evans, Governa, & Santangelo, 2008), defining objectives, values, actions and rules of cooperation (Chia, Torre, & Rey-Valette, 2008). Territorial governance is therefore the capacity to integrate different social groups with specific territorial interests for a shared strategy towards main external actors: markets, the State, other cities and regions and the government (Le Galès, 2002). Underlying this concept, is the notion of social territory as an immaterial and symbolic phenomenon where physical and biological elements are only considered as belonging to the territory when they have been subject to a symbolizing and dematerializing process. The social construction, cultural labelling and institutional regulation are part of this complex phenomenon (Tizon, 1996).

[15] This concept extends the classical concept of Williamson (2000) who defined governance as 'an effort to craft order, thereby to mitigate conflict and realize mutual gains' more restrictive to intermediate agents acting between companies and the market.

According to Davoudi et al. (2008) the main descriptive characteristics of territorial governance are:

- achieve consensus on common objectives and tasks;
- define the contribution of each partner to attain the defined objectives;
- agree on a common vision for the future of their territory.

The main objective of this territorial governance is to maintain and develop the activities in the delimited area. This entails introducing norms not only dealing with the production process (product definition, code of practice, marketing) but also dealing with the protection of the territory (eg. rigorous selection of suppliers location in the area, touristic services). Moreover, territorial governance implies that the corresponding local community must get involved in the definition and execution of common tasks.

Even if there is no prescription on the operative way of implementing a successful territorial governance regime, European experience strongly suggests the constitution of inter-professional associations (Reviron & Chappuis, 2011; Perrier-Cornet & Sylvander, 2000). Originally developed in France, an inter-professional association is a multi-level private organization, recognized by the State that brings together upstream and downstream partners from the same product chain in order to ensure that the common objectives are reached. The multi-level nature of the organization implies that the emphasis of the organization is not placed on power distribution or hierarchical order but rather on the interdependence among levels and actor sharing resources and skills (Mantino, 2009). The goals of inter-professional associations in Europe have changed over time moving from market regulation, contractual relation and information provision to quality assurance; export and consumption promotion; research and development; food security and traceability (Langreo, 2002). According to Coronel and Liagre (2006) and Zoma (2006) inter-professional associations should follow four guiding principles for a good performance:

- They should draw their membership from organizations that represent chain participants and not from the participants themselves. For guaranteeing legitimacy these organizations must be fully representative of the stage(s) in the chain that they represent.
- There must be parity between organizations and between “professions”, with equal treatment and the same number of votes.

- Decisions must be taken by unanimity. In this way, once a decision is taken its on behalf of all the members.
- The inter-professional association operates with a subsidiarity principle. It does not work over the functions of its individual association members but rather intervenes on areas of common interest among various associations.

It is this last principle that is key for understanding the nature of GI governance. For example, the efforts done in the marketing sphere of a GI are of paramount importance in conveying a unique sense of place and quality and also in protecting the GI's reputation against usurpation. These are shared interests among all involved actors and not restrained to one part of the value chain.

Professional associations constitute an alternative regime for GI management. These organizations are composed of operators from one level of the supply chain, generally those processors of the GI product. Once these associations integrate upstream and downstream partners they become inter-professional associations.

Despite the differences between management schemes, technical and economic skills are necessary for granting a good performance. Technical skills deal mainly with the definition of the code of practice for the GI. These codes of practice allow the definition of quality levels relative to certain characteristics. These agreements are the result of a shared process of collective rules' definition which takes into account the possible range of variety of the different producers at the different productive stages (agricultural, industrial, commercial). This variability can arise from particularities of the natural resources, the producers' know how and preferences, the production facility and equipment, among others. The construction of a formalized code of practice for a group of producers is aimed at reducing this possible variability and thus assuring a consistent level of quality which is essential for building and keeping reputation. In this way, the code of practice is the result of a process of social construction of the product's identity which takes under consideration the collective tradition and historical roots (Arfini, Belletti, & Maresscotti, 2010). Generally the definition of the geographical boundaries of a GI is subject to intense negotiation, as political institutions are willing to enlarge but producers are interested in a smaller area (Montresor, Pecci, & Pontarollo, 2010). Together with technical skills, social skills are required for generating the desirable internal cohesion. Trust is key because it reduces transaction costs derived from control and supervision. Moreover, trust facilitates cooperation and enables organizations to

"adapt flexibly to unforeseen circumstances and to engage in continuous improvement and innovation" (Sako, 1998).

3. The rationale for GIs: pros and cons

The main economic rationale for GIs protection is that consumers suffer from quality uncertainty in an unregulated market (Akerlof, 1970). Asymmetrical information places the consumer in a position of weakness, not being able to optimise buying decisions. In order to tackle this asymmetry, firms are increasingly supplying information about their products via advertising, labelling, certificates, etc. Information about the origin is part of this information flow. However, a distinction must be drawn between information about the origin alone and quality-origin indications. Only if the higher quality of a product can be explained by its origin, GIs can do a lot in reducing the asymmetry of information between producer and consumer, improving market transparency. The GI label may turn an experience or credence attribute into a search attribute and therefore reduce consumers' search costs and raise welfare[16]. This argument is taken up by EU regulation, by stating that "in view of the wide variety of products marketed and the abundance of product information provided, the consumer should, in order to be able to make the best choices, be given clear and succinct information regarding the product origin" (EC 510/2006). The fact that public policy is involved in the definition and protection of GIs and controls are carried out by control bodies in some countries (an independent third party to which the competent authority has delegated certain control tasks, Art. 2.5 EC 882/2004) give an additional guarantee for consumers that the quality set forth is effectively reflected in the final product.

Additionally, producers can use GIs to convey unique characteristics that distinguish their products, partially limiting price competition. In this way, GIs act as a way to create a valuable competitive advantage which can derive in a price premium (monopolistic competition). It is not clear neither if higher production and certification costs involved in a GI could erode some of these benefits nor how these benefits are distributed among the supply chain actors (especially in the distribution stage). Moreover, it is no clear how economic reward for human creativity and dissemination of knowledge should balance (Correas, 2005 as cited by Vittori, 2010).

[16] "GIs are unlikely to be of much value in the case of search goods, where consumers can see the quality attributes without knowing the origin. Experience goods, where repeated purchases can overcome information asymmetries, are natural candidates for trademarks and GIs as these improve the information flow. For credence goods, where the consumer cannot easily ascertain the quality even by experience, GIs can also provide a valuable signal" (Josling, 2006a, p. 3)

In terms of marketing, especially when selling products in foreign markets, a GI label can improve market access, increasing its chance of sale. Moreover, GIs are aligned to the trend of increasing product and process standards in the global trade (The World Bank, 2008). The success of one GI opens a potential route for expansion to other local products as well as it does improve the place reputation.

Producers also benefit from intellectual or cultural property rights given by GIs. In this way, producers are protected against misuse by non-original producers and their collective reputation can be secured against counterfeiting. The institutional structures needed to organize a GI can also contribute to competitiveness by improving collective action and reducing transactions costs along the supply chain.

Geographical Indications can also protect culture by preserving traditional production methods (traditional knowledge), habits of consumption and cultural identity (traditional cultural expressions). The agro-ecological characteristics of a certain place can also be protected by this tool. This protection can also help prevent the delocalization of production. As a GI specifically ties a product to a territory, it is virtually impossible to capture the added value of origin products.

There can also be general positive effects for the overall economy of the producing area, derived from tourist development, prevention of rural exodus, environmental and biodiversity protection. It should be noted that the achievement of the aforementioned benefits depends on an effective implementation, protection and marketing of GIs and are not inherent benefits of implementing a GI.

In the European Union, additional agricultural and rural policy objectives are attributed to GIs. Further policy goals pursued by the protection of GI include biodiversity and cultural conservation.

An open question regards the GI protection and policies when the GIs don't really fulfil their functions. In other words, if consumers are not aware of the meaning of GIs, does the label help them take better decisions? And even more, if so many goods are marketed with GI labels, does this label convey a quality idea?

Among the main critics to GIs is the role of innovation under these schemes as excessive ties through regulations could distort investment decisions. Broude (2004) makes it clear with the case of wine-makers in Tuscany. Focusing on better access to international markets, Tuscan wine producers abandoned the prestigious *Denominazione di origine controllata e garantita* (DOCG) wine 'Chianti Classico' and introduced innovative practices. The new wine is a blend of

different varieties that do not need to be stated on the label. These wines are "the final expression of quality and skill of winemaking of a wine producer and his enologist" (Tuscany Wine, n.d.). These wines are bottled under the formally inferior 'Toscana' IGT (indicazione geografica tipica). These new wines became known as 'Super Tuscans' (as defined by Robert Parker) and overtook the Chianti Classico wines in terms of international recognition. In this case as in many others, innovation was possible when deviating from the traditional methods and not inside a GI (Hughes, 2006). Even a defensor of GIs states that "GIs are generally based on minimum levels of innovation" (Vittori, 2010).

Table 11 GIs advantages and disadvantages

ADVANTAGES

Consumers	**Producers**
Higher quality and unique products for consumers available and encouraged	Higher prices for producers
Minimizes search costs	Improved market access.
Socio-cultural valorisation	Market for differentiation and exclusivity
Producer liability more easily determined and secured (traceability)	Protection of local tradition and cultural practices
Assurance of qualities or characteristics and authenticity	Positive local externalities including better employment, rural development, governance.
	Complementary effect on other productsin region

DISADVANTAGES

Consumers	**Producers**
Exclusivity may elevate costs	Higher costs of production (adaptation to new production methods, specific raw material, control and certification fees, organizational costs, vigilance cost)
May reduce innovation	May reduce innovation
Public GI systems marginally increase public costs	Likely to require greater local governance and institutional capacity and costs (legal structure, physical boundaries, information)
May reduce competition by increasing protectionism	

Source: our elaboration

However, GIs aim to protect traditional knowledge and not necessarily “old knowledge”. As Barsh (1999) argues “what is ‘traditional’ about traditional knowledge is not its antiquity, but the way it is acquired and used. In other words, the social process of learning and sharing knowledge, which is unique to each indigenous culture, lies at the very heart of its ‘traditionality’” (p. 73). Hence, this knowledge can be old as well as new and relies strongly on adaptation (Dutfield, 2003). Under this view, innovation is not an opposite concept to traditional knowledge and GIs will do nothing but protect it, rather than threaten it.

The costs associated with the registration and employment of a GI are also critical when assessing its convenience. These costs are both at the individual and at the collective level and include producers and public authorities. Individual producers may incur in additional costs to adapt their facilities, production methods, raw material and overall organization to the specified standards. Maintaining protection through measures of vigilance in external markets can also be very expensive. For instance, the Appellation d'Origine Contrôlée of Champagne has 13 champagne information centers around the world that work to educate consumers about the uniqueness of the wines of Champagne and expand their understanding of the need to protect the Champagne name (http://www.champagne.fr). These costs are a potential hurdle to producers, particularly from developing countries (Marette, Clemens, & Babcock, 2008),

The magnitude of the aforementioned positive and negative aspects varies from product to product and from region to region. The producer-group heterogeneity and dynamic, their marketing mix, their organizational abilities, the local support and the administrative-burocratic system will dramatically influence the strength of both positive and negative aspects in the overall evaluation of GI convenience (Tregear, Arfini, Belletti, & Marescotti, 2007; Grote, 2009).

Other cautions are sustained by Josling (2006b) and Villalobos et al. (2007). These authors suggest GI protection is not always the best answer for agricultural products but the development of appropriate levels of quality, consistency of supply, credible assurance systems and organizational abilities would be more valuable. A two-step approach can therefore be defined. Firstly producers should guarantee the aforementioned conditions and only later they should embrace the GI system. However, this two-step process entails the risk of free-riding and counter-fitting in the meantime if the producers start gaining certain reputation. A way out of this dilemma could be applying for the GI protection while performing quality improvements and only use GIs as a marketing tool when consistent quality can be supplied to the market.

In all, the issue of GIs' convenience is essentially empirical and the definition and operation of an adequate governance structure is a key element for its success (Vittori, 2010). Each product and region needs to be explored individually and a cost-benefit test carried out. At an aggregate level, the convenience for producers of moving from "the flat plains of perfect competition to the foothills of monopolistic competition" (Josling, 2006a, p. 5) should be evaluated against the loss in consumers surplus due to inefficiency.

4. International protection frameworks for GIs

A number of treaties administered by the WIPO, including the Paris Convention for the Protection of Industrial Property and the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration, provide protection for GIs. In addition, within the framework of the WTO, geographical indications are protected by the TRIPS Agreement.

4.1. Paris Convention

The Paris Convention for the Protection of Industrial Property, established in 1883, was the first multilateral agreement designed to facilitate the protection of industrial property rights across national borders. This protection has as its objects patents, utility models, industrial designs, trademarks, service marks, trade names, indications of source and the repression of unfair competition.

Article 10 includes the obligation to protect indications of source against "direct or indirect use of a false indication of the source of the goods or the identity of the producer, manufacturer or merchant" and states that any false indication of a product's source of origin is to be handled in the same manner prescribed for fraud and violation of other commercial laws for products such as trademark violations (Article 9).

By virtue of Article 25, each member country (175 countries by December 2013) is responsible for adopting measures necessary to ensure the treaty's application. Until now, no enforcement measures have been defined by this convention.

4.2. Madrid Agreement

The Madrid Agreement for the Repression of False or Deceptive Indications of Source of Goods was signed in 1891. This agreement was established under Article 19 of the Paris Convention, which allows special agreements among its members. It was originally signed by 25 countries and now has 36 members (December 2013). The aspiration of the agreement was to reach beyond the false and fraudulent requirement defined by the Paris Convention and prevent false or distorting indications in any form. As defined by Article 1:

"All goods bearing a false or deceptive indication by which one of the countries to which this Agreement applies, or a place situated therein, is directly or indirectly indicated as being the country or place of origin shall be seized on importation into any of the said countries"

With the agreement, the scope of protection extended to other informative materials such as: signs, advertisements, invoices, wine lists, and business letters, among others (Article 3 bis).

The compromise at the core of the agreement, originally proposed by Portugal, is revealed in Article 4:

"The courts of each country shall decide what appellations, on account of their generic character, do not fall within the provisions of this Agreement, regional appellations concerning the source of products of the vine being, however, excluded from the reservation specified by this Article"

This agreement thus excluded viticulture products from the national courts' decisions and their designations become *de jure* preserved. M. Pelletier of France defended this special treatment for wines on the basis of wine requirement for additional human intervention. "Pelletier's reasoning is Delphic at best but implies that preventing adulteration at the stage of human involvement, possible under the guise of generic use, was the basis for the immunity of wines" (Gangjee, 2012, p. 70).

4.3. Lisbon Agreement

The Lisbon Agreement for the Protection of Appellations of Origin and their International Registration was adopted in 1958 and is administered by the International Bureau of the WIPO. It was the first major multinational treaty to address and provide a registration system for GIs. This institution keeps the International Register of Appellations of Origin. Up to December, 2013 28 countries were contracting parties members of this Agreement[17] and more than 908 AOs were registered.

While previous agreements followed a consumer-centric approach, the Lisbon agreement focused on the need to protect the economic benefits associated with a valuable reputation. The key features of the agreement were:

(a) Recognition of the Appellation of Origin (AO) as a distinct subject matter;

[17]Algeria, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Congo, Costa Rica, Cuba, Czech Republic, Democratic People's Republic of Korea, France, Gabon, Georgia, Haiti, Hungary, Iran, Israel, Italy, Mexico, Montenegro, Nicaragua, Peru, Portugal, Republic of Moldova, Serbia, Slovakia, the former Republic of Macedonia, Togo and Tunisia

(b) International registration based on prior national recognition;

(c) Consequences of registration, such as prohibition of a range of uses beyond misleading ones and the prevention of subsequent generic use after registration.

The agreement provides in Article 2 a definition of Appellation of Origin:

"the geographical name of a country, region or locality, which serves to designate a product originating therein, the quality and characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors"

Regarding protection, the regulation defines by Art. 3 that Member States are to protect appellations of origin registered at the International Bureau against any usurpation or imitation, even if the true origin of the product is stated or if the appellation is used in translated form or accompanied by terms such as "kind," "type," "make," "imitation" or the like. In order to qualify for registration at the International Bureau, an appellation of origin must be recognized and protected in the country of origin. Such recognition of the denomination must be based on the reputation of the product and protection of the appellation of origin must have been formalized by means of legislative and administrative provisions, a judicial decision or any form of registration. No specific indications are given as to how this recognition should take place in each country.

The Agreement offers enhanced protection to all products, specifically extending protection against generic GIs. Additionally, the treaty considers GIs as a superior intellectual property right, providing a two-year phase out for prior trademarks conflicting with a newly registered GI.

4.4. TRIPS Agreement

The TRIPS Agreement contains the current framework for the international protection of GIs. It was established in the Uruguay Round of the General Agreement on Tariffs and Trade and is administered by the WTO. Signed in 1994, the treaty establishes minimum standards of intellectual property protection to be adopted by each member of the WTO in their national level without any prescription of the precise nature of this protection.

The mains issues in the agreement include: GI definition; general protection for all GIs; enhanced protection for wines and spirits, relationship with trademarks, exceptions and unresolved issues.

Article 22.1 identifies the object of protection and this definition has become the basis for national legislation and protection.

"Geographical indications are, for the purposes of this Agreement, indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin"

As defined in the agreement, a good must possess any of three characteristics: (i) quality, (ii) reputation or (iii) other characteristic attributable to its geographical origin to be considered eligible for a GI.

The treaty creates a double structure system with two levels of protection: one applicable to the GIs of all products (Article 22) and one applicable to indications of wine and alcoholic beverages (Article 23).

Under Article 22, the scope of protection of all GIs consists of the following three components:

(a) Protection against use of GIs that mislead or deceive the public

(b) Protection against the use of indications that constitute unfair competition;

(c) Refusal or invalidation of trademarks that contain GIs if the trademark misleads the public.

This system is based on the risk of confusion for consumers that can be mislead by the illegitime use of GIs in conjunction with *delocalizers* such as "type", "kind", "style", etc. The extent of these *delocalizers* has raised intense debate in negotiations. For defenders of these *delocalizers*, if the true origin is specified on the label it is not a misleading practice. Opponents, however, are concerned about two types of possible harms. First, assuming the employment of *delocalizers* such as style-Champagne, would imply that the product can be reproduced anywhere with certain degree of fidelity. This would alter the conceptual basis of *terroir*. Second, the assumption that a generic term is not misleading does not always hold. Consumers' knowledge and proximity to the place could influence their decisions and a tendency of purchasers to focus on the prominent appellation could be verified (Gangjee, 2012). For all products, except wine and alcoholic beverages, if a GI does not mislead public it's not prohibited.

Regarding the relationship with trademarks, the agreement indicates that members shall *ex officio* refuse or invalidate the registration of a trademark which contains or consists of a GI, if there is a risk of misleading the public as to the true origin of the product (Art. 22.3).

For wines, an enhanced protection has been defined which is often referred to as an 'absolute' protection. As for Article 23:

a) Members shall provide the legal means for interested parties to prevent use of GIs for wines and spirits that do not originated in the place indicated by the GI "even where the true origin of the goods is indicated or the geographical indication is used in translation or accompanied by expressions such as "kind", "type", "style", "imitation" or the like.

b) Trade marks for wines and spirits which contain or consist of such GIs shall be refused or invalidated, where the trademarked goods are not from the region which the GI relates to. There is no need to establish that use of the trade mark is misleading.

c) Coexistence in the case of homonymous GIs for wines and spirits. If this is the case, with spelling and pronunciation alike, both indications are protected under the Agreement but the members must decide how they will differentiate both GIs to avoid misleading the consumer[18].

The basic difference between the two levels of protection regards disputes. For non-wine products, the GI holder must prove that the public was misled and that unfair competition resulted from its improper use. Whereas, for wine it is sufficient to prove that an indication was used for a wine not originating in the place indicated by the GI (the same is valid for the relation between GIs and trademarks).

Even if the level of protection for wine and spirits is quite rigid and can be considered as an European victory during the negotiations preceding the agreement (Ferrari, 2009), some exceptions are defined. Firstly, there is a grandfather clause by which producers can continue to use an indication if they have done so for at least 10 years preceding 1994. Second, protection cannot be guaranteed for GIs that are identical to the customary name of a grape variety. Third, GIs need to be protected at a national level before their international protection under TRIPS.

Two main issues are currently under negotiation within the WTO Doha Round: the establishment of a multilateral registry to facilitate the protection of GIs within the WTO members and the extension of Article 23 to all products beyond wine and spirits. Members are deeply divided and despite many negotiations rounds there is no agreement in sight. Those advocating extension include Bulgaria, the European Union, Guinea, India, Jamaica, Kenya,

[18] One prominent example is "Rioja", a name identifying wines coming from important wine producing regions in Spain and Argentina. After 12 years of diplomatic and legal disputes and after the decision of the Argentina's Federal Administrative Court in Buenos Airesin 2011 the Court of Appeals affirmed the district court decision in favour of the validity of the geographical indication "La Rioja Argentina" .

Madagascar, Mauritius, Morocco, Pakistan, Romania, Sri Lanka, Switzerland, Thailand, Tunisia and Turkey. Those opposing extension include Argentina, Australia, Canada, Chile, Colombia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, New Zealand, Panama, Paraguay, the Philippines, Chinese Taipei and the United States.

The former group defends a higher level of protection as a way to improve the marketing of their products by differentiating them more effectively from their competitors and they object to other countries "usurping" their terms. Moreover, they sustain that there is no reason for a discriminatory protection of products and they understand that the costs of dispute resolution process are discouraging for GI holder. The multilateral registry requested by this group relies on the very nature of a multilateral agreement, i.e. the registry would apply to all WTO member.

The latter group argues that the existing level of protection is adequate and they reject the "usurping" accusation "particularly when migrants have taken the methods of making the products and the names with them to their new homes and have been using them in good faith" (WTO). According to Evans and Blakeney (2006) the only beneficiaries of an expanded multilateral system of GI protection would be the European Union and some fast-growing emerging economies.

Table 12 International protection frameworks for GIs

TREATY	YEAR	MEMBERS	FOCUS	PROTECTION	REGISTER	GENERICNESS	WINES	DEFINITIONS
Paris Convention	1883	175	False GIs	False indication of products	No	No mention	No mention	Indication of Source: expressions or signs used to indicate that a product or service originates in a country, a region or a specific place
Madrid Agreement	1891	36	Misleading consumers	False and deceptive indications of products or in advertisement, signs, etc.	No	Prohibits generic terms for wines		
Lisbon Agreement	1958	28	Misleading consumers	Any usurpation or imitation	Yes	Prohibits generic terms for all products. Prohibits false GIs even if the true origin is indicated or if it is used with delocalizers		Appellation of Origin: the geographical denomination of a country, region, or locality, which serves to designate a product originating therein, the quality or characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors
TRIPS Agreement	1994	159[19]	Unfair competition	False or misleading or any use which constitutes an act of unfair competition	No. On debate	Prohibits generic terms for wines (regardless of whether a GI misleads the public or constitutes an act of unfair competition)		Geographical Indication: indications which identify a good originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin

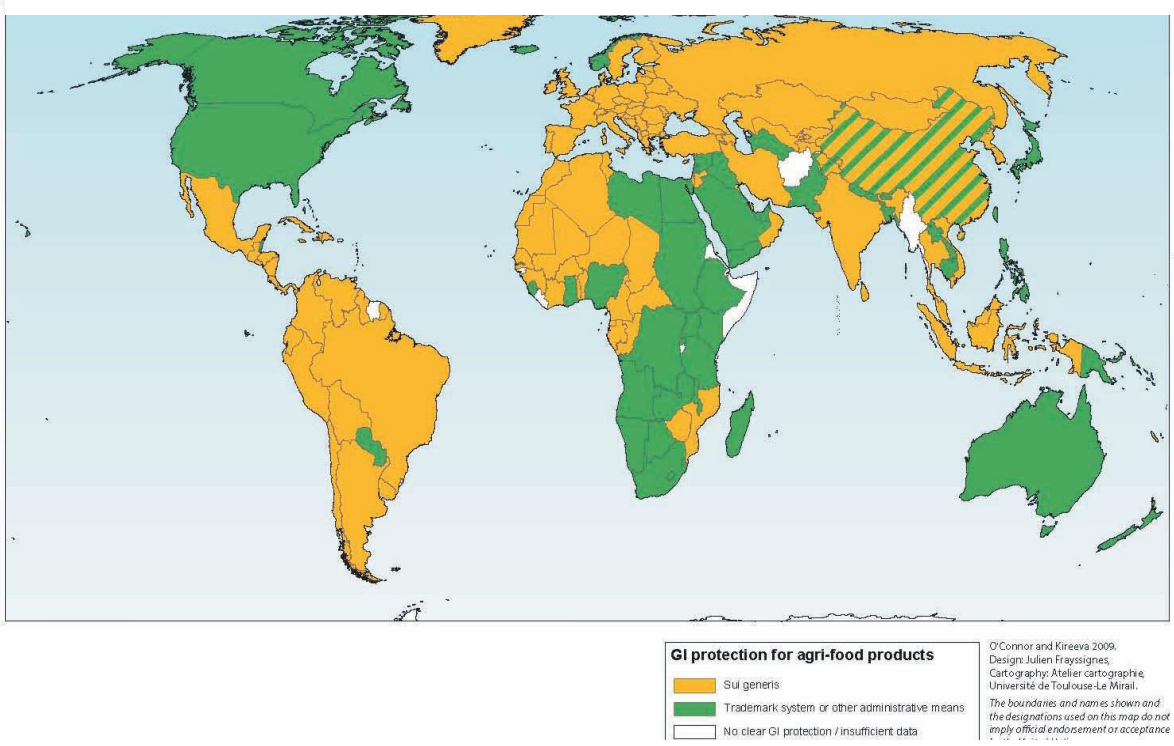
Source: our elaboration

[19] All WTO members

5. National protection frameworks for GIs

Even if the WTO members are obliged by the TRIPS agreement to provide legal means for interested parties to protect GIs, there is no particular prescription for the specific rules and resources to commit for GI protection. There are basically three categories of countries for their GI regulations (ITC, 2009). One of them protects GIs with the common trademark legislation, the second one adopts a specific *sui generis* system, especially designed for protecting GIs and a third group of countries is constituted by those neither recognizing nor preserving GIs formally. Among the 167 countries that protect GIs as a form of intellectual property, 111 (including the European Union) have specific or sui generis systems of GI protection and 56 countries (including the United States) use a trademark system. These last countries use certification marks, collective marks or trademarks to protect GIs.

Figure 1 GI protection schemes for agri-food products world-wide



Source: International Trade Center (2009)

According to Thévenod-Mottet (2006) it is possible to identify a historical trend in the recognition and protection of GIs. From permissive systems aimed at preventing and repressing misleading or unfair uses to more prescriptive systems focused on defining right holders and public enforcement. The traditional trademark system, guided by judicial decisions would be at the initial stage of protection. Whereas systems for registered GIs with detailed requirements regarding terroir-quality link would be the final step in GI protection, in terms of prescription intensity. Labelling and packaging requirements follow this same trend of prescription. In terms of enforcement, initial systems were based on judicial decisions while more recent ones work upon request of the right holder (*ex parte* protection). It should be added to this historical trend the European Union rule of *ex officio* surveillance to be carried out by each member country, who is responsible for policing and ensuring GI protection. The Republic of China, for instance, has also promulgated an *ex officio* provision for protection of GI products (O'Connor and Company. Insight Consulting, n.d.).

Figure 2 Historical trends in recognizing and protecting GIs

<table>
<tr><td colspan="7">Permissive system → Prescriptive system</td></tr>
<tr><td colspan="3">Prevention and repression of misleading or unfair use
Enforcement mainly on private initiative</td><td colspan="4">Definition of right holders and public enforcement</td></tr>
<tr><td>Individual trademarks</td><td>Collective / certification marks</td><td>Definition of GIs when a conflict occurs</td><td>Definition of GIs by regulations</td><td>Registered GIs (weak requirements on quality)</td><td>Registered GIs with general requirements on quality</td><td>Registered GIs with special requirements (tradition, terroir…)</td></tr>
<tr><td colspan="5">Freedom in labelling and packaging out of the registered figurative or verbal trademarks</td><td>Requirements on labelling</td><td>Requirements on packaging</td></tr>
<tr><td>All goods</td><td colspan="2">Wines and spirits</td><td colspan="2">Agro-food products</td><td colspan="2">All kinds of products</td></tr>
<tr><td colspan="3">Judicial decisions</td><td colspan="2">Purely administrative rules</td><td colspan="2">Initiative from producers in relation with public policies</td></tr>
</table>

Source: Thévenod-Mottet (2006)

5.1. European Union

Geographical indications in Europe have been traditionally rooted in the protection of wines and spirits and have been later developed for other agricultural products and foodstuff. It is not surprising that wines were the first to be granted protection as they were among the few products that could be transported internationally without much preservation techniques. In France, as soon as 1905 an attempt to guarantee the authenticity of products derived in a law of appellations of origin, applied not only to wine but also to mustard de Dijon, cheese from Roquefort, among

others. It was the French Wine Statute that formally created the system of Appellations d'Origine Controlées in 1935, distinguishing quality wines from ordinary table wine.

With the creation of the European Economic Community by the Treaty of Rome of 1957 and specially by the definition of a Common Agricultural Policy (Art. 39) the objective of policy harmonization was settled. It was the wine sector, by Regulation EEC 24/1962 that laid down the common market of wine and with it the first common rules regarding quality wines produced in specified regions. For agricultural products and foodstuff in general, the first attempts for approximation of the laws of the Member States can be traced to the Council Directive 79/112/EEC for labelling, presentation and advertising. According to this regulation, the place of origin of the product is a compulsory particular to be included in the product labelling whenever this absence might mislead the consumer as to the real origin of the foodstuff.

Specifically related to the protection of intellectual property rights related with origin, Council Regulation EEC 2081/92 introduced protected designations of origin (PDO) and protected geographical indications (PGI). Even if the concept of traditional speciality guaranteed (TSG) goes beyond the domain of IP, it was introduced by Regulation EEC 2082/92 as part of the quality scheme. In all, these three tools constituted the core of the European quality scheme and are aimed at encouraging agricultural diversification, protect producers from the misuse of names or imitation and help consumers in their buying decisions.

After a WTO Panel Report regarding the European GI scheme which recommended the introduction of modifications to conform with the TRIPS Agreement and an internal need for operative simplification, the European Union revised the rules governing GIs and adopted Council Regulation EC 510/2006[20]. This regulation deals with the protection of geographical indications and designations of origin for agricultural products and foodstuffs. One particular change of this piece of law refers to the possibility of third countries' producers to submit PDO/PGI requests and to present an objection to any proposed registration. Some other changes affect the application procedure, labelling, enforcement activities and control of compliance. As for labelling, previous to this regulation the inclusion of PDO or PGI or equivalent traditional national indications was voluntary (Art. 8 EEC 2081/92) and it turned to be compulsory the inclusion of PDO or PGI or their symbols. The verification of compliance with specifications was strengthened by defining that an

[20]Regulation EC 509/2006 dealing with agricultural products and foodstuffs as traditional specialties guaranteed was part of this reform.

independent third party body (competent authorities and/or control bodies) should be responsible for this task while before a private body approved by the Member State was enough. Therefore, the supervision task was generally carried out by the producer association as this fulfilled the requirements settled down by EN 45011:1998. Enforcement tasks also changed, turning into an *ex officio* protection, i.e. public authorities can intervene on their own capacity. Based on Regulation EEC 2081/92 Member States were not obliged to intervene in case of unlawful use of PDO or PGI while Regulation EC 510/2006, in its article 10, states that the Member States do have to control, taking all the necessary measures to stop the infringements of GIs.

Recently, Regulation EU 1151/2012 of the European Parliament and of the Council, introduced new modifications and replaced Regulations EC 510/2006 and EC 509/2006. The new regulation states that the specific objectives of protecting designations of origin and geographical indications are: on the producer side to secure a fair return for the qualities and characteristics of the product and, on the consumer side, to provide clear information on product characteristics linked to geographical origin. Some other modifications to the definitions of PDO, PGI and TSG were introduced to better take into account the TRIPS definitions and to simplify its contents for operators.

For the purpose of this Regulation, a designation of origin (DO) is:

"a name which identifies a product originating in a specific place, region or, in exceptional cases, a country; whose quality or characteristics are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors; and the production steps of which all take place in the defined geographical area"

Whereas, a geographical indication (GI) is :

"a name which identifies a product originating in a specific place, region or country, whose given quality, reputation or other characteristic is essentially attributable to its geographical origin; and at least one of the production steps of which take place in the defined geographical area"

For the DO the link between quality and geographical environment is essential and it is the interaction between natural factors and human ones that defines this specific geographical environment. This combination of factors, defined as *terroir*[21], defines all the product's quality

[21]The idea of *terroir* is "that the *particular geography* produces *particular* product characteristics that cannot be imitated in other regions" (Hughes, 2006)

attributes. In the case of GIs, at least one quality attribute, one characteristic or the reputation needs to be linked with a geographical area. In other words, the geographical link is much stronger for PDOs than for PGIs.

The product specification, which sets out the conditions that producers must respect, is a decisive factor in obtaining registration (Article 7). This specification must contain all technical information regarding the product, geographical area, production method, details establishing the link between quality, reputation or other characteristics and the geographical area (according to the certification required) and is the reference document for controlling that producers are complying with the rules.

Once registered, names are protected by Article 13 (1) against:

a) any direct or indirect commercial use of a registered name in respect of products not covered by the registration where those products are comparable to the products registered under that name or where using the name exploits the reputation of the protected name, including when those products are used as an ingredient;

b) any misuse, imitation or evocation, even if the true origin of the products or services is indicated or if the protected name is translated or accompanied by an expression such as 'style', 'type', 'method', 'as produced in', 'imitation' or similar, including when those products are used as an ingredient;

c) any other false or misleading indication as to the provenance, origin, nature or essential qualities of the product that is used on the inner or outer packaging, advertising material or documents relating to the product concerned, and the packing of the product in a container liable to convey a false impression as to its origin;

d) any other practice liable to mislead the consumer as to the true origin of the product.

Even if the issue of ingredients was already assessed by the Commission Communication 2010/C 341/03, it was only formally mentioned by Reg. EU 1151/2012 where the mainguidelines are stated. However, it should be noticed that the guidelines are voluntary as the precise interpretation of Reg. EU 1151/2012 is responsibility of the European Court of Justice.

Through these provisions (already included in Reg. EC 510/2006), the European Union provides enhanced protection to agricultural products, in terms of the TRIPS agreement. In other words,

the required protection for wines (Article 23 TRIPS) is applied to all agricultural products. Accordingly, the EU position in international negotiations advocates for this level of protection.

Figure 3 Community symbols for PDO and PGI

As for January 4, 2016 all EU products that are marketed under a PDO, a PGI or a TSG shall include the European Union symbols and the registered name in the same field of vision (Art. 12.3 and 23.3). The indications “protected designation of origin”, “protected geographical indication” or “traditional speciality guaranteed” or the corresponding abbreviations may appear on the labelling. In the case of third countries’ products, this specific labelling indications are voluntary. Until now, wine is excluded from this labelling provision, as wines shall be marketed whether with the PDO or PGI indication or with traditional national terms such as: AOC, DOC,DOCG, DOP, among others.

Table 13 Evolution of EU legislation on GI

	EEC 2081/92	EC 510/2006	EU 1151/2012
Application process	The Member States verify compliance to Regulation and take a decision and forward all the documents to the Commission (Art. 5.4)	The Member States verify compliance to Regulation and take a decision and forward a summary documentation to the Commission (Art. 5.4-7)	
Opposition period	6 months (Art.7) Done through the Member State	6 months (Art.7) Done directly	3 months (Art. 51) Done directly
Applicants	Group of EU producers or third countries national authorities	Group of EU producers or third countries' groups directly or through national authorities (Art. 5 par 9.2)	Group of EU producers or third countries' groups directly or through national authorities (Art. 26.1)
Labelling	Either PDO/PGI or equivalent traditional national indications **may** appear (Art.8)	Either the PDO/PGI indications or the symbols **shall** appear (Art.8)	The PDO/PGI symbols **shall** appear (Art. 12.3)
Enforcement	Inspection structure (Art. 10)	Competent authorities and/or control bodies (Art. 11 and EC 882/2004)	Competent authorities and/or control bodies (Art. 37 and EC 882/2004)
DO definition	Name of a region, a specific place or, in exceptional cases, a country, used to describe an **agricultural product or a foodstuff**: originating in that region, specific place or country; the quality or characteristics of which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors, and the **production, processing and preparation** of which take place in the defined geographical area		Name which identifies a **product**: originating in a specific place, region or, in exceptional cases, a country; whose quality or characteristics are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors; and the **production steps** of which all take place in the defined geographical area
GI definition	The name of a region, a specific place or, in exceptional cases, a country, used to describe an **agricultural product or a foodstuff**: originating in that region, specific place or country, and which possesses a specific quality, reputation or other characteristics attributable to that geographical origin, and **the production and/or processing and/or preparation**		Name which identifies a **product**:originating in a specific place, region or country; whose given quality, reputation or other characteristic is essentially attributable to its geographical origin; and at least one of the **production steps** of which take place in the defined geographical area

Source: our elaboration

WINE

The wine sector has followed its own dynamic over time, with quality regulations as early as 1962 with Regulation EEC 24/1962 laying the foundation for the common market in wine. Considering wine production constituted an important item in agricultural income and surpluses were frequent, this piece of law was aimed at adjusting supplies to requirements, specially by encouraging quality production. By Article 4 it is defined that rules regarding quality wines produced in specified regions should be based on: demarcation of the area of production; vine varieties; cultivation methods; wine-making methods; minimum natural alcoholic strength; yield per hectare and an analysis and assessment of organoleptic characteristics.

