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“The Anatomy of Exporting Wineries of Argentina”

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Structured Abstract

Purpose

To provide a detailed characterization of Argentinean exporting wineries using a new rich firm-level dataset to understand how capabilities and business strategies differ among firms with different levels of involvement in the export market.

Design/methodology/approach

A survey was distributed among all wineries along all wine regions of Argentina; the 45-minute questionnaire was answered by 230 wineries, a representative sample with a response rate of 26.3% of the total population of Argentinean wineries. The survey assessed the interaction between wineries' dynamics and characteristics and their participation in export markets. In our comparative analysis, the results are presented by dividing the sample into four categories according to the export intensity of the wineries.

Findings

High-intensity exporting wineries in Argentina differ from other Argentinean wineries in several dimensions. In particular, the most internationalized Argentinean wineries are the most endowed with higher capabilities; they follow a specific business model emphasizing product differentiation, quality upgrading, brand building, and the development of distribution channels. Exporting wineries from Argentina adopt business practices that differ from those that prevail among wineries that only target the domestic market. They have developed firm capabilities such as human capital and technology to play a critical role in quality upgrading for their participation in global wine markets.

Originality

This article is the first to study the Argentinean exporting wineries using a firm-level sizeable representative sample.

Keywords: wine, exports, quality, value chain, New World

I. Introduction

Although Argentina consumes more than eight million hectoliters of wine per year, ranks amongst the countries with the highest wine consumption per capita (OIV, 2022), and therefore has a relatively strong national wine market, the Argentinean wine industry is globally recognized for a consolidated business model focusing on the production of bottled Malbec wines for export in the premium price category. As in many New World wine-producing countries, the exporting success of the Argentinean wine industry resulted from the combination of high-quality terroirs and innovation in product and process, spurred by consistent investments and research efforts, leading to significant quality upgrading.

The Argentinean wine industry exports around three million hectoliters of wine annually, which is around 1 billion U.S. dollars annually (OIV, 2022). Record volumes of bottled wine exported, especially Malbec, which today represents more than half of Argentine wines exported, and varietal wines (including Malbec) with 90 percent of total exports, shows an export business conditioned to red wine, bottled, and improved quality.

In the last two decades, Argentine wine exports have followed the global wine trade of stagnant volumes but increasing values driven by premiumization (Villanueva et al., 2022; Del Rey & Loose, 2023). The development of Argentina's wine exports seems steady and solid despite the difficulties created by a volatile domestic context, which includes substantial variations in the real exchange rate. Even though export volumes have stabilized in the last couple of years, relative prices have increased, showing an enhanced quality of local wines.

This relative success of Argentine wine exporters is all more notorious because of the many constraints wine-producing firms face in Argentina. At the macroeconomic level, these include strong price fluctuations and the real exchange rate, heavy export duties, and the lack of international trade agreements facilitating international market access. At the more microeconomic level, the industry is heavily concentrated, with only ten firms accounting for two-thirds of the volume of wine exported and presenting substantial heterogeneity in production and business capabilities (Villanueva et al., 2022).

Despite its abundance of natural resources, the possibility of Argentina achieving sustained economic growth depends to a large extent on being able to diversify its export structure towards goods with more significant differentiation and value-added. However, the last 15 years have yet to progress in that direction. The country's real exports are stagnant and persistently concentrated in a few commodities, while the number of exporters is a third lower than its peak in 2006 (Hallak, 2023). While wine could undoubtedly be one product to drive this international insertion through a differentiated product, the

levels of competitiveness of Argentine wines are no exception to this reality and are low compared to world competitors; wine exports are highly dependent on the exchange rate, which only allows foreign sales to improve when it rises, and exporters pass it on at lower prices (Merino, 2022). Argentinean export growth often lags the world average, and Chilean wine exports, its South American competitor, continue to double those of Argentina. However, the country has developed a solid wine-country image (Rodrigues et al., 2020), with experts and consumers worldwide recognizing Malbec wines as high-quality Argentinean wine.

