Determinants of the Argentinean Wine Price

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Abstract

Argentina is among the largest players in the New World wine market. The aim of this study is to identify the determinants of Argentinean wine prices in the United States by analyzing data from *Wine Spectator Magazine*. A hedonic model approach was used to explain how variables such as variety, age, geographic origin, quantity supplied, and other special descriptors impact wine prices. Findings indicate that score and age have a positive effect on wine price while number of cases has a negative effect. Malbec and Malbec blends enjoy higher price premiums. Additionaly, Achával-Ferrer enjoys higher premiums compared to other wineries.

Keywords: Argentina, hedonic model, origin, price, quantity, wine

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Introduction

Fundamental changes have shaped the global pattern of wine production in the last few decades. The most notable changes have been the emergence of New World wine producers, an increase in per capita consumption of wine, and changes in consumer preferences (Aleixandre et al., 2016; Artopoulos et al., 2013).

Argentina, a traditional wine-consuming country, is among the largest players in the New World wine market (Hussain, Cholette, and Castaldi., 2008; Khachatryan, Schuele, and Khachatryan, 2009). Prior to the 1980s, most Argentinean wine was destined for the domestic market, primarily due to its low quality. Beginning in 1994, policies were implemented to improve the quality of wine production and the wine sector overall (Khachatryan, Schuele, and Khachatryan, 2009). Wine producers started to allocate efforts toward producing high-quality wine to access the international market (Stein, 2008). While initial efforts focused on advertising individual firms, the creation of a "distinctive identity" as a country allowed Argentinian wine to penetrate the international market (Stein, 2008).

In spite of the importance of Argentina's wine industry, few studies have examined the determinants of Argentinean wine prices in the international market. The aim of this study is to identify the determinants of Argentinean wine prices in the United States by analyzing data from *Wine Spectator Magazine*. A hedonic model approach was used to explain how wine characteristics impact wine prices. Results of this study are expected to contribute to the wine industry by providing quantitative evidence of the implicit prices associated with Argentinean wines' attributes.

Literature Review

Various factors affect the price consumers pay for a bottle of wine. These factors can be directly associated with the attributes of a wine or with external factors such as consumer knowledge and characteristics or purchase occasion (Neeley, Min, and Kennett-Hensel, 2010). Some studies have focused on examining purchase situation effects in consumer purchase decisions (Martinez-Carrasco et al., 2006; Neeley, Min, and Kennett-Hensel, 2010; Aqueveque, 2006). Other studies have analyzed the implicit price of wine attributes using a hedonic model approach, which makes it possible to identify associated price premiums or discounts (Thrane, 2004).

In a study of domestic and imported wines in the United States, Schamel (2006) found that expert ratings and age were important price determinants, with red wines enjoying larger premiums. Old World wines were also found to enjoy higher regional reputation premiums. Combris et al. (2000) examined the price of Bordeaux wines as a function of objective attributes and sensory variables and found that the price of a wine was related to the attributes included in the label, while the ranking of the wine was associated with its sensory characteristics. The authors proposed that objective labelattributes are easily observed by customers and therefore may be better descriptors of wine premiums and discounts than quality attributes. Oczkowski (2001) also found that when reputation and quality attributes are included in the analysis, reputation attributes have a larger and more significant impact than quality attributes.

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Carew and Florkowski (2010) evaluated the price of Burgundy wine prices in Canada and found that the Village appellation was significantly correlated with price premiums and discounts and that wine ranks from quality classifications enjoyed higher prices. In their study, vintage was also found to be a significant factor in price determination, although wine age was not significant. Another study by Steiner (2004) also found that red wines enjoyed a premium relative to white wines and that regional appellations were associated with price premiums relative to varietal or table wine appellations.

Almost no study has examined Argentinean wine prices. San Martín et al. (2008) examined the variables affecting the price of a bottle of Argentinean wine in the United States using a hedonic model to examine the effect of sensory quality rating, quantity of cases produced, vintage year, region of origin, producer name, and grape variety on retail prices. Their study identified geographic origin, reputation, quantity of cases, and wine age as important determinants of Argentinian wine prices by using a sample of Argentinean wine from the period between 1977 and 2005 obtained from the database of the digital version of *Wine Spectator Magazine*. This study analyzes data from the same source from 1989 to 2010. The updated dataset may provide new information about the determinants of the prices of wine from Argentina.