In April 1970, Regulation EEC 816/70 and EEC 817/10 laid down additional and fundamental provisions for the common organization of the market. Regulation EEC 816/70 defined market regimes for intervention and trade and regulations to control production and marketing of wine. A key added value of this regulation was laying down a set of boundaries for the wine industry by providing the definition of: wine, table wine, grape must, wine-growing zones, among others. Regulation EEC 817/70 was meant specifically to encourage the production of quality wines produced in specified regions (quality wines p.s.r.). This piece of law gives the formal definition of this wine category and the requirements that need to be fulfilled. It's the first at an European level to define the need to reserve the use of the expression "quality wine produced in a specified region" (quality wines p.s.r.) to protect producers and consumers. It also indicates that all wine that satisfies provisions for quality wine p.s.r must be sold including the expression "quality wines p.s.r" or with specific expressions traditionally used in Member states (eg. Appelation d'origine contrôlée in France or Denominazione di origine controllata in Italy). The regulation outlines that for a defined period the name of the specified region may be used only to describe a quality wine p.s.r. (period extended by Reg. EEC 338/1979 and ulterior by Reg. EEC 539/1987) and not to describe table wine.

After many regulations were passed aimed at facing the massive overproduction of the wine sector, two regulations were passed to amend the wine policy. Regulations EEC 822/87 and EEC 823/87 recognized the need to "stabilize markets and ensure a fair standard of living for the agricultural community (….) in particular through the pursuit of a policy of quality" (Preamble Reg. EEC 822/87). A special focus was done on table wines, by imposing a temporary ban on new planting and restricting the exercise of replanting rights. Regulation EEC 823/1987 laid down

additional special provisions relating to quality wines produced in specified regions, aiming at maintaining a minimum quality standard and to avoid an uncontrollable extension of production. Specifically related to beverages not covered by the wine sector (specifically 22.07 heading under Common Customs Tariff) it prohibits the use of specified regions' names or traditional specific terms if there is risk of confusion as to the nature, origin or composition, even if they are accompanied by any word such as "kind", "type", "style" or "imitation" (Art. 15.5).

An ulterior reform to the common market of wine was carried out in 1999, partially encouraged by the Uruguay Round Agreements of 1994. Regulation EC 1493/1999 was aimed at achieving a better balance between supply and demand, not only through a quality policy but also through the adaptation of wine-growing potential. Accordingly, this piece of law prohibits new plantings of both table wine and quality wine (until 31 July 2010, prorogued by EC 479/2008 until December 2015 with the possibility of Member state to maintain the limitation until December 2018). In Title VI general rules for quality wine produced in specified regions are laid down, which are later operatively regulated by Commission Regulation EC 1607/2000. Regulation EC 1493/1999 also defines the need for enhanced producers' competitiveness and emphasizes the role of producer and sectoral organizations. The former are aimed at ensuring production planning and adjustment, promoting concentration of supply, reducing productions costs and promoting environmentally sustainable practices. The latter are aimed at improving knowledge and transparency of production and the market, helping coordinate the way products are places on the market, exploiting the potential of and protecting quality labels.

The last reform (2008-2009) was aimed at ulteriorly improving producers' competitiveness, simplifying rules to achieve supply-demand balance and preserving traditions. Regulation EC 479/2008 was incorporated by Reg. EC 491/2009 into Council Regulation EC 1234/2007 and in this way the wine sector entered into the Single Common Organization of Agricultural Markets[22], therefore being subject to its provisions even if some exceptions are still present. According to Itçaina, Roger and Smith (2013) the wine reform should be understand as a modification of the hierarchy between the two policy objectives: maintaining levels of production and making European wines easier to market. The underlying assumption is that the production of quality wines is not enough for increasing sales but the focus should be on producing wines that fit the

[22] Until this reform there were 21 separate regulations establishing common market organizations for different agricultural products.

demand. The reform was defined as a two-phase process. Firstly, market balance should be reached and market intervention measures eliminated. In the second phase, starting in 2012, the focus is on strengthening competitiveness of wine producers, with a special emphasis on promotion in third-countries. Specifically regarding quality policy, the new piece of law changed the official wine categories used to segment markets and organize production. While prior to the reform there were three types of wines in the market ranked in terms of quality (table wine, table wines with geographical indication and quality wines produced in specified regions[23]), now wines are classified as being either GI wines or non-GI, with no implied assumption on their intrinsic quality. This change attempts to make table wines easier to market and, on the other hand, to encourage higher quality standards for table wines with GIs and quality wines produced in specified regions (Itçaina et al., 2013). This new administrative category of wine 'wines without GIs' can be marketed by the grape varietal and year, as much New World wine does, label previously prohibited for table wines. For PDO-PGI wines, labelling regulation defines the obligation of including the term "protected designation of origin" or "protected geographical indication" or national traditional terms such as: Denominación de origen(DO), Denominación de origen calificada (DOCa) for Spain; Appellation d'origine controlée, Vin de pays for France; Denominazione di origine controllata (D.O.C.), Denominazione di origine controllata e garanttia (D.O.C.G.), Indicazione geografica tipica (IGT) for Italy, among others (Annex XII Part A Reg. EC 607/2009). This constitutes an exception to the overall category of agricultural products and foodstuffs which shall include European Union symbols and the registered name (Art. 12.3 and 23.3 EU 1151/2012).

Other compulsory and voluntary particulars are defined for labelling (Table 14): wine (including new wine still in fermentation, wine from raisined grapes and wine of overripe grapes); liqueur wine; sparkling wine (sparkling wine; quality sparkling wine, quality aromatic sparkling wine, aerated sparkling wine, semi-sparkling wine, aerated semi-sparkling wine) and grape must (partially fermented, concentrated). Compulsory particulars shall appear in the same field of vision, as to be simultaneously readable, and they shall be presented with indelible characters and

[23]For tables wines with geographical indications, the worlds "table wine" could be replaced by: landwein, vin de pays, indicazione geografica tipica, vino de la tierra, regional wine, vinho regional, among others.
The expression "quality wines produced in specified regions" could be replaced by national designations such as : DOP, DOPG, AOC, DOC, among others.

be clearly distinguishable from any other text or graphic, with the exception of the lot number, sulphites content and importer indication.

Table 14 Compulsory and voluntary labelling particulars for wine in the EU

EC 479/2008 AND EC 607/2009			
PARTICULARS	**ARTICLE**	**GI-DO WINES**	**NO GI-DO WINES**
Category of grape vine product	Art. 59.1.a	Optional	Compulsory
The term "protected designation of origin" or "protected geographical indication" OR Registered national traditional terms such as: DOP, DOPG, AOC, DOC, DOCa	Art. 59.1.b Art. 59.2 Art. 59.3	Compulsory	-
The name of the PDO or PGI	Art. 59.1.b	Compulsory	-
Alcoholic strength by volume	Art. 59.1.c	Compulsory	
Indication of provenance (wine of, produced in, product of)	Art. 59.1.d	Compulsory	
Indication of bottler (for sparkling wine indication of producer or vendor)	Art. 59.1.e	Compulsory	
Indication of importer (for imported wines)	Art. 59.1.f	Compulsory	
Indication of sugar content (for sparkling wines)	Art. 59.1.g	Compulsory	
Vintage year	Art. 60.1.a	Optional	
Name of grape varieties	Art. 60.1.b	Optional	
Indication of sugar content (non-sparkling)	Art. 60.1.c	Optional	
Registered traditional terms such as: clásico, crianza, chateau, clos, chiaretto, riserva, oro, rubino	Art. 60.1.d	Optional	Forbidden
Community Symbol	Art. 60.1.e	Optional	-
Production methods	Art. 60.1.f	Optional	
Smaller geographical area	Art. 60.1.g	Optional	Forbidden
Specific ingredients: sulphites	Art.51.1 Reg.607/2009	Compulsory	
Pictogram for sulphites	Art.51.2 Reg.607/2009	Optional	
Lot number	Art.50.1 Reg.607/2009	Compulsory	

Source: our elaboration

Another exception for wine products regards the possibility of labelling PDO/PGI products with a smaller or larger area than the area underlying the DO or GI. This is not possible for other agricultural products based on the idea that specific geographical or human factors that define special quality characteristics should constitute a GI or DO by itself.

Compliance control of product specifications was also strengthen as a result of wine entering the Single Market Common Organization. As for Article 118.p annual verification must be ensured by the competent authorities or by control bodies, following Regulation EC 882/2004 which indicates impartiality, quality and consistency as fundamental characteristics to be pursued (Art 4.4). In terms of protection, Member States shall take the "necessary steps to stop unlawful use protected designations of origin and protected geographical indications" (Art. 118.m.4 EC 491/2009).

5.2. United States

At an international level, the United States has not signed the Madrid Agreement or the Lisbon Agreement. At a national level, there is no specific legislation for GIs protection thus falling within the field of trademarks (Trademark Act of 1946 and amended in 1988). As a general rule, a geographical indication cannot be registered as trademark, but as an exemption it can be registered as a certification mark or a collective mark[24]. Due to the specific applications requirements and intrinsic characteristics, certification marks are considered as the best alternative, under the US law, to express the link between geographical origin and quality (United States Patent and Trademark Office) and they constitute the most similar instrument to the European DOP system (Ferrari, 2013). For wines special regulations have been defined by the Bureau of Alcohol, Tobacco and Firearms (ATF).

A certification mark is any word, name, symbol, or device used by a party or parties other than the owner of the mark to certify some aspect of the thirds parties' good or services. Its purpose is to inform consumers that a specific good possesses certain characteristics and it has been examined or checked in some way by the owner[25]. The certified characteristics can be: (a) regional

[24]Only some trademarks using geographical terms are allowed if overtime consumers have come to recognize those terms as identifying the product of a particular company or group of producers.

[25]CFR, Title 37, Chapter 1, Part 2, Section 2.45: the applications to register a certification mark must: Specify the conditions under which the certification mark is used; allege that the applicant exercises legitimate control over the use of the mark; allege that the applicant is not engaged in the production or marketing of the goods or services to which the mark is applied; and include a copy of the standards that determine whether others may use the certification mark on their goods and/or in connection with their services.

or other origin; (b) material, mode of manufacture, quality or other characteristics or (c) that the work or labour on the good was performed by a member of a union or other organization. A certification mark protects GIs when it is used to certify origin. A certification mark may be used only by entities other than the owner of the mark and any entity which meet the certifying standards is entitled to use the mark. The certification mark owner controls the use of the mark to ensure that the mark is applied only to goods that meet the requirements established by the owner. In this sense, the system is self-policing as businesses and competitors are interested in raising issues in case of infringement. This defines that the government do not need to commit special resources to ensure compliance.

Specifically for the wine sector the Code of Federal Regulations (CFR) set guidelines for wine labelling and publicity (Title 27, Chapter I, Sub Chapter A, Part Four, Subpart C). Section 4.24 distinguishes three types of designations with geographical significance. Whether a specific designation is considered to be generic, semi-generic or non-generic distinctive or not is the result of the "Administrator" decision (Alcohol and Tobacco Tax and Trade Bureau).

a) Generic designation: a name of geographical significance which is a designation of a class or type of wine but has become generic even if originally it had geographical significance Examples: vermouth, sake.

b) Semi-generic designations: a name of geographic significance, which is also the designation of a class or type of wine. They may be used to designate wines of an origin other than that indicated by such name *only* if there appears in direct conjunction with an appropriate appellation of origin disclosing the true place of origin of the wine. Examples: Champagne, Chianti, Malaga. These GIs can be used if they are produced with the original method and indicating clearly on the label the area of production, eg: Californian Chianti.

c) Non generic designations: a name of geographical significance that is known to the consumer and to the trade as the designations of a specific wine of a particular place, distinguishable from all other wines. Within this category, designations can be classified into distinctive and non-distinctive. The former ones receive full protection after the presentation of a petition to the ATF with enough evidence of consumers and traders' knowledge of the distinguishable characteristics of the wine, eg. Chateu Margaux, Lacryma Christi, Asti Spumante, Barbaresco, Valpolicella, Soave, Brunello di Montalcino (Subpart

D). The latter ones, don't receive this full protection and are for example: New York State, French, Spanish .

Section 4.25 (Title 27, Chapter I, Sub Chapter A, Part Four, Subpart C). provides for the specific regulation of appellations of origin. For the American legislation, an American appellation of origin is: the United States; a State; two or no more than three States which are all contiguous; a county; two or no more than three counties in the same States; or a viticultural area. An American wine can use an appellation of origin if at least 75% of the wine is derived from grapes grown in the indicated area; be fully finished in the defined area (except for cellar treatment) and it conforms to the laws and regulations of the named appellation area governing the composition, method of manufacture, and designation of wines made in such place. All these appellations of origin must be registered at the US Patent and Trademark office as they are considered a type of trademark.

Another interesting quality scheme in the United States is the one provided by the American Viticultural Areas (AVAs). The Alcohol and Tobacco Tax and Trade Bureau (TTB) defines them as grape-growing regions having distinguishing features regarding climate, geology, soils, physical features and elevation (Alcohol and Tobacco Tax and Trade Bureau, 2012). Additionally, an AVA must include (a) a name which must be currently and directly associated to the area, (b) boundary evidence, and (c) maps and boundary description. Any individual or entity may file a petition to establish a new AVA or to modify an existing one. Regarding labelling, provisions define that a wine can be labelled with an AVA name or with a brand name that includes and AVA when at least 85% if the wine is derived from grapes grown within the area and the wine has been fully finished within the State, or one of the States, within which the labels viticultural area is located. For imported wines, labels can include a viticultural area appellation of origin if: the area has been recognised by the government of the country of origin as a delimited grape-growing/viticultural area; not less than 85% of the volume of the wine is derived from grapes grown in the labelled viticultural area; and if the wine conforms to the foreign country regulations. The TTB provides a list of authorized wine appellations for 27 countries plus the European Union Member States (Annex IV US/EU Trade in Wine Agreement).

Table 15 Compulsory and voluntary labelling particulars for wine in the USA

PARTICULARS	REGULATION	STATUS	SPECIFICATION
Brand name	4.33	Compulsory	If there is no Brand Name, the name of the bottler, packer or importer, if shown on the Brand Label, is considered the Brand Name
Varietal designation	4.23	Voluntary	Only together with an appellation of origin
Class and type of wine[26]	4.34	Compulsory	Exception: table and dessert wines. Only together with an appellation of origin
Appellation of origin	4.25	Voluntary	
Alcohol content wines more than 14	4.36	Compulsory	For wines with 7 to 14 alcohol, it can be replaced by “table wine” or “light wine”
Bottler’s name and address	4.35	Compulsory	Bottled by or packed by
Name and address of for whom the wine was bottled or packed	4.35	Voluntary	Bottled for or packed for
Indication of importer and address	4.35 (b)	Compulsory	The country of origin must be indicated
Net contents	4.37	Compulsory	If more than one litre, net contents shall be stated in litres and in decimal portions of a litre. If less than one litrr, net contents shall be stated in millilitres (ml).
Special components	4.32 (d)	Compulsory	FD&C Yellow No5; cochineal extract or carmine
Food allergens	4.32 (a)	Voluntary	Eg:Milk, egg, fish, Crustacean shellfish, tree nuts, wheat, peanuts, and soybeans, among others

[26] The class and type is the specific identity of the wine. Nine classes are listed in 27 CFR 4.21: Grape Wine (includes grape wine, table wine and dessert wine); Sparkling Grape Wine; Carbonated Grape Wine; Citrus Wine; Fruit Wine; Wine from Other Agricultural Products; Aperitif Wine; Imitation and Substandard or Other than Standard Wine; Retsina Wine.

Table 15 Compulsory and voluntary labelling particulars for wine in the USA *(Cont.)*

PARTICULARS	REGULATION	STATUS	SPECIFICATION
Health warning statement	Subchapter A. Part 16. Subpart C. Section 16.21	Compulsory	The statement shall be "GOVERNMENT WARNING: (1) According to the Surgeon General, women should not drink alcoholic beverages during pregnancy because of the risk of birth defects. (2) Consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may cause health problems"
Sulfites contents	4.32	Compulsory	If it contain 10 parts or more per million of sulfur dioxide
Estate bottled	4.26	Voluntary	Only together with a viticultural area appellation of origin
Vintage date	4.27	Voluntary	Only together with an appellation of origin smaller than a country is displayed
Type designations of varietal significance Eg: muscatel, moscato, gamay Beaujolais	4.28	Voluntary	Only together with an appellation of origin
Semi-generic designation	4.24		Only together with an appellation of origin

Source: our elaboration

Under the AVA system the distinguishable features refer only to natural conditions and there is no mention to product specification, tradition or reputation. In this way, AVA is simply an instrument indicating origin as there are neither specific production conditions nor organoleptic controls. Territory, only considered by its physical conditions, is the key element of the US normative of AVAs. If quality conditions are to be defined, a certification mark can be added to the AVA labelling. In this way, the AVA label would indicate the origin and the certification mark would indicate a certain qualitative characteristic obtained through a defined product specification.

An appellation of origin (American, New York, Napa Valley, Chilean) is required when the wine is labelled with: (a) a varietal designation, (b) a semi-generic geographical designation, (c) vintage date or (d) the phrase "estate bottled" [27].

Regarding wine labelling, the Code of Federal Regulations defines the mandatory and voluntary particulars (Table 15) for labeling and approves each specific label.

5.3. Argentina

As part of the WTO, Argentina agreed with the TRIPS Agreement which was incorporated in the national legislation on January 1995 (Law 24.425). The Paris Convention was also ratified and incorporated in the national legislation on 1958 (Law 17.011). The Madrid and Lisbon Agreement, on the other hand, have not been signed by the Argentinean government.

At a regional level, the Mercado Común del Sur (Mercosur) Commission elaborated a protocol for the harmonization of intellectual property issues, specially dealing with trademarks and GIs. However, Argentina has not yet ratified this protocol.

On a national level, there are various laws dealing with GIs. The Law on Trademarks and Denominations (Law 22.362) forbids the registration of national or foreign DOs as trademarks. As for Article 3, DOs are those used to indicate that a product originates in a country, a region or a place and its quality is due exclusively to the geographical location. The Law on Commercial Truthfulness (Law 22.802) indicates that it is prohibited to use a DO, both national or foreign, to identify a product that does not originate from the area except when a trademark has been previously registered. This law includes the genericness issue by defining the prohibition of registering geographical denominations that have become generic. The Codex Alimentarius (Law 18.284) refers, instead, to GIs and by Article 1135 forbids their use for alcoholic beverages when the product is not originated there, except when the words "style" or "kind" are included.

For food and agricultural products, excluding wine, the Law 25.380 later modified by the Law 25.966 regulates the protection of GI and DO. For wine products the law was passed in 1999, regulating the protection of DO and GI for quality wines and the protection of Origin Indication (OI) for table wines. (Law 25.163 and Decree 57/2004).

[27] There are two exceptions for this rule: for a wine labeled with a vintage date, the appellation of origin must be a state (or foreign equivalent), multi-state (U.S. wine only), county (or foreign equivalent), multi-county (U.S. wine only) or viticultural area. Whereas, for a wine labeled as "estate bottled", the appellation of origin must be a viticultural area.

The registration of Origin indication (OI) is defined exclusively for table or regional wines and can be used for wines containing at least 80% of grapes originated in the defined area.

As for Article 3, a geographical indication is:

"the name used to indicate that a product is originated in a region, in a district or in any other productive area where surface is smaller than the political provinces"

GIs are only justified if the quality and the product's characteristics are due basically to its geographical origin. For a wine to be considered from a region, the grapes must belong to the area and the production and bottling process must take place therein. Wines protected as GIs must derive from a limited list of grape varieties elaborated by the National Institute for Viticulture (INV for its initials in Spanish) and considered appropriate for high quality wines[28]. For the registration process the information that needs to be provided is:

a) Evidence of local or national awareness of the GI

b) Possibility of defining geographical limits for the GI

c) Evidence on the influence of climate, soil, altitude or other agro-ecological factors that define the specific characteristics of the wine

d) Identification of the producer or producers willingn to register a GI

e) Land registry of properties located in the GI

A designation of origin is defined in the law as:

"the name used to indicate that a product is originated in a region, district or productive area and the product's characteristics are due exclusively or essentially to its geographical origin, including natural and human factors"

Special requirements are defined for a DO. For instance, only a limited number of grape varieties can be subject to a DO[29]. Moreover, wine producers willing to register a DO must constitute a

[28] Red varieties: Malbec, Merlot, Cabernet Sauvignon, Syrah, Pinot Noir, Canari, Pinot Meunier, Tannat, LambruscoMaestri, Barbera, Sangiovese, Bonarda, Tempranillo, Cinsaut, Carignan y Petit Verdot. Rosé varieties: Gewurztraminer. White varieties: Chardonnay, Chenin, Sauvignon, Semillón, Sauvignonasse, Riesling, TorrontésRiojano, Ugni Blanc, MoscatoBianco, Pinot Bianco, Prosecco, Viognier and Pedro Gimenez.
[29] Red varieties: Malbec, Merlot, Cabernet Sauvignon, Syrah, Pinot Noir, Tannat, Barbera and Cinsaut. Rosé varieties: Gewurztraminer. White varieties: Chardonnay, Sauvignon, Semillón, Riesling, TorrontésRiojano and Pinot Bianco.

producer group, called Promotional Committee (Consejo de Promoción), which will need to submit a document including information on (art. 18 and art. 20 Law 25.163 and Res. 8/03):

- Historical background of the region
- Evidence of local or national awareness
- Geographical boundaries
- General characteristics of the region: climate and soil conditions, water resources, vine conditions, etc. that define the specific wine characteristics.
- Code of practice including:
    - Agricultural practices and wine varieties
    - Elaboration practices with minimum alcoholic content definition, ageing procedure
    - Maximum yield per hectare, grape-wine ratio
    - Chemical and organoleptic analysis of wines
    - Bottling and labelling conditions
- Identification of specific wine producers willing to register a DO
- Infringement system and sanctions

Those reports involving technical issues, especially geomorphological, hydrological and climatic issues, must be carried out by the National University of Cuyo (UNC), the National Institute for Agricultural Technology (INTA) or other institute pre-approved by the INV.

Once the Do is approved, the Promotional Committee must carry out at least the following functions (art. 21):

- Guide and control wine production using the DO
- Promote the DO
- Safeguard DO and territory prestige
- Keep up-dated registers of vineyards and wineries producing, bottling and labelling DO wines

- Define for each vintage the elaboration and ageing conditions of DO wines as well as the expected chemical and organoleptic conditions
- Issue the DO certificates and labels
- Contribute to the regional land registry
- Receive wineries' monetary contributions to the DO system
- Define and impose sanctions whenever infringement are detected

The control of DOs is carried out by a third-party organization, the INV. Specifically, the *Consejo Nacional para la Designación del origen los vinos y bebidas espirituosas de naturaleza vínica* must take all necessary actions to assure a correct use of the designations of origin, preventing any deceptive use that could mislead consumers (art. 40).

Following the TRIPS Agreement, the law includes the prohibition of using a false or deceptive registered geographical denomination even where the true origin of the goods is indicated or the GI is used in translation or accompanied by expressions such as "kind", "type", "style", "imitation" or others (Article 34.c). Ulterior protection is granted as any false or misleading information regarding geographical origin is forbidden as well as any use which constitutes an act of unfair competition. As in the Madrid Agreement, this prohibitions are aimed not only to products but also to packaging, advertisements, invoices or any other document.

Protected DOs, GIs and IOs are granted with exclusive rights and legal protection. Additionally to the use of specific abbreviations and logos identifying the GI, the producers can exhibit a certification of genuineness and quality given by the INV.

A complicated issue arises from Article 31 of Law 25.163 which defines that a winery must put forward two separate accountability, administrative and stock systems if it is willing to produce a geographically registered product (DO, IG, OI) and a regular wine (Res 22/04; Res 08/08 and Res 19/12). Certainly, this highly burocratic regulation has limited the success of the system as it entails high administrative costs for wineries.

Currently, as many as 86 PGIs and 2 PDOs coexist in Argentina. In the domestic market, the former are not widely used as most wineries choose not to indicate it on the label and therefore have obtained little consumer recognition. Whereas the latter are beginning to capture consumers' attention (PDO Luján de Cuyo and PDO San Rafael). In the international context, this system is

virtually absent, as Argentina has not signed any bilateral or multilateral agreements for GI recognition.

5.3.1. Territorial governance of the Argentinean wine industry

During the last two decades of the XX century the Argentinean wine industry suffered great changes which pushed the country from a model of table wine for the domestic market to a model of quality wine for the international market (Stein, 2008). The transition period was characterized, from a legislative point of view, by a tremendously large body of law with scarce long-term vision and the creation of various un-articulated organizations.

In terms of GIs, the Argentinean wine industry is in an initial stage of development. Despite the definition of a legal framework by the national government in 1999 (Law 25.163 previously described), the GI-related governance institutions are still very poor. In fact, there is little evidence of a shared strategy by groups from specific territories. The Promotional Committees defined for each PDO seem not to be an adequate tool for the territorial governance required by GIs. According to article 18-20 of the law, these Promotional Committees must be integrated by wine producers and eventually also by grape growers and their main task is the definition of the corresponding code of practice. As far as the law is concerned and considering the actual situation of the Promotional Committees there is no evidence that there is a common vision for the future of the territory. There are no rules or guidelines aimed specifically at the protection and enhanced appreciation of the territory and thus the role is limited to the elaboration and control of the productive code of practice.

Following the model proposed by Barjolles et al. (1998), the Argentinean GI-governance system can be considered as a weak territorial governance or rather a sectorial governance one with scarce collective action in many areas. The long-term objectives of the PDO systems in Argentina seem to be restraint to improving market access with little or no consideration of territorial issues or local community needs. The fact that Promotional Committees are exclusively integrated by wineries and that only grape growers can be additionally included, depicts their market orientation rather than a territorial scope. This uneven organizational composition drastically reduces the possible coherence between objectives and means. While the general law includes the safeguard of the DO and territory prestige as the Promotional Committees' objectives, the limited membership of all actors present in the territory makes its achievement quite a difficult task. Moreover, there is evidence of luck of coherence between the defined promotional

objectives and the means adopted. For instance, no marketing initiatives have taken place to promote PDO wines as a wine category but its rather each single winery who promotes this quality-origin link (for example: Luigi Bosca DOC, Lagarde DOC, Norton Malbec DOC, Valentin Bianchi DOC). The luck of public support for Promotional Committees in terms of funds has a decisive role in this issue. At the moment there is no public program devoted to aid Promotional Committees in their promotional activities whereas there are many incentives for individual-winery promotion, surely conditioning wineries' efforts. Even if the role of government funding can constitute an important factor for the launch and early stages of the PDO system, Barjolles and Sylvander (2000) warn about the risk of putting firms in a position of dependence. According to the authors "government backing is most useful when it contributes to a supportive framework but stops short of doing what the firms are there to do" (p. 16).

Research and development is quite an unarticulated issue in the Argentinean wine industry (Estrella Orrego M. , 2009) and the PDO organizations also suffer from this deficiency. When consulted on the frequency of interaction between wineries and scientific and research institutions, most PDO wineries indicated a partial or complete absence. Frequency of interactions with universities and research centres varies from no interaction at all up to one interaction a year.

In terms of diversity, production and quality management the actual situation of Lujan de Cuyo PDO is also weak. Codes of practices do not include standards for all stages of wine production, as requested by law, but focus mainly on the grape-growing stage. General indications are given for the elaboration process but according to wineries scarce results have been achieved. The enforcement of the defined code of practice is weak and there is no actual grading system for the product. The fact that most PDO wineries confirm shared values for the PDO system gives an indirect and fragile insight into the possible collective quality encouragement.

Table 16 Assessment of Argentinean GI-governance

		CHARACTERISTICS	DESIRABLE GI-GOVERNANCE	ARGENTINEAN GI-GOVERNANCE
		Long-term objectives	Maintain and develop activities in the defined area	Improve market access
		Coherence between means and objectives	Strong	Weak
COORDINATION DIMENSION	SAVOIR FARE	Management of diversity	Collective, strong high quality diversity High qualified workers	Individual, intermediate diversity High qualified workers in some stages of production
	NORMALIZATION	Management of quality	Collective, encouragement of quality	Individual, weak encouragement of quality
		Management of production	Collective	Collective but difficult to manage
		Management of promotion	Collective, vast resources	None
	HORIZONTAL	Research & Development	Collective, important support of public policies	None
		Economic coordination	Strong and formalized	None

Source: our elaboration based on Barjolles et al. (1998) and Allaire and Sylvander (1997).

Previous analyses and preliminary conclusions over the weakness of the GI-governance system in Argentina are strengthened when Skilton and Wu's model (2013) is applied. According to the authors, the PDO governance regimes can be defined according to the strength of producers' heterogeneity and communal controls. Both factors influence producers' coordination and commitment, to the limit of defining the PDO success or failure.

The heterogeneity of producer capabilities and interests seems to be negatively related to the level of commitment and coordination in a PGI regime. Due to the vast quantity of wineries that could potentially use the PDO Lujan de Cuyo (118 wineries located in the limited area) it is difficult to ascertain the existence of the desirable producers' homogeneity (agricultural practices, vinification techniques, among others). Under this scenario it is possible that producers with lower capabilities may divert their low quality wine into PDO system, free-riding on the PDO system and jeopardizing its reputation. Whereas, producers with high capabilities will build their own brand

within the DO (Menapace & Moschini, 2012). These risks limit the willingness of producers to commit themselves to work for a PGI system, as seen in the PDO Lujan de Cuyo experience where only ten wineries are members of the Promotional Committee (Luigi Bosca, Norton, Weinert, Cabrini, Nieto Senetiner, Lagarde, Cavas de Perdriel, Chandon, Etchart and Robino) and only four wineries are actually selling wines with a PDO label (Norton, Luigi Bosca, Nieto Senetiner and Lagarde).

Moreover, the large geographical area under the PDO Lujan de Cuyo could lead to the industrialization of its production. As seen in the Mexican PGI tequila (El Benni & Reviron, 2009; Bowen & Valenzuela Zapata, 2009), a larger area derives in undermining the exclusiveness of the product. In the tequila case, the code of practice is focused only on the productive stage and does not include the growing stage. As producers source their raw material "from across the very large, biologically heterogeneous GI region, the link between particular places and the quality and taste of tequila has been eroded" (Bowen & Valenzuela Zapata, 2009, p. 110). This enlargement of the source area without code of practises including the growing stage defines this system as a sectoral governance. In Argentina, the law for protecting PDOs request the definition of codes of practices for all stages of production, from grape growing to bottling and wine labelling. However, when consulted on the actual situation of the PDO Lujan de Cuyo code of practice, wineries indicated partial positive results mainly for the grape-growing stage. The Tequila dilemma should be avoided by these first definitions while a complete code of practice would guarantee an adequate PDO system.

Regarding common control regimes, Skilton and Wu (2013) sustain that the strength of this control has a positive but decreasing relationship with producers' coordination and commitment. In cases where there is high producers' heterogeneity, as is the case of Lujan de Cuyo, stronger common controls may reduce abuses and prevent free-riding. As for Law 25.163 controls for respect of the code of practice must be done primarily by the Promotional Committee. These entities are responsible for controlling and keeping records of vineyards and wineries' production as well as defining the productive conditions according to each year harvest. These organizations are in charge of supplying the PDO certificate, necessary document for the PDO label. The Instituto Nacional de Vitivinicultura acts as a certification entity, undertaking ulterior controls on the respect of the general law for GI production. These controls are aimed at verifying the compliance with article 31 of Law 25.163 which defines that two separate administrative and productive systems should be put in place by wineries producing PDO wine and non-PDO wine. These

stronger controls certainly reduce some abuses from free-riding but can drive strong producers out of the system rather than help them conform with the norms.

Despite the GI territorial governance current weakness, certain long-dating-successful experiences together with specific on-going initiatives can give insights into the wine industry's sensibility towards collective management of resources. For instance, the *Departamento General de Irrigación (DGI)* has survived since 1894 managing a vital common-pool resource such as water. This public self-governed institution, with a democratic and flexible nature, has promoted since the beginning a partial common-property regime. While the main water channels and dumps are managed directly by the DGI, the secondary channels are managed by a group of resource users (democratically elected) that share rights and duties towards the resource (McKean, 2000). This hybrid type of governance (Williamson, 1991) has proven sustainable and important governance lessons can been derived from it.

Specifically related to the wine industry, in 2004 the Strategic Plan for the Argentinean wine industry was created offering a a first glance on multi-level cooperation and long-term vision (Law 25.849/2004). A new inter-professional organization[30] (*Corporación Vitivinícola Argentina - COVIAR*) was created involving public and private agents of all Argentinean wine regions from different stages of the value chain. It is worth mentioning that through this Strategic Plan wineries decided to commit specific resources (a levy for each litre of wine or must and for each kilogram of grapes or raisins[31]) for the achievement of the objectives denoting a strong commitment of all members of the wine cluster. Almost ten years after its formulation, the Strategic Plan

[30] Members: 12 representatives of the private sector and 5 representatives of the public sector. The private representatives are the presidents of the following multi-level organizations: Asociación de Cooperativas Vitivinícolas Argentinas, Asociación de Viñateros de Mendoza, Bodegas de Argentina, Unión Vitivinícola Argentina, Centro de Viñateros y Bodegueros del Este, Cámara Argentina de Fabricantes y Exportadores de Mosto, Cámara de Bodegueros de San Juan, Cámara Vitivinícola de San Juan, Productores de Uvas de Mesa y Pasas, Cámara Riojana de Productores Agropecuarios, Productores Vitícolas de San Juan and one representative of the minor producing regions. The public representatives are the president of the Instituto Nacional de Vitivinicultura, the Ministery for Economy and Production of Mendoza and San Juan, the president of the Instituto Nacional de Tecnologìa Agropecuaria and a representative of the ministries of production of the minor producing regions.

[31] According to Resolution N 61/2012 of February 23rd 2012, for 2013 the levy for each litre of bulk wine or must, without concentration, was $0.011304 (U$D 0.001979). For each liter non-bulk wine with the indication of the variety the levy was $0.009531 (U$D 0.001669). For each litre of non-bulk wine with varietal indication or sparkling wine, was of $0.015611 (U$D 0.002733). For each litre of concentrated must the levy was $0.058416 (U$D 0.01023). For each kilogram of table grapes or raisins the levy was $0.009361 (U$D 0.001639).

implemented by *COVIAR* has revealed a successful governance experience with economic and social benefits for its agents. The achieved level of coordination among associations as well as internal cohesion toward external agents such as the regional and national government and foreign markets is a clear example of this success.

Wines of Argentina's experience is also an example of collaboration between private and public agents which can give interesting insights. This private entity works for "the consolidation of Argentina as one of the main wine exporting countries in the world and to the global success of the Argentine wine industry by enhancing its positive image in the wine trade, among opinion leaders and consumers". Enhancing collective reputation is naturally one of the key tasks of the organization. This entity represents 210 wineries from all the wine producing regions and daily interacts with the national and regional government for designing and implementing promotional activities. With almost 20 years of history, Wines of Argentina is nowadays present in 36 countries and more than 72 cities all over the world through different promotional actions. For doing so wineries have been able to agree on the values, images, history, and traditions that better identify them as Argentinean wine producers. Most of the organized activities include generic promotion and brands/wineries' promotion, depicting an interesting interaction of collective and private interests. Funding is basically private and the fees are based on wineries' size (export value) depicting the solidarity of the organization as most activities are financed by bigger wineries but are on the benefit of the whole group. Wines of Argentina also works frequently with a public-private organization, *Pro Mendoza,* which is integrated by the regional government, the chamber of commerce, trade unions and other multi-level organizations. This successful collective approach with special attention to private needs and intense interaction with other agents of the wine industry can certainly be a model for future initiatives and specially for a GI-governance scheme.

