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Article

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Would ‘New World’ wines benefit from protected geographical indications in international markets? The case of Argentinean Malbec

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Abstract

The growth of high value agri-food trade and origin-based marketing strategies has triggered a vigorous debate over the need to protect Geographical Indications (GIs). While domestic protection is a first step, international recognition is crucial for export products. Argentina has not yet signed bilateral or multilateral agreements for international GI recognition, while non-protected geographical names (GNs) are widely used by wineries when exporting. The hedonic literature has largely explored consumers’ willingness to pay for wine attributes, including GIs. However, cross-country analyses have not been conducted for New World wines, and their characteristics have not been evaluated in Old World markets. This paper casts new light on this issue by estimating the implicit price of Argentinean GNs in four different markets: the United States, the United Kingdom, the Netherlands and Germany. Overall, the research highlights that – according to the well established wine producing and consuming countries classification – New and Old World consumers differ in their willingness to pay for GNs when buying high- to medium-priced Argentinean wines in specialised shops. The paper concludes by emphasising the market access opportunities offered by an international agreement on GIs protection that would enhance consumers’ ‘telescopic ability’ to recognise and discriminate among terroir-related wine attributes.

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Keywords: Hedonic model; Geographical indication; Malbec wine

1. Introduction

The Argentinean wine industry is over 120 years old but has only witnessed strong growth in the international market over the last 15 years. Total exports have grown at 25% per year in the period from 2004 to 2010. This growth has meant an increase in the world market share, from 1.2% to 4%, making Argentina one of the most dynamic actors in the wine industry. The most

important destinations for Argentinean wines are North America, European countries and Brazil.

A widely known classification of countries, based on wine tradition, distinguishes Old World countries from New World countries (Foster and Spencer, 2002). The former are those with long-established production and consumption traditions, while the latter are more recent producers or have limited consumption habits.¹ Dissimilar differentiation strategies have been adopted by these two groups of countries. The Old World countries have mainly differentiated wine on an origin basis, protected under GI (Geographical Indications) legislation; whereas the New

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¹Old World wine countries include: France, Italy, Spain, Portugal, Germany, Austria, Greece, Bulgaria, Hungary and Romania. The New World countries, from a production point of view, are: the US, Australia, New Zealand, South Africa, Canada, Argentina, Chile, Brazil, Mexico and Uruguay. New World countries, from a consumption perspective are: the United Kingdom, Denmark, Sweden, Holland, Russia, Belgium, Japan, China and India.

World countries – as is the case for Argentina – have typically developed a grape-variety-based differentiation strategy (Steiner, 2004b). The success of the Malbec variety – the most important for Argentina – is evidence of this productive-commercial approach. Nevertheless, there is an increasing debate on the long-term suitability of this grape-variety-based approach and on the convenience of introducing protected Geographical Indications (GIs) as additional *terroir*-linked quality signals (Steiner, 2004b). Similar discussions have driven other New World wine producing countries to protect their GIs in the international market where protected GIs enjoy growing diffusion (Menapace and Moschini, 2011). 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. Consequently, these countries can market their products in the European Union under the well-established GI quality framework.

For Argentinean wines, GI protection is in the early stages. Initial attempts can be traced back to the early 1990s, when the first wine quality scheme related to place of production was established. The final version of the law passed in 1999 (National Argentinean Congress, Ley 25.163, 1999) regulates the protection of Designation of Origin (PDO) and Geographical Indication (PGI) for quality wines and the protection of Origin Indication (POI) for table wines. 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, as 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. Consequently, Argentinean wineries' long-term economic sustainability could be threatened in this arena.

The objectives of this paper are twofold. From the Argentinean perspective, we aim to assess whether a strategic differentiation approach based on protected GIs in international markets would benefit the wine industry. To achieve this goal, we estimated the implicit hedonic prices of GNs in four important and dynamic markets for Argentinean wine: the United States, the United Kingdom, the Netherlands and Germany.

The second objective addresses the issue of GIs from a broader perspective and contributes to fill a gap in the literature on hedonic wine pricing. Most studies have adopted a single market approach and have not explored whether there are differences between the New World and

Old World consumers' appreciation of GI- or GN-related quality attributes. In our view, such a cross-country analysis is badly needed, both for designing well-targeted strategies by wineries and for empirical evidence to support the decision-making process for a broadly accepted agreement on GI protection.

To achieve these objectives, the initial section of the paper provides a short overview of the Argentinean wine sector, with a special focus on export markets. Next, the literature is briefly reviewed, with an emphasis on the aforementioned gap. The data analysis and the estimated results are then presented. Policy and marketing implications are provided in the final section.