Model and Data

A hedonic price function relates the price of a commodity to its various attributes or characteristics (Rosen, 1974). Hedonic models have been widely used to examine the determinants of wine prices around the world (Carew and Florkowski, 2010; Steiner, 2004; Schamel, 2006). This study examines the price of Argentinian wines in the United States as a function of wine attributes using a hedonic price model:

$$\ln \Pr ice = \beta_0 + \beta_1 Score + \beta_2 Age + \beta_3 \ln Cases + \beta_4 \operatorname{Re} gion + \beta_5 Subregion +$$

(1)

$$\beta_6 Appellation + \beta_7 Designation + \sum_{k=8}^{15} \beta_k Variety_k + \sum_{j=16}^{25} \beta_j Winery_j + v$$

where v is the error term. The independent variable *Price* represents the price of a bottle of Argentinean wine in the United States. Wine characteristics included for analysis are score, age, number of cases, region, subregion, appellation, designation, variety, and winery. *Score* is a rate from 0 to 100 given to wines by experts during a blind tasting. This variable is related to quality; a higher score reflects higher quality. *Age* is the difference between release year and vintage year. *Cases* represent the quantity of cases of a specific kind of wine produced in a particular year. *Variety* represents grape variety. Eight grape varieties and blends were included: Malbec, Merlot, Chardonnay, Cabernet Sauvignon, Other reds, Other whites, Malbec blends, and Other red blends. *Region* was included to measure the effect of geographic region on price. *Region* was included as a binary variable and assigned a value of 1 if the label indicated any of the following six regions in Argentina: La Pampa, La Rioja, Mendoza, Patagonia, Salta, and San Juan; and 0 otherwise. In addition to region, wine labels could also include *Subregion* information; this is the specific place where the wine was produced or grapes were cultivated (e.g., vineyard). Thus, a binary variable for *Subregion* was included in the model to indicate whether the label included

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this information. A binary variable for special wine *Designation* was also included for analysis to determine if designations such as Año Cero, Collectibles, Grand Reserve, Premium, and Selection reported in the label have an impact on wine prices. A binary variable *Appellation* was included to examine whether distinctions or denominations beside the winery name on the wine label affected its price. The variable *Winery* represents the eight Argentinean wineries with the largest number of cases supplied. The major wineries included in the analysis are Achával-Ferrer, Bodega Catena Zapata, Bodega Norton, Dominio del Plata, Familia Zuccardi, Pascual Toso, Trapiche, and Viña Doña Paula. Two categories for "Other" wineries were also included to designate wineries with few cases (Other wineries-Few) and very few cases supplied (Other wineries-Fewer). The data analyzed in this study ere obtained from *Wine Spectator Magazine* for the period 1989–2010. Summary statistics of the variables examined are reported in Table 1.

Table 1. Descriptive Statistics of Variables Included in the Hedonic Wine Price Model.

Variable	Mean	Std. Dev.	Min	Max
lnprice	2.76	0.65	1.39	5.16
Score	85.35	4.44	55.00	96.00
Age	2.66	1.11	0.41	11.41
lncases	8.43	1.48	3.91	12.43
Region			0	1
Subregion			0	1
Appellation			0	1
Designation			0	1
Variety: Malbec			0	1
Variety: Cabernet Sauvignon			0	1
Variety: Chardonnay			0	1
Variety: Malbec blends			0	1
Variety: Merlot			0	1
Variety: Other reds			0	1
Variety: Other whites			0	1
Variety: Red blends			0	1
Winery: Achával-Ferrer			0	1
Winery: Bodega Catena Zapata			0	1
Winery: Bodega Norton			0	1
Winery: Dominio del Plata			0	1
Winery: Familia Zuccardi			0	1
Winery: Other wineries- Fewer			0	1
Winery: Other wineries- Few			0	1
Winery: Pascual Toso			0	1
Winery: Trapiche			0	1
Winery: Viña Doña Paula			0	1

Notes: N = 1,807

Results and Discussion

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Results of the hedonic model estimated are reported in Table 2. Results indicate that *Age* and *Score* had a statistically significant and positive effect on price. The number of cases was statistically significant and had a negative effect on the price of wine sold in the United States, in

Table 2. Results of the Hedonic Wine Price Model.