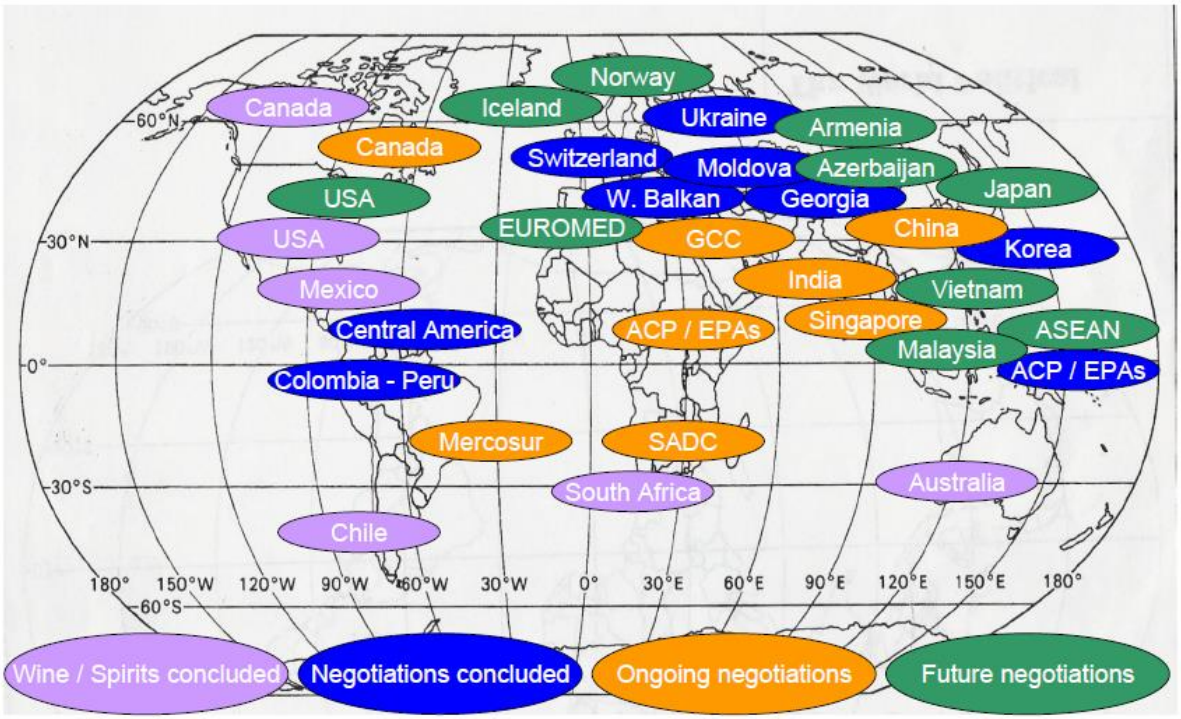
Moreover, the tourist sector, even if highly informal and with no governance regime, is an example of the economic spin-off generated by the wine industry in the two PDO areas. The larger wineries have set up museums, restaurants and tourist tours, depicting a new territorial dynamic. As sustained by Torre "the process of territorial governance is the fruit of permanent interaction between certain forces driving individuals to conflict and others driving them to cooperation" (Torre, n.d.). Permanent interaction is evident in the Argentinean wine industry but it's luck of commitment to GI systems restrains the development of an adequate territorial governance system.

5.4. Bilateral and Regional Agreements

Due to the limited effectiveness of the TRIPS Agreement in dealing with GIs issues and as an alternative option to the blocked multilateral path, many countries have chosen to sign bilateral or multilateral agreements.

When the Most Favoured Nation (MFN) principle of WTO and TRIPS is combined with bilateral agreements, as the ones to be described later, the intellectual property rights protection is enhanced and this is known as a "TRIPS Plus" protection. In this way, the GI norms globalize at a remarkable rate, going beyond multilateral agreements (Karayanidi, 2011).

Figure 4 Bilateral and multilateral agreements



Source: Clarke (2012)

In the case of wine, examples of these agreements are the agreements between the European Union and: Australia (1994), the former Yugoslav Republic of Macedonia (2001), Romania (2001), South Africa (2002), Canada (2003), United States (2005) and Chile (as part of the free trade agreement signed on 2002).

European Union- Chile Agreement

The trade agreement between the EU and Chile was signed on November 11th 2002 and entry into force on February 2003. Regarding wine, the agreement deals with customs duties elimination, intellectual property rights and oenological practices.

As for Article 60 customs duties on imports shall be eliminated in accordance to the Tariff elimination schedule of Annex I.

Harmonised System Code	Baseline Tariff	2003	2004	2005	2006	2007
2204.10 2204.21 2204.29	6%	4,8%	3,6%	2,4%	1,2%	0,0%

Source: our elaboration based on Agreement Annex I

Specifically related to GIs for wines, Article 5.1 of Annex V states that :

"The Parties shall take all necessary steps in accordance with this Agreement to ensure mutual protection of the names referred to in Article 6 and used for describing and presenting wine that, within the meaning of Article 3, originate in the Parties. To that end, each Party shall make use of the appropriate legal means referred to in Article 23 of the WTO TRIPS Agreement to ensure an effective protection and prevent geographical indications from being used to describe wine not covered by the indications or descriptions concerned".

The referred Article 6 includes a detailed list of GIs of wines originating in the countries part of the Agreement, both for quality wines produced in specified regions and for table wines. Italy has included in the agreement as much as 565 GIs, France 874 and Chile 78. Each country part of the agreement must take all necessary measures to prevent the use of such GIs for wines not originating in the designated place. This compromise extends to trade with other nations, i.e. the protected GIs cannot be used when the parties export their products to third countries

The protection explicitly includes preventing the use of these GIs even if the actual origin of the product is shown, the name is used as a translation, the name is accompanied by terms such as 'kind', 'type', 'style' or others.

Regarding traditional expressions, the Agreement includes a special list with more than 400 expressions in different languages[32] for specific types of wine that must be protected. Protection shall include the same considerations as for GIs[33]. Neither the protected GIs nor the protected traditional expressions can be used when the parties export their products to third countries (outside the agreement).

According to the agreement, tegistration of a trademark for wine which is identical or similar or contains a GI must be refused. A special list of Chilean trademarks was done including those that shall be cancelled for use (within 12 years on the internal market and five years for the export market). If any of the listed trademarks has sold less than one thousand cases of 9 litres in the 1999-2001 period, it was to be cancelled immediately at the entry into force of the Agreement.

As defined in the TRIPS Agreement and most bilateral agreements, if a GI is not registered in the country of origin the counterpart is not obliged to grant protection (Article 15).

European Union- Australia Agreement

In December 2008, Australia and the European Community signed an agreement on Trade in Wine. The Agreement came into force on 1st September 2010 and replaces the 1994 Wine Agreement.

In this agreement the main issues deal with GIs, traditional expressions, quality wine terms, labeling and oenological practices. No tariff elimination or reduction was established, neither in the first nor in the last agreement.

[32] The protection of a traditional expression or a complementary quality mention shall apply only to the language or languages in which it appears in Appendices III or IV (Article 8.4 Annex V).

[33] This comprehensive list includes so many expressions historically employed to describe wines that risks being abusive. Some Spanish expressions are: "vino dulce natural, vino generoso, vino de la tierra, clásico, crianza, gran reserva, noble, reserva, superior, añejo, denominación de origen, denominación de origen calificada, indicación geográfica"; some French expression are "grand cru, clos, chateau, primeur, appellation d'origine contrôlée, appellation controlée, appellation d'origine, vin delimite de qualite superieur"; some Italian expressions are "passito, superiore, vendemmia tardiva, premier cru, grand premier cru, denominazione di origine controllata, denominazione di origine controllate e garantita". Chile registered firstly 11 traditional expressions: denominación de origen, superior, chateau, cru bourgeois, clos, classico, reserva, reserva especial, vino generoso, clásico and grandcru. On a second step Chile registered three additional expressions: reserve privada, noble and añejo (2006/567/EC). As these traditional expressions are homonymous to the European ones protection is granted to both of them, provided the consumer is not misled as to the actual origin of the wine (Art 5.a of Annex V).

As in the case of Chile and South Africa, GI protection includes preventing their use even if the actual origin of the product is shown, the name is used as a translation, the name is accompanied by terms such as 'kind', 'type', 'style' or others (Title II Article 13.3). European GIs are listed in Annex II, Part A. Italy has included 496 GIs while France has included 491. In both cases, but specially in France, is surprising the reduced number of GIs when comparing to those protected in the Chile-EU Agreement. Australian GIs are listed in Annex II, Part B.

As for January 2010, a special authorization is given to Australian wines with certain grape vine varieties that contain or consist of a GI. These are: Alicante Boucher, Auxerrois, Barbera, Carignan, Carignance, Chardonnay, Pinot Chardonnay, Orange Muscat, Rhine Riesling, Trebbiano and Verdelho. Whereas, Lambrusco and Hermitage are only allowed to be used for wine sales outside the territory of the Community.

Registration of a trademark for wine which is identical or similar or contains GIs must be refused (Title II Article 13.5).

Regarding traditional expressions, the agreement includes a list of protected traditional expressions for European wines and quality terms for Australian wines. The former are protected in the registered language and for the specific wine category.

In the original agreement a list of sensitive European GIs and traditional expressions was defined (Beaujolis, Cava, Frascati, Sancerre, Saint-Emilion, Vino Verde, White Bourdeaux, Chianti, Frontignan, Madeira, Malaga,Chablis, Champagne, Graves, Marsala, Moselle, Oporto, Sauternes, Jerez, White Burgundy, Hock and Claret). Australian wines could use them for a transitional period, ranging from December 1993 and September 2011.

As for oenological practices, the new agreement establishes the European recognition of 16 additional winemaking techniques (Title I Article 5) and the introduction of simpler arrangements for the approval of winemaking techniques that may be developed in the future (Title I Article 6-10). Simplified labeling requirements are also established for Australian wine sold in European markets, including the possibility of displaying medals on bottles.

European Union- South Africa Agreement

In October 1999, the EU and South Africa concluded a Trade, Development and Cooperation Agreement (TDCA). This agreement governs their bilateral relations and is supplemented by four

additional agreements, including an agreement on trade in wine. This agreement was finally signed on January 2002.

The first agreement sets a calendar for tariff reduction and duty-free tariff quotas while the second one highlights the authorised oenological practices and processes, provides for reciprocal protection of GIs and traditional expressions and defines a budget for restructuring the wine and spirits sector and to ensure marketing and distribution of South African wine and spirits.

Customs duties on imports of South African wines were to be eliminated as follows:

Harmonised System Code	Baseline Tariff	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
2204.10 2204.21 2204.29	6%	6,00%	6,0%	6,0%	6,0%	6,0%	5,0%	4,0%	3,0%	2,0%	1,0%	0,0%

Source: our elaboracion based on Agreement

In the case of wine names, the agreement provides protection even if the actual origin of the product is shown, the name is used as a translation and accompanied by terms such as 'kind', 'type', 'style' or others (Article 7.3).

The agreement caters for the reciprocal protection of names and other provisions linked to the description and presentation of wine. This involves the protection of names that refer to the Member State of the Community or to South Africa as well as GIs within countries (the name 'Champagne' for example).

European Union- United States Agreement

The Agreement on Trade in Wine signed on March 10th, 2006 provides for mutual acceptance of wine-making practices, simplifies the certification requirements for US wines, limits the use of semi-generic names, mutually recognizes names of origin and addresses a number of labeling issues. However, EU acceptance of US winemaking practices and US limitation of use of semi-generic names will not take effect until the US enacts legislation to change the legal status of the semi-generic names (no changes have been implemented til December 2013[34]). These legislative changes should apply to 17 semi-generic names (Burgundy, Chablis, Champagne, Chianti, Claret,

[34]Checked on: http://www.ttb.gov/wine/itd_qas.shtml updated on 9/12/2012

Haut Sauterne, Hock, Madeira, Malaga, Marsala, Moselle, Port, Rhine, Sauterne, Sherry, Tokay and Retsina) These new rules would not apply to brands which employ these generic names before 2006 (if no changes are introduced) but will limit the use for new brands (Industry Circular 2006-1).

A mutual recognition of names of origin was agreed. An exhaustive list of names of origin was provided by each country taking part in the agreement. The European Union permits the use on US wine labels of certain traditional terms such as: chateau, classic, clos, cream, crusted, fine, noble, ruby, superior, vintage, among others.

European Union- Mercosur on-going negotiations

The EU and Mercosur signed the Interregional Framework for Cooperation Agreement in December 1995. Its objective was to create a framework for negotiations on an Interregional Association Agreement that should deal with political dialogue, enhanced forms of co-operation and trade liberalization. In June 1999 negotiations were launched at the Rio Summit.

There are three principles that govern the trade chapter:

- A region to region approach, which constitutes the basis of discussions on all regulatory areas;
- The comprehensiveness and balance of the agreement, going beyond the respective obligations in WTO. No sector should be excluded, while taking account of product sensitivities;
- The constitution of single undertaking in the agreement, implemented by the parties as an indivisible whole.

The EU – Mercosur Bi-regional Negotiation committee (BNC) is the main forum for negotiation, complemented by other institutional mechanisms such as the sub-committee on Cooperation and Technical groups on trade. The first round was held in April, 2000. Since then, a series of negotiation rounds have taken place, without successful results. In October 2004, a full proposal was analyzed and it seemed the end of negotiations. In that month, however, a trade negotiators' meeting at ministerial level decided that the offers were insufficiently ambitious, especially in agricultural and service sectors, and the negotiations were closed. In May 2010 the European Commission decided to re-launch trade negotiations with Mercosur. The eight round was held in the context of the XXIV meeting of the Bi-Regional Negotiations Committee (BNC), from 12th to

16th March 2012, in Brussels, Belgium. It was decided that the next round of negotiations will be held in Brazil in October 2012. In Brasilia negotiations were held for the political, trade and cooperation aspects of the future agreement Despite both groups' commitment to move negotiations forward, no agreement was achieved and the CELAC-EU Summit in Chile in January 2013 was defined as an opportunity to move forward. Discussion and negotiations are still taking place.

The main unresolved issues deal with the European will for more market access for its manufactured products, while Mercosur wants more concessions on EU farm subsidies and tariff barriers. Intellectual property rights is also a key issue in negotiations and different positions among Mercosur productive sectors coexist. While some sectors, like wine, could be more willing to agree on the subject, by limiting the use of EU geographical names for wines produced in Mercosur, others like the cheese sector see this initiative hard to implement. However, from the Mercosur point of view protection of the intellectual property right could be negotiated in exchange for market access of agricultural products.

6. GI trade value and consumer perception

As previously depicted, a key feature of PDO/PGI success in reducing information asymmetry is consumers' knowledge and understanding. If consumers are not aware of these quality signals there is hardly some real willingness to pay for them. If this is the case, additional costs derived from certification fail to generate an increase in sale price. This inevitably leads to producers dropping out from the certification system (European Parliament's Committee on Agriculture and Rural Development, 2011).

In the European Union this fact was assessed as early as 1987 on Regulation EEC 823/1987 which allows the use of traditional specific designations for wine and indicates that a list of them should be drawn up by Member States so that they are known.

Table 17 Evolution of PDO or PGI logos recognition and number of registered indications

COUNTRY	2008		2012	
	Awareness	Number of PDO/PGIs	Awareness	Number of PDO/PGIs
Italy	16%	167	34%	244
France	4%	157	21%	192
Portugal	12%	105	18%	116
Austria	3%	12	18%	14
Greece	54%	85	16%	96
Slovenia	8%	1	15%	12
Bulgaria	4%	0	15%	1
Spain	3%	111	14%	155
Luxembourg	7%	4	14%	4
Czech Republic	6%	12	14%	28
Slovakia	6%	1	13%	7
Latvia	5%	0	11%	0
Sweden	3%	2	10%	4
Belgium	8%	5	9%	8
Estonia	8%	0	9%	0
Cyprus	8%	1	9%	2
Poland	6%	2	9%	26
United Kingdom	3%	30	9%	41
Germany	3%	69	9%	85
Hungary	2%	1	8%	12
Ireland	7%	4	7%	4
The Netherlands	2%	6	6%	8
Malta	1%	0	6%	0
Romania	7%	0	6%	1
Lithuania	5%	0	6%	1
Finland	3%	1	5%	5
Denmark	3%	3	5%	5
EU 27	8%	779	14%	1071

Source: our elaboration based on the London Economics Report (2008)and European Commission's Special Eurobarometer 389 (2012)

In Europe, several surveys have shown a low degree of consumer awareness of PDO/PGI logos. However, a positive trend can be identified. In 2008, a survey performed by London Economics showed that only 8% of Europeans (EU-27) were aware of the PDO or PGI symbol. In 2012, a survey requested by the European Commission (European Commission. Special Eurobarometer

389) showed that 14% of consumers in EU-27 were aware of the PDO or PGI logos. In both surveys, there is substantial variation in recognition across Member States. In 2008[35] the level of recognition in Greece was surprisingly high (54%) but fell to 15.5% in 2012. In Italy the opposite situation has been verified. While in 2008 only 16% of respondents were aware of PDO or PGI symbols, by 2012 this has raised up to 34%.

Despite the high growth in PDO/PGI registration and consumer awareness of these logos, quality-origin linked products are still a niche sector. In Europe, for instance, only 2% of the 1,400 billion euro spent on food consumption, excluding alcoholic beverages, is devoted to PDO/PGI products (European Parliament's Committee on Agriculture and Rural Development, 2011).

For wine the situation is quite different, as PDO/PGI products account for high shares and show an interesting growth dynamic. According to European Commission figures, updated in February 2012, wine grape production designated to wine-making is estimated at 156.9 million hl in the 2011/2012 season: 68.6 million (44%) will have ended up as PDO wines, 33.6 million (21%) as PGI wines, 2.8 (2%) as varietal wines with neither PDO nor PGI and 51.6 million as other types of wines (33%)[36].

Italian wine exports are also a clear example of PDO/PGI growth in the international market and their success in obtaining higher prices. Total wine exports (Harmonized Commodity Description and Coding System HS 220421[37]) have increased 23% in the period 2009-2011 in terms of value while PDO wine has grown 65% and PGI wine 31%. These growth rate differences have changed the export portfolio: while in 2009 PDO/PGI wines accounted for 69% of all bottled wine exports in terms of value, in 2011 they accounted for 83%. In terms of quantity the share has also increased, raising from 73% to 79% in three years. When average prices are considered, a new strike goes for PDO/PGI wines. PDO wines were exported on average at €3.59 per litre on 2011, a 15% increase in three years. PGI wine prices are considerably lower, in 2011 they were sold at €2.15 per litre but they've experienced an increase of 17% between 2009 and 2011. Non-GI wine exports have

[35]According to the opinion of the Greek experts contributing to theLondon Economic report, it is likely that the high consumer awareness of the symbols is a result of the large coverage that theFeta case had on the press in Greece.

[36]www.winesfromspain.com/icex/cda/controller/pageGen/0,3346,1549487_6763472_6778161_0,00.html

[37]Other wine grape, must with fermentation prevented or arrested by the addition of alcohol, in containers holding 2 litres or less.

drastically diminished, 33% in terms of value and 11% in terms of volume, and they suffer the lowest price, €2.07 per litre, which has experienced a 25% reduction in three years (Table 18).

Table 18 Italian wine exports HS 220421

	2009		2010		2011		VAR € 09-11 %	VAR €/l 09-11 %
	,000 €	€/l	,000 €	€/l	,000 €	€/l		
PDO	973,645	3.13	1,487,282	3.45	1,604,440	3.59	65	15
PGI	954,211	1.83	1,111,300	2.08	1,246,426	2.15	31	17
Other PDO/PGI	4,424	2.66	6,248	2.92	10,326	3.42	133	29
TOTAL PDO/PGI	1,932,280	2.32	2,604,830	2.69	2,861,191	2.78	48	20
TOTAL NON PDO/PGI	851,195	2.78	506,717	2.07	566,925	2.07	-33	-25
TOTAL	**2,783,475**	**2.44**	**3,111,548**	**2.57**	**3,428,116**	**2.63**	**23**	**8**

Source: our elaboration based on Global Trade Atlas (GTA) database

Table 19 French wine exports HS 220421

	2009		2010		2011		VAR € 09-11 %	VAR €/l 09-11 %
	,000 €	€/l	,000 €	€/l	,000 €	€/l		
PDO	2,122,972	6.22	2,928,800	6.44	3,527,465	7.09	66	14
PGI	727,324	1.86	666,565	1.98	669,488	2.12	-8	14
Other PDO/PGI	108	5.18	17,201	4.78	20,162	4.82	18578	-7
TOTAL PDO/PGI	2,850,403	3.89	3,612,566	4.54	4,217,114	5.16	48	32
TOTAL NON PDO/PGI	676,556	6.01	352,452	2.34	356,811	2.01	-47	-67
TOTAL	**3,526,960**	**4.18**	**3,965,018**	**4.19**	**4,573,926**	**4.60**	**30**	**10**

Source: our elaboration based on GTA database

The composition and evolution of French wine exports give additional arguments to support PDO and PGI. In the 2009-2011 period total wine exports grew 30% in terms of value while PDO/PGI wines enjoyed 48% growth. The share of this quality-origin linked products increased in the same period from 81% to 92% in terms of value while their share in terms of volume reduced from 87% to 82%. Differences in terms of value and volume clearly indicate the growth in average prices, which have increased from €3.89 per litre to €5.16 per litre. PDO wines have performed especially

well, increasing the export value 66% and average price 14%. Instead, PGI exports reduced 8% but with a 14% increase in average price. Non PDO/PGI French wines show a similar behavior as the Italian one: drastic reduction in terms of value (47%) with diminishing prices (-67%).

7. Final considerations

As depicted in the aforementioned description, there are different alternatives for GI protection, from certification marks to GIs. Both share a common value in terms of generating "pressure for quality maintenance in order to retain consumer loyalty" (Hughes, 2006). All systems include an specific prohibition of registering trademarks that are primarily geographically descriptive, even if some differences exist (Ferrari, 2009). The main differences deal with the relationship defined between *terroir* and quality, the property of the conferred rights and the flexibility/rigidity of the system.

In the European system of geographical indication protection, the link between *terroir* and wine quality is clear and it must be verified in order to get protection for designations of origin or geographical indications. In the United States, there is no requirement for this origin-quality nexus nor a product specification but a detailed description of the distinguishable geographical features is enough. This difference depicts a philosophical difference: "whereas the EU system directly links GIs to certification and quality (…), the United States links GIs to property rights" (Marette, et al., 2008). The Argentinean system relies basically on the European one and therefore the link between the geographical origin and quality is defined for GI and designations of origin.

In terms of property rights, the *sui generis* system for GI protection in Europe as well as the system established in Argentina, does not consider GIs as individual property rights but rather as collective ones, i.e. the right over a geographical name does not belong to a single company or person but to all producers satisfying a defined code of practice, it is neither a transferable right nor an assignable one. "The fact they (GIs) refer to a territory implies a collective dimension which cannot be owned by single, private subjects" (Ferrari, 2009, p. 17). Whereas, in the United States, under a trademark system, certification confer certain rights of exclusivity upon its owner (a property right) such as transference of the property, merchandising design and commerce, easy change of standards. Regarding AVAs, these cannot be considered as property rights, but part of a labelling system, indicating that a certain wine is produced with a certain minimum percentage of grapes grown in the defined region (Association Internationale pour la Protection de la Propiété Intellectuelle United States, 2006).

In terms of flexibility, tools vary considerably. For instance, AVAs enjoy great flexibility basically related to the possibility of each winery of an easy and quick introduction of innovations and , new techniques. This is possible as the AVAs' definition deals primarily with geographical boundaries and are mainly defined as a marketing-labelling tool. Instead, in the European system each protected GI or DO contains an specific product specification which can only be changed after following the whole application and registration process in case of not minor amendments (Art.53 Reg EU 1151/2012). This requires first an agreement among all producers from the DO/GI and second a high degree of bureaucracy. In the Argentinean system, codes of practices that have been defined initially can be changed by the each organization, taking into account the general regulations of the wine sector.

In words of Justin Hughes "the geographical indications debate is an instantiation of the larger debate about government versus markets and about how much decision-making is given to government officials and what is left to market signals" (2006, p. 331)., Consumer satisfaction, producer welfare and rural development are key elements for an adequate empirical analysis of each model's validity and utility in present society. Specific national and regional realities need to be included in this analysis even if this could limit general definitions and legal provisions for protecting GIs. Once chosen the GI protection system, the structure and implementation are critical aspects defining its success

Consumers' awareness is critical for any chosen system of protection. Only when consumers know the meaning and scope of these quality schemes they can be willing to pay a price premium. This market based reasoning exceeds the original scope of PDO/PGI of protecting producers and preserving traditions but is now undoubtedly useful for a valid analysis. The European Union has already assessed this issue in the last reform on quality schemes for agricultural products and foodstuffs (EU 1151/2012). Therein it is stated that "*producers can only continue to produce a diverse range of quality products if they are rewarded fairly for their effort"*. This statement provides an insight into the more market oriented European policies and may be an insight into the necessary direction of WTO negotiations.

Chapter V: An Outlook Of The World Wine Market & Argentina's Performance

1. The world wine market

1.1. Vineyard area

The world's total vineyard surface area in 2011 was estimated at around 7,585 million ha and has slightly decreased over the years. Uprooting of vines in Europe has taken place faster than new planting in the New World, leading to a negative global growth rate of -3.3% between 1991 and 2011. Spain has reduced its cultivated surface by 200 thousand hectares, Italy by 118 thousand ha and France by 100 thousand hectares. Nevertheless, the European Union still accounts for a great share of total vineyard surface (38%).

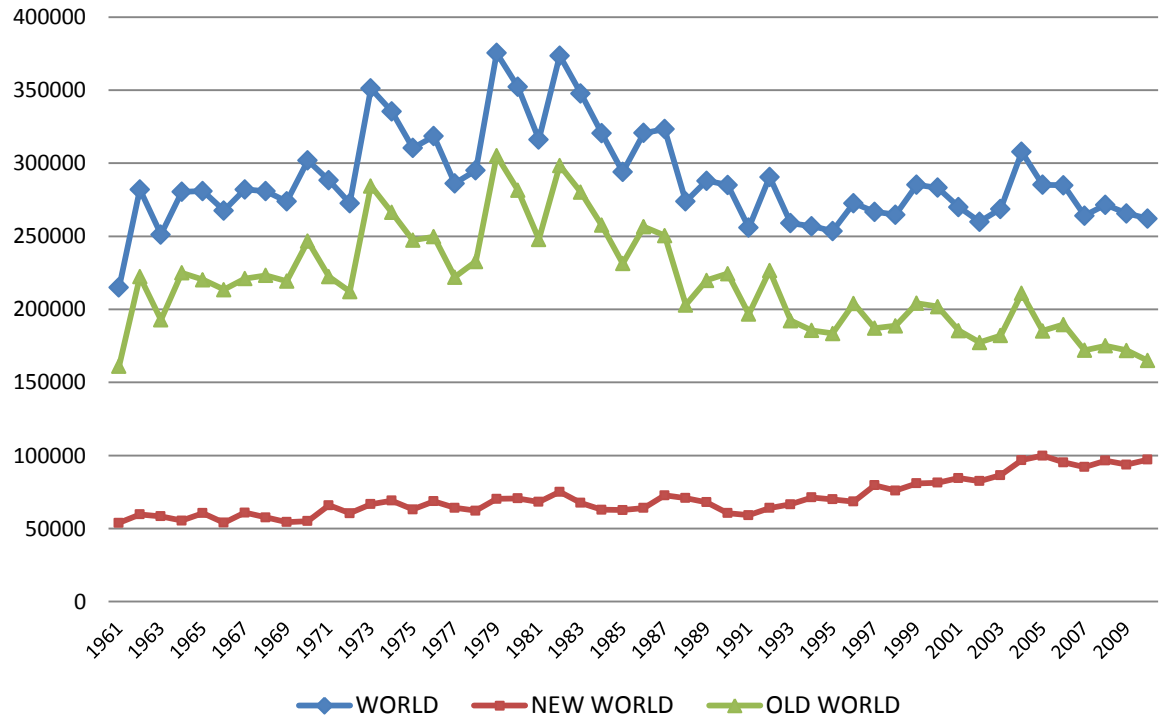
China's increase in cultivated surface has been the main issue over the period, with an average growth rate of 13% between 1991 and 2001 and 5% between 2001 and 2011. The Asian country has increased fourfold its surface reaching in 2011 more than 560 thousand hectares, almost half of the Spanish vine cultivated surface. Australia has also increased grape cultivated area, especially during the period 1991-2001. Once launched the project *Strategy 2025* (Australian Wine Foundation, 1995), Australian's surface increased more than 5 thousand hectares a year, reaching a maximum increase between 2000 and 2001 of 19,968 new wine hectares

According to the forecasts of the Food and Agriculture Organization (FAO) of the United Nations, the vineyard surface in Western Europe will continue to decrease while new plantings will be done mainly in China and also in the Southern Hemisphere and the United States.

1.2. Wine production

World wine production in 2011 stood at 265 million hectolitres. From a peak production in 1979 of 375,447 thousand hectolitres, wine production has constantly suffered a decline. Control measures implemented by the European Union through the Common Agricultural Policy (CAP) are the main reasons explaining this phenomenon. The limitation introduced by the CAP generated in the European Union a 21% decline on wine production, from 224,497 thousand hectolitres in 1990 to less than 177,589 in 2009. This decline has been partially offset by increases in wine production from New World countries, such as Australia, Chile, United States and New Zealand. Other countries, such as Argentina, have began a renovation process leading to a decline in overall production but an increase in quality.

Figure 5 Trends in world wine production - thousand hectolitres



Source: our elaboration based on Organisation Internationales de la Vigne et du Vin (OIV) and Area del Vino data

As depicted in the above figure, the role of New World countries in world wine production has increased over the years. While in 1970 only 18% of world production originated in these countries, in 2010 almost 37 % was explained by them. European countries are still leading the wine production, with France, Italy and Spain accounting for 48% in 2010. The top five producers in the world in 2011 were France (49.6 million hl), Italy (41.6 million hl), Spain (33.4 million hl), United States (18.7 million hl) and Argentina (15.5 million hl).

The main Old World producers, France and Italy, have shown a decline in production in the period 2001-2011. The Italian decrease is worth mentioning as it has meant a reduction of 8 million hl (3% of world production). China, Australia and Chile are characterized by a different trend, as they have all experienced positive growth rates in the 20 year period, especially during 1991-2001.

Table 20 Wine production in selected countries– thousand hectolitres

COUNTRY	PRODUCTION (,000 hl)			SHARE %			CAGR %		
	1991	2001	2011	1991	2001	2011	1991/01	2001/11	1991/11
FRANCE	42,669	53,389	49,633	16.7	20.1	18.7	2.5	-0.8	0.8
ITALY	59,788	49,865	41,580	23.4	18.7	15.7	-2.0	-2.0	-1.8
SPAIN	31,390	30,500	33,397	12.3	11.5	12.6	-0.3	1.0	0.3
UNITED STATES	17,218	19,200	18,740	6.7	7.2	75957.1	1.2	-0.3	0.4
ARGENTINA	14,500	15,835	15,473	5.7	6.0	5.8	1.0	-0.3	0.3
CHINA	3,000	10,800	13,000	1.2	4.1	4.9	15.3	2.1	7.6
AUSTRALIA	3,943	10,731	11,090	1.5	4.0	4.2	11.8	0.4	5.3
SOUTH AFRICA	8,017	6,471	9,665	3.1	2.4	3.6	-2.4	4.6	0.9
CHILE	2,895	5,452	10,463	1.1	2.0	3.9	7.3	7.5	6.6
OTHER COUNTRIES	72,580	63,757	61,959	28.4	24.0	23.4	-1.4	-0.3	-0.8
TOTAL	**256,000**	**266,000**	**265,000**	**100**	**100**	**100**	**0.4**	**0.0**	**0.2**

Source: our elaboration based on OIV and Area del Vino data

Note: CAGR stands for compound average growth rate

1.3. Wine consumption

The historic pattern of world wine consumption has been strongly influenced by cultural preferences, with European countries and South American countries accounting for nearly 80 % of all wine consumed in 1991. However, during the period 1990-2009 most of these countries have seen a long-term downward trend in their individual levels of consumption. Asia and North America have risen as the New World wine consumers. Even if they not yet represent a great market share, their high growth rates define their importance in the new scenario.

Table 21 Market size by regions - thousand hectolitres

REGION	2007	2009	2011	2012	VAR 2007-12 %	CAGR 2007/12 %	ABSOLUTE VAR 2007/12
WESTERN EUROPE	128,530	125,757	122,561	121,209	-5.7	-1.2	-7,321
ASIA PACIFIC	39,050	46,006	56,401	60,741	55.5	9.2	21,691
NORTH AMERICA	31,302	32,231	34,359	35,495	13.4	2.5	4,193
EASTERN EUROPE	30,795	31,404	33,370	32,888	6.8	1.3	2,093
LATIN AMERICA	20,802	20,257	19,723	19,805	-4.8	-1.	-997
MIDDLE EAST AND AFRICA	8,287	8,735	9,193	9,602	15.9	3.0	1,315
AUSTRALASIA	5,778	6,225	6,318	6,442	11.5	2.2	664
TOTAL	**264,543**	**270,615**	**281,924**	**286,182**	**8.2**	**1.6**	**21,639**

Source: our elaboration based on Euromonitor data

In terms of litres per capita, Old World countries still enjoy the highest levels of consumption. Luxembourg, Portugal, Italy and France are in the top four ranking. Most traditionally wine consumer countries show negative growing rates in the period 2007-2012 whereas most Asian countries, Canada and the United States have experienced interesting growing rates.

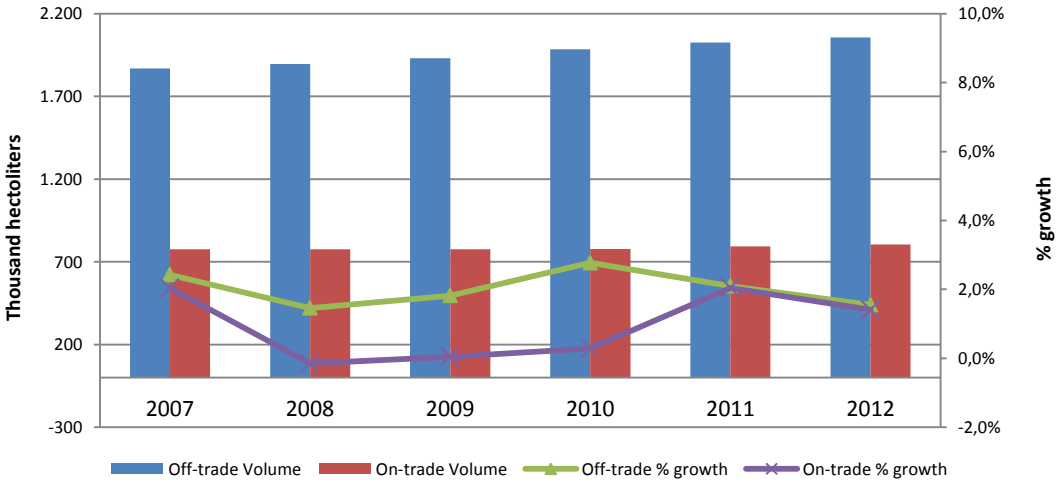
In terms of distribution, more than 71% of global wine sales by volume are through the off-trade channel, a quite stable level in the last decade, with an annual growth rate of roughly 2%. This characteristics is present all over wine consuming countries even if it is stronger in some Eastern European ones, where off-trade accounts for over 90% of total wine volumes. In some countries such as Spain and Greece, the opposite is true with on trade wine sales accounting for 60% of total volume. As depicted in the following figure, the on-trade channel has registered negative growth rate in the period 2008-2010 as a result con consumers limiting their outings to avoid the higher prices imposed by bars, clubs and restaurants in an scenario of economic crisis.