2. The Argentinean export wine industry

The strong growth in the Argentinean wine industry has been driven by the expansion of international trade. Total exports have increased fourfold in the last 6 years, accounting for more than 636 million dollars in 2010 (198 million l). 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.

Argentina's most successful wine variety 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. The area under cultivation has grown accordingly, with more than 11,000 ha planted in the last 7 years, representing a 50% area increase. Mendoza has historically been the major wine producer, especially for Malbec wines. The success of this wine variety has resulted in diffusion to the north of the country (San Juan, La Rioja and some production in Salta) and to the south to the Patagonian provinces (Neuquén and Río Negro).

The destination of these increasing wine exports has changed, while concentration remains the main descriptive characteristic. North America and Europe account for more than 75% of all wine exports, the United States being the most dynamic and important market (Table 1).

3. State of the art

In a highly differentiated market with complex purchasing decisions, the hedonic price model offers a valid way to identify the quality attributes that are appreciated by consumers and to estimate the implicit prices of these attributes. Accordingly, the literature seeking to identify the determinants of wine prices using hedonic techniques is largely established. The attributes considered vary

Table 1
Argentinean wine exports to selected markets.
Source: Our elaboration from TRADEMAP (www.trademap.org).

Market destination	SALES (million USD)		SHARE (%)		CAGR ^a (%)	
	2004	2010	2004	2010	2004–2007	2007–2010
United States	36.5	225.0	21.4	35.4	39.7	31.3
Canada	15.2	83.5	8.9	13.1	35.1	30.6
Brazil	14.2	47.8	8.3	7.5	30.1	15.3
United Kingdom	28.1	42.4	16.5	6.7	12.8	1.7
Netherlands	8.4	33.5	4.9	5.3	41.9	11.8
Germany	5.4	9.7	3.2	1.5	15.9	4.8
Other destinations	62.4	194.0	36.7	30.5	31.1	11.3
Total	170.1	636.0	100.0	100.0	30.9	18.6

^aCAGR: Compound annual growth rate.

according to authors and research aims, but ‘search attributes’ (Darby and Karni, 1973) have been the most analysed.

The literature has been classified under the two broad categories of wine producing and consuming countries, Old and New World. Most of the hedonic research has been performed on New World wines sold in New World markets (see Estrella Orrego et al., 2012, for a detailed review). Most of these estimations have found that New World wines’ places of origin, as well as their ratings and vintages, have significant positive impacts on New World consumers’ willingness to pay. A broad consensus has emerged that the more specific the labelling of the place of origin, the higher the price (Steiner, 2004a; Melo et al., 2005; San Martin et al., 2008). Moreover, a positive trend towards a more specific regional differentiation has been observed.

The influence of jury grades on consumers’ willingness to pay has also found broad consensus. Most authors have found this variable to have a significant and positive impact on price. However, its dynamic over time has been subject to different interpretations. For instance, Schamel and Anderson (2003) identified the winery rating as having a positive but downward trend on prices, while Bicknell et al. (2005) found that winery ratings have increased their impact over time. As could be expected, in the United States, where *Wine Spectator* magazine has the strongest influence and profile, the impact of jury grades is consistently more important than in other markets.

The role of brands has also been considered thoroughly, especially by Schamel (2006), who understood that New World countries have still much work to do for their ‘regional differentiation model’ but realised that leading brands are able to capture much of the price differential. The author suggested that regional quality leaders could benefit from emphasising the wine origin in their marketing strategies.

For Old World wines sold in Old World countries, the results reveal a strong positive influence of place of origin (Landon and Smith, 1998; Lecocq and Visser, 2006; Ali and Nauges, 2007). Consensus has been reached on the

influence of rating/jury-grade on wine prices in these markets. The most notable case is that studied by Landon and Smith (1998), who found that reputation (analysed using individual and collective reputation indices) has a significant positive impact on price, 20 times larger than current quality (measured by present jury-grade). Interesting differences among retailers – large-scale and specialised shops – were found by Boatto et al. (2011). The authors verified that consumers buying wine at large-scale retailers were willing to pay a higher price premium for GI-based quality signals than those buying wine in specialised shops, and the authors explain the different results in terms of information costs. Overall, studies reveal that Old World consumers are more aware of a wider variety of quality signals, as could be expected by their long-established wine tradition.