Lnprice	Coefficient		Std. Err.	P>|t|	Impact Dummy Variables (%)
Constant	0.990	***	(0.344)	0.004	
Score	0.052	***	(0.003)	0.000	
Age	0.115	***	(0.011)	0.000	
Lncases	-0.182	***	(0.007)	0.000	
Region	-0.768	***	(0.190)	0.000	-53
Subregion	0.090	***	(0.022)	0.000	9
Appellation	-0.035		(0.023)	0.137	-3
Designation	-0.020		(0.026)	0.444	-2
Variety: Cabernet Sauvignon	-0.104	***	(0.029)	0.000	-10
Variety: Chardonnay	-0.091	***	(0.035)	0.009	-9
Variety: Malbec blends	0.179	***	(0.034)	0.000	20
Variety: Merlot	-0.121	**	(0.049)	0.014	-11
Variety: Other reds	-0.142	***	(0.036)	0.000	-13
Variety: Other whites	-0.213	***	(0.039)	0.000	-19
Variety: Red blends	0.196	**	(0.087)	0.025	22
Winery: Bodega Catena Zapata	-0.268	***	(0.081)	0.001	-23
Winery: Bodega Norton	-0.710	***	(0.081)	0.000	-51
Winery: Dominio del Plata	-0.676	***	(0.086)	0.000	-49
Winery: Familia Zuccardi	-0.797	***	(0.088)	0.000	-55
Winery: Other wineries- Fewer	-0.747	***	(0.067)	0.000	-53
Winery: Other wineries- Few	-0.573	***	(0.070)	0.000	-44
Winery: Pascual Toso	-0.709	***	(0.083)	0.000	-51
Winery: Trapiche	-0.503	***	(0.083)	0.000	-39
Winery: Viña Doña Paula	-0.893	***	(0.082)	0.000	-59

Notes: Asymptotic standard errors are reported in parentheses under each coefficient estimate. Double and tripe asterisks (**,***) indicate statistical significance of an explanatory factor or attribute at the 5% and 1% level of significance

accordance with the law of demand and with findings in other studies (e.g., Carew and Florkowski, 2010).

Unlike other studies, wines that specified the region on the label were found to be discounted compared to wines with no region information on the label (Carew and Florkowski, 2010 and San Martin et al. 2008). However, this result may indicate that consumers are interested in buying a bottle of wine from Argentina regardless of the specific Argentinean region the wine comes from. A different result may be expected if a similar study was conducted at a regional level where consumers are more aware of the different wine-producing regions in Argentina. In contrast, wines that specify a *Subregion* enjoy higher prices compared with those that do not

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provide this information. This is an unexpected result, given that subregion is more specific than region. However, consumers may associate subregion (e.g., specific vineyard) with wine quality and potentially vineyard reputation. This result may imply that reputation is important to consumers (San Martin et al., 2008).

Results in this study also indicate that having an appellation or distinction on the wine label—other than the brand—has a negative effect on the price of wine. Similarly, designations (e.g., Reserve) have a negative effect on the price. However, those results are not statistically significant. Malbec blends and red blends were found to enjoy larger premiums than other varieties and blends. High-end wines in Argentina are commonly Malbec blends. In addition, our findings indicate that Achával-Ferrer, one of the oldest wineries in Argentina, enjoys higher premiums compared to other wineries.

While some attributes are important in price determination, not all consumers pay the same attention to them. Consumers pay more or less attention to attributes like region, appellation, and even price based on their level of wine involvement (e.g., frequency of purchases). Hollebeek et al. (2007) found that region of origin was more important (and price was less important) for consumers with higher purchasing involvement.

This study has some limitations. First, the dataset is not representative of all the Argentinian wines sold in the United States, thus caution should be exercised when extrapolating results. In addition, the hedonic model has limitations as it does not examine consumer preferences and purchase situation, which can have a large effect on consumer purchases (Thrane, 2004; Xue, 2008). Future studies may be improved by using scanned data, which may help to better identify consumers of Argentinean wines and what they look for in Argentinean wines.

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