Table 22 Evolution of per-capita consumption in top countries -litres

COUNTRY	2007	2009	2011	2012
LUXEMBOURG	60.4	61.1	61.9	61.3
PORTUGAL	47.0	47.1	45.8	43.2
ITALY	46.9	44.4	41.3	40.5
FRANCE	41.1	39.5	39.1	38.7
SLOVENIA	42.6	39.6	37.9	38.3
SWITZERLAND	39.3	37.6	36.6	35.7
AUSTRIA	34.6	34.0	33.2	31.8
DENMARK	30.3	31.3	31.8	31.2
BELGIUM	27.1	27.6	27.4	27.1
GREECE	32.0	31.7	28.1	26.2
GERMANY	25.9	25.9	25.4	25.6
NETHERLANDS	22.5	23.6	24.7	25.1
ARGENTINA	29.1	26.5	24.8	24.9
AUSTRALIA	23.0	24.3	23.9	24.0
SWEDEN	19.9	21.5	22.2	22.4
NEW ZEALAND	22.2	21.8	22.1	22.2
HUNGARY	24.9	24.9	22.7	21.9
UNITED KINGDOM	23.1	23.1	22.3	21.8
SPAIN	27.3	23.6	21.8	21.1
URUGUAY	25.5	23.8	21.9	20.2

Source: our elaboration based on Euromonitor data

Figure 6 Evolution of sales by on-trade and off-trade channels – thousand hectolitres



Source: our elaboration based on Euromonitor data

1.4. Wine trade

Total wine trade has registered a positive performance in the last decade, especially in terms of value exchanged. From 25,221 million dollars traded in 2000 it has grown to 64,645 million dollars in 2012, an average annual growth rate of 8.2%. In terms of volume this growth has been smoother, accounting for 194,626 thousand hectolitres in 2012, a yearly average growth of 4.3% for 2000-2012. Both in terms of volume and value, the strongest products have been wine in containers of less than 2 litres (HS 220421) and bulk wine (HS 220429), which have contributed with 27,612 million dollars and 6,707million dollars respectively to the total increase of 39,425 million dollars of the period. From the global 76,841 thousand hectolitre increase, more than 45% is explained by bulk wine and 47% by bottled wine. Sparkling wine (HS 220410) has also enjoyed great dynamism, growing on average at 8.4% per year in terms of value and 6% in terms of volume. Wine must (HS 220430) has experienced a negative performance in terms of volume (-2.2% CAGR) but a positive one in terms of value (+3.5% CAGR).

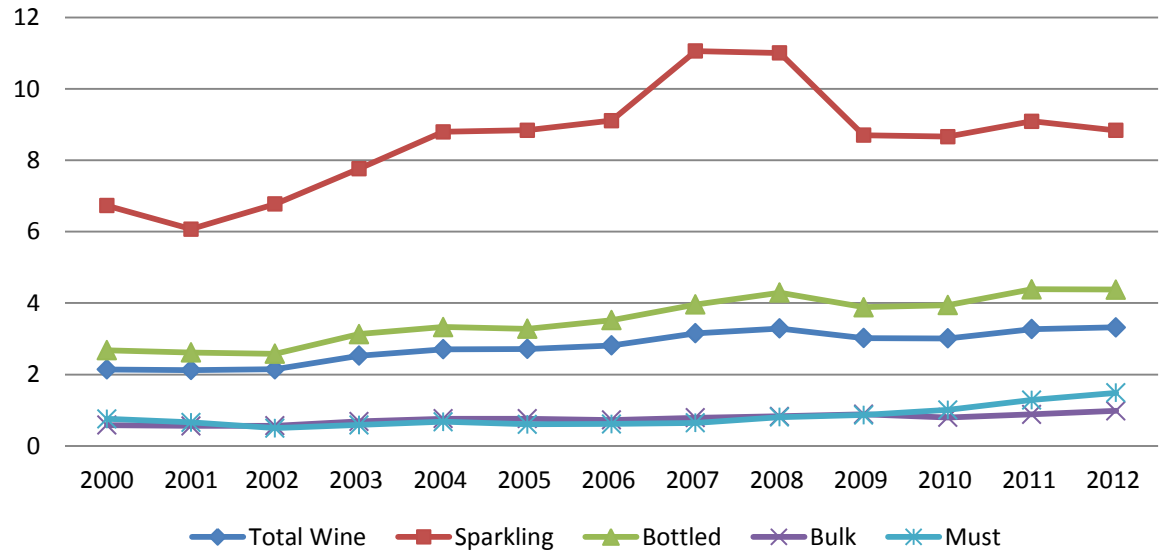
Table 23 Wine trade evolution by categories - million U$D and thousand hectolitres

PRODUCT	U$D		hl		CAGR 2002/12 U$D %	CAGR 2002/12 Hl %	ABSOLUTE VAR	
	2000	2012	2000	2012			U$D	hl
SPARKLING	4,091	10,798	6,078	12,224	8.4	6.0	6,707	6,146
BOTTLED	18,638	46,250	69,504	105,644	7.9	3.6	27,612	36,140
BULK	2,347	7,379	40,296	75,293	10.0	5.3	5,031	34,998
MUST	144	218	1,908	1,465	3.5	-2.2	74	-443
TOTAL	**25,221**	**64,645**	**117,785**	**194,626**	**8.2**	**4.3**	**39,425**	**76,841**

Source: our elaboration from GTA data

All wine categories, even if at different rates, have experience a strong growth in average price. For all wine trade (HS 2204) average price has raised from U$D 2.14 to U$D 3.32 per litre. The greatest performance has been the one experienced by must, 97% growth in the period. A good performance has also been achieved by bulk wine with an absolute increase of 68%, from 0.58 U$D per litre in 2000 to U$D 0.98 in 2012. Bottle wine prices have also raised greatly, 63%, up to 4.38 U$D per litre in 2012. Sparkling wine prices have also registered a positive growth, but well below the media, 31%.

Figure 7 Price media evolution for wine categories - U$D per litre



Source: our elaboration from GTA data

In terms of share, total wine trade (HS 2204) is dominated by wine of fresh grapes sold in containers of less than 2 litres (HS 220421). Both in terms of volume and of value, HS 220421 sales outpace sparkling wine, bulk wine and grape must. However, its in terms of volume greatly differs with the share in terms of value and both trends also present different paths. While in terms of value in 2002 more than 74% of total wine trade corresponded to bottled wine, by 2012 this share has reduced to 72.5%. In terms of volume the reduction has been even stronger with a loss of almost five percentage points, from an initial 59% to a 54.3 % share in 2012. In both cases, by volume and by value, the share loss can be explained by an increase in sales of wine of in containers greater than 2 litres (specially flexi-tanks, bag-in-box). This category has increased its share, especially in terms of volume with the lowest average price. Specialists agree that the upward share trend for HS 220421 in terms of value and the downward share trend in terms of volume registered in the last years will continue (as prematurely identified in 1996 by Australian Wine Growers in their document “Strategy 2025” and by Pernod Richard as the premiumisation trend).

Table 24 Share evolution of total wine trade

PRODUCT	VALUE SHARE %		VOLUME SHARE %	
	2000	2012	2000	2012
SPARKLING	16.2	16.7	5.2	6.3
BOTTLED	73.9	71.5	59	54.3
BULK	9.3	11.4	34.2	38.7
MUST	0.6	0.3	1.6	0.8

Source: our elaboration from GTA data

1.4.1. Bottled wine

1.4.1.1. Exports

The exports of wine in containers of les than 2 litres accounted in 2012 for 23,307 million dollars defining a 151% bigger market than in 2000. On average the market has grown 8% annually but it is possible to distinguish two different growing periods. During a first period, 2000-2007, exports grew 11% every year, contributing to 76% of the overall growth 2000-2012, i.e. exports increased by 10,361 million dollars in 2000-2007. Whereas in the second period, exports annually grew 3% adding only 3,654 million dollars to the market. By analyzing the absolute growth by year, we find an average growth of 1,480 million dollars of new exports each year between 2000 and 2007 while it reduced by half during 2007-2012 to 731 million dollars additional exports per year.

In terms of main exporting countries in value, three countries (France, Italy and Spain) account for 56% of all bottled wine exports. However, each country individual share varies considerably depicting specific strategies and competitive advantages. For instance, France share in total wine exports is 3 percentage points higher than the one for bottled wine (31% versus 28%) as the strong champagne exports enjoy higher average prices. Whereas, Spain has a smaller share in bottled wine exports than in total exports (8% versus 10%) as the country has focused strongly in must, with a significantly lower average price.

The strongest growth in the period 2007-2012, as for the whole wine category, is registered by Argentina, followed by New Zealand and the United States. The United Kingdom growing rates have a different nature since they can be traced to exports of bottled wine from imported bulk wine (this case will be cleared when referring to bottled wine in terms of volume).

Table 25 Top exporting countries HS 220421 - million U$D

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
FRANCE	5,542	4,930	6,398	6,541	3.4	28
ITALY	3,863	3,894	4,771	4,626	3.7	20
SPAIN	1,551	1,496	1,893	1,973	4.9	8
AUSTRALIA	2,230	1,511	1,545	1,457	-8.2	6
CHILE	1,090	1,152	1,422	1,431	5.6	6
UNITED STATES	722	636	1,065	1,109	9.0	5
GERMANY	824	830	1,106	997	3.9	4
NEW ZEALAND	539	588	764	828	9.0	4
PORTUGAL	778	758	824	795	0.4	3
ARGENTINA	420	565	725	739	12.0	3
UNITED KINGDOM	330	436	683	561	11.2	2
SOUTH AFRICA	519	526	504	442	-3.2	2
OTHER COUNTRIES	1,245	1,136	1,794	1,807	7.7	8
TOTAL	**19,653**	**18,458**	**23,494**	**23,307**	**3.5**	**100**

Source: our elaboration from GTA data

In terms of volume, the export bottled wine market accounts for 55,529 thousand hectolitres, almost 20,000 thousand hectolitres more than in the year 2000. This strong growth occurred mainly between 2000 and 2007, when average annual growth rates were 4% while in the period 2007-2012 these rates decreased to 1% annually.

In terms of export volume, the competitive scenario is even more concentrate than previously depicted, with France, Italy and Spain explaining 57% of all exports. Their different marketing strategies, which are evident in their average price, change the ranking positions. Growing rates show quite different paths for almost each country. Spain, for instance, registered the strongest annual growth rate among Old World countries, three times the Italian one and nine times de French one. The initial basis must be considered to evaluate the overall Spanish performance but this single indicator gives an overall assessment of the Spanish wine industry. Among New World

producers, New Zealand registered also a 9% annual growth rate, followed by Chile with 4% increase. Both Australia and Argentina show extremely bad performance, in terms of average growth rate, with -10% and -11% respectively. The reasons explaining both countries' situations are quite different since Australia has also experienced a great loss in terms of exported value while Argentina has experienced a great increase in export value. While the Oceanic country is suffering a critical period for wine exports, Argentina is immerse in a quality-increase period, with higher average prices every year. The Chilean case is also interesting since it seems to have reached an intermediate situation, with increasing volumes (4%) and also increasing prices (6%).

Table 26 Top exporting countries HS 220421 -thousand hectolitres

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
ITALY	11,055	11,402	12,915	12,550	2.6	23
FRANCE	9,694	8,447	9,983	10,422	1.5	19
SPAIN	5,501	5,329	7,725	8,369	8.8	15
CHILE	3,645	3,956	4,466	4,494	4.3	8
AUSTRALIA	5,711	4,588	3,616	3,341	-10.2	6
GERMANY	2,688	2,767	3,248	3,032	2.4	5
UNITED STATES	2,352	2,063	2,198	2,210	-1.2	4
PORTUGAL	2,052	1,887	2,089	2,138	0.8	4
ARGENTINA	1,857	2,108	2,054	1,964	1.1	4
SOUTH AFRICA	2,353	2,190	1,614	1,289	-11.3	2
NEW ZEALAND	798	987	1,111	1,222	8.9	2
OTHER COUNTRIES	4,102	3,568	4,293	4,497	1.9	8
TOTAL	**51,810**	**49,292**	**55,311**	**55,529**	**1.4**	**100**

Source: our elaboration from GTA data

The evolution of price media clearly depicts the previous scenario, as a summary measure of export performance. For the period 2000-2012, the growth of average price has been 65%, from 2.55U$D to 4.20 U$D per litre, with an annual growth rate of 4%. While in 2000 the average price

of a liitre of bottled wine was only 19% higher than the average price for all wine (2204), in 2012 this difference raised up to 26%. Almost all exporters have experienced a positive growth in the period 2000-2012 with the only exception of Australia who has seen a 1% reduction.

Out of the selected countries only four export their bottled wine at higher prices than the global average of the category. Especially distinguishable are the cases of New Zealand and France, 61% and 50% higher than the global average price. The United States also enjoy a higher export price, 20% more than the global average and has also experienced a very good performance in the 2000-2012 period, with an annual growth of 8%. Australia began the period with a 72% higher price than the average and even if its price is still higher the difference has reduced down to 4%.

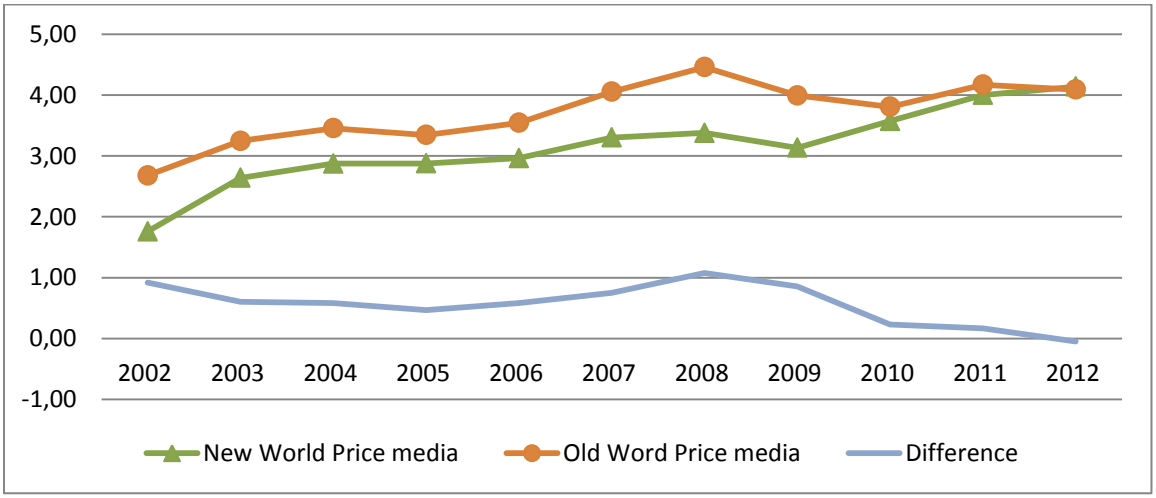
From those countries with current lower prices, it is worth noticing the Old World ones. For instance, Portugal exported in 2000 at U$D 3.02 on average which was 18% above the global average of the moment and by 2012 the average price only had only grown 0,70 U$D per litre, defining a 11% lower price than the global average. Spain performance is even worse, from a 24% lower price than the average in 2000 it has evolved to a price which is 44% lower than the global average. Germany has somehow improved its situation, even if its export price is still 22% below the media. Italian prices are also currently lower, but only 11%. Other New World countries are also below the global media even if their performance has generally improved. Argentina's price has grown 113% in the period, from 1.77 U$D to 3.76 U$D a litre; Chile's growth has been of 69% raising up to 3.18 U$D a litre in 2012. When analyzed by the Old and New World countries classification, the convergence theory is clearly supported. New World prices are rising continuously and strongly after 2009. Whereas, Old word average prices grew til 2008 but then suffered a decrease which seems to revert in 2010. These two different growing patterns seem to converge in 2012 in 4.10 U$D per litre, when New World wines were sold on average at 4.14 U$D per litre and Old World wines at 4.09 U$D. Through the analysis of specific price segments, conclusions slightly vary indicating a slower convergence rhythm (Anderson & Nelgen, 2011).

Table 27 Evolution of average price for top exporting countries -U$D per litre

COUNTRY	2000	2004	2008	2012	CAGR 2000/12	% OVER MEDIA 2000	% OVER MEDIA 2012
NEW ZEALAND	4,34	6,08	6,74	6,77	3.8	70	61
FRANCE	3,16	4,28	6,73	6,28	5.9	24	50
UNITED STATES	2,07	2,15	3,08	5,02	7.6	-19	20
AUSTRALIA	4,39	3,54	3,65	4,36	-0.1	72	4
WORLD AVERAGE	**2,55**	**3,24**	**4,12**	**4,20**	**4.2**	**0**	**0**
ARGENTINA	1,77	1,77	2,55	3,76	6.5	-31	-10
PORTUGAL	3,02	3,71	4,07	3,72	1.8	18	-11
ITALY	2,20	3,30	3,83	3,69	4.4	-14	-12
SOUTH AFRICA	2,01	2,62	2,82	3,43	4.5	-21	-18
GERMANY	1,48	2,33	3,28	3,29	6.9	-42	-22
CHILE	1,89	2,58	3,16	3,18	4.5	-26	-24
SPAIN	1,93	2,46	2,80	2,36	1.7	-24	-44

Source: our elaboration from GTA data

Figure 8 Evolution of average prices for bottled wine in selected Old World and New World countries– U$D per litre



Source: our elaboration from GTA data

1.4.1.2. Imports

The import market for bottled wine accounted in 2012 for 22,935 million dollars, showing an average year increase of 8% in the period 2000-2012, i.e. plus 13,589 million dollars. Despite this overall increase, the period has been characterized by great variations, with an average annual growth rate of 11% between 2000 and 2007 and a minor 4% between 2007 and 2012. Even in this last period there have been strong fluctuations. An important reduction of 10% was registered during the financial crisis (2008 and 2009) and an incredible growth of 15% between 2010 and 2011. It is worth noticing that in these overall percentages there are huge differences among countries. While some European countries experienced huge falls in imports during the crisis (-26% Spain, -17% the United Kingdom, -16% France) and hardly recovered by 2011 (EU-15 average +7%), in Asian countries there was no evidence of crisis in terms of bottled wine imports but only a smoother growth (22% growth between 2008-2009 comparing to the average growth for 2007-2012 of 31%) and a new expansive period in 2011 with average growth rates of 50%.

As in the overall wine import market, the United States leads the ranking in terms of value, with more than 3,800 million dollars imported in 2012, 17% of the whole bottle wine market. Other 15% of imports are done by the United Kingdom which in 2012 bought more than 3,497 million dollars in bottled wine. Together with Germany and Canada these countries account for half the world import value for bottled wine. However, the larger absolute contribution in terms of value corresponds to China who increased his imports in 1,192 million dollars in the period 2007-2012 and to Hong Kong with an increase of 793 million dollars. It is worth noticing that Canada has shown an incredible good performance, with an important market share, doubling the global average growth rates and an absolute contribution to the market of 417 million dollars. China, Hong Kong and Canada were responsible for more than 65% of the world import market growth for bottle wine, in absolute contribution terms.

In terms of imported volume, the market is slightly less concentrated and has experienced a minor average annual growth rate (1.4%) during the period 2007-2012. Total imports accounted for 50,010thousand hectolitresin 2012, 51% more than in 2000 and 7,4% more than in 2007. It is possible to distinguish therein two different growing periods. The first one, between 2000 and 2007 is characterized by an annual average growth rate of 5%, and an absolute growth of 41%. The second period, between 2007 and 2012, mainly affected by the world financial crisis, registered a 1.4% annual growth rate and an absolute growth of 7%.

Table 28 Top importing countries HS 220421 - million U$D

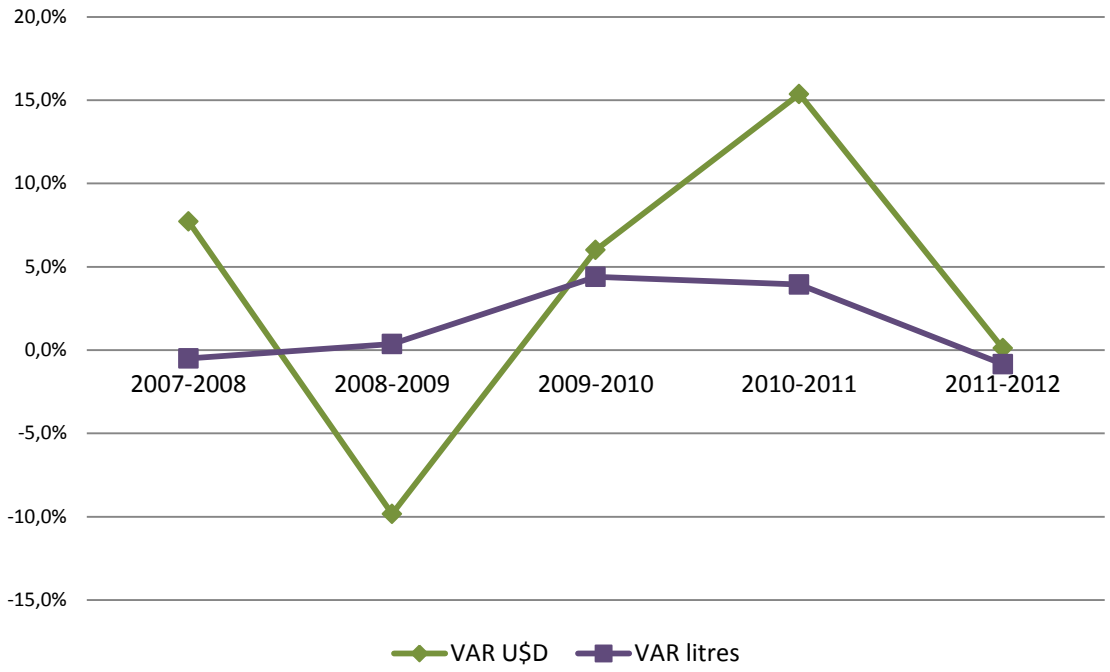
COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %	ABSOLUTE VAR
UNITED STATES	3,803	3,305	3,782	3,852	0.3	17	49
UNITED KINGDOM	3,838	3,295	3,478	3,497	-1.8	15	-342
GERMANY	1,813	1,900	2,047	1,892	0.9	8	80
CANADA	1,333	1,323	1,699	1,750	5.6	8	417
CHINA	184	377	1,274	1,376	49.5	6	1.192
JAPAN	844	773	885	1,046	4.4	5	202
HONG KONG	185	491	1,206	978	39.5	4	793
NETHERLANDS	975	1,006	976	958	-0.4	4	-17
SWITZERLAND	725	734	871	893	4.2	4	168
BELGIUM	811	838	840	800	-0.3	3	-11
RUSSIA	439	383	606	716	10.3	3	276
OTHER COUNTRIES	4,342	4,311	5,249	5,178	3.6	23	836
TOTAL	**19,293**	**18,737**	**22,913**	**22,935**	**3.5**	**100**	**3,642**

Source: our elaboration from GTA data

The evolution of the import market for bottle wine and the differences in growth rates between value and volume have a lot of importance in the understanding of the wine market. For instance, the crisis affected in a different way the traded value and the traded volume. Moreover, the post-crisis period also shows interesting differences. As depicted in Figure 9, the annual growth rate of imported value more than doubles the rate for imported volume thus indicating an upward trend in terms of price and suggesting a more sophisticated consumption. During the crisis, the trade-down phenomenon was verified, traded value reducing 9.8% between 2008 and 2009 while traded volume marginally increasing 0.4%. In other words, consumers faced the crisis by resigning high price wines but without eliminating wine of their diet or life style. Whereas, in the post-crisis period the traded value shows always higher growth rates than the traded volume, suggesting consumers are choosing higher priced wines, even if less frequently. This premiumisation trend is

present for many agri-food products, especially in developed countries and it is value and superlative quality that drive these consumers (Nestle Research, 2010). During the last complete year of available data, a new critical period seems to be registered, with an annual variation of 0.1% in terms of value and -0.9% in terms of volume. Previous explanation is also valid in this case, as consumers buy less quantity of wine but at higher average prices.

Figure 9 Evolution of variation rates - U$D and litres



Source: our elaboration from GTA data

The analysis of the price media completes the overview of the market for bottled wine. From 2000 to 2012 the average price of imported bottled wine has raised 62% from to 2.83 U$D to 4.59 U$D a litre. The greatest increase was registered between 2002 and 2003 (13%) while the biggest reduction, as previously suggested, occurred between 2008 and 2009, with almost 50 cents decrease. On average the annual growth rate has been of 4% between 2000 and 2012, with a first period 2000-2007 of annual growth rates of 6% and a second period of marginal 2% yearly increase. Big differences among countries can be identified both in terms of absolute values and in terms of their growing path. For instance, Russia has experienced the greatest annual growth rate between 2007 and 2012 (7.7%) but has only reached 2.82 U$D a litre, 40% less than the global average. Whereas Canada has registered moderate annual growth rates in the period (2.5%) but has reached interestingly high prices, 44% over the average. As depicted in figure 10, and as

proved by multiple research (Smith & Mitry, 2007) there is evidence of a convergence towards an average price.

Table 29 Top importing countries HS 220421 - thousand hectolitres

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
UNITED KINGDOM	8,909	8,764	8,504	7,691	-2.9	15.4
UNITED STATES	6,933	6,455	7,109	6,989	-0.2	14
GERMANY	6,070	6,294	5,931	5,721	-1.2	11.4
NETHERLANDS	3,334	3,215	2,823	2,955	-2.4	5.9
CANADA	2,268	2,391	2,553	2,634	3	5.3
CHINA	423	911	2,414	2,661	44.4	5.3
RUSSIA	2,249	1,740	2,367	2,537	2.4	5.1
BELGIUM	1,988	1,951	1,959	1,943	-0.4	3.9
JAPAN	1,199	1,285	1,451	1,820	8.7	3.6
FRANCE	1,228	1,286	1,382	1,229	0	2.5
DENMARK	1,130	1,235	1,072	1,036	-1.7	2.1
OTHER	10,828	10,960	12,875	12,792	3.4	25.6
TOTAL	**46,559**	**46,489**	**50,439**	**50,010**	**1.4**	**100**

Source: our elaboration from GTA data

Figure 10 Average prices of selected markets and CAGR – U$D per litre

Source: our elaboration from GTA data

1.4.2. Bulk wine

1.4.2.1. Exports

As previously described, exports of wine of fresh grapes in containers holding more than 2 litres (HS 220429) have experienced a strong growth accounting for 3,602 million dollars in 2012, 216% more than in 2000. As well as for bottled wine, there has been a period of intense growth, 2000-2007 with annual growth rates of 11% and a second period, 2007-2012, of smoother annual rates (9%). However, these smoother rates have almost tripled the ones registered for bottled wine, indicating a strong trend towards greatest exports of wine in bigger containers. Total exported litres raised up to 37,348 thousand hectolitres in 2012, almost 17,000 thousand hectolitres more than in 2000.

Spain is the most important actor in this market, both in terms of value and of volume, concentrating 17% of total exported value and 27% of volume. Italy is the second player in the market, even if its participation has decreased in the period 2000-2012. The opposite is true for Australia who has increased market share, from 8% to 12% in terms of dollars and from 7% to 10% in terms of litres France has followed the Italian trend, with decreasing participation in the market.

Table 30 Top exporting countries HS 220429 - million U$D

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
SPAIN	405	668	607	605	8.3	17
ITALY	425	442	544	559	5.6	16
AUSTRALIA	187	250	363	425	17.8	12
FRANCE	384	355	366	377	-0.4	10
CHILE	156	214	247	336	16.5	9
SOUTH AFRICA	140	177	220	252	12.5	7
UNITED STATES	162	212	241	231	7.4	6
ARGENTINA	68	51	95	148	16.7	4
NEW ZEALAND	10	57	125	146	72.7	4
GERMANY	95	92	103	99	0.8	3
PORTUGAL	76	49	74	97	4.9	3
OTHER COUNTRIES	209	237	324	328	9.2	9
TOTAL	**2,319**	**2,804**	**3,310**	**3,602**	**9.4**	**100**

Source: our elaboration from GTA data

By combining these trends with the ones observed for bottle wine it is possible to broadly distinguish two different strategies. On the one hand, Spain, Australia and Chile seem to be focused primarily in exporting bulk wine, suggested by the strong growth rates registered for the period 2007-2012 (8%, 18% and 17% respectively). On the other hand, France and Italy are smoothly reducing their bulk exports and smoothly increasing their bottled wine exports. Spain is trying to move from the first strategy to the second one, as evidenced by the interesting growing rates for bottled wine.

Table 31 Top exporting countries HS 220429 - thousand hectolitres

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
SPAIN	8,173	7,879	12,486	10,024	4.2	27
ITALY	6,435	6,536	8,258	6,556	0.4	18
AUSTRALIA	1,937	2,987	3,431	3,857	14.8	10
FRANCE	3,351	2,392	2,650	2,973	-2.4	8
CHILE	2,403	2,939	2,119	2,939	4.1	8
SOUTH AFRICA	2,617	2,016	2,059	2,757	1.1	7
UNITED STATES	1,809	1,823	1,967	1,738	-0.8	5
ARGENTINA	1,735	773	1,042	1,626	-1.3	4
PORTUGAL	1,641	647	961	1,221	-5.7	3
OTHER COUNTRIES	2,325	3,271	3,265	3,657	9.5	10
TOTAL	**32,426**	**31,264**	**38,238**	**37,348**	**2.9**	**100**

Source: our elaboration from GTA data

Table 32 Top 5 bulk and bottled wine export countries

litres	BULK WINE		BOTTLED WINE		U$D	BULK WINE		BOTTLED WINE	
	CAGR 2007/12 %	Var Share %	CAGR 2007/12 %	Var Share %		CAGR 2007/12 %	Var Share %	CAGR 2007/12 %	Var Share %
France	-2.4	-3.8	1.5	-0.1	**France**	-0.4	-6.1	3.4	-0.1
Italy	0.4	-5.1	2.6	1.3	**Italy**	5.6	-2.8	3.7	0.2
Spain	4.2	-1.9	8.8	4	**Spain**	8.3	-0.7	4.9	0.6
Australia	14.8	3.5	-10.2	-5	**Australia**	17.8	3.7	-8.2	-5.1
Chile	4.1	3.0	4.3	1.1	**Chile**	16.5	2.6	5.6	0.6

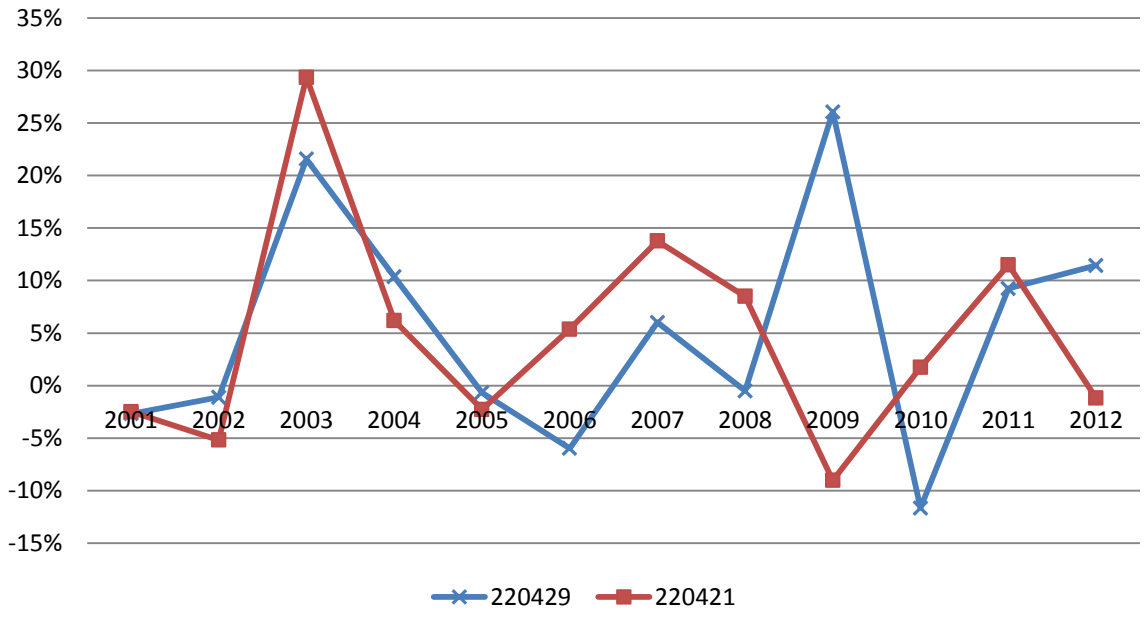
Source: our elaboration from GTA data

In terms of prices, the average price of a litre of exported bulk wine was 0.96 U$D in 2012. This represents only 23% of the average price for a litre of bottled wine. Nevertheless, it has increased

in the period 2000-2012 more than 72% with specially interesting years such as 2009 when prices increased 26% compared to the previous year.

As depicted in figure 11, bottled and bulk wine have followed similar growth trends in some periods and opposite ones in some other years. From 2000 til 2008, a similar trend can be identified, notwithstanding differences in growing rates and some different timing. Whereas, from 2008 onwards trends have become quite opposed. For instance, in 2009 prices for bottled wine fell a 9% while prices for bulk wine grew 26%. Soon after, bottled wine prices started a recovery and bulk prices fell. In 2011 and 2012 a new reversion trend is evidenced, with bulk wine prices growing at higher rates than bottled wine ones.

Figure 11 Evolution of growth rates for bottled and bulk wine average prices - U$D per litre



Source: our elaboration from GTA data

1.4.2.2. Imports

The import market for bulk wine is clearly concentrated in Germany, one of the countries with the lowest average price for imported bottled wine. France, the United Kingdom and the United States are also very dynamic and important actors in the market. Together with Russia they constitute the core markets for bulk wine. Their dynamic over the period 2007-2012 also shows great differences. For instance, Russia has increased their imports 42% annually on average, the United States 32% while Germany and France has done it at 8% and 6% respectively.

Table 33 Top importing countries HS 220429 - million U$D

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
GERMANY	470	508	659	677	7.6	18
UNITED KINGDOM	320	327	492	564	12.0	15
FRANCE	201	221	251	274	6.5	7
UNITED STATES	92	175	248	428	36.0	11
SWEDEN	169	165	197	195	3.0	5
RUSSIA	25	75	138	145	41.8	4
ITALY	119	109	127	149	4.7	4
CHINA	60	65	124	144	18.9	4
DENMARK	121	114	122	114	-1.1	3
BELGIUM	105	119	121	110	0.9	3
SWITZERLAND	105	113	111	103	-0.4	3
CANADA	63	72	92	101	9.8	3
NORWAY	80	94	99	99	4.4	3
OTHER COUNTRIES	461	508	661	672	7.8	18
TOTAL	**2,391**	**2,665**	**3,443**	**3,776**	**9.6**	**100**

Source: our elaboration from GTA data

Table 34 Top importing countries of HS 220429 - thousand hectolitres

COUNTRY	2007	2009	2011	2012	CAGR 2007/12 %	SHARE 2012 %
GERMANY	7,654	7,561	9,332	8,629	2.4	23
FRANCE	3,953	4,380	5,245	4,541	2.8	12
UNITED KINGDOM	1,984	2,406	3,847	4,058	15.4	11
UNITED STATES	989	2,333	2,349	3,977	32.1	10
ITALY	1,460	1,216	2,019	2,192	8.5	6
RUSSIA	263	1,262	2,259	1,994	50.0	5
CHINA	1,051	802	1,202	1,215	2.9	3
CANADA	771	804	927	1,019	5.7	3
SWEDEN	795	859	963	964	3.9	3
PORTUGAL	917	1,712	1,160	894	-0.5	2
CZECH REPUBLIC	863	788	844	544	-8.8	1
OTHER COUNTRIES	6,656	6,276	8,067	7,914	3.5	21
TOTAL	**27,357**	**30,398**	**38,215**	**37,942**	**6.8**	**100**

Source: our elaboration from GTA data

2. Argentina

2.1. Wine History

The origins of the Argentinean wine industry can be traced to the Spanish colonial period and the establishment of the Virreinato del Rio de la Plata. However, the emergence of the modern wine industry is explained by the Italian and Spanish immigration of the late XIX century and by the contribution of European specialists hired by the emergent Schools of Agriculture such as the Faculty of Agrarian Science from the National University of Cuyo. The planting of French varieties (Cabernet Sauvignon, Merlot, Tannat and especially Malbec), Italian varieties (Barbera, Nebbiolo, Sangiovese, Bonarda) and Spanish ones (Tempranillo, Semillón, Pedro Giménez) took place simultaneously with the introduction of the railway in the provinces of Mendoza and San Juan thus favoring immigration and the diffusion of new growing and wine-making techniques. The irrigation system and water management organization also began at the time, giving a key contribution to

the wine industry emergence. Big family wineries of Italian (Giol, Gargantini, Tittarelli, Cavagnaro, Filippini, Rutini, etc) and Spanish (Escorihuela, Arizu, Goyenechea, etc) origins were born, grew and consolidated in this period (Mateu, 2008).