Besides these unfavorable macroeconomic and structural characteristics for the wine industry of Argentina to export, the primary sources of competitive advantage in the production and export of wine remain a combination of natural localized advantages (the so-called terroir, a combination of soil, topography, and climate) and more mobile knowledge (including winemaking techniques but also packaging, distribution and marketing knowledge). In this context, wineries' technical capabilities, resources, and business strategies become critical for their success in an increasingly competitive and segmented international wine market (Villanueva et al., 2023).

This study will provide a detailed characterization of Argentinean exporting wineries using a new, rich firm-level dataset. We seek to understand how capabilities and business strategies differ among firms with different levels of involvement in the export market. The article is organized as follows: The next section provides an overview of the literature on firms' capabilities and export performance, emphasizing the wine sector. The third section presents our hypotheses and methodology and describes the dataset. The fourth section covers the results and discussion. In this section, we first describe the wineries' profiles and then an analysis of their capabilities and business strategies. In the study, we consider the different steps of the wine value chain: pre-production (viticulture), production (winemaking and bottling), and post-production (marketing, sales, and distribution) functions. All data presented is divided into four categories: non-exporters, low-intensity exporters (exports less than 30% of their production volume), medium-intensity exporters (exports between 30% and 50% of their production volume), and high-intensity exporters (exports more than 50% of their production volume). Finally, conclusions are drawn to explain the main differences between exporting and non-exporting wineries of Argentina and the factors that may offer the exporting wineries greater export capacity.

II. Firms' capabilities and export performance

Over the past decades, export-led growth has been one of the most relevant driving forces behind economic development. At the macroeconomic level, exports would increase growth and reduce poverty (see Giles and Williams (2000) and Harrison and Rodriguez-Clare (2009) for a review of the literature). At the microeconomic level, trade-driven growth has the potential to increase firms' productivity, sales, profitability, and survival rate, as well as to boost employment and salaries (Leonidou et al., 2002; Brambilla et al., 2015 and 2017; Wang et al., 2018; Feenstra et al., 2019; Sasahara, 2019). Firms in middle-income countries like Argentina are not competitive in unskilled labor-intensive stages of global value chains. Still, differentiated and high-value-added exports could also be achieved by domestic firms in middle-income countries without relying on labor cost advantages (Depetris-Chauvin et al., 2021). The agro-food industry, though often wrongly depicted as low value-added and with little innovation content, can instead represent a sector with significant technological and rent upgrading opportunities even in middle-income countries.

An example of this is what has happened in the global wine industry since the 1970s, where the latecomers in the international market have radically changed how wine is produced, sold, and consumed (Giuliani et al., 2011; Villanueva et al., 2023). The observed changes in the international wine markets prove that consistent investments, research efforts, and increased human capital through knowledge and training spur innovation in products and processes. Adopting new business models can play a prominent role in quality upgrading and the emergence of new producers in the international market for quality differentiated agricultural products.

International wine markets are highly competitive and are increasingly segmented on the basis not only of customers' preferences and interests (Villanueva et al., 2017) but also because of the growing diffusion of different types of standards, certifications, and other requirements associated with health, environment, safety, quality, and other kind of concerns. These demands may be related to efficiency, quality, delivery times, traceability, sustainability, product adaptation, and packaging (Cattaneo et al., 2013). The hurdles wine exporting firms face in accessing international markets differ significantly from those faced by firms focusing only on supplying the domestic wine market. Exporting brings up enhanced opportunities for firms and industries in world markets, and these opportunities can be successfully exploited if firms or industries have or develop the needed attributes and thus become efficient world producers.

The modern theory of heterogeneous firms and trade pioneered by Melitz (2003) and surveyed by Melitz and Redding (2014) provides a theoretical framework to understand firms' dynamics in international trade (see Crozet et al. (2011) for an application to the wine industry). Two aspects of these models are essential