Despite the increasing wine trade between the Old World and the New World and the different strategic approaches that are followed, the literature has given little attention to an understanding of Old World wines in New World countries and vice versa. For instance, consumer appreciation of Old World wine attributes have only been analysed in the British Columbia market (Florkowski et al., 2008; Carew and Florkowski, 2010)² and in the British market (Steiner, 2004b; Panzone, 2011). To the best of our knowledge, New World wines’ performance in Old World countries has not yet received any scholarly attention.

Moreover, all hedonic wine research has been performed regarding specific wines in a unique market, with the only exception being Schamel and Anderson (2003). This single market approach has dramatically reduced the utility of information for wine producers and promotional agencies, whose work actually affects many different foreign markets.

Specifically for Argentinean wine, only San Martin et al. (2008) have worked on estimating a hedonic price function

²Nerlove (1995), Steiner (2002) and Schamel (2006) attempted to measure the impact of different countries of origin in Sweden, Great Britain and United States, respectively.

in the US market.³ Generic, place-based dummy variables have been constructed, accounting for the presence or absence of different geographical areas (e.g., regions, sub-regions and districts). This approach has limited the understanding of US consumers' willingness to pay for specific GNs. In our view, these aspects deserve more attention than they have received thus far.

4. Methodology and data

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 and Martínez Valderrama, 2002; Schamel and Anderson, 2003; Bicknell et al., 2005; Troncoso and Aguirre, 2006; San Martín et al., 2008) and will be used in our work as follows:

$$\ln P = B_0 + \sum_{i=1}^n B_i z_i \quad (1)$$

where P is price, 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 .

Two different data sets for Malbec wine have been constructed: (i) 1250 observations for the United States are derived from 10 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).⁴ Both data sets fully satisfy the assumption of accessibility to the wine consuming public at large (Oczkowski, 1994). These sources can be considered relevant sources of information used by consumers willing to buy foreign wines.

Wine Spectator, considered the mostly highly circulated wine magazine, has a strong influence on wine consumers, especially in the US market. The key advantages of this guide, as established by Landon and Smith (1998), are the following: it includes a large number of different wines; the scoring system (0–100 points) is simple and thus accessible for all types of audiences; 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. 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).

There are some important differences between the two data sets. First, *Wine Spectator* reports the suggested prices for selected wines. Even if these prices cannot be considered retail prices, they constitute a good proxy for prices in specialised shops. *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 2.⁵ 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.

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 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 9-1 cases produced by the winery (*Lcases*).

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.

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

³Yoo et al. (2011) analysed different countries of origin (Argentina, Chile, Croatia, Bulgaria and Hungary) as independent variables in their hedonic model for Canada. Roberto Luppe et al. (2009) studied the wine market in Brazil and the impact of the country of origin (Argentina, Brazil and Chile) on the price of wine.

⁴As 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.

⁵March 2009s prices in US dollars prices have been adjusted by the Consumer Price Index for the United States (US Department of Labour) and expressed in August 2011 Euros.

Table 2
Descriptive statistics for price (Euro 0.75 l format).

Country	Mean	Median	Minimum	Maximum	Standard deviation
United States	17.96	12.13	4.15	128.38	16.64
United Kingdom	14.30	10.80	5.94	86.40	11.36
Germany	14.68	9.52	3.57	85.68	14.51
Netherlands	12.88	9.52	3.57	78.54	12.03

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.

5. Results and discussion

The two hedonic model estimates – one for the US and one for the selected European markets – are reported in Tables A1 and A2. The models explain the log price of a standard 0.75 l bottle of wine as a linear combination of the variables listed in Table 3. The model for the United Kingdom (UK), the Netherlands (NL) and Germany (DE) assumes as a reference baseline a blend rosé Malbec wine that is only origin-labelled as ‘Argentina’, sold in the United Kingdom at €14.10 per bottle.⁶ However, the model for the US market assumes as a reference baseline a blend Malbec wine, with a non-Argentinean GN selling for €17.96 per bottle.⁷

The main difference between the reference baseline wines depicts specific market characteristics. In the US few non-Argentinean Malbec wines are 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 ($R_{adj}^2=0.67$ for the US and $R_{adj}^2=0.44$ for the European markets), and the estimated parameters have the expected signs. Coefficients for the age of the wine show a price premium for older wines in both groups of countries. 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., 2007). Even if the search score is not derived from jury grades, its effect on price is still positive.

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

⁶This baseline wine has an average age of 2.7 years; no indication of vineyard; no search score; and an average of 2.1 wines of the same brand on sale.