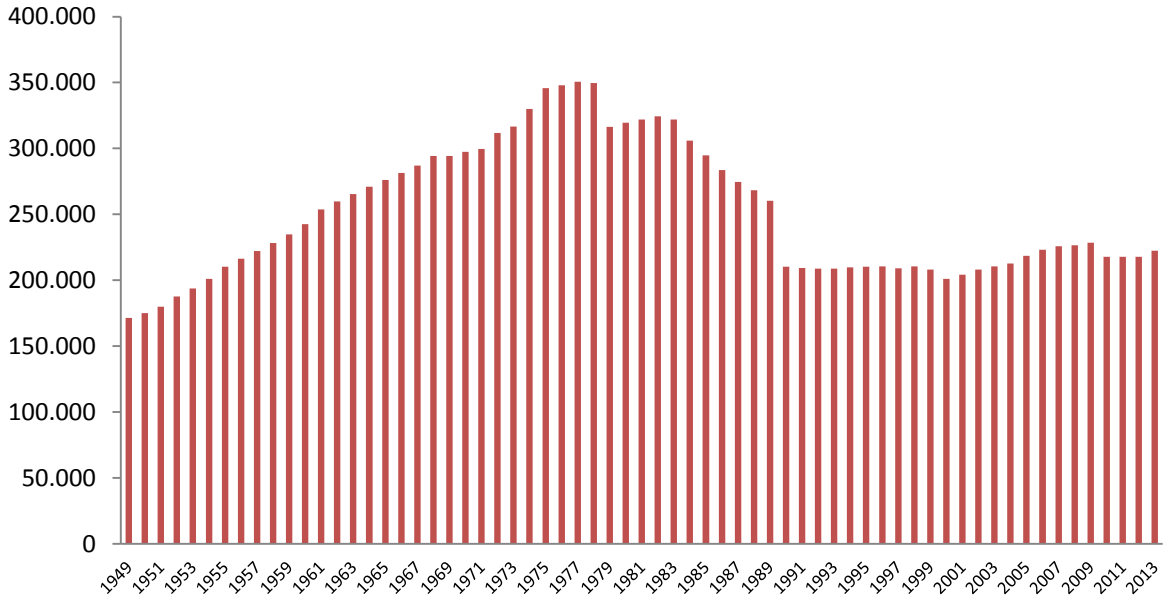
Since 1991 the 2284 law of economic deregulation removed much government intervention in most markets. Rules limiting foreign investment and restrictions on imports were eliminated. Together with a fixed dollar-peso exchanged rate and low inflation, wineries were able to access to cheap long-term loans. As the Argentinean currency was overvalued the price of imports was strikingly low. The reconversion process towards high quality varieties and high quality wines began in this decade (McDermott, 2007). Investments were focused on quality vine stock, winery equipment and consultancy from prestigious winemakers (Stein, 2008). When the country abandoned the fixed and devaluated by two thirds "the sleeping giant of the Southern Hemisphere was abruptly awakened" (Anderson & Nelgen, 2011, p. 4). The Must Agreement between the two major wine producing regions was crucial allowing producers a smooth transition from low-quality grape varieties to high-quality ones and for wineries the regulation offered a longer time frame for modernizing facilities and for the adaptation to the new quality based model (Gennari, Estrella Orrego, & Santoni, 2013).

2.2. Vineyard surface and production

As it is clearly depicted in figure 12, the Argentinean grape surface constantly grew from the 1950s until 1977, reaching the historical maximum of 350,680 hectares. From this moment onwards it diminishes 2% on average each year until accounting in 2000 for only 201,113 hectares. The global loss of the period raised up to 149,567 hectares. This reduction of the grape surface was greater in Mendoza and San Juan, particularly in the first one: from 252,000 hectares in 1978 to 170,000 hectares in 1989. The great loss was not only quantitative but also qualitative: thousands of hectares of noble varieties such as Malbec were eliminated in Lujan de Cuyo, Maipú, San Rafael, Tupungato and San Carlos. The decreasing trend smoothly reverted since 1991 but it was clear after 2000. Specially from a qualitative point of view, the 222,543 hectares of vineyards registered in 2013 were quite different from previous decades. All qualitative superior varieties grew, as is the case of Malbec, while lower quality varieties were slowly eliminated. Among white varieties, Pedro Jimenez registered an important reduction while Chardonnay and Sauvignon varieties are growing. Regarding rosé varieties for vinification, a slow but systematic fall started and continues

up to the present: from almost 151,000 ha in 1978 to 55,100 ha in 2010. These varieties covered the great demand for concentrated must, while almost no wine is elaborated with these varieties.

Figure 12 Evolution of vineyard surface - hectares

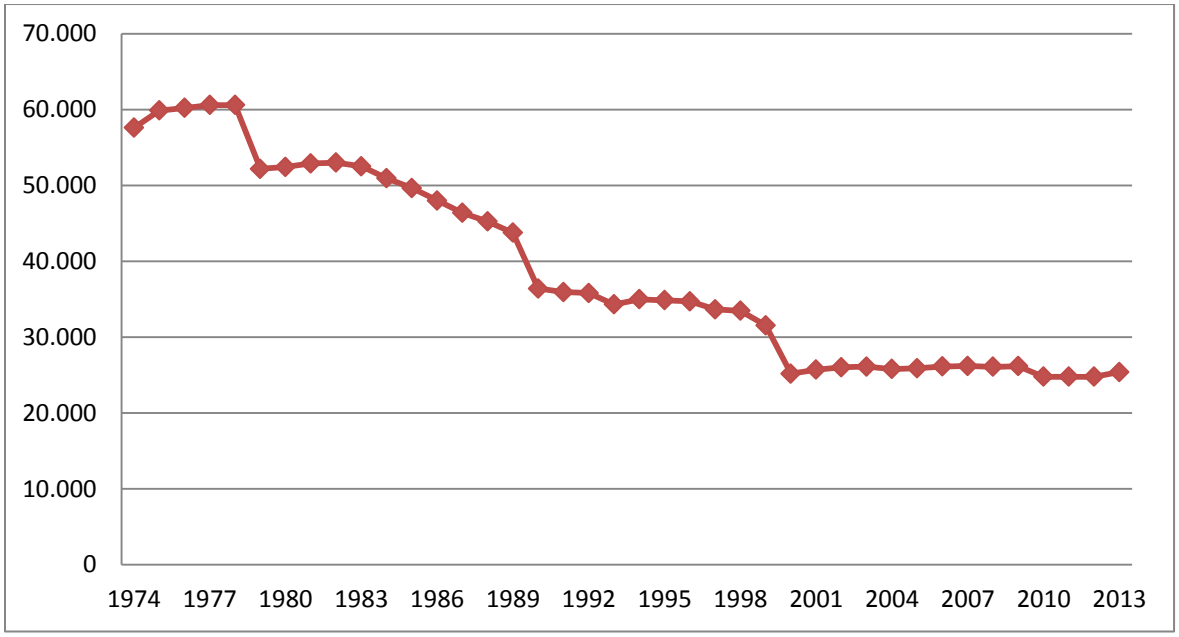


Source: our elaboration from INV data

The number of vineyards also decayed greatly turning from 60,583 units in 1978 to 24,780 in 2010 (Figure 13). During the quantity based model that lasted until 1990, small producers were highly affected, especially those with low yields and those cultivating red quality varieties with low production (as it was the case of Malbec). Their natural answer was to replace the vertical shoot position method by the two meter high pergola (el parral) since it showed a great vegetative development and greater yields and to replace high quality varieties by high yield ones. The results were evident: the average yield turned from 6,000 kg per hectare during the 1960 decade to 12,000 kg per hectare at the beginning of the 90s. When the quality period began by 1990 a reversed process took place. Low quality varieties were replaced by high quality ones and most vineyards returned to the vertical shoot position method. Even if the current number of vineyards is quite bellow the one registered in 1977 (-60%), the quantity has stabilized and is now of 24,780 vineyards. In terms of wine production, the average for the period 2000-2012 has been of 14,287 thousand hectolitres for 25,045,601 thousand kilograms of grapes for vinification. Late spring

frosts, hails and hotter than normal summers have defined reduced harvest in some years while good weather condiction have boosted production in some other years.

Figure 13 Evolution of number of vineyards



Source: our elaboration from INV data

Table 35 Evolution of grape and wine production

	2000	2002	2004	2006	2008	2010	2011
THOUSAND HL	12.536.820	12.695.145	15.464.289	15.396.350	14.676.415	16.250.768	15.472.635
THOUSAND KG	21.165.855	21.575.015	25.574.605	27.785.019	27.111.743	25.389.249	28.074.728

Source: our elaboration from Area del Vino data

Table 36 Evolution of cultivated hectares of key varieties for vinification

VARIETY	1980	1985	1990	1995	2000	2002	2004	2006	2008	2010
CEREZA	45,338	44,844	43,100	42,593	31,666	30,758	29,727	29,813	29,829	29,189
CRIOLLA GRANDE	71,099	65,502	36,837	35,139	24,641	24,080	23,240	22,413	21,276	17,080
MOSCATEL ROSADO	21,029	21,542	15,503	17,720	10,656	10,324	9,866	9,397	8,939	7,259
BONARDA	18,125	15,822	12,186	11,961	14,989	16,079	17,224	18,435	18,609	18,127
CABERNET SAUVIGNON	3,063	2,688	2,347	3,061	12,199	14,442	16,184	17,694	17,746	16,372
MALBEC	33,126	22,091	10,457	9,746	16,347	18,944	21,183	24,379	26,845	31,047
MERLOT	2,825	2,535	1,160	1,510	5,513	6,528	7,095	7,414	7,142	6,282
PINOT NEGRO	873	666	232	414	1,047	1,113	1,176	1,318	1,509	1,802
SYRAH	2,059	1,678	687	945	7,915	9,453	10,846	12,396	12,960	12,810
PEDRO GIMÉNEZ	23,981	24,471	20,647	20,763	15,101	14,710	14,245	14,059	13,647	12,132
TORRONTES	18,166	18,308	15,519	15,909	12,109	11,923	11,607	11,615	11,580	10,444
CHARDONNAY	372	690	908	1,471	4,625	4,634	4,771	5,747	6,342	6,473
SAUVIGNON	784	692	278	422	827	899	1,152	1,762	2,090	2,296
OTHER WHITE	31,022	31,207	23,047	23,860	16,770	16,077	15,144	14,787	14,350	11,561
OTHER ROSE	7,497	6,496	3,927	3,585	1,955	1,865	1,832	1,854	1,897	1,572
OTHER RED	35,296	29,927	15,312	15,016	12,038	13,327	14,428	15,853	16,506	16,338
TOTAL	**314,655**	**289,159**	**202,147**	**204,115**	**188,398**	**195,156**	**199,720**	**208,936**	**211,267**	**200,783**

Source:our elaboration from INV data

2.3. Regions and Varieties

Argentina's wine production areas range from the northern province of Salta to the southern region of Patagonia. This strip is characterized by aridity and dryness and is irrigated by melted water from the Andes, defining oases. These oases can be classified into regions and subregions, each of them with particular characteristics in terms of geomorphological conditions. Some stand out for their altitude, such as the Calchaquíes Valleys, in the North; others for the aridity of the land, such as the valleys in the provinces of Mendoza, San Juan and La Rioja; and there are also low altitude oases in Patagonia, with intense ripening periods. During the past years, wine

production has extended to non-traditional wine areas such as Buenos Aires, Cordoba, Entre Rios, Tucuman and Jujuy.

Figure 14 Argentine Winegrowing Valleys

Source: Wines of Argentina

Cuyo Region:

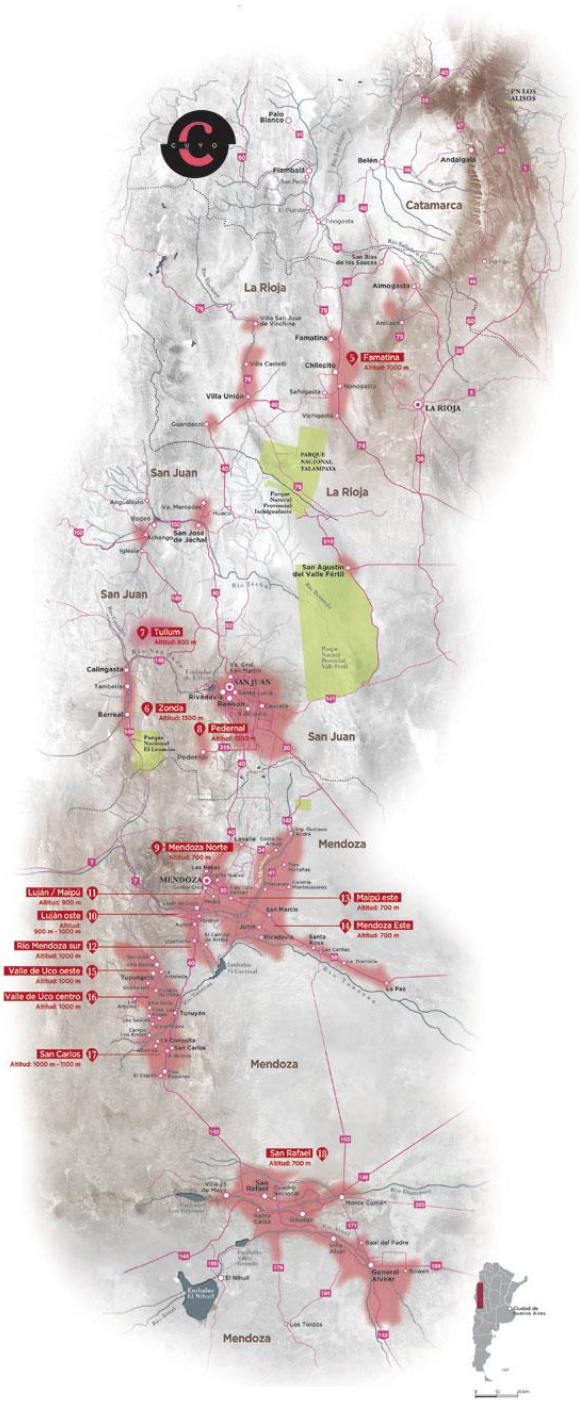
The Cuyo Region, named after the native Huarpe word for “the land of deserts”, is the central wine producing area in Argentina. It is composed by the provinces of Mendoza, San Juan and La Rioja. Topographically it is composed by rugged mountainous relief, defining a particular scenario for vineyards with altitudes varying from 700 to 1700 meters above sea level.

Mendoza is the most important among the wine producing provinces in Argentina. It represents more than the 80% of all the wine production in the country. Five large oases can be distinguished in Mendoza: North, East, Center, South and Uco Valley. The main grape varieties of the province are: Malbec, Merlot, Cabernet Sauvignon, Torrontes, Chardonnay, Sauvignon Blanc and Viognier.

San Juan is the second biggest wine producing area in Argentina. Several valleys run through here, with Tulum, its most important area, sitting along the banks of the San Juan River. The main grape varieties of San Juan are Syrah, Malbec, Cabernet Sauvignon, Bonarda, Chardonnay and Torrontés

In La Rioja the most important wine producing area is the Famatina Valley, located between the Velasco and Famatina Hills. Torrontés Riojano is the typical variety of the region.

Figure 15 Cuyo Region



Source: Wines of Argentina

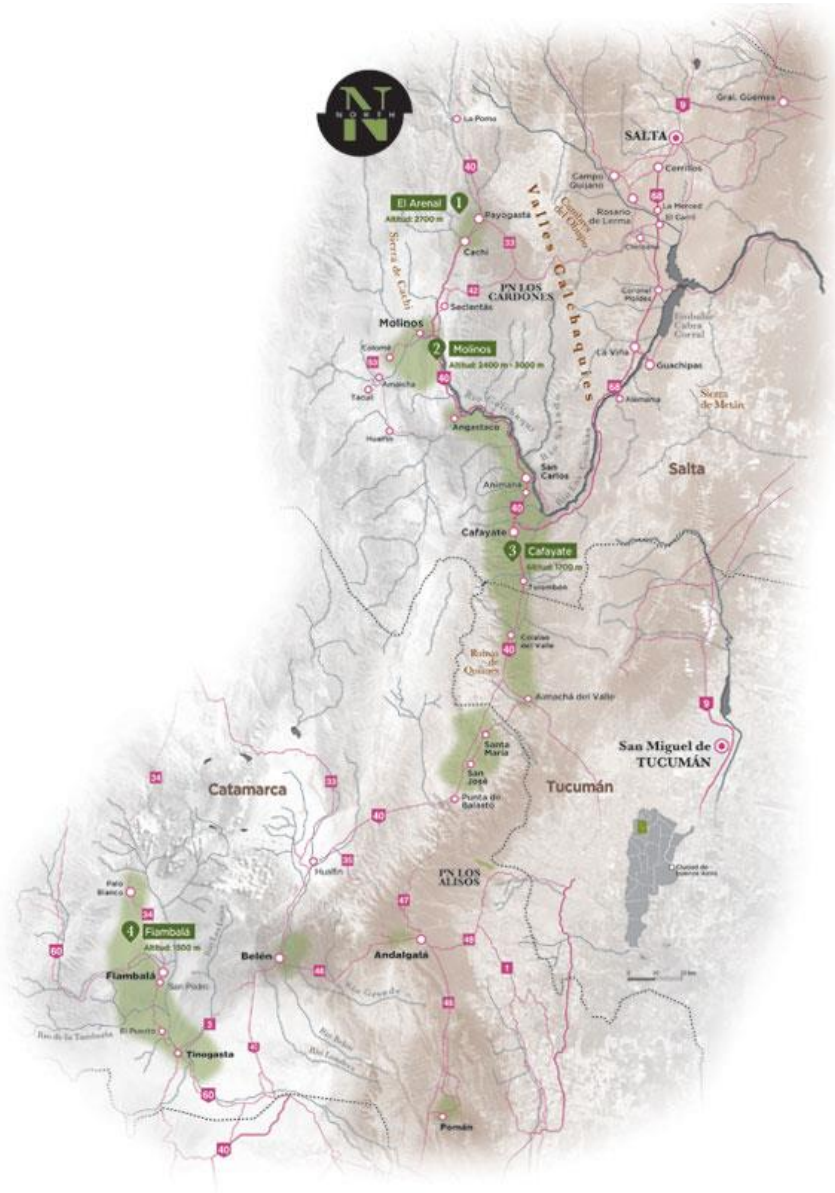
North region:

The Northern region is composed by the provinces of Salta, Tucuman and Catamarca. It is characterized by the altitude of its vineyards, located between 1000 meters and 2900 meters above sea level. Torrontés is the main variety grown in the region.

Cafayate village in the Calchaqui Valley is the most outs outstanding region in Salta. Much of the best Torrontes produced in Argentina comes from this place.

Catamarca and Tucuman are now emerging wine areas, where much Torrontes is being cultivated.

Figure 16 North Region



Source: Wines of Argentina

Patagonia Region:

Patagonia is the southernmost region of Argentina where grapes are grown. It covers the provinces of Río Negro, Neuquén and La Pampa.

Figure 17 Patagonia Region

Source: Wines of Argentina

In Neuquen province, the main wine valley is San Patricio del Chanar where Sauvignon Blanc, Merlot, Pinot Noir and Malbec are planted. In Rio Negro, the High Valley (Alto Valley) is the main area for wine production and it shares the main characteristics with the Neuquen province.

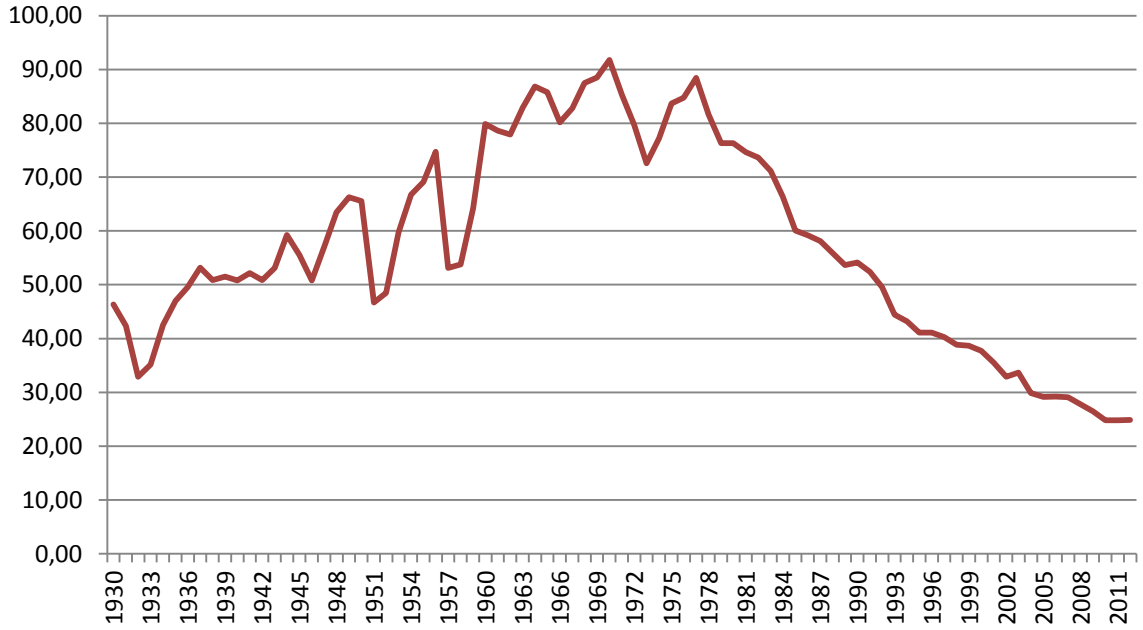
La Pampa is an emerging wine area, where the main varieties are Merlot, Malbec, Cabernet Sauvignon and Chardonnay.

2.4. Consumption

As in most traditional consuming countries, per capita consumption in Argentina is decreasing each year. However, a trend towards high quality wine is verified in the last years with table wine losing share constantly. According to Euromonitor previsions (December 2011) there is a positive

forecast in terms of volume as young consumers are expected to increase their wine consumption, driven by their preference for semi-sparkling wine. However, as noted in the report, disposable income restrictions could negatively influence this trend.

Figure 18 Evolution of per capita consumption -litres



Source: our elaboration from INV and Euromonitor data

Total wine consumption accounted for 1,024 million litres in 2012, a smooth 2% annual reduction for the period 2007-2012. More than two thirds off all these wine consumed is still red wine (68%) and still white one accounts for other 22%. Sparkling wine is growing but accounts only for 4.6% of total volume.

In terms of growing patters, each wine category presents specific characteristics but the general trend is the increase of fine wine at the expense of table wine for the period 2007-2012. . This is especially true for red wine with a 5% annual reduction on table wine consumption and a 1% annual increase for fine wine. For rosé and white wines, differences are even higher. Fine wine has grown 1% annually and table wine diminished by 4% annually. Sparkling wine has shown an interesting growing rate, increasing sales by 3% annualy.

Table 37 Evolution of wine sales by category – million litres

CATEGORIES	2007	2008	2009	2010	2011	2012	CAGR 2007/12 %	SHARE 2012 %
FORTIFIED WINE AND VERMOUTH	**30**	**29**	**27**	**30**	**31**	**34**	**3**	**3.3**
SPARKLING WINE	**40**	**40**	**34**	**35**	**41**	**47**	**3**	**4.6**
STILL RED WINE	**788**	**762**	**758**	**691**	**695**	**699**	**-2**	**68.3**
FINE STILL RED WINE	315	312	334	318	328	332	1	32.4
TABLE STILL RED WINE	474	450	424	373	367	367	-5	35.9
STILL ROSÉ WINE	**11**	**13**	**15**	**17**	**18**	**18**	**10**	**1.8**
FINE STILL ROSE WINE	1	1	2	2	2	2	17	0.2
TABLE STILL ROSE WINE	10	12	13	15	16	16	9	1.6
STILL WHITE WINE	**276**	**253**	**227**	**228**	**227**	**226**	**-4**	**22**
FINE STILL WHITE WINE	58	57	57	59	59	59	0	5.8
TABLE STILL WHITE WINE	217	196	170	169	168	167	-5	16.3
TOTAL WINE	**1,145**	**1,097**	**1,062**	**1,001**	**1,011**	**1,024**	**-2**	**100**

Source: our elaboration from Euromonitor data

In terms of varieties, the still red wine the market is clearly dominated by the emblematic Malbec variety. In 2012, it accounted for more than 28% of all wine sales, 10 additional percentage points from 2002. Other fine varieties have also shown increasing sales, as is the case of Cabernet Sauvignon, Merlot and Syrah. For white varieties, Torrontés and Chardonnay registered the best growing performances, accounting for 18.7% and 14.1% of white wine sales in 2012 and growing on average 5% and 7% in the period 2002-2012. . However, as previously depicted, wine sales from white varieties is still dominated by table wine (Pedro Gimenez 28.4%). The same is true for wine from rosé varieties, which is dominated my Cereza and Criolla Grande (49.2% and 34.6% respectively).

Table 38 Evolution of still wine consumption - million litres

		2002	2004	2006	2008	2010	2012	CAGR 2002/12 %	SHARE 2012 %
RED VARIETIES	Bonarda	218	192	163	122	98	93	-8.2	13
	Cabernet Sauvignon	70	93	124	139	129	129	6.3	19
	Malbec	112	133	173	203	193	197	5.8	28
	Merlot	36	44	55	58	52	51	3.5	7
	Sangiovese	48	28	23	17	12	11	-13.5	2
	Shiraz/Syrah	55	78	94	101	89	90	5.0	13
	Tempranillo	66	48	50	50	43	43	-4.3	6
	Others	63	98	96	73	76	85	3.1	12
	TOTAL RED VARIETIES	**668**	**712**	**778**	**762**	**691**	**699**	**0.5**	**100**
ROSÉ VARIETIES	Cereza	3	4	5	6	8	9	12.5	49
	Criolla Grande	4	4	4	4	6	6	3.5	35
	Moscatel Rosado	1	1	2	2	3	3	9.1	16
	Others	0	0	0	0	0	0	-12.9	0
	TOTAL ROSÉ VARIETIES	**9**	**9**	**11**	**13**	**17**	**18**	**7.7**	**100**
WHITE VARIETIES	Chardonnay	38	23	33	35	32	32	-1.7	14
	Chenin Blanc	52	25	22	16	13	13	-13.2	6
	Moscatel Alejandria	51	35	31	24	21	22	-8.3	10
	Pedro Gimenez	211	124	100	73	64	64	-11.2	28
	Torrontés	60	64	57	48	43	42	-3.5	19
	Ugni Blanc	44	26	20	14	12	11	-12.7	5
	Others	48	58	57	43	41	42	-1.4	19
	TOTAL WHITE VARIETIES	**505**	**357**	**321**	**253**	**228**	**226**	**-7.7**	**100**

Source: our elaboration from Euromonitor data

Even if there is a high risk of distortion when analyzing data by value - as a result of high inflation rates in the period and a luck of official statistics on the subject -it is possible to compare market shares by categories. For instance, sparkling wine accounts for 15% of total sales in terms of value

even if in terms of volume its share is only 4.6%. The opposite is verified for red wines, with lower average prices and accounting for 57% of total value sales.

In terms of distribution, Argentina shows a different trend than the world one, with wines sales increasingly done through the on-trade channel. Even if the off-trade share is considerably over the world media (84% versus 72%) a reduction path is verified, with a negative an annual growth rate of -2%. Whereas on-trade sales, both in terms of value and in terms of volume, have increase on average 1% and 5% annualy in the period 1998-2012.

Table 39 On and off-trade evolution

		1998	2000	2002	2004	2006	2008	2010	2011	2012	CAGR 1998-2012
VALUE	Off Trade	61	62	66	63	59	57	62	62	63	-1
	On Trade	39	38	34	37	41	43	38	38	37	1
VOLUME	Off Trade	90	89	89	86	84	83	83	84	84	-1
	On Trade	10	11	11	14	16	17	17	16	16	5

Source: our elaboration from Euromonitor data

Small grocery retailers constitute the main sales channel among the off-trade, accounting for almost half sales in 2012. However, during the period 2007-2012 this retail format has shown negative annual growth rates (-1.4%). Whereas, supermarkets and hypermarkets account for another 40% and have experienced positive annual growing rates in the period. The most outstanding performance is the one registered by internet sales, with an annual growth rate of almost 22%, even if its share its still marginal (1.6%).

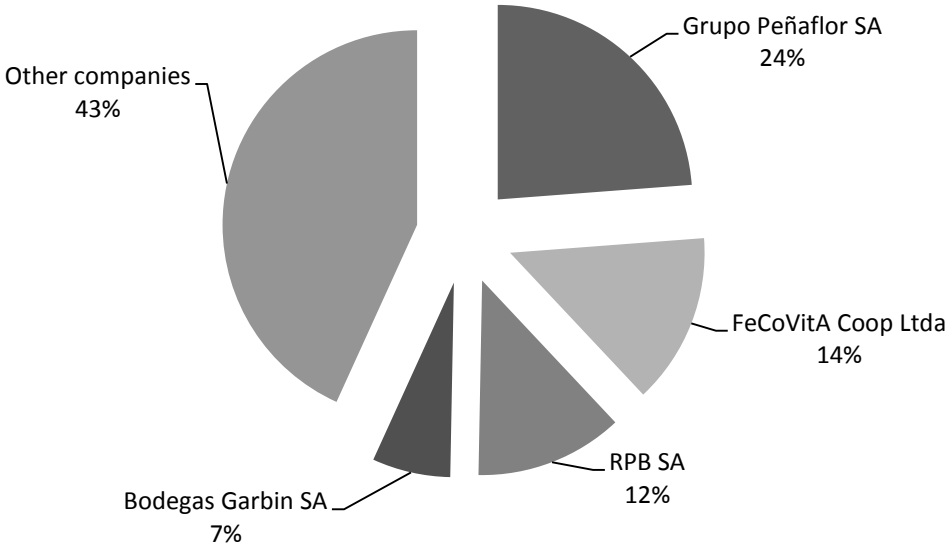
Table 40 Sales distribution by type of Off-trade store - litres

TYPES OF STORES	SHARE 2012 %	CAGR 2007-12 %
Small Grocery Retailers	49.0	-1.4
Supermarkets	26.3	0.9
Hypermarkets	14.9	1.7
Food/drink/tobacco specialists	3.5	-2.1
Discounters	2.4	3.7
Other Grocery Retailers	2.3	0.9
Internet Retailing	1.6	21.7
Total	**100**	

Source: our elaboration from Euromonitor data

The competitive scenario is clearly dominated by Penaflor who leads wine sales in Argentina, with a 21.9% volume share for still wine. The wide portfolio is able to satisfy needs of different consumer segments and price ranges (Freizze, Termidor, Santa Ana, Michel Torino, Trapiche, Fond de Cave, Hereford, El Esteco, among others). The second main actor is FeCoViTa, a national cooperative who accounts for 13.1% of the market, followed by RPB with 11.3%.

Figure 19 Company shares of Still Wine 2012 - % litres



Source: our elaboration from Euromonitor data

2.5. Exports

The strong growth in the Argentinean wine industry has been driven by the expansion of international trade. Total exports have increased sixfold in the last ten years, accounting for more than 913 million dollars in 2012 (3,646,800 hectolitres). Furthermore, the average price has grown as the recognition of wine quality has increased. The number of export wineries has more than tripled, increasing from 139 in 2003 to more than 380 in 2009. Brands have also enjoyed great dynamism in their attempt to profit from the Argentinean success in international markets.

In terms of wine categories, more than half of the exported wine is sold in containers holding not more than 2 litres. However, its share has substantially reduced in the last ten years (20 percentage points) while bulk wine has grown significantly (26 percentage points). Most categories have shown an overall positive growing pattern in the period 2000-2012 with the single exception

of must. Bulk wine has been the main growing product, on average it has grown 19.9% annually, with a special growth period between 2000-2007. Macroeconomic conditions in Argentina, with high inflation and decreasing competitiveness, have limited the growth of bulk sales in the period 2007-2012 by increasing costs in a commodity market in which price is the main variable.

Table 41 Evolution of wine exports by categories - hectolitres

WINE CATEGORY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2000 %	SHARE 2012 %
220410	18,039	28,209	55,547	6.6	14.5	9.8	1.9	1.5
220421	708,311	1,857,343	1,964,177	14.8	1.1	8.9	73.0	53.9
220429	183,668	1,734,881	1,625,760	37.8	-1.3	19.9	18.9	44.6
220430	60,123	23,482	1,317	-12.6	-43.8	-27.3	6.2	0.0
TOTAL	**970,141**	**3,643,916**	**3,646,800**	**20.8**	**0.0**	**11.7**	**100.0**	**100.0**

Source: our elaboration from GTA data

Previous analysis is valid also in terms of value. However it is worth noticing that while bottle wine has diminished its share in terms of volume by 20 percentage points, it has raised its value share in 2 percentage points indicating an incredible higher average price. While in 2000 a litre of bottled wine was sold on average at 1.76 U$D, in 2012 it has raised up to 3.76 U$D.

Table 42 Evolution of wine exports by categories - thousand U$D

WINE CATEGORY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2000 %	SHARE 2012 %
220410	10,180	10,639	26,157	0.6	19.7	8.2	6.4	2.9
220421	125,305	420,060	739,159	18.9	12.0	15.9	78.7	80.9
220429	14,978	68,452	148,096	24.2	16.7	21.0	9.4	16.2
224030	8,676	3,663	211	-11.6	-43.5	-26.6	5.5	0.0
TOTAL	**159,138**	**502,813**	**913,622**	**17.9**	**12.7**	**15.7**	**100.0**	**100.0**

Source:our elaboration from GTA data

For all wine exported, the main destination is the United States with the higher share of exports. Both in terms of value and of volume, more than 40% of all exports are devoted to this market. Even if concentration has been a depicting characteristic of Argentinean exports along the whole

decade, in 2012 the highest levels have been achieved. The main five destinations accounted in 2010 for 52% of all litres exported, raising up to 70% in 2012. In value the main five countries were the destination of 54% of all exports while in 2012 more than two thirds was exported to five countries (even if the destination markets change between litres and U$D, high concentration remains the main characteristic).

Table 43 Main destination markets for wine HS 2204 in 2012

SHARE LITRES %		SHARE U$D %	
UNITED STATES	46.9	UNITED STATES	40.7
CANADA	7.7	CANADA	9.9
RUSSIA	6.3	BRAZIL	6.4
PARAGUAY	4.6	UNITED KINGDOM	5.4
UNITED KINGDOM	4.3	NETHERLANDS	3.8
OTHERS	30.1	OTHERS	33.7

Source:our elaboration from GTA data

Bottled wine

In 2012, bottled wine exports accounted for 739,159 thousand dollars for 1,946,177 hectolitres and they are expected to grow specially in terms of value. The same growing trends identified for world exports are verified for Argentinean exports: between 2000 and 2007 wine exports in value grew on average at 18.9% while between 2007 and 2012 this rate diminished down to 12%. In terms of volume this difference is even greater, with 14.8% growth on average in 2000-20007 period and only 1.1% in the following cycle.

Table 44 Evolution of wine exports HS 220421

	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	VAR 2000/12 %
THOUSAND U$D	125,305	420,060	739,159	18.9	12.0	15.9	490
HECTOLITRES	708,311	1,857,343	1,964,177	14.8	1.1	8.9	177
U$D/LITRE	1.77	2.26	3.76	3.6	10.7	6.5	113

Source:our elaboration from GTA data

Most Argentinean bottle wine is devoted to North America (47.9%) and Europe (22.8%), followed by Latin American countries (19.8%). Asia and Eastern Europe are still marginal in terms of share but have shown interesting growing rates in the period 2000-2012.

Table 45 Evolution of wine exports by region HS 220421 – thousand U$D

REGION	Thousand U$D			SHARE %			CAGR %		
	2000	2007	2012	2000	2007	2012	2000/07	2007/12	2000/12
NORTH AMERICA	32,395	144,020	354,392	25.9	34.3	47.9	34.8	19.7	22.1
EUROPE	57,336	143,732	168,725	45.8	34.2	22.8	20.2	3.3	9.4
LATIN AMERICA	30,430	96,783	146,479	24.3	23.0	19.8	26.0	8.6	14.0
ASIA	4,203	16,734	47,633	3.4	4.0	6.4	31.8	23.3	22.4
EAST EUROPE	391	11,126	10,095	0.3	2.6	1.4	95.4	-1.9	31.1
OTHERS	550	7,665	11,835	0.4	1.8	1.6	69.4	9.1	29.2
TOTAL	**125,305**	**420,060**	**739,159**	**100**	**100**	**100**	**27.4**	**12.0**	**15.9**

Source:our elaboration from GTA data

In terms of individual countries, the main export markets for bottled wine are the United States and Canada with 36.2% and 11.3% share respectively, in terms of value. Both markets have greatly increased their participation, 15.2 and 6.6 percentage points in the period 2000-2012. Their attractiveness is also defined by their high growing rates (on average exports have annually grown 21.3% and 24.7% respectively) and their high average prices (more than 16% over the overall average export price).

Table 46 Evolution of bottled wine exports to North America - thousand U$D

COUNTRY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2000 %	SHARE 2007 %	SHARE 2012 %
UNITED STATES	26,258	103,726	267,422	21.7	20.9	21.3	21.0	24.7	36.2
CANADA	5,920	38,097	83,403	30.5	17.0	24.7	4.7	9.1	11.3

Source:our elaboration from GTA data

European countries are still important for Argentinean exports, even if their share has drastically reduced in the analyzed period. Countries from EU-27 accounted in 2000 for 52,895 thousand dollar, 42% of total exports (if other European countries are added this share raises up to 45.8%).

By 2012 this share has reduced to 20% (22.8% if all European countries are considered) accounting for 148,469 thousand dollars, an average annual growth rate that only halved the world one (9% versus 15.9%). The main destinations are much still the same with the United Kingdom leading imports but significantly reducing its importance (from 22.2% in 2000 to 6.1% in 2012). A similar but smoother trend is verified for Germany -who reduced its market share from 3.3% in 2000 to 1.2% in 2012 - for Sweden and Denmark. Whereas, Netherlands at significantly higher than average rates in the period, increasing its share in 0.6 percentage point.