for our research. First, in these models, the decision by firms to export (the extensive margin) is quite distinct from the amount firms choose to export (the intensive margin). This is laid out clearly by Chaney (2008) and Helpman et al. (2008) and examined empirically by Besedeš and Prusa (2011), Chevassus-Lozza and Latouche (2012), and Chevassus-Lozza et al. (2013). Second, these models are motivated by the empirical findings from microdata that show that firms participating in international trade perform better along several dimensions: exporters are larger, more productive, more capital intensive, more skill intensive, and pay higher wages than non-exporters within the same industry (Bernard and Jensen, 1995 and 1999). Two economic theories explain the positive relation between exporting and firm performance in this literature. The first theory postulates that more productive firms are more likely to become exporters than less productive firms (Wagner, 2007). An elaboration of this idea is the conscious self-selection theory, whereby self-selection is a conscious decision of firms to become "better" (e.g., become more productive) with the intended purpose of becoming exporters. The other theory postulates a learning-by-exporting process (Clerides et al., 1998). Firms become exporters and later become better thanks to the integration of networks where knowledge and information are created and disseminated. This allows exporting firms to pay higher wages, employ more workers, use better inputs, adopt new technologies, and improve the quality of their products. Determining which of the two theories is better supported by the data is challenging. Establishing causality requires exogenous variation in exporting or productivity, and industry-specific factors may play a role. However, regardless of the causality direction, both theories imply a correlation between exports and firm productivity that has been extensively documented in the literature (see Brambilla et al. (2015) for a review).

The international marketing and management literature also study the relationship between firms' capabilities (arguably correlated with firms' productivity) and export performance. The resource-based-view of the firm approach (Wernerfelt, 1984; Barney, 1991 and 2001; Peteraf, 1993) emphasizes that export opportunities can be successfully exploited if firms or industries have, or develop, the needed resources and competencies (notably human) to become efficient world producers (Sousa et al., 2008). This literature has emphasized several critical determinants of export performance, including firm size (Aaby & Slater, 1989; Kim & Hemmert, 2016; Dean et al., 2000), firm age (Baum & Shipilov, 2006; Kelly & Amburgey, 1991; Agnihotri & Bhattacharya, 2015; Kim & Hemmert, 2016; Love et al., 2016; Ganotakis & Love, 2011; D' Angelo et al., 2013; and Kirpalani and Macintosh, 1980), human capabilities (Haddoud et al., 2021; Nakos et al., 1998; and Williams, 2011), and product differentiation strategies (Kirpalani & Macintosh, 1980; Leonidou et al., 2002; Chen et al., 2014; Cavusgil & Knight, 2015; and Knight et al., 2020). The importance of these factors and the underlying mechanisms explaining their influence on export

performance is still a matter of discussion in the business literature, and it often varies for different industries and circumstances. Specific studies of export performance and firm capabilities in the wine industry are relatively scarce and include Bardaji et al. (2014), Fernández-Olmos (2011), and Ferrer et al. (2018) for Spanish wineries, Bashiri et al. (2019) for Portuguese wineries, Karelakis et al. (2008) for Greek wineries, Bianchi and Wickramasekera (2013) for Chilean wineries, Silverman et al. (2004) for American wineries, and Maurel (2009) for French wineries.

Despite its relative importance, very few studies exist on the Argentinean wine industry. Economic wine sector studies are regularly produced by the *Observatorio del Vino Argentino* (see, for instance, OVA 2021a, 2021b, and 2021c) and are based on the analysis of the industry trends. Similarly, most academic empirical studies focus on aggregate time series data of the Argentinean wine sector. Alderete and Bacic (2012) study the contribution to local development of the Mendoza wine cluster. McDermott (2007), Stein (2010), and Villanueva et al. (2022) use macroeconomic and industry-level data to describe and analyze the Argentine wine export boom. Two exceptions are Artopoulos et al. (2013) and Elias et al. (2020), which use a case study approach. The first paper studies the adoption of new business practices following the emergence of an export pioneer in the Argentinean wine industry. The second paper shows that one of the most critical determinants of the local wine industry transformation process was human talent, namely, the entrepreneurs who took the risk of innovating in a relatively static industry. Our paper is the first to study the Argentinean wine industry using a firm-level sizeable representative sample.

III. Hypotheses, methodology, and data

This research aims to describe the configuration of the Argentinean wine industry regarding its capabilities and business strategies and link them with the firms' export performance. The production of a quality differentiated product like wine requires the articulation of several productive and commercialization linkages that determine the quality of the product. Following previous studies using value chain analysis (Martin & Williams, 2003; DaSilva Lopes, 2007; Kleine, 2008; Pontes & Ewert, 2009; and Varia et al., 2021), our approach identifies the location of productive and technology/knowledge creation activities, the profile of skills and the type of employment created by those activities, and the main actors involved in each stage in the exporting wineries in Argentina and how that is associated with product quality and export opportunities.