⁷This baseline wine has an average age of 2.35 years; no indication of vineyard of production; a mean score of 85.45 points; and 2 wines of the same brand on sale.

Table 3
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	16,635.2	–

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 his 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 (Costanigro et al., 2007). 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.

The first conclusion that can be reached from Table 4 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, San Carlos. A similar situation is present for Salta GNs, 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. English consumers exhibit a similar attitude, with many GNs influencing consumers' willingness to pay. The most valued areas are those belonging to 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

Table 4
Geographical Names relevance in the selected markets.

Areas	Geographical names			US	UK	NL	DE
	Province	Sub-region	Sub-areas				
Mendoza	Mendoza	/	/	***	**		*
	Mendoza	/	Luján de Cuyo	+	+		–
	Mendoza	San Carlos	/	++			
	Mendoza	/	Maipú	+++			
	/	/	Districts Mendoza		***		
	/	Uco Valley - San Carlos	/	***	++	**	
	/	/	Luján de Cuyo	+	+++	+++	
	/	/	Maipú	++		**	**
Salta	/	/	San Rafael	*		– – –	– – –
	Salta	/	/	+	***		
Patagonia	/	Cafayate	/	+++	+++		
	Patagonia	/	/	+++	*		
San Juan	San Juan	/	/	+++	++		
	/	/	Districts	***			
La Rioja	/	/	Districts	+++		**	***
	La Rioja	/	/			– – –	– – –
	Argentina	/	/	***	Baseline	*** (a)	(a)
	Other countries			+++	**	–	
				Baseline	+		

Note: *** $P < 0.01$; ** $P < 0.05$; * $P < 0.1$; empty cells indicate a non-significantly different from zero coefficient; relative impact on price: + or – weak, ++ or – – medium, +++ or – – – high; / non-observed data.

^aThe model for NL and DE assumes as a reference baseline a blend rosé Malbec wine that is only origin-labelled as 'Argentina', sold in the United Kingdom.

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*.

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, strongly 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, a more specific *terroir*-based strategy could be adopted. The higher price premium observed for more targeted GNs and when the Mendoza GN is jointly used with its sub-areas, provides evidence of the 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.

Overall, both New and Old World consumers are able to recognise GNs when buying Argentinean wines, even if their ‘telescopic ability’ to discriminate among these quality signals

Table A1
Model estimates for the United States.

Variable description	<i>b</i>	SE	<i>p</i>	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

^aPercentage price premium = $e^{B-(1/2)(\sigma^2)}$ adjustments made according to Kennedy (1981).

^bAverage elasticity.

and their willingness to pay a price premium vary substantially. Accordingly, information provision would be improved if different consumers are targeted with different messages: in the New World wine countries, Malbec could be promoted by associating protected GIs with jury grades, while in the Old World, communication with ‘geographical insights messages’ could work (Van Ittersum et al., 2007).

6. 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

Table A2
Model estimates for the United Kingdom, the Netherlands and Germany.

Variable description	<i>b</i>	SE	<i>p</i>	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
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

^aPercentage price premium = $e^{B-(1/2)(\sigma^2)}$ adjustments made according to Kennedy (1981).

^bAverage elasticity.

consumers' information search costs and raise their willingness to pay (Josling, 2006).

Hedonic model estimates 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. *Notourist* flows from New World wine producing or consuming countries (the United States and the United Kingdom) are much more relevant than those from Old World countries (Germany and the Netherlands).

To profit from this verified interest on the part of consumers, the international protection of Geographical Indications would be an important step forward for the strategic differentiation of New World wine producing countries. For New World consumers, GI protection would strengthen their willingness to pay for foreign GNs, as suggested by the Argentinean case study. For Old World consumers, the complex buying-process – when wines sourced from far off countries are involved – could be eased by the familiar PDO-PGI system. This collective quality scheme would lead little known characteristics to become easily recognisable quality signals.

Specifically, the Argentinean wine sector should carefully consider signing an agreement on GIs protection, especially targeting the European Union market. In doing so, Argentinean GNs' observed reputation would also be protected against misuse by non-original producers. Furthermore, the current system of Argentinean GIs protection should be fully implemented and used by export-oriented wineries. An adequate governance system should be introduced to guarantee the existence of a specific link between the product's quality and its geographical origin and the respect of a commonly defined code of practice. Adequate investments in human capital are crucial for effectively implementing a strategic approach – substantially new for Argentinean wineries – based on an appropriate collective management of GI property rights.

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 discriminate among *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.

Appendix A

See Tables A1 and A2.

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