Table 47 Evolution of bottled wine exports to EU-27 countries - thousand U$D

COUNTRY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2000 %	SHARE 2007 %	SHARE 2012 %
UNITED KINGDOM	27,820	41,134	45,376	5.7	2.0	4.2	22.2	9.8	6.1
NETHERLANDS	5,099	25,961	33,993	26.2	5.5	17.1	4.1	6.2	4.6
SWEDEN	2,963	6,463	12,409	11.8	13.9	12.7	2.4	1.5	1.7
DENMARK	4,697	17,180	11,769	20.4	-7.3	8.0	3.7	4.1	1.6
BELGIUM	1,472	6,144	8,908	22.6	7.7	16.2	1.2	1.5	1.2
GERMANY	4,177	8,117	8,828	10.0	1.7	6.4	3.3	1.9	1.2
OTHER EU-27 COUNTRIES	6,666	26,419	26,887	21.7	0.4	12.3	5.3	6.3	3.6
TOTAL EU-27	**52,895**	**131,418**	**148,169**	**13.9**	**2.4**	**9.0**	**42**	**31**	**20**

Source: our elaboration from GTA data

In addition to the North American and European market, Brazil continues to be a significant destination for Argentinean bottled wine exports. During the period, the country's share of wine exports has grown from 5.8% til 7.4%, accounting for 54,803 thousand dollars in 2012. On average exports have grown 18.7% every year from 2000 til 2012 and are expected to follow this positive trend. Average price is just over the world media for Argentinean wine, with smooth growth in the period. Other important destinations in Latin America are Paraguay and Mexico, each of them with an specific market profile in terms of price. While Paraguay imports from Argentina at 1.17 U$D per litre on average, Mexico does it at 3.9 U$D per litre.

Asia and especially China has become very important for the Argentinean wine industry. In 2012, China became the 6th largest export market, after being 17th only five years earlier. It accounted for 19,956 thousand dollars in 2012 for 41,116 hectolitres, an average of 4.85 U$D per litre.

As well as in the domestic market, the most successful wine variety in export markets is Malbec, and most of the country's growth in wine is due to its increasing appreciation. The growth of this variety has outpaced sales of all other varieties, accounting for more than 55% of total sales in 2011 (including blends). Even during the last financial and economic crisis, Malbec sales increased at high rates, an average of 22% per year from 2009 to 2011.

Bulk wine

As previously depicted, bulk wine exports have shown incredibly high growing rates in the period 2000-2012 and have propelled most of the wine industry growth. Even if the period 2007-2012 has seen smoother growing rates, total sales accounted for more than 148,095 thousand dollars in 2012 for 1,625,760 hectolitres. Average price per litre has shown great fluctuations all over the period, with minimum values in 2003 of 0.23 U$D and maximum values of 0.96 U$D in 2010.

The high concentration level depicted for bottled wine is even stronger in the bulk wine export, with the United States accounting for more than 67% of all exported volume and 68% of all exported value. Russia is also a main player in this field in terms of volume (12%) even is average price is significantly below the global average (60% lower). Canada and Japan complete the market portfolio for bulk wine, with volume shares of 5% and 4% and value shares of 4% and 8% respectively. Except Japan, all three markets have registered outstanding growing rates in the period.

Table 48 Evolution of bulk wine exports to top 4 countries - thousand U$D

COUNTRY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2012 %
UNITED STATES	384	11,705	101,152	63.0	53.9	59.1	68
JAPAN	6,310	6,622	12,070	0.7	12.8	5.6	8
RUSSIA	64	23,263	7,389	132.1	-20.5	48.5	5
CANADA	526	3,323	6,533	30.1	14.5	23.4	4
OTHER COUNTRIES	7,694	23,539	20,953	17.3	-2.3	8.7	14
TOTAL	**14,978**	**68,452**	**148,096**	**24.2**	**16.7**	**21.0**	**100**

Source: our elaboration from GTA data

Table 49 Evolution of bulk wine exports to top 4 countries - hectolitres

COUNTRY	2000	2007	2012	CAGR 2000/07 %	CAGR 2007/12 %	CAGR 2000/12 %	SHARE 2012 %
UNITED STATES	3,555	376,544	1,085,712	94.7	23.6	61.1	67
RUSSIA	1,555	814,961	194,160	144.6	-24.9	49.5	12
CANADA	7,901	100,970	89,232	43.9	-2.4	22.4	5
JAPAN	71,570	79,262	70,056	1.5	-2.4	-0.2%	4
OTHER COUNTRIES	106,988	464,116	275,831	23.3	-9.9	8.2	17
TOTAL	**183,668**	**1,734,881**	**1,625,760**	**37.8**	**-1.3**	**19.9**	**100**

Source:our elaboration from GTA data

2.6. Imports

As a productive country, wine imports are negligible in Argentina and are showing an important decline in the last years. Sufficient domestic supply and strong government restrictions are the main explanations to a 8% annual average reduction in total imports between 2000 and 2012. While in 2000 more than 12,826 thousand dollars were imported in 2012 the import value was only of 4,767 thousand dollars. It is worth noticing that the composition of wine imports suffers great changes on a yearly basis, basically depending on domestic supply. For instance, in 2008 more than 80% of all imports were bulk wine from Chile whereas in 2000 more than 92% of imports were sparkling and still bottled wine, mainly from France and Spain.

2.7. Malbec

Malbec is Argentina's flagship variety and the country has the largest cultivated surface in the world. Originally from South West France (where it is called Cot) it was brought to Argentina by Michel A. Pouget, a French agronomist hired by the government of Mendoza. Both in the domestic market and in the international market Argentinean Malbec has gained appreciation, with increasing sales and average prices.

The cultivated area with Malbec accounted for 33,864 hectares in 2012, almost 16% of the national vineyard. This area has strongly grown in the last 20 years and is now 107% greater than in 2000 and 240% greater than in 1993. In terms of annual growth, the cultivated surface with Malbec has grown 6% annually from 2002 til 2012, more than 1,505 new hectares every year.

Table 50 Evolution of Malbec cultivated surface - hectares

YEAR	MENDOZA	OTHER PROVINCES	TOTAL
1993	9,189	771	9,960
1994	8,912	928	9,840
1995	8,820	926	9,746
1996	8,825	953	9,778
1997	8,888	1,006	9,894
1998	9,199	1,115	10,314
1999	9,261	1,273	10,534
2000	14,338	2,009	16,347
2001	15,098	2,208	17,306
2002	16,053	2,891	18,944
2003	17,017	3,235	20,252
2004	17,738	3,444	21,182
2005	18,694	3,767	22,461
2006	20,513	3,865	24,378
2007	21,959	3,970	25,929
2008	22,885	4,026	26,911
2009	24,331	2,047	26,378
2010	26,660	4,387	31,047
2011	26,660	4,387	31,047
2012	29,281	4,583	33,864
CAGR 2002/12 %	6.2	4.7	6.0

Source: our elaboration from INV data

Malbec vines are grown in every region of the country, along the Andes mountain range. Mendoza is the main Malbec producer in the country, with more than 86% of the national vineyard. San Juan is the second Malbec producer and Salta the third one. It is worth noticing the importance of the Malbec variety in relatively new wine provinces, such as Jujuy (49%), Tucuman

(37%), Neuquen (35%) and San Luis (28%). Even if these provinces' cultivated surface is minor, Malbec share denotes the important diffusion of the variety to the north of the country and to the south to the Patagonian provinces.

Table 51 Malbec surface by provinces 2012 -hectares

PROVINCE	MALBEC		TOTAL	
	ha	Share %	ha	Share %
MENDOZA	29,281	86.5	157,201	71.1
SAN JUAN	1,970	5.8	47,386	21.4
SALTA	781	2.3	2,650	1.2
NEUQUÉN	600	1.8	1,683	0.8
LA RIOJA	530	1.6	7,136	3.2
RIO NEGRO	327	1.0	1,673	0.8
CATAMARCA	230	0.7	2,631	1.2
LA PAMPA	55	0.2	216	0.1
TUCUMAN	31	0.1	83	0.0
SAN LUIS	23	0.1	84	0.0
CORDOBA	16	-	261	0.1
BUENOS AIRES	13	-	110	-
JUJUY	5	-	11	-
ENTRE RIOS	3	-	24	-
CHUBUT	-	-	20	-
MISIONES	-	-	5	-
S. DEL ESTERO	-	-	9	-
TOTAL	**33,864**	**100**	**221,181**	**100**

Source: our elaboration from INV data

In the domestic market, Malbec wines account for 636,579 hectolitres, more than 33% of all wine sold. During the last years, the recognition of this variety has led to an increase of single variety wine sales and a reduction of Malbec blended with other varieties. As a single variety, Malbec sales account for 31% of all domestic sales in 2012 while it accounted for only 14% in 2006. The

opposite is true for Malbec wines in blends, sales share has reduced from 18% in 2006 to a minor 2% in 2012, denoting a clear preference for Malbec single variety wines.

Table 52 Evolution of domestic consumption

YEAR	MALBEC		MALBEC BLENDS		TOTAL MALBEC		OTHER		TOTAL
	Hl	Share %	Hl	Share %	Hl	Share %	Hl	Share %	Hl
2006	257,002	14	330,938	18	587,939	33	1,201,929	67	1,789,868
2007	407,216	21	545,726	28	952,942	49	1,001,226	51	1,954,168
2008	491,150	24	626,716	31	1,117,866	55	899,994	45	2,017,861
2009	545,936	27	101,914	5	647,850	32	1,367,288	68	2,015,138
2010	504,698	26	63,430	3	568,127	29	1,385,103	71	1,953,230
2011	514,504	26	39,425	2	553,929	28	1,393,422	72	1,947,350
2012	596,797	31	39,782	2	636,579	33	1,268,518	67	1,905,096

Source: our elaboration from INV data

In the export market, Malbec sales account for 47% of all varietal wines, up to 1.118.375 hl hectolitres and 461,050 thousand dollars in 2012. The share of single-variety Malbec and Malbec blends has changed during the years: while in 2004 23% of volume sold corresponded to blends, in 2012 this share has decreased to 9%. In terms of value, in 2004 more than half of Malbec sales were explained by blend while in 2012 only 9% of total exported value corresponded to this type of wine. Both in terms of value and in terms of volume, it is clear the increasing appreciation of the Malbec variety in the world market and the high-profile winemakers producing wines with Malbec grapes have strongly influenced this growing pattern.

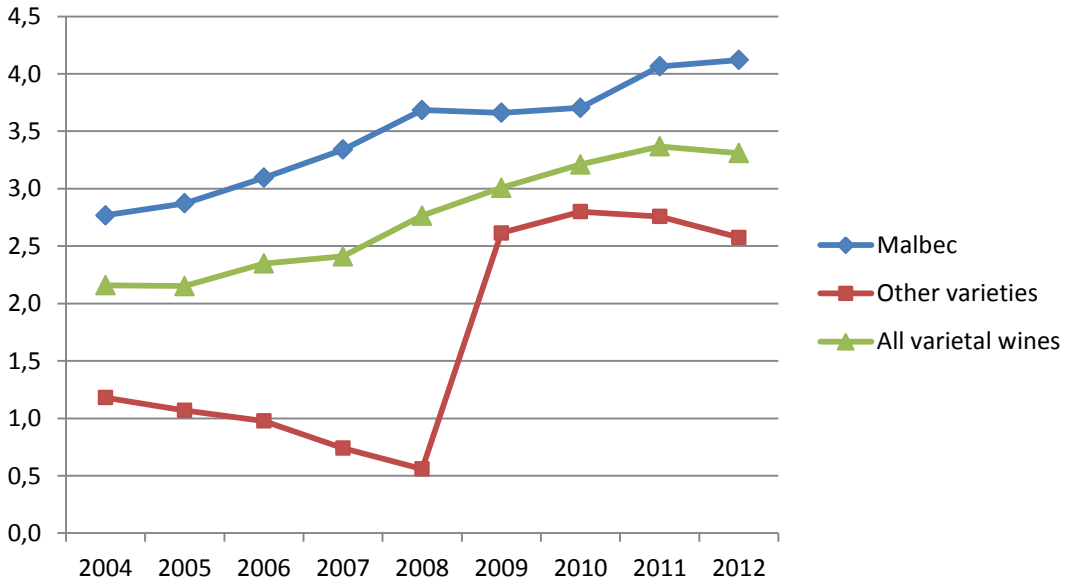
The growth of the Malbec variety has outpaced sales of all other varieties, with a 22% average annual growth rate between 2004 and 2012 while other varieties have grown at 10% annually. Even during the last financial and economic crisis, Malbec sales increased at high rates, an average of 16% per year from 2009 to 2011.

Table 53 Evolution of varietal wines exports

YEAR	MALBEC		OTHER VARIETIES		TOTAL VARIETAL WINES	
	hl	thousand U$D	hl	thousand U$D	hl	thousand U$D
2004	226,402	103,821	561,829	66,326	788,231	170,147
2005	288,623	143,841	754,913	80,736	1,043,536	224,577
2006	367,788	200,483	833,362	81,493	1,201,150	281,976
2007	505,705	301,873	1,076,194	79,616	1,581,899	381,489
2008	622,159	415,941	1,106,780	61,958	1,728,939	477,899
2009	738,919	263,606	1,049,242	274,248	1,788,161	537,854
2010	950,749	347,532	1,030,097	288,439	1,980,846	635,971
2011	1,005,434	405,803	1,102,898	304,196	2,108,332	709,999
2012	1,118,375	461,050	1,239,123	319,148	2,357,498	780,198
CAGR 2004/12 %	22.1	20.5	10.4	21.7	14.7	21.0

Source:our elaboration from INV data

Figure 20 Evolution of varietal wines' average price – U$D per litre



Source:our elaboration from INV data

The average price of a litre of a single-variety Malbec in the export market was 4.1 U$D per litre in 2012, substantially higher than the price of other varietal wines (2.6 U$D per litre) and also higher than all bottled wines (3.8U$D per litre). Moreover, a positive growing pattern has been witnessed by Malbec wine prices, with a 5% average growth between 2004 and 2012. The fact that Malbec prices have grown less than other varietals (10% annual average growth) can be explained by the increasing sales of Malbec wines in bulk, partially replacing bottled wine. I n fact during the last eight years, the share of bulk Malbec has grown from representing 10% in terms of volume and 2% in terms of value to 13% and 6% respectively. The average prices of bulk and bottled Malbec are substantially different, bulk wines selling at 40% of bottle prices (1.71 U$D versus 4.49 U$D).

In terms of growing trends exports of bulk Malbec enjoy higher average rates, both in terms of volume and value, when compared to bottled Malbec. This is especially true for the last four years, when bulk growing rates have more than doubled bottle ones in terms of volume and more than tripled in terms of value.

Table 54 Evolution of bulk and bottled wine exports

YEAR	BULK		BOTTLED	
	hl	thousand U$D	hl	thousand U$D
2004	17,725	1,158	156,842	47,163
2005	31,818	1,947	201,886	65,186
2006	37,136	2,009	267,831	92,376
2007	33,702	2,065	388,519	138,970
2008	33,469	2,718	496,969	192,744
2009	38,812	4,090	609,708	233,346
2010	56,058	7,264	798,500	309,214
2011	82,687	14,385	830,246	356,716
2012	136,414	23,380	886,262	398,042
CAGR 2004/12 %	29.1	45.6	24.2	30.6
CAGR 2007/12 %	32.3	62.5	17.9	23.4

Source: our elaboration from INV data

3. Preliminary conclusions

The world wine market is being increasingly shaped by trade, accounting already for more than two decades of rapid globalization. Large exported and imported volumes are shaping the new geography of wine countries. Old World producers, while retaining their dominating position, are losing share in overall trade while retaining high-priced wine segments. New World producers show high dynamism but most are still selling below average prices. Traditional consumption countries are changing, showing consistent declining domestic consumption. Whereas, North America and some eastern European countries are showing increasing wine imports. Asian countries emerge as the future greatest markets with high volumes and higher priced imports than many traditional importers.

Still-bottled wine accounts for the biggest share in wine trade, but bulk wine is rapidly increasing. Environmental concerns, over-supply and wholesalers' concentration are key factors favoring this change. The difference in export prices between bottled and bulk wine is so big that concerns over the economically sustainability of such a portfolio naturally arise.

In this scenario, Argentina is enjoying great dynamism, increasing its market share from 1.6% in 2000 to 3,6% in 2012, in terms of exported volume. This growth has been strongly based on Malbec, which represents today Argentina's flagship variety. The largest Malbec cultivated surface in the world is located in Mendoza, Argentina. More than 70% of all exports are devoted to North America and Europe, while Asia and Russia are showing attractive growth rates. Most Malbec wine is exported in 750 cl bottles but the share of bulk exports is rapidly increasing. With an annual growth rate of 42% for the period 2008-2012, bulk Malbec exports account today for 13% of total Malbec volume and 6% of total Malbec value. Despite its current marginal role Malbec bulk exports threats the industry. The substantial price difference between bottled and bulk Malbec confirms concerns over the economic sustainability of this model, requiring private and public initiatives to improve product differentiation.

By analysing together the world wine trends and Argentinean exports, both in terms of overall wine trade and also in terms of specific wine categories, a group of markets have been selected for the hedonic estimation. Moreover, the general scope of the thesis of analysing New World countries and Old World ones have been taken under consideration. In this way, the selected countries for the New World are the United States and the United Kindgom and for the Old Word the Netherlands and Germany. Their role in the world wine market has been the main selection

criterion. These four countries represent the main import markets of bottled wine in terms of volume, accounting for almost half of world imports in 2012. Moreover, they all show a positive growing trend in terms of volume of imported bulk wine suggesting a process of substitution could be going on. While bottled wine average prices have shown positive growing trends, bulk wine average prices have diminished. For Argentina these four markets are of vital importance, each of them for specific reasons. The United States is the main destintion for all Argentinean wine, accounting for as much as 41% in 2012, twofold its share in 2005. Whereas, the United Kingdom represented the second destination in 2005 and by 2012 it has gone down to the fourth position, accounting for only 5% of all wine exports. The Netherlands represents the fifth market for Argentina and the second one among European countries. Its trader role mainly defines the importance of including it in the analysis. Even if for Argentina the German market represents only 1%, this European country is the main world importer of all wine in terms of litres and it also enjoys the first position for bulk wine. The risk of further substitution of bottled wine by bulk wine defines the need to keep an eye on the German country.

Chapter VI: Would Argentinean Wines Benefit From Protected Geographical Indications In International Markets? The Case Of Malbec

1. Data

Two different data sets for Malbec wine have been constructed: (i) 1,250 observations for the United States are derived from ten years of tasting ratings reported in the on line version of *Wine Spectator* Magazine (March 2009) and (ii) 901 observations for the United Kingdom (53.9%), the Netherlands (18.53%) and Germany (27.52%) are derived from the on line wine research engine *Wine Searcher* (August 2011)[38].

Both data source belong to the growing sector of magazines[39] and they fully satisfy the assumption of accessibility to the wine consuming public at large (Oczkowski, 1994). *Wine Searcher* has on average a million searches per day while *Wine Spectator* has a readership of more than 2.5 million people. Moreover, both sources can be considered relevant sources of information used by consumers willing to buy foreign wines through internet or at least searching for information on the web.

Wine Spectator, considered the most highly circulated wine magazine, has a strong influence on wine consumers, especially in the US market. The magazine is published 15 times per year and it aims to illuminate and educate wine lovers and epicureans. Services include: in-depth wine tasting reports, buying guides, travel and fine dining features, chefs' menus and personality profiles. The readership is estimated in more than 2.5 million people and it was ranked No.1 in 2008 among consumer and business publications by the Luxury Institute survey. Landon and Smith (1998) identified some key advantages of *Wine Spectator* guide: it includes a large number of different wines; the scoring system (0-100 points) is simple and thus accessible for all types of audiences; the 100 point scale identifies finer quality differences than many other guides based on five-point scales; and it provides prices and quality ratings for each wine that reflect the results of tastings that take place at the same time each year. Moreover, as verified by Delmas and Grant (2010) and Roberts and Reagans (2006), there is no significant difference between Wine Spectator listed prices and retail prices.

[38] As the Netherlands re-exports a great deal of its Argentinean wine imports, the Dutch number of observations in the data set accounts for a smaller percentage than its import value share.

[39] For instance, in the United States the number of magazines grew from 5,340 in 2002 to 7,179 in 2011 while the total audience grew from 172 million to 188 million (The Association of Magazine Media, 2012)

For the European markets, the selected source is a wine magazine and a search engine of wine retailers' supply and prices (not an e-commerce platform). The magazine publishes news, features, profiles and essays on wine and the industry while the search engine lists 5,445,601 wines and prices from 36,482 merchants around the world. On average prices are up-dated every three days, directly from the sellers' websites. Some differences between the actual price and the exhibited one could exist as not all merchants have 'real time' price lists but they rather update lists seasonally. If consistently misleading information is identified, the engine removes wines from the price list. Random verification has been done and no price difference or availability problems were found.

The selected data sets present some differences. First, *Wine Spectator* reports suggested prices for selected wines. These prices cannot be strictly considered retail prices but they constitute a good proxy for prices in specialised shops. Instead, *Wine Searcher* publishes the retail prices at which consumers could buy a certain wine in a given specialised wine shop in each of the selected countries. Descriptive statistics for prices are reported in Table 55. March 2009 prices in US dollars have been adjusted by the Consumer Price Index for the United States (US Department of Labour) and expressed in August 2011 Euros (exchange rate supplied by the Central European Bank). Second, the American wine magazine has a strong representativeness of high-quality wines, while the European data set includes a wider quality range. To increase the comparability of the two data sets, the highest priced icon wines have been considered outliers and therefore are excluded from the data sets. The data employed in the study include high- to medium-priced wines. Third, *Wine Spectator* reports a jury grade — a score for each published wine — while *Wine Searcher* includes a 'research score', which is only present if the wine is highly sought after.

Table 55 Descriptive statistics for price - € 0.75 litre format

Country	Mean	Median	Minimum	Maximum	Standard Deviation
United States (US)	17.96	12.13	4.15	128.38	16.64
United Kingdom(UK)	14.30	10.80	5.94	86.40	11.36
Germany (DE)	14.68	9.52	3.57	85.68	14.51
Netherlands (NL)	12.88	9.52	3.57	78.54	12.03

In both cases, the GNs and other wine attributes were taken from the available wine description, which generally indicates the information provided on the label. For each observation, both data sets include the following information: price, geographical name, age, score, blend or single-

variety (*Grape*), red or rosé (*Type*), range of products (*Range*) and vineyard indication (*Vineyard*). Three of these variables are continuous: (i) the price of the wine; (ii) years of ageing before commercialisation (*Age*) and (iii) the number of wines sold under the same brand, but from different vintages (*Range*). *Score* is also a continuous variable for the US data set, while it is binary in the European data source. All other variables are dummies. For the US market, the data set also includes the natural logarithm of the quantity of 9-litre cases produced by the winery (*Lcases*). Note that the variable *Age* was estimated based on the vintage year reported in both data sources and it was so done to capture the effect of ageing and not the effect of individual vintages.

Given the research aims, all GNs information available in the data sources has been considered, and no administratively defined area classification has been imposed *a priori*. The observed GNs are: Argentina as a single GN; the names of regions or provinces (Mendoza, San Juan, La Rioja, Salta or Patagonia); sub regions, such as Cafayate and Uco Valley; and regional districts or micro sub-areas, such as Vistalba, Agrelo and Tupungato, among others. When few cases were reported at the micro level, the sub-areas were grouped, as in the case of some of Mendoza's districts. All non-Argentinean Malbec GNs have been grouped into one category (other countries). As not all GNs are present in each market, the individual market model specification differs slightly.

Germany, Netherlands and United Kingdom

Origin

The European sample includes 901 Malbec wines sold in Germany, the United Kingdom and the Netherlands. These wines are produced mainly in Argentina and, specifically, in the Mendoza region. Only 100 wines from the sample are produced in third countries, being Chile and France the most important competitors in this market segment. Australia, New Zealand and South Africa also have some minor presence.

Table 56 Number of observations of Geographical Names and markets

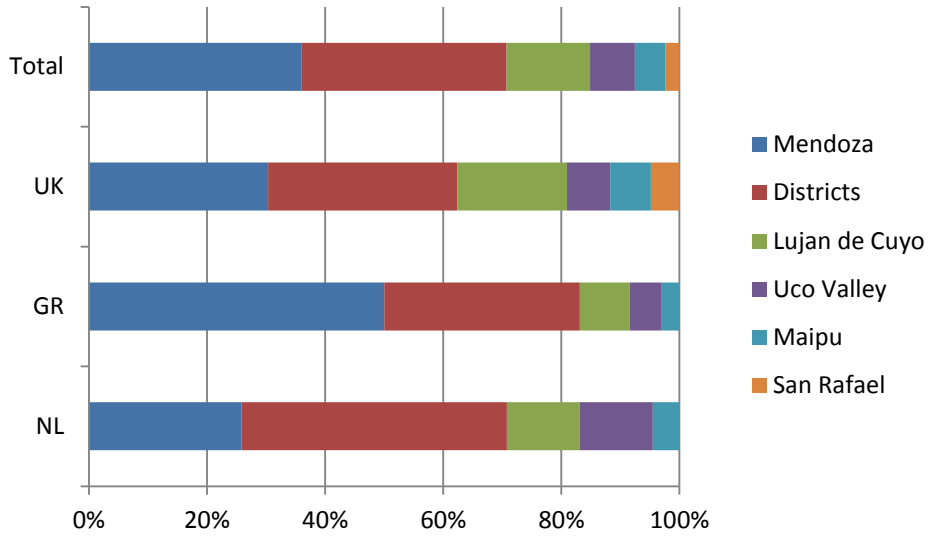
Geographical Names	NL	DE	UK	Total
Argentina	44	0	150	194
Mendoza or sub-regions	89	166	247	502
Patagonia	0	13	7	20
Salta	7	0	13	20
San Juan	7	7	6	20
La Rioja	4	3	2	9
Absent	0	24	12	36
Other countries	16	35	49	100
TOTAL	**167**	**248**	**486**	**901**

Among Argentinean wines, one out of four wines has only the country's name on the label and no region or sub-region or production is indicated (Compulsory particulars Art. 59 Reg EC 479/2008). This is particularly interesting in the United Kingdom where almost one out of three wines sold is labelled exclusively as "Argentina". In the Netherlands one out of four wines is marketed in this way. In Germany all wines include a sub-region when labelling wines as 'Argentina'.

Among those wines with an ulterior geographical designation, all Argentinean wine regions are represented. This fact is an evidence of the export-model base adopted by all the actors of the industry distributed along the country and also an evidence of the expansion of Malbec from the historical area of Mendoza to the north of the country (San Juan, La Rioja, Salta) and to the south (Patagonia). There are still important differences among the producing areas, defining specific export portfolios. This fact can be explained by the agro-ecological requirements of Malbec variety and the wineries' managerial skills. Mendoza and its sub-regions concentrate most of the supply to the selected European markets (56% wines from the total sample and 63% of all Argentinean wine). In Germany, where total wine sales raised to 9.7 million dollars in 2010, almost 67% of all Argentinean wines are labelled with Mendoza or one of its regions. In the United Kingdom and the Netherlands, where Argentinean wines are stronger, the origin of the wine is more diversified. In these markets, 51% and 53% of Argentinean wines respectively indicate some Mendocinean origin, while others are labelled Patagonia, Salta, San Juan or La Rioja.

Within wines originating in Mendoza, most wines indicate some Mendocinean district (45% in the Netherlands, 33% in Germany and 32% in the United Kingdom). Mendoza as a single geographical reference is also widely employed especially in Germany. The case of Luján de Cuyo and Uco Valley is especially interesting in the Netherlands and the United Kingdom. In both countries, almost 25% of all wines coming from Mendoza indicate these origins.

Figure 21 Geographical Names in wines from Mendoza

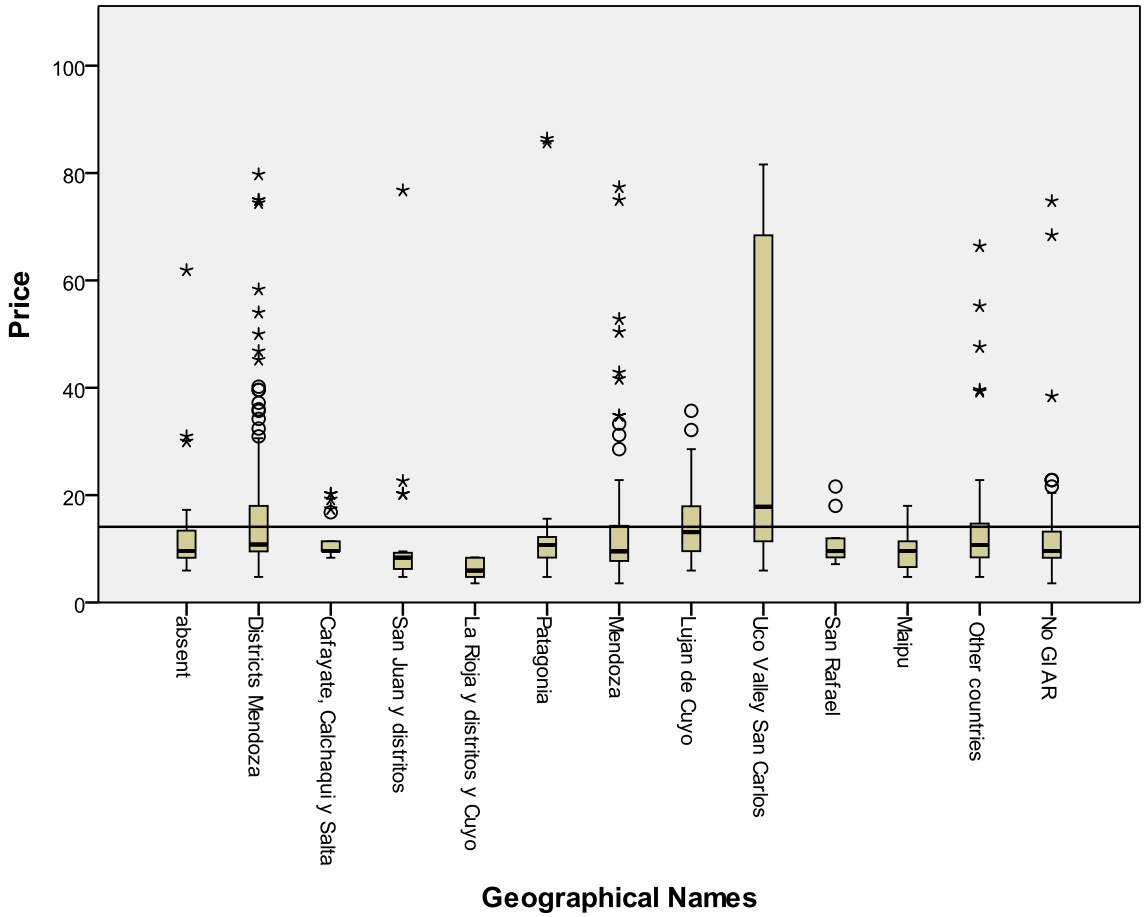


Price

Wines from the European data base are sold in the €4-86 range, with an average price of €14.10 and an average of €14.20 for the sub-sample of Argentinean wine. However, these data hides important differences among Argentinean regions. In general terms, wines labelled with origins outside Mendoza are sold under the average (Cafayate, San Juan and specially La Rioja) with the only exception of Patagonia, selling at €16.80 on average. These high priced wines can be further explained by the region's tourist attractiveness and world recognition and by the wineries' ability to produce and sell high quality Malbec wines. The greatest average price is observed in the Uco Valley, with €33.37 and the minimum price is for La Rioja and its district, with €6.36. However, the high standard deviation for Uco Valley wines shows that the minimum priced wine is sold at the same price as the average wine from La Rioja.

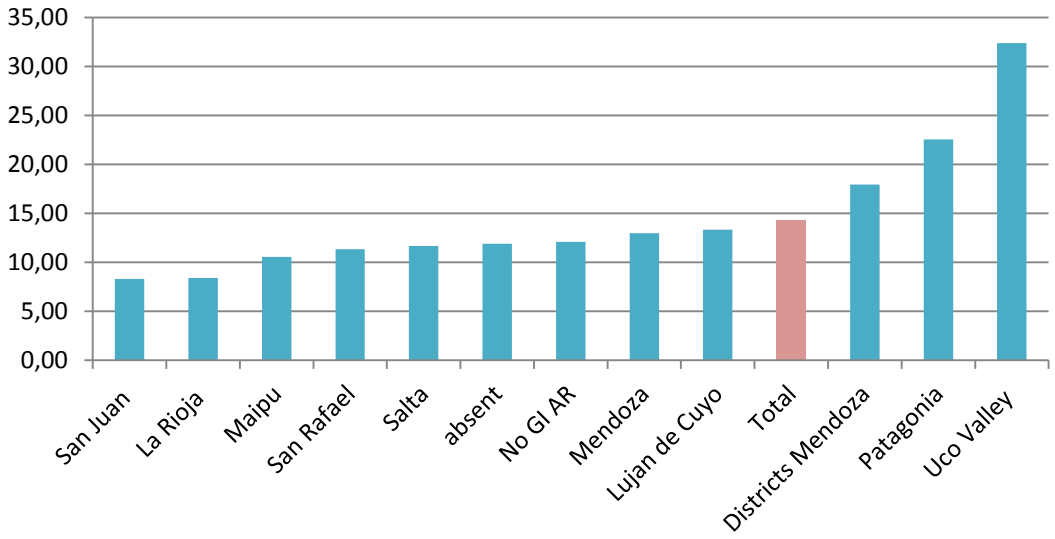
Inside Mendoza, there are also important price differences. For instance, Maipu's average price is €9.4 while "Districts Mendoza" sells at €16.45 on average. Surprisingly, "Luján de Cuyo" prices are less than half of the Uco Valley ones.

Figure 22 Box plot prices and geographical names



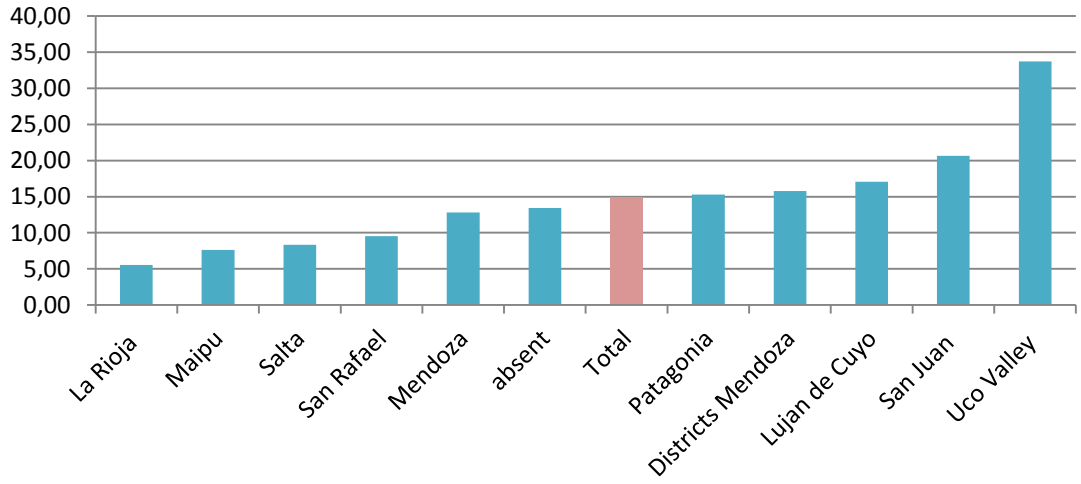
The United Kingdom enjoys certain peculiarities in terms of prices for the different Argentinean geographical names. With an average price of €14.27 for an Argentinean Malbec wine, Uco Valley is the geographical name with the highest price. However, this price is slightly lower than that of Germany and the Netherlands. Patagonia is the second geographical name in terms of price, much higher than the observed price in the other markets. Small districts from Mendoza also enjoy a higher price considering the global average and considering the price in other markets. Another special feature of the English market is the lower price for the Lujan de Cuyo and Mendoza's geographical names, where most Malbec in Argentina is produced. San Juan and La Rioja are the lowest priced geographical names, almost 42% lower than the average.

Figure 23 Average prices in the United Kingdom - €



In Germany, average prices follow a different pattern. Even if Uco Valley is also positioned at the first place in the ranking, San Juan gains positions, with an average price of €20.66. Luján de Cuyo is also better positioned in Germany than in the other markets, 22% higher than in the United Kingdom and 18% higher than in the Netherlands. Districts from Mendoza and Patagonia enjoy a similar average price, denoting the wines' high profile sold by the latter region.