Our first hypothesis is that steady wine exporters, medium-intensity exporting wineries, and fundamentally high-intensity exporting wineries adopt business practices that differ from those that

prevail among wineries only targeting the domestic market. Accessing international markets may require wineries to change three areas of their business model significantly: the product component, the production component, and the marketing component.

The second hypothesis is that firm capabilities such as human capital and technology (understood in a broad sense to include not only productive but also organizational and commercial knowledge) may play a key role in quality upgrading and the participation of firms from New World wine-producing countries, like Argentina, in global wine markets.

To carry out the comparative analysis, a survey was distributed among all wineries in all wine regions of Argentina between August 2019 and May 2021. The questionnaire was answered in person (a pilot study with 22 wineries to assess the quality and relevance of the survey instrument was conducted) or online by the owner (53.5%), winemaker (47.0%), vineyard manager (27.8%), producer (26.5%), sales manager (24.3%), operational manager (14.8%), cellar manager (11.3%), marketing director (10.9%), public relations manager (10.4%) and others (1.7%)¹A thorough process was implemented to contact respondents before, during, and after they had answered the survey. Potential outliers were identified and addressed with follow-up questions with the respondents.

The survey was answered by 230 wineries, corresponding to a response rate of 26.3% of the total population of Argentinean wineries, a significantly high average response rate for an industrial-level survey (Baruch & Holton, 2008; Krishnan & Poulouse, 2016). Wineries were stratified geographically, and efforts were made to secure at least a 20% response rate in each Argentinean wine-producing province, which was achieved. The sample was also segmented by wineries' size (production in liters), and we worked closely with the implementing partners to secure a sample representative of the industry. The representativeness of our sample can be assessed by comparing some characteristics of the sample versus those of the population. In our survey (2019 to 2021), 71.3% of the wineries were exporters; in the population, this proportion was 65% in 2019 (INV, 2020). According to the Argentinean Viticulture Corporation (COVIAR, 2017), Argentina's proportion of big, medium, and small wineries was 5%, 28%, and 67%, respectively. In our sample, those proportions are 5.2%, 25.2%, and 68.6%. Cooperatives are slightly unrepresented in our sample: they account for 3% in our sample, while in the population, they are close to 5% of all wineries (COVIAR, 2017), but given their marginal role in today's industry, it should not affect our conclusions. Finally, in 2019, the ten largest exporters accounted for 67.6% of the exported volume

¹ The total adds to more than 100% because in smaller wineries, the owners or top managers play different roles, and in large wineries, more than one person answered the survey.

(this percentage increases to 79.2% if we consider the top 20 Argentine wine exporters) (OVA, 2021a). Six of the ten top wine exporters, including the top 3 (INV, 2020), answered the survey. Table I below shows the distribution of our representative sample by wine-producing region.

Table I – Argentinean Wineries by Region - Sample

	Identified	Answers	Response rate
Mendoza	620	152	24.5%
Cuyo - other	83	19	22.9%
North West	95	29	30.5%
Patagonia	42	15	35.7%
Center	35	15	42.9%
Total	875	230	26.3%

Source: Own elaboration based on survey data

The 45-minute questionnaire was divided into five sections and had 137 questions. Questions range from winery profile (age, size, ownership, location, sales, unit prices, export amount, and employment) to the winery's production, marketing, and sales functions, and relay data for their "entry-level" and "premium level" wines. Questions related to the production process assess the decision-making regarding vineyard management and the winemaking process, and those questions focused on the marketing process concentrate on promotion, distribution, and export sales decisions. The questionnaire also provides data and information regarding technological and human resources (personnel skills, training, human capital availability, and quality) and the perceived level of sector competitiveness that Argentinean wineries face. The survey used during the fieldwork assessed the interaction between wineries' dynamics and characteristics and their participation in export markets. The survey results identify the main barriers actors perceive for quality upgrading, participating, and upgrading into global wine markets, how these have impacted their activities, and the strategies implemented to overcome or modify those barriers.

In our analysis, we decided to present the results by dividing the sample into four categories according to the export intensity of the wineries (see Table II).