Figure 24 Average prices in Germany - €



In the Netherlands, Uco Valley is also the higher priced geographical name. Moreover, the difference between this price and the global average is higher than in any other market. In the

Netherlands, Uco Valley's price is 2.6 times higher than the global average while in the other markets this difference raises to 2.2 times. Luján de Cuyo is the second geographical name in terms of average price. Wines with no geographical name (other than Argentina) enjoy a high price in this market, reaching an average price even higher than the global average.

Figure 25 Average prices in the Netherlands - €

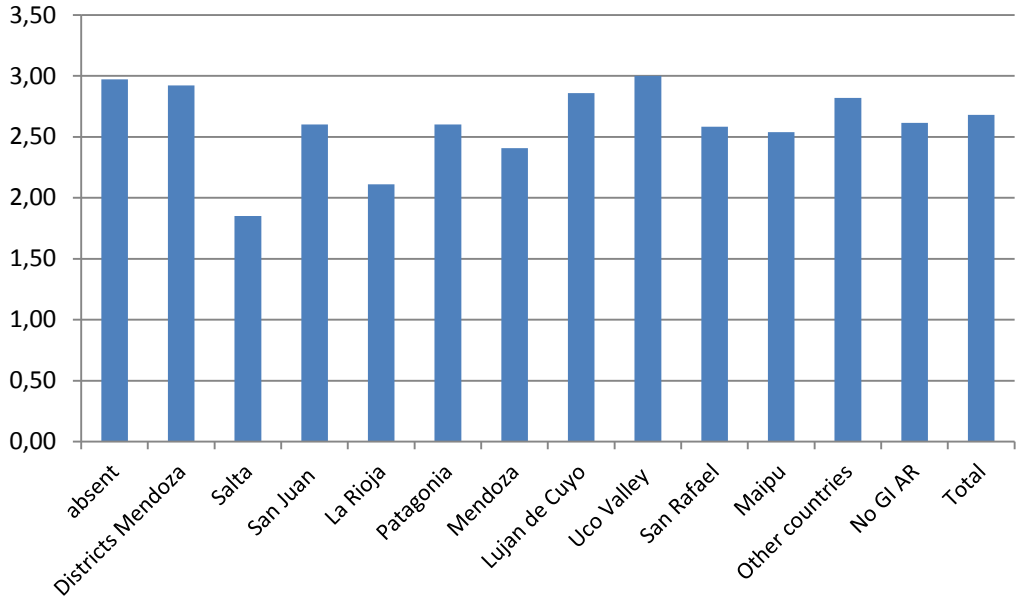
Other variables

The average product range of the sample is 2.1, i.e. on average there are two wines only differentiated by the vintage on sale in the selected markets. In Germany and the Netherlands, this range raises up to 2.2 while its only 2 in the United Kingdom. Among the different Argentinean geographical names, Patagonia is the one offering a wider range of products, with an average of 2.7 wines. Those wines with no geographical indication and those from San Juan offer the narrowest range, with an average of 1.8 and 1.9 respectively.

The average wine is 2.68 years old while Germany has wines that are a bit older (2.79), the Netherlands are younger (2.55) and the United Kingdom just on the average (2.67). Among the geographical names, Uco Valley is the area offering older wines on average and Salta offers the youngest wines. This last phenomenon can be understood by the region's experience in white wines which could lead them to the production of younger wines. Districts from Mendoza also offer older wines, with 2.92 on average. Wines without geographical names also are this age. Luján

de Cuyo average age is slightly minor with 2.86 years. Other countries' average age is also higher than the global average, with 2.82 years.

Figure 26 Average age for Geographical Names



Out of the sample, only 12.2% of the wines have a defined score. Most of these wines (72%) are scored in the search position between 1001 and 2500. If we consider that the data source includes more than 5,4 million wines and prices from 35,832 stores around the word, these search positions are quite interesting. One out of four of these wines are scored in the search position between 260 and 1000.

In the United Kingdom only 9% of the wines sold have a search score and 24% of them are ranked between the 260 and 1000 position. In the case of Germany, 14% of all wines have a score and 25% are ranked in the 260-1000 position. The Netherlands present a peculiar situation as the percentage of scored wines is superior to other countries (19%) but only 12% are ranked in the 260-1000 position.

United States

Origin

The sample for the United States includes 1,250 wines, derived from ten years of tastings ratings reported in *Wine Spectator.* Most of these wines are produced in the Argentinean region of Mendoza. Only 15.9% of all wines are produced in third countries. The most important competitor

in terms of quantity of wines supplied is Chile. The second largest supplier is the United States, followed by Australia and France. Among these competitors, Chile, Australia and France sell their Malbec at lower prices than the Argentinean average one (-32%, -8% and -28% respectively) while California sells them 47% higher on average.

Table 57 Number of observations of Geographical Names

Geographical Names	USA	%
Argentina	12	1,0%
Mendoza or sub-regions	955	76,4%
Patagonia	28	2,2%
Salta	25	2,0%
San Juan & La Rioja	31	2,5%
Other countries	199	15,9%
TOTAL	**1250**	100,0%

As opposed to the European data base, a very small percentage of wines are labelled solely with the country's name (1%). The other wines all include the name of a region, province or district and all Argentinean regions are represented.

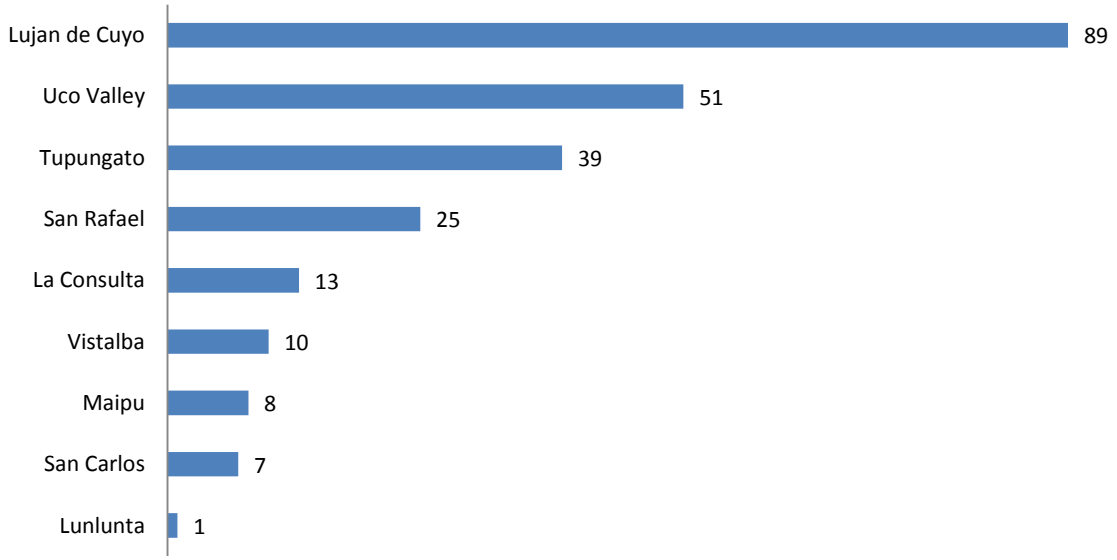
Mendoza and its sub-regions concentrate most of the supply to the US market (76.4%). Most of these wines use the single geographical name "Mendoza" or the single sub-region or sub-district name. This fact could mean a common communication strategy in terms of quantity of information presented on the label. In other words, most wineries seem to choose one geographical name to depict the origin, instead of including a sum of province, district and sub-district.

Table 58 Number of observations from Mendoza

Geographical Names	N	%
Only sub-regions	243	25.%
Sub -regions & Mendoza	40	4.2%
Only Mendoza	672	70.4%
TOTAL	**955**	**100,0%**

Among the main sub-regions included alone on the label, Luján de Cuyo, Uco Valley and Tupungato are the most important ones. San Rafael also promotes its wines with their single place indication. Other geographical names of reduced use are shown on Figure 6.

Figure 27 Number of observations with the single geographical name



The districts that used a combination of their name and Mendoza are listed on Table 59. Most of them represent quite small areas of Mendoza, suggesting their need to include a broader reference, such as Mendoza, on the label. The exceptions are Uco Valley and Tupungato but with an insignificant number of observations.

Table 59 Number of observations with combined Geographical Names

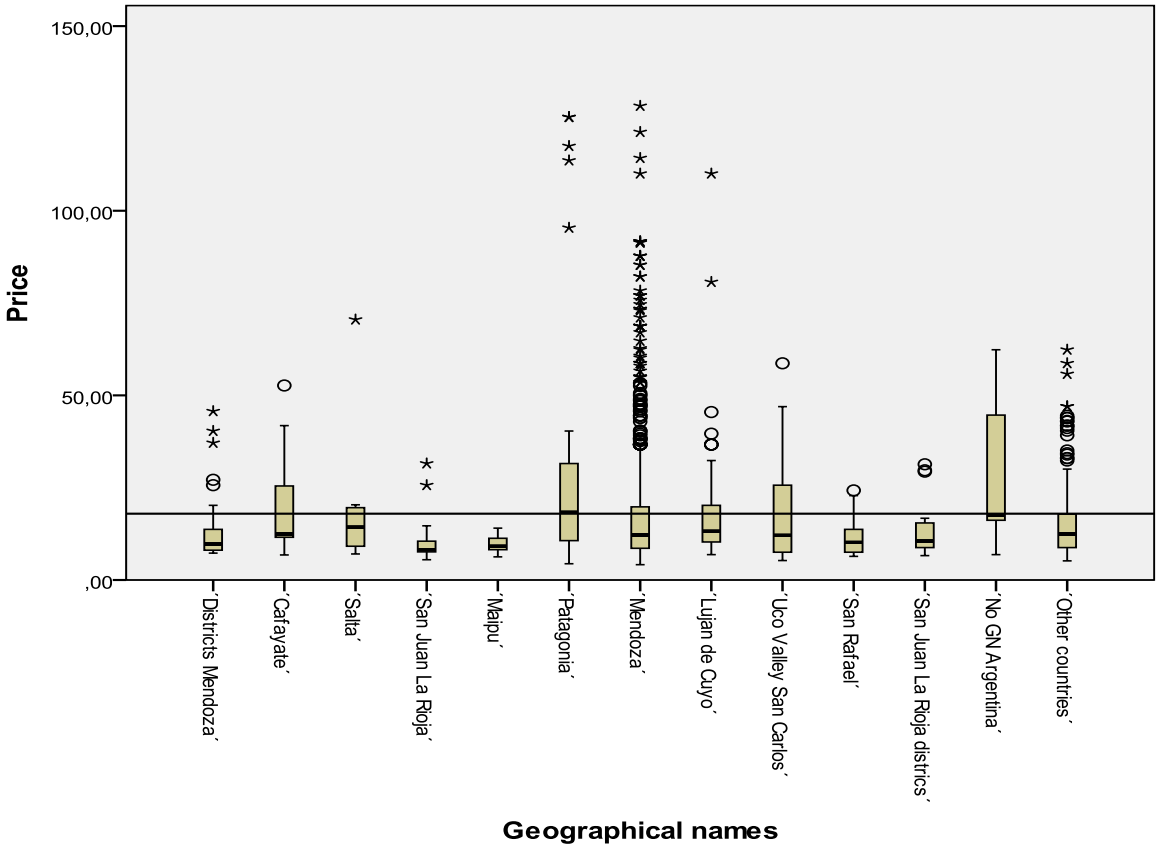
Geographical Names	N
Altamira	10
Lunlunta	7
Russel	5
Medrano	5
Chacras	3
Perdriel	2
Las Compuertas	2
Cruz de Piedra	2
Uco Valley	2
Barrancas	1
Tupungato	1
TOTAL	**40**

Price

The average price of wines from Wine Spectator data base is €17.96. If 5% of the highest and the lowest priced observations is excluded, the average price turns to be €15.46. The lowest prices are those from Maipú, San Juan and La Rioja. On the other hand, the highest prices are found in wines from Patagonia (€34), those only labelled with Argentina (€28) and those from Cafayate (€19). The big standard deviation of these wines gives us an insight on the great variability of Malbec wines produced in these areas, with maximum prices up to €128 and minimum of €4.40.

Inside Mendoza, there are also important differences in prices. While Mendoza on its own or in addition to its districts enjoys an average price of €18.7, San Rafael has an average of €11.5. However, the latter presents a reduced range of prices (€6.4-24.3) while the former has quite a broad price range (€4.15-128.4). As in the European data set, Luján de Cuyo wines are priced lower than Uco Valley ones.

Figure 28 Box plot prices and geographical names



Other variables

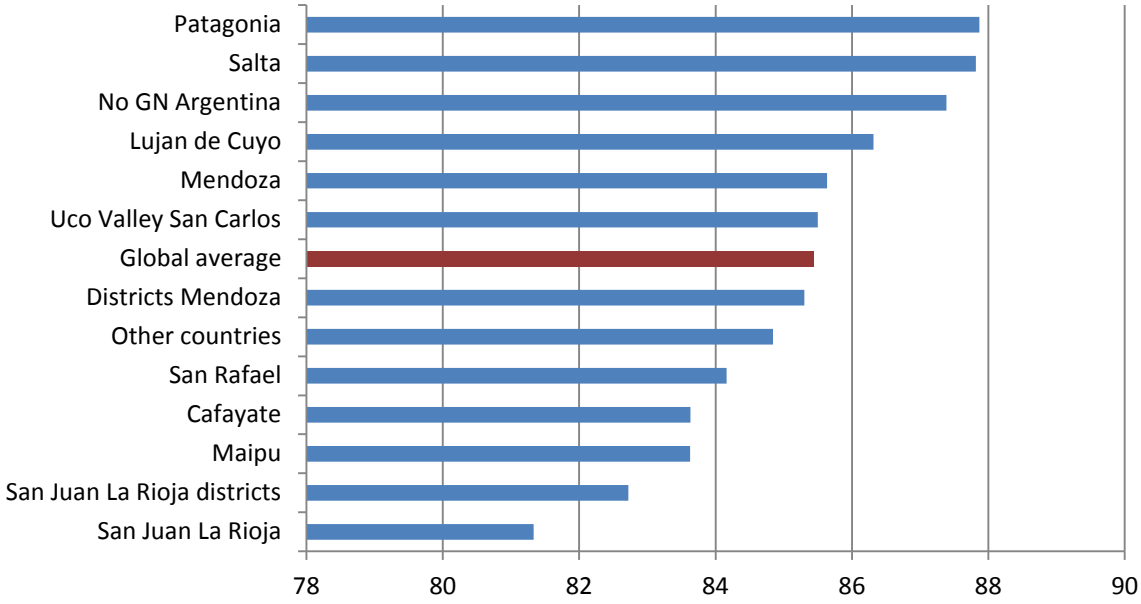
The average product range of the sample is 2 wines. Among the different geographical names, San Rafael, Luján de Cuyo and Maipú offer the widest range of products. The high heterogeneity of wines labelled as Mendoza is also verified by analysing the range. From a minimum of 1 wine to a maximum of 11 wines are offered from same brand but from different vintages labelled with Mendoza. Salta, on the other hand, offers a very limited range of products.

The average wine of this sample is 2.35 years old and the variation among the different geographical names is limited (+10%, -28%). Malbec from other countries different to Argentina are the ones with the highest average age (2.59) while wines from Mendoza's districts and Salta have the lowest one (1.7 and 1.82 respectively).

Regarding the jury grade – score – the average score of the wines is 85.46. This value is considered by Wine Spectator's tasters as "very good: a wine with special qualities". Patagonia and Salta, both non-traditional Malbec producers, enjoy higher scores up to 3 point higher. Wines with the

single indication of Argentina also have, on average, a higher score, as well as wines labelled as Luján de Cuyo, Mendoza or Uco Valley. Wines from Mendoza show, as in other variables, a big variation. In other words, quality consistency seems not to be a distinctive feature of these wines (when considered by the assigned score). The lowest scores correspond to wines labelled as San Juan, La Rioja or their districts. For these wines, even the maximum scores are lower than the global average.

Figure 29 Average score for Geographical Names



The overall picture of the two samples is a Malbec market dominated by Argentinean wine, mostly in the super premium segment. The presence of non- Argentinean Malbec is marginal, but it could be expected to show a growing trend. In terms of price, the US market offers a more attractive average price than the European ones, even if limitations aforementioned must be taken into account for the analysis. Prices are higher than average in all markets for Mendocinean wines or belonging to its sub-districts. Whereas, wines from other regions are sold at quite different price categories in each market.

2. Methodology

The hedonic method is a regression-based approach that explains the price of goods as a function of their utility-bearing characteristics. The theory underlying the method is derived from Lancaster (1966) and was later formalised as the Rosen hedonic method (1974).

The log-linear functional form has generally been employed (Oczkowski, 1994; Nerlove, 1995; Combris et al., 1997; Morilla Critz & Martínez Valderrama, 2002; Schamel & Anderson, 2003; Bicknell et al., 2005; Troncoso & Aguirre, 2006; San Martin et al., 2008) and will be used in the work as follows:

$$\ln P = B_o + \sum_{i=1}^{n} B_i z_i$$

where the hedonic weight B_i is the growth rate of the price explained by the characteristic z_i and PB_i is the implicit price of characteristic z_i[40].

The differences in both the model specifications and the data sets mean that the discussion of the results must be somewhat qualified. Accordingly, the different GN impacts on price in each of the selected markets are analysed in relation to: (i) the presence of each GN; (ii) coefficients being significantly different from zero and (iii) their relative impacts on price within each country. Direct comparisons on price *premia* among countries are avoided.

3. Hedonic analysis

The two hedonic model estimates — one for the US and one for the selected European markets — are reported in Tables 60 and 61.

As could be expected, the analysis of residuals shows the ability of the model to explain premium and super premium wine prices but it fails to fully explain the ultra-premium wines.

The models explain the log price of a standard 0.75 litre bottle of wine as a linear combination of the variables listed in Table 62. The model for the United Kingdom, the Netherlands and Germany assumes as a reference baseline a blend rosé Malbec wine that is only origin-labelled as 'Argentina', sold in the United Kingdom at € 7.84 per bottle[41]. Whereas, the model for the US market assumes as a reference baseline a blend Malbec wine, with a non-Argentinean GN selling for € 14.90 per bottle[42].

[40] For more details on the methodology chosen please see Chapter III: Methodology.

[41] This baseline wine has an average age of 2.7 years old; no indication of vineyard; no search score; and an average of 2.1 wines of the same brand on sale.

[42] This baseline wine has an average age of 2.35 years old ; no indication of vineyard of production; a mean score of 85.45 points; and 2 wines of the same brand on sale.

Table 60 Model estimates for the United States

Variable Description	*B*	SE	*p*	Percentage price premium [a]
Constant	-0.941	0.250	0.000	
GN				
Mendoza	0.177	0.031	0.000	19.3
Mendoza_Luján districts	0.188	0.089	0.036	20.2
Mendoza_San Carlos districts	0.646	0.130	0.000	89.1
Mendoza_Maipú districts	-0.042	0.146	0.772	-5.1
Districts Mendoza	0.011	0.058	0.848	1.0
Uco Valley	0.159	0.058	0.006	17.1
Luján de Cuyo	0.214	0.049	0.000	23.8
Maipú	0.116	0.144	0.422	11.1
San Rafael	0.144	0.080	0.073	15.1
Salta	0.323	0.128	0.012	37.0
Cafayate	0.396	0.097	0.000	47.4
Patagonia	0.277	0.076	0.000	31.6
San Juan and La Rioja	0.116	0.095	0.222	11.8
Districts San Juan and La Rioja	0.387	0.104	0.000	46.4
Argentina	0.359	0.111	0.001	42.3
Other countries				
Grape				
1= Single-variety	-0.232	0.026	0.000	-20.7
Vineyard				
1= presence	0.154	0.035	0.000	16.6
Score	0.056	0.003	0.000	4.743 [b]
Age	0.134	0.011	0.000	0.316 [b]
Range	0.035	0.007	0.000	0.071 [b]
Lcases	-0.191	0.008	0.000	-1.527 [b]

Note: [a] Percentage price premium = $e^{B-\frac{1}{2}(\sigma^2)}$ adjustments made according to Kennedy (1981). [b] Average elasticity.

Table 61 Model estimates for the United Kingdom, the Netherlands and Germany

Variable Description	*B*	SE	*p*	Percentage price premium [a]
Constant	1.785	0.080	0.000	
United Kingdom_GN				
Mendoza	0.141	0.058	0.015	15.0
Districts Mendoza	0.238	0.059	0.000	26.7
Uco Valley	0.651	0.105	0.000	90.6
Luján de Cuyo	0.054	0.069	0.439	5.2
Maipú	-0.056	0.105	0.595	-5.9
San Rafael	-0.035	0.123	0.777	-4.1
Salta	0.308	0.119	0.010	35.9
Patagonia	0.264	0.158	0.094	28.6
San Juan	-0.164	0.169	0.332	-16.4
La Rioja	-0.094	0.290	0.746	-12.7
Other countries	0.143	0.067	0.034	15.1
Argentina				
Netherlands_GN				
Mendoza	-0.095	0.092	0.304	-9.5
Districts Mendoza	-0.060	0.075	0.430	-6.1
Uco Valley	0.352	0.141	0.013	40.8
Luján de Cuyo	0.050	0.128	0.697	4.3
Maipú	-0.510	0.207	0.014	-41.2
San Rafael	-	-	-	
Salta	0.065	0.158	0.680	5.4
Patagonia	-	-	-	
San Juan	-0.218	0.159	0.172	-20.6
La Rioja	-0.441	0.208	0.034	-37.0
Other countries	-0.167	0.107	0.120	-15.8
Argentina	-0.189	0.070	0.007	-17.4

Table 61 Model estimates for the United Kingdom, the Netherlands and Germany *(Cont.)*

Variable Description	*B*	SE	*p*	Percentage price premium [a]
Germany_GN				
Mendoza	-0.103	0.056	0.067	-10.0
Districts Mendoza	-0.033	0.066	0.615	-3.5
Uco Valley	0.081	0.154	0.598	7.2
Luján de Cuyo	-0.151	0.119	0.205	-14.6
Maipú	-0.392	0.185	0.035	-33.6
San Rafael	-	-	-	
Salta	-	-	-	
Patagonia	-0.018	0.118	0.880	-2.5
San Juan	0.138	0.158	0.383	13.3
La Rioja	-0.707	0.237	0.003	-52.1
Other countries	-0.036	0.077	0.641	-3.8
Argentina	-	-	-	
United Kingdom_Vineyard	0.256	0.071	0.000	28.9
Netherlands_Vineyard	0.580	0.131	0.000	77.1
Germany_Vineyard	0.959	0.117	0.000	159.2
Grape				
1=single-variety	0.037	0.039	0.345	3.7
Type				
1= Red	0.284	0.054	0.000	32.6
Score	0.244	0.045	0.000	27.5
Age	0.188	0.014	0.000	0.507 [b]
Range	-0.111	0.016	0.000	-0.232 [b]

Note: [a] Percentage price premium = $e^{B-\frac{1}{2}(\sigma^2)}$ adjustments made according to Kennedy (1981). [b] Average elasticity.

Table 62 Descriptive statistics of wine characteristics

Variable Description	Percentage	
	US	EU
Geographical name (GN)		
Mendoza	55.36	20.92
Mendoza_Luján districts	1.52	-
Mendoza_San Carlos districts	0.72	-
Mendoza_Maipú districts	0.56	-
Districts Mendoza	4.32	20.12
Uco Valley	4.32	4.39
Luján de Cuyo	7.04	8.21
Maipú	0.56	3.01
San Rafael	2.00	1.39
Salta	0.72	2.31
Cafayate	1.28	-
Patagonia	2.24	2.31
San Juan	1.36	2.31
La Rioja	1.12	1.04
Other countries	15.92	11.56
Argentina	0.96	22.43
Type		
1= Red	-	92.34
0= Rosé	-	7.66
Grape		
1= Single-variety	76.48	83.02
0=Blend	23.52	16.98
Vineyard		
1= Yes	12.32	7.77
0= No	87.68	92.23
Score EU		
1= Yes	-	12.21
0= No	-	87.79
Score US (points)		
Mean	85.45	-
Standard deviation	4.60	-
Age (years)		
Mean	2.35	2.70
Standard deviation	1.34	1.00
Range (number of wines)		
Mean	2.00	2.10
Standard deviation	1.57	0.90
Cases		
Mean	8886.7	-
Standard deviation	16635.2	-

The main difference between the reference baseline wines depicts specific market characteristics. In the US a relatively limited volume of non-Argentinean Malbec is sold, while in the European markets some Old World countries compete in this grape variety segment.

The estimated OLS models fit the data quite well (R^2_{adj} = 0.67 for the US and R^2_{adj} = 0.44 for the European markets), and the estimated parameters have the expected signs.

Coefficients for the wine's age show a price premium for older wines in both groups of countries. In the European markets this positive impact is stronger than in the United States (average elasticity of 0.507 versus average elasticity of 0.316).

As verified by most hedonic wine pricing studies, the presence of a score has a strong and positive effect on consumers' marginal willingness to pay (Costanigro et al., 2006). In the United States, consumers are willing to pay considerably high for a high scored wine (average elasticity of 4.74). In European markets, the effect of the score on price is still positive but weaker. One should bear in mind that the score present in the European data set is not derived from jury grades but is rather a search score. This fact may influence consumers' willingness to pay for it.

The availability of wines from the same brand (*Range*) has a different impact on consumers' willingness to pay in European countries than in the US. In the former, *range* negatively influences price. In other words, the presence of the same wine from different vintages seems to give the consumer an idea of non-exclusivity and reduces the price premium. The reverse holds for the US market. A broader range of products seems to give the consumer the idea of a more complete portfolio, increasing willingness to pay for the wine. Under the *Wine Spectator* system, a wider range of products could be a signal of consistent quality.

The expected negative effect of wine supply (*Lcases* – ln of the number of cases) on prices has been verified. As defined by the more recent consumption trends, the single variety or blend of the wine is especially important for the US market, while the wine colour (red or rosé) has a large impact on the Northern Europe markets.

Table 63 Geographical Names relevance in the selected markets

Areas	GEOGRAPHICAL NAMES			New Consumers		Old Consumers	
				US	UK	NL	DE
Mendoza	**Province**	**Sub-region**	**Sub-areas**				
	Mendoza	/	/	*** +	** +		* -
	Mendoza	/	Districts Luján de Cuyo	** ++			
	Mendoza	/	Districts San Carlos	*** +++			
	Mendoza	/	Districts Maipú				
	/	/	Districts Mendoza		*** ++		
	/	Uco Valley - San Carlos	/	*** +	*** +++	** +++	
	/	/	Luján de Cuyo	*** ++			
	/	/	Maipú			** - - -	** - - -
	/	/	San Rafael	* +			
Salta	Salta	/	/	** +++	*** +++		
	/	Cafayate	/	*** +++			
Patagonia	Patagonia	/	/	*** +++	* ++		
San Juan	San Juan	/	/				
	/	/	Districts	*** +++			
La Rioja	/	/	Districts			** - - -	*** - - -
	La Rioja	/	/				
	Argentina			*** +++	baseline	*** -	
	Other countries			baseline	** +		

Notes: ***P < 0,01; **P < 0,05; *P < 0,1; empty cells indicate a non-significantly different from zero coefficient; relative impact on price: + or - weak, ++ or -- moderate, +++ or --- strong; / non-observed data.

The first conclusion that can be reached from Table 63 is that GNs influence consumers' willingness to pay for Malbec wine in the analysed markets. The significantly different from zero coefficients show that GNs have a stronger influence on New World consumers than on Old World consumers.

A large number of GNs is significantly recognised by US and UK consumers. Their appreciation is more distributed within the scale of relative impacts on price, which implies that the GN evaluation is more finely tuned. Conversely, Dutch and German consumers value a reduced number of GNs in a less focused way

Specifically, US consumers are able to recognise and are ready to pay a price premium for many different GNs when buying a Malbec wine. All of the main wine producing provinces or regions in Argentina enjoy a price premium in this market. The main province, Mendoza, influences price when presented as a unique GN and does so to a greater extent when it is combined with its sub-areas, such as Luján and, in particular, Uco Valley/San Carlos. A similar situation is present for Salta GN, which is appreciated not only by itself but also by an important sub-region such as Cafayate. This effect is most likely the result of a deeper knowledge of wine geography, as these sub-areas and sub-regions are of high repute, depicting a more specific awareness and preference. British consumers exhibit a similar attitude, with many GNs influencing consumers' willingness to pay. The most valued areas are those from the province of Mendoza (its districts and the Uco Valley). A similar appreciation on the part of US and UK consumers is verified for emerging Argentinean wine regions: Salta in the extreme northwest of the country and Patagonia towards the south.

From a broader perspective, these similarities between US and UK consumers could be understood by their historical-cultural relationship that may indicate an analogous approach to GNs and specifically towards Argentinean wines. Moreover, the sizable amount of communication and information sharing among wine consumers could further explain these results.

From a more specific perspective, this well-targeted appreciation of Argentinean GNs among New World consumers could be the effect of greater Argentinean wine sales in these markets and greater promotional investments both by wineries and marketing agencies. Finally, greater wine tourist flows from the US and the UK — 22% and 8.5%, respectively, out of a total of 316 thousand wine tourists in 2009 — to Argentinean wine regions could contribute to a greater awareness of high reputation Malbec *terroirs*.

Table 64 National and International Œnotourists

ŒNO TOURISTS		2007	2008	2009
ORIGIN	**National**	564.751	578.323	586.648
	International	356.539	445.258	316.443
	Unites States	39.219	48.978	69.617
	Netherlands	10.696	13.358	1.108
	Germany	14.262	17.810	12.025
	United Kingdom	21.392	26.715	26.898
	Other Countries	270.970	338.396	206.796
	TOTAL	921.290	1.023.581	903.091
DESTINATION	Mendoza	682.761	743.260	622.120
	Salta	75.586	105.090	131.522
	San Juan	83.667	87.369	75.707
	Patagonia	45.061	48.311	35.758
	La Rioja	9.125	10.883	12.390
	Other Regions	25.090	28.668	25.594
	TOTAL	921.290	1.023.581	903.091

Source: Bodegas de Argentina (2007; 2008; 2009)

A different situation is depicted for the Old World countries. Both in the Netherlands and in Germany, a small number of GNs are significantly different from zero and their price premium compared to the baseline wine is generally negative. In the Netherlands, only a high reputation, large wine area, such as the Uco Valley, receives a high price premium, possibly influenced by the large sales of a winery located in the area and owned by a Dutch company. Germany exhibits the lowest levels of consumer appreciation and awareness of Argentinean GNs, with negative impacts on the price of some GNs. The limited recognition of Argentinean GNs on the part of Dutch consumers, and the even more limited recognition on the part of German consumers, could be due to the weaker commercial-cultural relationships between these countries and Argentina. German tourists accounted for 3.8% (less than half the volume of UK flows) and Dutch tourists accounted for only 0.4% of total wine tourists visiting Argentina in 2009 (Bodegas de Argentina, 2009).

The GN Mendoza, as a unique origin indication, is weakly valued by consumers in all observed countries. Being the largest historical wine producing area in Argentina, Mendoza GN has most likely reached its maturity stage. According to product life-cycle theory, once maturity is achieved differentiation is the best strategy. A more specific *terroir*-based strategy could be thus adopted. The higher price premium observed for more targeted GNs and also when the Mendoza GN is

jointly used with its sub-areas, provides evidence of the on going market success of a more differentiated strategic approach.

In all four markets, a high price premium is associated with wines indicating the name of the vineyard on the label, even if this does not necessarily refer to a geographical location. This phenomenon is particularly interesting in the case of Old World consumers: with a scarce knowledge of Argentinean wine *terroirs,* they are willing to pay a price premium for a specific place indication of the vineyard. These results are supported by Haeger and Storchmann's (2006) estimates for Pinot Noir wines. Recognizing vineyard names can be created by wineries, the authors sustain that their commercialization may be intended to show some limitedness and exclusivity and also to give more information on the wine origin. They estimated that the introduction of a vineyard-site label increases prices by 17%.

Overall, both New and Old World consumers are able to recognise GNs when buying Argentinean wines, even if their 'telescopic ability' to differentiate from these quality signals and their willingness to pay a price premium vary substantially. Accordingly, information provision would be improved if different consumers are targeted in different ways.

4. Preliminary conclusions

As consumers suffer from uncertainty regarding wine quality attributes, providing them with appropriate quality signals is an opportunity to aid in their purchasing decisions. Protected Geographical Indications can constitute a strategic tool for wine producers willing to reduce consumers' information search costs and raise their willingness to pay (Josling, 2006b).

Hedonic model estimates for the retail data set confirm that foreign consumers are willing to pay a premium for geographical names when buying high- to medium-priced Argentinean Malbec wine in specialised shops. Consumer appreciation overcomes the lack of effective international protection of Argentinean wine GIs. Additionally, the observed appreciation of vineyard indication confirms that consumers are interested in the product origin and employ available tools to simplify their difficult decision-making process when choosing among a large number of wines that differ in many attributes.

Our cross-country analysis shows that there are relevant differences in the appreciation of GNs between New and Old World consumers. In the former, the consumers are ready to pay for a wider variety of more *terroir*-focused GNs and the price premium is more highly differentiated

among areas. Conversely, in the latter, the consumers' recognition of Argentinean geographical names is more limited and their GNs appreciation is generally lower. The diverse levels of available information and consumers' expertise could explain these differences between New and Old World countries. For Argentinean wines, differences in wine sales and tourist flows may help further explain these results. *Œnotourist* flows from New World wine producing or consuming countries (the Unites States and the United Kingdom) are much more relevant than those from Old World countries (Germany and the Netherlands).

Chapter VII: Are Intermediate Buyers Capturing The Price *Premia* For Malbec?

1. Data

The data set is based on the Argentinean Customs Office data, provided by Caucasia Wine Thinking, a private company of the wine business. Additional or missing data was included after directly contacting wineries and downloading technical sheets from the wineries' websites and their on-line shops. The data set corresponds to all exported wine from Argentina to the United States, the United Kingdom, the Netherlands and Germany in 2011. It was originally expressed in U$D dollars, but then converted into 2011 euros (average exchange rate from Central European Bank). The total data set accounts for 2,822 wines, 1,563 for the United States; 620 for the United Kingdom; 383 for the Netherlands and 256 for Germany.

The data set includes the following information of each wine: Free on Board price[43], market, variety, geographical name, age, blend or single-variety (*Grape*), red or rosé (*Type*), range of Malbec wines exported by the winery(*Range_Malbec*), range of Malbec wines over range of total wines exported by the winery (*Range_Share)* and the natural logarithm of the quantity of 9-litre cases exported by the winery for the specific wine (*Lcases*).

Out of the selected variables five are continuous: (i) the price of the wine; (ii) years of ageing before commercialisation; (iii) the number of Malbec wines sold by a winery; (iv) the coefficient between Malbec range and total range and (v) the natural logarithm of the cases exported by the winery.

Both in terms of variables and market distribution, the FOB data set and the Retail data set, analysed in the previous chapter are comparable. However, some considerations need to be borne in mind for further analysis. While the FOB data set includes all exported wines regardless their ulterior sale through on-trade and off-trade channels, the retail data set corresponds to wines sold mostly through specialized shops. Given this difference and to increase the comparability of both data sets, data was filtered taking into account the price range. Firstly, the lowest and highest priced wines from the Retail data set were searched in the FOB data set. This search was done considering all the wine descriptive characteristics, i.e. the specific winery, brand, vintage, grape

[43] "Free On Board" means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards (International Chamber of Commerce, n.d.)

and type. After this identification, the FOB data set was filtered eliminating wines with a price inferior to €1.13 and superior to €28.94 per bottle. These prices correspond, on average, to €4.74 and €86.40 per bottle in the retail market respectively.

Table 65 Descriptive statistics for FOB price - € 0.75 litre format

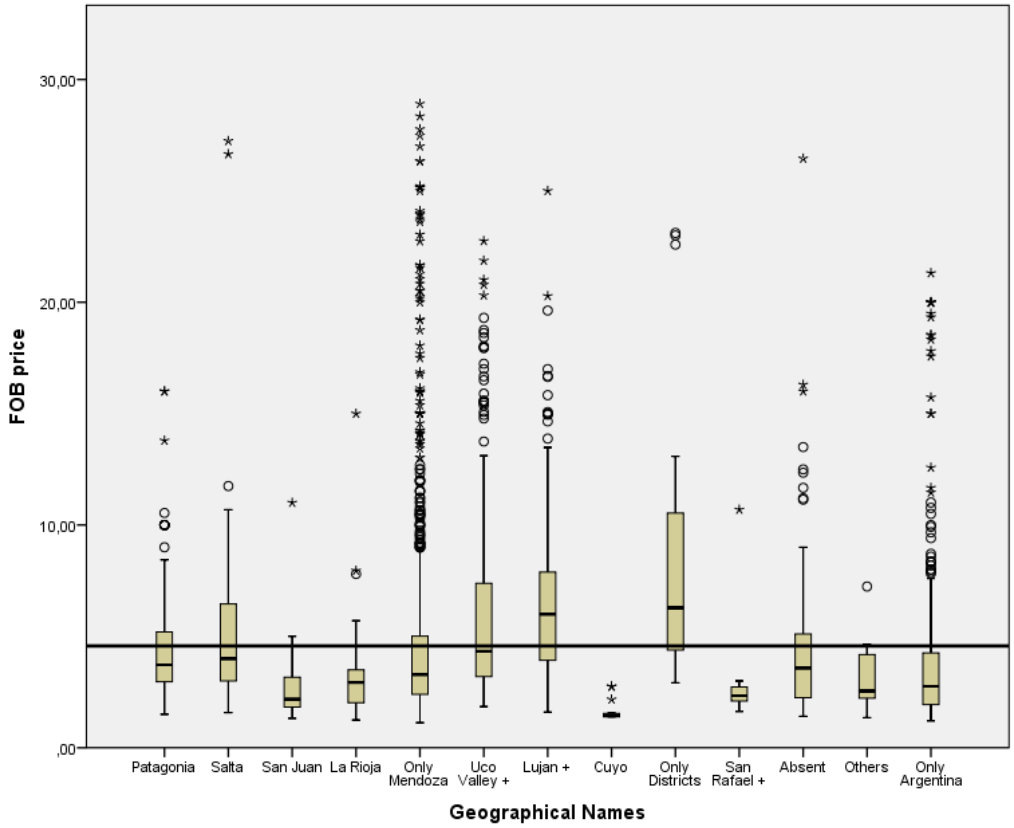
Country	Mean	Median	Minimum	Maximum	Standard Deviation
United States	4.62	3.45	1.21	27.77	3.75
United Kingdom	4.49	3.18	1.13	27.00	3.81
Germany	5.13	3.65	1.46	28.91	4.35
Netherlands	4.13	2.93	1.32	27.00	3.74

In terms of geographical names, similar patterns to the Retail data ones can be identified. In both data sets it can be seen that:

- Prices for wines labelled with San Juan, La Rioja or San Rafael show consistently below than average prices
- Prices for wines labelled with Uco Valley, Lujan de Cuyo and only districts labels show above average prices.
- Wines labelled only as Mendoza enjoy an average media price.

However, for Patagonia and Salta wines price patterns show worth mentioning differences. In the United States both geographical names enjoy above average prices in the two data sets. In the selected European markets retail prices for these GNs are below average in the Retail data set while enjoying above average prices in the FOB data set. As previously commented, the United States show a higher maturity level in terms of knowledge of Argentinean wines and newer wine regions are being appreciated. For the European markets it is worth commenting the results of individual markets. In the United Kingdom, Patagonian wines enjoy above average prices in both analysed data sets. Whereas in Germany and Netherlands these prices are below average. Salta's prices in all European markets show below average prices.

Figure 30 Box plot prices and geographical names



In terms of retail-FOB margins, the FOB prices account on average for 31% of retail prices, with some differences between countries, as depicted in Table 66. These margins are often used as an indicator of market performance or intermediates' power as it shows how the marketing-distribution system transfers production costs to consumers (Richards, Kagan, Mischen, & Adu-Asamoah, 1996). This simple indicator provides an interesting insight into the power of intermediates which on average add 3.26 euros over 1 euro FOB price. In the European countries this difference decreases to 3.05 while in the United States it rises up to 3.89. Limits to this value are derived from not considering transport costs from Argentina to the markets, insurance, port handling, import duties and non-tariff barriers associated costs. According to Solana-Rosillo and Abbot (1998), all these extra costs can account for as much as 1.24 euro per bottle (38% of retail price), thus supporting the preliminary conclusion on the power of intermediates over wineries. When comparing to European countries the higher power of intermediates in the Unites States, can be understood by what is known as the "three-tier distribution system" This multi-layered systems that rules the American market, imposed by the 21st Amendment, defines that every

alcoholic beverage must flow from the producer or importer to a wholesaler and finally to a retailer. At all levels mark-up is added defining high distribution costs. The wholesaler concentration favoured by this system depicts an even tougher scenario for wineries and is helpful to explain the higher buyer power of intermediates in the United States. The number of licensed distributors has declined from 7,000 to less than 700 in the last decade and only 100 importers dominate the US wine market (Stonebridge Research, 2010). There is no doubt that the size and the gate-keeping role of intermediates define their buyer power. The size can define the threat for the supplier to be replaced or delisted. Moreover size has an important impact on information management, as large buyers have more assets to search for alternative sources of supply as well as for carrying out a professional purchasing process (Office of Fair Trading, 1998).

Table 66 Mean of FOB/ Retail prices

Country	Mean
United States	0.26
United Kingdom	0.31
Germany	0.35
Netherlands	0.32
Total	**0.31**

This ratio FOB/Retail varies considerably among geographical names, depicting differences in wineries' ability to negotiate specific wine prices. In the European markets the ratio goes up to 0.61 for Lujan de Cuyo labelled wines and down to 0.19 for Uco Valley wines (Table 67).This last result is not surprising as an average value as the high dispersion in prices for Uco Valley wines was already assessed as a depicting characteristic.

In the United States market, different FOB/Retail ratios are present (Table 68). Especially interesting is the case of wines labelled "Districts Mendoza" that show on average a good performance ratio, 165% over the average. The negotiation ability for Uco Valley and Lujan de Cuyo wines prices is also remarkable.

Table 67 Mean of FOB/Retail prices per Geographical Name in selected European markets

Geographical names	Retail (1)	FOB (2)	Ratio FOB/Retail (3) = (2)/(1)	(4)= (3)/ Total (3)
Lujan de Cuyo	14.44	8.75	0.61	91%
Salta	11.62	5.1	0.44	38%
La Rioja	6.36	2.76	0.43	34%
Mendoza	12.47	4.61	0.37	16%
Only Argentina	12.26	3.84	0.31	-3%
Patagonia	16.8	4.35	0.26	-19%
San Juan	12.87	2.69	0.21	-34%
San Rafael	10.86	2.22	0.20	-38%
Uco Valley	33.37	6.37	0.19	-41%
Total	**14.19**	**4.59**	**0.32**	**base**

Table 68 Mean of FOB/Retail prices per Geographical Name in the United States

Geographical names	Retail (1)	FOB (2)	Ratio FOB/Retail (3) = (2)/(1)	(4)= (3)/ Total (3)
Districts Mendoza	12.93	8.95	0.69	165%
Uco Valley	18.05	6.41	0.35	35%
Lujan de Cuyo	17.96	5.87	0.33	27%
Salta	19.28	5.15	0.27	4%
San Juan La Rioja	10.92	2.94	0.27	4%
San Rafael	11.49	3.08	0.27	4%
Mendoza	18.71	4.49	0.24	-8%
No GN Argentina	28.25	4.56	0.16	-38%
Patagonia	34.24	4.52	0.13	-50%
Total	**17.96**	**4.62**	**0.26**	**base**

Understanding the FOB/Retail ratio is a key issue for wineries. Notwithstanding the profitability discussion on production costs, wineries need to assess this margin relation if they attempt to offer a price-value product.

2. Methodology

As for the Retail data set, the hedonic method will be used in our work with FOB prices. This regression-based approach aims at explaining the price of goods as a function of their utility-bearing characteristics. In this case the information provided by the model will give us insights into the characteristics influencing importers/distributors' marginal willingness to pay for Argentinean Malbec wines.

The log-linear functional form will be used in our work as follows:

$$\ln \boldsymbol{P} = \boldsymbol{B_o} + \sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} \boldsymbol{B_i z_i}$$

where the hedonic weight $\boldsymbol{B_i}$ is the growth rate of the price explained by the characteristic $\boldsymbol{z_i}$ and $\boldsymbol{PB_i}$ is the implicit price of characteristic $\boldsymbol{z_i}$.

The differences between the Retail data set and the FOB date set mean that the discussion of the results must be somewhat qualified. Accordingly, the different GN impacts on price are analysed in relation to: (i) coefficients being significantly different from zero and (ii) their relative impacts on price within each country (iii) the difference between the magnitude of the coefficient in the Retail data set and the FOB data set.

3. Hedonic analysis

Both hedonic models explain the log price of a standard 0.75 litre bottle of wine as a linear combination of the variables listed in Table 69.

Table 69 Descriptive statistics of wine characteristics

Variable Description	Percentage	
	US	EU
Geographical name (GN)		
Patagonia	5.89	5.32
Salta	2.37	3.97
La Rioja	3.77	0.95
San Juan		5.40
Mendoza	52.66	48.61
Uco Valley	7.10	10.01
Lujan	0.45	-
Mza_Lujan	4.73	2.78
Mza_Uco Valley	2.11	-
Mza_San Rafael	0.83	0.56
Cuyo	0.19	0.64
Districts	1.02	-
Absent	6.97	-
Others	0.70	-
Argentina	11.20	21.76
Type		
1= Red	95.97	91.42
0= Rosé	4.03	8.58
Grape		
1= Single-variety	93.79	81.49
0=Blend	6.21	18.51
Age (years)		
Mean	1.92	1.62
Standard deviation	1.32	1.27
Malbec_Range		
Mean	13.97	20.78
Standard deviation	18.37	22.87
Total_Range		
Mean	0.77	0.71
Standard deviation	0.19	0.17
Cases		
Mean	2869.52	945.75
Standard deviation	14244.89	2094.73

The first conclusion that can be reached from Table 69 is that the Argentinean wine portfolio varies considerably in terms of origin-labels in the United States and the selected European markets. As already verified in the Retail data set, wines sold in the US are labelled with many more geographical names than those sold in the European markets. The generic “Argentina” label

is only displayed in 12% of wines in the United States whereas it reaches 25% in the United Kingdom, 21% in the Netherlands and 16% in Germany. Notwithstanding the European legislation requiring country label, the reduce share of more specific origin label is definitely a descriptive characteristic of the Argentinean portfolio strategy in Europe.

The range of wines offered by each winery also shows important differences between the US and the European markets, as previously seen in the Retail data set. Being aware that the absolute value of the range has no significant meaning (as the FOB data set includes all exported wines and the Retail data set includes mostly wines sold through specialized stores) it's worth noticing that wineries sell a wider portfolio of Malbec wine in Europe than in the United States. As specific geographical names are not widely used as a source of differentiation in the European markets and the number of vintages is also reduced, it would be reasonable to assume that each winery is selling wine under more brands in the EU markets than in the US market. Considering that in the selected European markets private labels have a big market share[44] it seems reasonable to assume that Argentinean wineries are selling more Malbec wines under private labels in these markets.

The share of Malbec range over the total range confirms the greater assortment of wines sold in the European markets. In the European markets 71% of all wines sold are from the Malbec variety while this share rises up to 77% in the United States. The Malbec-boom in the United States is definitely useful to explain this phenomenon together with the reduced knowledge of Malbec wines in the European markets (only 6,630 ha cultivated in France and 340 in Italy in 2010). The bigger share of blend Malbec wines in European markets compared to the United States gives further evidence of wineries' commercial-productive strategy.

All in all, in terms of descriptive characteristics, the FOB data set confirms previous conclusions on wineries strategic decisions towards the European markets and the United States: more brands, blends, varieties, and fewer geographical names for the European market as well as single-variety wines, mostly Malbec, with different geographical names for the United States.

The estimated OLS models — one for the US and one for the selected European markets — are reported in Tables 70 and 71. Both estimates fit the data quite well (R^2_{adj} = 0.624 for the European markets and R^2_{adj} = 0.498 for the US). The models assume as the reference baselines blend rosé

[44] According to Euromonitor in 2012 the share of private label in terms of volume was of: 43.6% in Germany, 27.5% in the Netherlands, 17.5% in the United Kingdom and 0.8% in the United States (Euromonitor International, 2013)

Malbec wines only labelled as 'Argentina', exported to the United Kingdom at €2.31 FOB per bottle and to the United States at € 2.68[45].

Table 70 Model estimates for the United States

Variable Description	*B*	SE	*p*	Percentage price premium[a]
Constant	1.073	.090	.000	
Geographical Names				
Patagonia	.184	.053	.001	20.0
Salta	.320	.075	.000	37.3
La Rioja	-.080	.061	.190	-7.9
Mendoza	.093	.034	.006	9.7
Uco Valley	.291	.050	.000	33.6
Mza_Lujan	.321	.059	.000	37.5
Lujan	.174	.160	.279	17.4
Cuyo	-.298	.112	.008	-26.2
Districts	.391	.109	.000	46.9
Mza_Uco Valley	.438	.080	.000	54.5
Mza_San Rafael	-.224	.119	.060	-20.7
Absent	.052	.050	.303	5.2
Others	-.122	.124	.327	-12.1
Argentina				
Age	.229	.009	.000	0.44
Type				
1=Red	.173	.054	.001	18.7
Grape				
1=Single variety	.073	.041	.077	7.5
Lcases	-.061	.006	.000	-0.37[b]
Range Malbec	-.003	.001	.000	-0.04[b]
Range Malbec/Total Range	-.155	.057	.007	-0.12[b]

Note: [a] Percentage price premium = $e^{B-\frac{1}{2}(\sigma^2)}$ adjustments made according to Kennedy (1981).

[b] Average elasticity.

[45] The baseline wine for the United States model has an average age of 1.92 years old ; a Malbec range of 14 wines and the range of Malbec wines over range of total wines if 0.77. The baseline wine for the European markets has an average of 1.62 years old ; a Malbec range of 21 wines and the range of Malbec wines over range of total wines if 0.71.

Table 71 Model estimates for the United Kingdom, the Netherlands and Germany

Variable Description	*B*	SE	*p*	Percentage price premium [a]
Constant	1.023	.087	.000	
Germany_GN				
Patagonia	.096	.096	.317	9.5
Salta	.212	.112	.059	22.8
San Juan	-.016	.107	.879	-2.2
La Rioja	.177	.193	.358	17.2
Mendoza	.114	.048	.017	12.0
Uco Valley	.325	.072	.000	38.0
Mza_Lujan	.473	.120	.000	59.3
Argentina	.022	.068	.742	2.0
Netherlands_GN				
Patagonia	-.052	.107	.624	-5.6
Salta	.369	.106	.001	43.8
San Juan	-.077	.077	.316	-7.7
Mendoza	.046	.043	.276	4.7
Uco Valley	.432	.069	.000	53.7
Mza_Lujan	.678	.193	.000	93.4
Cuyo	-.088	.143	.539	-9.3
Argentina	.017	.052	.739	1.6
United Kindgom_GN				
Patagonia	.218	.073	.003	24.1
Salta	.331	.087	.000	38.7
San Juan	-.019	.084	.825	-2.2
La Rioja	.133	.138	.336	13.1
Mendoza	.094	.039	.015	9.8
Uco Valley	.345	.063	.000	40.9
Mza_Lujan	.401	.091	.000	48.7
Mza_San Rafael	-.197	.147	.180	-18.8
Argentina		.	.	
Age	.257	.010	.000	0.42
Type	.000	.000	.000	
1=Red	.198	.041	.000	21.8
Grape	.000	.000	.000	
1=Single variety	.178	.029	.000	19.4
Lcases	-.091	.007	.000	-0.50 [b]
Range Malbec	-.001	.001	.026	-0.03 [b]
Range Malbec /Total Range	-.100	.072	.165	-0.07 [b]

Note: [a] Percentage price premium = $e^{B-\frac{1}{2}(\sigma^2)}$ adjustments made according to Kennedy (1981).

[b] Average elasticity.

As previously verified with the Retail data set, estimates indicate that geographical names influence consumers' marginal willingness to pay for Malbec wine in all four markets. A wider range of geographical names is appreciated in New World countries (the United States and ther United Kingdom) compared to Old World countries (Germany and the Netherlands), confirming previous conclusions.

As most hedonic pricing studies have estimated, there is a marginal willingness to pay for older wines in all markets. Despite differences in magnitude found at the Retail level between the analysed countries, no significant difference arises from the FOB data set, depicting a similar buying behaviour of distributors/importers in these countries.

In terms of Malbec wines sold by each winery (*Range_Malbec)* coefficients show that the presence of many Malbec wines from the same winery reduces the price premium in all four markets and the coefficient is slightly stronger in the United States. These results for the American market contrast with previous ones based on the Retail data set. While consumers are willing to pay a price premium for wines with a broader range, distributors seem to prefer reduced portfolios of Malbec wines in the United States. The consolidation of the distribution system is useful to understand this situation, as intermediates deal with such a large number of wineries that they can't afford importing too many Malbec wines from each winery. Moreover, a wider range of Malbec wines could give an idea of non-exclusivity and therefore reduce willingness to pay, as verified in the case of European consumers from the Retail data set.

Results in Table 72 and 73 show the difference between the appreciation of geographical names in the retail market and in the distributors' one. Comparisons are done in terms of significantly different from zero coefficients (***P < 0,01; **P < 0,05; *P < 0,1) and relative impact on price (+ or - weak, ++ or -- moderate, +++ or --- strong, ++++ very strong).

By comparing the relative impact on price of geographical names in the Retail and FOB data sets corresponding to the United States, we found evidence of a gap between consumers' and distributors' marginal willingness to pay. At the retail level, consumers are able to recognise and ready to pay a price premium for many geographical names from all Argentinean wine producing regions. Whereas at the FOB level the price premium are inferior and more focused in some regions. For instance, for a Patagonian labelled wine consumers are willing to pay up to 31.6% over the baseline price while at the distributors' level this price *premia* reaches only 20%. A similar situation is verified for La Rioja, whose label seems not to significantly influence the marginal

willingness to pay of distributors but it does influence consumers. n wines from San Rafael we observed a particular situation with evidence of consumers' marginal willingness to pay the geographical name but distributors seemed to penalize it.

Table 72 Geographical Names relevance in the US in the Retail and FOB data sets

Geographical Names	UNITED STATES	
	RETAIL	FOB
Mendoza	*** +	*** +
Mendoza_Luján districts	** ++	**** +++
Mendoza_Uco Valley districts	*** ++++	*** +++
Districts Mendoza		*** +++
Uco Valley	*** +	**** +++
San Rafael	* +	* --
Salta & Cafayate	*** +++	*** +++
Patagonia	*** +++	*** +
San Juan and La Rioja	*** +++	
Cuyo	/	*** --
Argentina	*** +++	baseline
Other countries	baseline	

For the main wine producing region (Mendoza, Uco Valley, Lujan and districts) there is weaker evidence of this gap between consumers and distributors. As pointed out in the previous chapter, Mendoza is likely to have reached a maturity stage in the American market reducing the possibility of distributors to charge additional prices on wines. The latest launch of Salta as premium wine producer together with its long-dating tourist attractiveness can explain the similar revealed impact in the Retail data set and the FOB one. The promotional strategy of Wines of Argentina towards the United States market can help further understand the situation. For the last five years, the organization has developed a consumer-oriented promotional strategy, with activities focused on final consumers (69% of total activities carried out by Wines of Argentina in 2010 in the Unites States were focused on consumers or non-specialized media agents).

Table 73 Geographical Names relevance in selected European markets in the Retail and FOB data sets

Geographical Names	UK		NETHERLANDS		GERMANY	
	RETAIL	FOB	RETAIL	FOB	RETAIL	FOB
Mendoza	** +	** +			* -	** +
Districts Mendoza	*** ++	/		/		/
Uco Valley	*** +++	*** +++	** +++	** ++++		*** +++
Luján de Cuyo		*** +++		*** ++++		*** ++++
Maipú		/	** ---	/	** ---	/
San Rafael				/		/
Salta	** +++	*** +++		*** +++		* ++
Patagonia	* ++	*** ++				
San Juan						
La Rioja			** ---	/	*** ---	
Other countries	** +	/		/		/
Argentina	baseline	baseline	*** -			

In the selected European markets there is little evidence of a gap between distributors and consumers' marginal willingness to pay. In fact, more geographical names enjoy a price *premia* at the distributors' level than at the consumers' level. For instance, there is a limited recognition of Luján de Cuyo among consumers while at the distributors' level the marginal willingness to pay is interestingly high. The same situation is verified for Salta in the Dutch and German markets. In the case of Uco Valley a similar level of recognition is registered between consumers and distributors, except for Germany where consumers cannot recognise this geographical name. The overall European picture suggests that distributors are aware of Argentinean geographical names when making their purchasing decision, despite the fact that at the retail level these price premium are minor. A good communication strategy between wine producers and distributors could explain this phenomenon and this would fit with the country's strategy towards European markets operated through Wines of Argentina in the last years. According to this promotional organization, the European markets need to be assessed through activities with trade agents such

as trade shows, wine seminars, tastings and hospitality missions (64% of total activities carried out by Wines of Argentina in 2010 in Europe were focused on trade and specialized media agents).

4. Preliminary conclusions

Even if differences between FOB and Retail prices suggested distributors could be capturing price *premia* for Malbec, we found no concluding evidence of this behaviour. The FOB/Retail ratios give insights into the intermediates' bargaining power but is not conclusive on the impact of different geographical names in purchasing behaviour. The hedonic analysis shows that in the United States consumers show a stronger appreciation for some GNs than the intermediates' appreciation, but this is not true for all GNs. In Europe we did not identify a gap between the agents' appreciation or when the gap existed it was due to a greater appreciation of GNs by intermediates.

As already verified with the Retail data set, hedonic model estimates confirm that foreign consumers are willing to pay a price premium for geographical names when buying Malbec wine. The FOB data set extends this conclusion from high-to medium-priced wine to all price segments and thus gives further support to the usefulness of protecting these intellectual property rights by GIs.

This additional cross-country analysis confirms the existence of differences in the appreciation of GNs between the analysed countries. In New World countries -the United States, and to a lesser extent in the United Kingdom--, distributors are ready to pay for a wider variety of more terroir-focused GNs and these price premium is highly differentiated among areas. Whereas, in the Old World countries -the Netherlands and Germany- intermediates' appreciation of GNs is more limited and weaker in terms of geographical areas.

Chapter VIII: Conclusions

While drinking a wine constitutes the best source of information for consumers, such a behavior is hardly imaginable for first-time purchasers. Consumers process perceived signals of quality, such as variety, score, vintage, score, region, among others to deal with the associated uncertainty regarding wine quality. Origin related attributes, such as geographical indications or, in its un-protected version, geographical names have been largely identified as good proxy indicators of wine quality and therefore useful tools both for producers and consumers to tackle information asymmetry. This differentiation strategy, based on origin, has been largely followed by Old World countries whereas New World countries have typically developed a grape-variety based differentiation strategy (Steiner, 2004).The success of many French AOC and Italian DOCG is evidence of the former approach while the success of Syrah and Malbec variety – Australia's and Argentina's flagship varieties respectively- is evidence of the latter productive-commercial approach.

For New World producers, there is an increasing debate on the long-term suitability of the grape-variety-based approach and on the convenience of introducing protected Geographical Indications as additional *terroir*-linked quality signals. Similar discussions have driven other New World wine producing countries to protect their GIs in the international market where protected GIs enjoy growing diffusion. For instance, the United States, Chile, Australia and South Africa have signed bilateral agreements with the European Union for the mutual recognition and protection of their GIs. These countries can therefore market their products in the European Union under the GI quality framework. Argentina has not yet signed any bilateral or multilateral agreements for GI recognition and the national framework for GI protection can best be defined as poor. Hence, Argentinean GIs are only protected by collective intellectual property rights established by the Agreement on Trade-related Aspects of Intellectual Property Rights and a reduced number of wineries are part of the national GI scheme. Nevertheless, most wineries do include non-protected geographical names in the product label as a quality signal when exporting their products. This unregulated approach towards GI protection in the international market limits their use as quality signals for consumers and entails a significant risk of misuse by other producers.

Both in terms of trade policy and market access, the analysis of how Argentinean geographical names are valued in main markets is a key issue. To our knowledge, only San Martin et al. (2008) have specifically assessed consumers' willingness to pay for Argentinean wine. The authors have

estimated a hedonic function for Argentinean wines in the United States. An overall assessment of GNs value, including New World countries and Old World countries, is necessary to provide a more comprehensive picture of the situation delivering useful tool for negotiations and insights into a possible upgrading marketing strategy.

Through the hedonic pricing methodology we estimated marginal willingness to pay for a wide variety of geographical names, present on Malbec wine labels. New World and Old World markets have been included in the analysis, in an attempt to provide the desired comprehensive picture. The United States and the United Kingdom were considered from the former group while the Netherlands and Germany were considered for the latter. For a superior assessment of marginal willingness to pay, analyses were carried out for a Retail data set and a FOB data set, a novel approach in hedonic pricing. With the former data set we were able to estimate consumers' willingness to pay for high- to medium-priced Malbec wines sold mostly in specialized shops. The latter data set extended estimates to all price segments sold in the wide diversity of off-trade or on-trade stores, giving insights into intermediates' marginal willingness to pay.

Both hedonic model estimates confirm that foreign consumers are willing to pay a premium for geographical names when buying Argentinean Malbec wine. This appreciation overcomes the lack of effective international protection of Argentinean wine GIs.

Differences between countries indicate that the 'telescopic ability' to differentiate geographical names as quality signals and their willingness to pay a price premium vary substantially. United States' consumers are willing to pay a price premium for many different GNs, located in all the main wine producing regions. A similar behavior is verified for English consumers. In both markets, Malbec wines from the Mendoza region are highly valued, especially higher when more targeted GNs are present (Mendoza sub-regions). This indicates an on-going differentiation strategy, with more specific *terroir*-based signals, probably derived from a relative maturity stage of the Mendoza GN in these two markets. In the case of emerging wine regions such as Salta and Patagonia, a similar appreciation is verified for US and UK consumers.

In the Netherlands and Germany, a reduced number of GNs are appreciated by consumers. In the Netherlands, only areas with a high reputation such as the Uco Valley and Lujan de Cuyo, receive a high price premium. Germany exhibits the lowest levels of consumer appreciation and awareness of Argentinean GNs, with negative impacts on the price of some GNs. The fact that private labels enjoy a dominant position among wines sold in this country further explains this. Such a

phenomenon that reduces wineries' bargaining power and their profitability gives ulterior support to the need of finding differentiation attributes.

The observed appreciation of vineyard indication in the Retail data set for all four markets gives further support to this conclusion, confirming that consumers are interested in the origin of the product and thus employ available tools to simplify their difficult purchasing decision. These results agree with San Martin et al. (2008) findings and with Haeger and Storchman (2006) on the United States market. The latter authors explain the use of vineyard indication by wineries as a way of providing more information about the origin of the wine "honoring the *terroir*" and also as a way of indicating that a limited quantity of that wine is available – an exclusivity measure.

Overall, our results indicate that both in New World and Old World countries, consumers are willing to pay for specific origin based wines. Notwithstanding the evident success of the grape-variety approach, consumers seem to appreciate and value origin. The market recognition of origin-labelled wines, which has been verified in this research, already reflects the collective ability to define and efficiently manage the combination of natural and human factors. Even if this has been done without collective organizations it is undoubtedly a first important step and an insight into the future of the industry.

From a national-governmental perspective, results suggest that GIs can constitute a valid tool to keep and increase the Argentinean growing pattern in the world wine market. The construction and management of a shared territorial vision through GIs, can provide useful collective competition assets. Previous experiences in the Argentinean wine industry, especially in Mendoza but increasingly in other provinces, show that 'it is possible to achieve a high degree of involvement of private actors and stakeholders at any level as long as the benefits are clearly recognizable' (Davoudi et al., 2008, p.48).

Notwithstanding the achievements of the actual legal framework in terms of introducing these quality signals, the current PDO-PGI system requires profound revision. Firstly, the regulation needs to define, in a specific and detailed way, the requirements for verifying the origin-quality link that constitute the basis of a GI. At the moment only a single document with the historical background of the geographical area is required while the traditional and cultural dimension of the territory is not taken under consideration. For a true link between terroir and quality, heritage, culture, traditions and local knowledge are of vital importance. These are the attributes, together with wine quality, that an effective GI must be able to convey. This suggested legal change entails

an actual change in the current paradigm in the Argentinean wine industry. While nowadays the system seems to be designed just as a marketing tool, including real *terroir* concepts would drive the focus to the cultural and territorial dimension.

The role of producers' organizations should also be revised. The poor current situation of Promotional Committees indicates the need for an urgent health-check. While for Argentinean legislation PDO organizations can be only integrated by wineries and grape growers, European vast experience suggests the constitution of inter-professional associations. Through these multi-level organizations, that bring together upstream and downstream partners, an effective territorial governance can be better achieved. Designing norms, not only for the production process, but also for the protection and appreciation of territory are inherent tasks carried out by these entities. The local community commitment is also favored by this organizational scheme and strengthens the links between product and place. As verified by Barjolle and Sylvander (2000) in their analysis of 27 PDO-PGI supply chains, institutions are capable of assisting firms in a changing and competitive environment.

At an international level, the GI protection would be an important step towards strategic differentiation of Argentinean wines and would help profit from the verified interest in GNs. In the United States and the United Kingdom, GI protection would strengthen willingness to pay for Argentinean GNs. Whereas, in the Netherlands and Germany the complex buying-process — when wines sourced from far off countries are involved — could be simplified by the familiar PDO-PGI system. This collective quality scheme would lead scarcely known characteristics to become easily recognisable quality signals. Conflicts with existing brands will certainly arise but long-term benefits will need to be prioritized.

The international protection of Argentinean GIs would also help the preservation of Argentinean reputation. Considering that Malbec is among the highest growing rates varieties, GI protection seems the necessary step forward. Protection against misuse by non-original producers would also be guaranteed in this way.

However, at the moment, some actors are reluctant to adopt this GI approach that requires effective collective organization. The Argentinean vintners' approach towards collective management of resources is largely defined by their natural emphasis on individual competition and achievement. Similarly to American vintners which "prize independence and self-reliance, and these attributes fit well with an overall economic perspective that emphasizes competition and

stresses individual effort (….) common property customs and laws are unfamiliar" (Barham, 2008). An actual change in producers' mentality is required for the implementation of an effective GI governance system. The ability of the GI production system to create and distribute added value products and to provide stability and perspectives for the future should be emphasised (Reviron & Chappuis, 2011). Adequate investments in human capital will be crucial to effectively implement this substantially new strategic approach based on an appropriate collective management of GI property rights. A first clear picture of the quantity and quality of human capital stocks would be necessary to understand specific knowledge and skills' strengths and weaknesses. Investment should then concentrate in improving them by adequate schooling, training and experience (De la Fuente & Ciccone, 2002).

As suggested by Thévenod-Mottet (2006), protection and promotion must also be thought in their material aspects. Therefore, the verified interest in geographical names in all analysed markets must be translated into target marketing strategies, providing information to consumers in a focused way.

It seems reasonable to adopt different communication strategies considering the differences verified among the United States and the United Kingdom with the Netherlands and Germany. As GNs are appreciated in a different way, messages could be adjusted accordingly. For instance, in the New World wine countries, Malbec could be promoted by associating protected GNs with jury grades (Patchell, 2011), while in the Old World, communication with 'geographical insights messages' could work (Van Ittersum, Meulenberg, Van Trijp, & Candel, 2007).

For example, two types of back-end wine labels could be created (Spielmann & Gélinas-Chebat, 2012). One could communicate the region's collective reputation by including prices, high scores and medals obtained. The other could give insights into the quality-origin link, emphasizing the cultural-traditional dimension. The importance of the information on the back label of a wine bottle has been assessed by McGarry Wolf and Thompson (2010) concluding that consumers read them often (54.5% of their survey respondents indicated that they read the back label very often, somewhat often or at least somewhat often) and use this information for their purchasing decisions.

Other marketing options include mobile applications that can be used to assess different consumers, suggesting the best wine depending on the consumption occasion, time of the day and food pairing. Winemakers can also adjust their messages to intermediates to match consumers'

recognition of GNs. For training sales teams, the different consumers' appreciation of GNs should be included among the main topics

Generic promotional activities, such as the ones carried out by Wines of Argentina, should also bear in mind this differentiated approach towards GNs. Notwithstanding the current trade or consumer focus, marketing activities should consider the different appreciation of GNs in the selected markets. When designing promotional material (brochures, maps, guides, bags), selecting wine fairs and nominating wine ambassadors, New and Old World appreciation of GNs must be considered.

Overall, our research has looked at the impact of geographical names in consumers' marginal willingness to pay. We have shown that Argentinean GNs are actually appreciated by consumers, both in New and in Old World countries. A more general lesson can be gleaned from this cross-country case study. The global wine market could benefit from internationally recognised GI protection systems. Widely known quality signals, such as protected GIs, would increase the market access of foreign wines by enhancing consumers' 'telescopic ability' to recognise and differentiate from *terroir*-related quality attributes.

However, further cross-country analyses are required to support these conclusions. The effect of wineries' trademarks, promotional activities and intrinsic quality proxies (derived from consumer wine tastings) on price could also be deepened. Contrary to Landon and Smith's opinion (1997) on the usefulness of including advertising information, we retain that advertising expenditures are expected to have an important impact on the price-quality relationship as many big wineries from Argentina regularly invest in direct advertising in wine guides.

As suggested by Costanigro et al. (2010) and tested by Cuellar and Claps (2013), it would be useful to analyse the effect of wine attributes on different wine price categories. If wine consumers are not an homogeneous group, analysing the impact of specific attributes in each wine price category would give insights into specific marketing and promotion strategies.

Firm and collective reputation could also be assessed. Specially for the United States and the United Kingdom, where more GNs are valued by consumers, it could be interesting to understand the interaction of firm and collective reputation, derived from Wine Spectator's historical scores.

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Treaties and Legislation

Multilateral treaties

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- Madrid Agreement for the Repression of False or Deceptive Indication of Source of Goods of April 14, 1891.
- Lisbon Agreement for the Protection of Appellations of Origin and their International Registration and Regulation of October 31, 1958.
- Agreement on Trade-Related Aspects of Intellectual Property Rights (Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, Morocco on April 15, 1994.

Bilateral treaties

- Agreement between the European Community and Australia on trade in wine OJ 1994 L 86/3.
- Agreement between the European Community and Australia amending the Agreement on trade in wine, OJ 2003 L 336/100.
- Agreement between the European Community and the United States of America on trade in wine, OJ 24/03/2006 L 87/2.
- Agreement between the European Community and the Republic of Chile amending Agreement on Trade in Wines, OJ 24/2/2006 L 54/24.
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- Agreement between the European Community and the Republic of South Africa in wine, OJ 30/01/2002 L28/4.

Legislation

European Union

- Regulation 24 of 20 April 1962
- Regulation EEC 816/70 of 28 April 1970
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- Council Regulation EC 247/2006 of 30 January 2006
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- Council Regulation EC 510/2006 of 20 March 2006
- Commission Regulation 1898/2006 of 14 December 2006
- Commission Decision 2007/363/EC of 21 May 2007
- Council Regulation EC 834/2007 of 28 June 2007
- Council Regulation 1234/2007 of 22 October 2007
- Regulation EC 110/2008 of 15 January 2008
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- Commission Regulation EC 555/2009 of 27 June 2008

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- Commission Implementing Regulation EU 670/2011 of 12 July 2011
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- Commission Implementing Regulation EU 1185/2012 of 11 December 2012

United States

- US Trademark Law of 1946 and amended in 1988 and 2013 (Lanham Act)
- Code of Federal Regulations
    - 37 C.F.R. Chapter I – Subchapter A Part 2- Rules of Practice in Trademark Cases
    - 27 C.F.R. Chapter I - Subchapter A-Alcohol and Tobacco Tax and Trade Bureau, Department of Treasury.

Argentina

- National Law 19.549 of 3 April 1972
- National Law 22.362 of 26 December 1980
- National Law 22.802 of 5 May 1983
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- Resolution C29/04 - IG Valles del Famatina of 29 July 2004
- Resolution C36/04 - IG Colonia Caroya of 25 August 2004
- Resolution C4/05 - IG Lunlunta of 8 April 2005
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- Resolution C22/05 - IG Barrancas of 1 August 2005
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Data sets

Area del Vino: www.areadelvino.com/

Caucasia Wine Thinking: www.caucasia.com.ar/

Central European Bank: www.ecb.europa.eu/

Door: ec.europa.eu/agriculture/quality/door

E-bacchus: http://ec.europa.eu/agriculture/markets/wine/e-bacchus/index.cfm?event=pwelcome&language=IT

Euromonitor: www.euromonitor.com/

FAO: http://faostat.fao.org/

GTA: http://www.gtis.com/gta/

INV: http://www.inv.gov.ar/

US Department of Labour: www.dol.gov/

Wine Searcher: www.wine-searcher.com/

Wine Spectator: www.winespectator.com/

Wines of Argentina: www.winesofargentina.org/

There are no hopeless positions;

there are only inferior positions that can be saved.

There are no drawn positions;

there are only equal ones in which you can play for a win.

But at the same time, don't forget that there is no such thing as a won position in which

it is impossible to lose

(Grigory Sanakoev, chess grandmaster)