Table II – Argentinean Wineries by Export Intensity - Sample

Non-Exporters	Low-intensity exporters (exports less than 30% of their production volume)	Medium-intensity exporters (exports between 30% and 50% of their production volume)	High-intensity exporters (exports above their 50% production volume)
28.70%	30.00%	17.83%	23.48%
66 wineries	69 wineries	41 wineries	54 wineries

Source: Own elaboration based on survey data

The sample of 230 wineries shows 164 exporting wineries (71.3% of the sample) and 66 non-exporting wineries (28.7%). Of the 164 exporting firms in the sample, 162 export bottled wine (98.8%), 42 of them export in bulk (25.6%), but only 2 of them (1.2%) export exclusively in bulk. Bulk wine exports in Argentina are volatile and are a residual of the core business, which is the export of bottled wine. Two-thirds of the non-exporting wineries are outside Mendoza, the main wine-producing region. The data shows that the smaller the wine production region is, the more prevalent non-exporting wineries are. On the other hand, in Mendoza, 85.5% of the wineries are exporters, and one-third are high-intensity exporters. Of the 54 high-intensity export wineries, 49 are in Mendoza, three are in the Northwest, and one is in Patagonia and Cuyo.

IV. Results

In this section, we present our main results. We compare Argentinean wineries' profiles, capabilities, and business strategies with different levels of involvement in export markets, as defined by the share of their total output volume they sell in export markets. We then study their export performance.

IV.1 Wineries profile

Profiles vary significantly across different levels of export intensity. Regarding company legal status, corporations (Sociedad Anónima) represent 70% of the exporting wineries, while Limited Liability companies (Sociedad de Responsabilidad Limitada) account for almost 20% of the exporting wineries. High-intensity exporters are mostly corporations (83%), while 62% of non-exporting wineries present other legal structures than a corporation (LLCs, cooperatives, individuals). Almost 30% of high-intensity exporters are foreign-owned companies; there is a positive correlation between export intensity and foreign ownership. On the other hand, almost all (93.94%) wineries that do not export are locally owned.

Non-exporting wineries are younger, smaller, and more likely to be either fully integrated or not to own vineyards (Table III). Exporting wineries have larger surfaces in vine production and higher annual average production of wine by volume in liters. Medium-intensity exporting wineries are the largest in terms of both surface and production. High-intensity exporters are also large, but they have been, on average, in the wine business for fewer years than the medium-intensity, as the former category includes a mix of old and young wineries. Only 37.8% of wineries interviewed produce 100% of their wines with grapes from the winery's harvest. Non-exporting and high-intensity exporting wineries produce between 75% and 100% of their wines, with their grapes by 65% and 62%, respectively. In contrast, low-intensity and medium-intensity exporting wineries tend to buy more grapes from other growers.

Table III – Size and Vertical Integration of Argentinean Wineries by Export Intensity

	Average Years in the Market	Average Surface in Hectares	Median Surface in Hectares	Vertical Integration: Own Harvest	
				100%	0%
1-Non-exporters	18.8	22.3	7.0	56.1%	16.7%
2-Low-intensity exporters	30.4	147.4	55.0	31.9%	15.9%
3-Medium-intensity expo	34.6	348.4	40.0	24.4%	4.9%
4-High-intensity exporter:	27.8	285.5	85.0	33.3%	3.7%

Source: Own elaboration based on survey data

Our data also shows some heterogeneity in terms of how wineries organize the three main stages of the wine value chain: pre-production (viticulture), production (winemaking and bottling), and post-production (marketing, sales, and distribution) functions.

The survey provided four options regarding the type of grape production systems: a. organic production (certified), b. biodynamic production (certified), c. traditional or conventional but environmentally aware with a natural production, and d. traditional or conventional production, farming is historically characterized by efficiency, yield maximization, and the use of fertilizers, if necessary. Organic production (certified) is a system that integrates cultural, biological, and mechanical practices that foster the cycling of resources, promote ecological balance, and conserve biodiversity. In contrast, biodynamic production (certified) requires that plants are grown in the ground in living soil, which provides a quality of health and nutrition not possible with chemical fertilizers or hydroponic growing. Biodynamic farms aspire to generate fertility through composting, integrating animals, cover cropping, and crop rotation. Our findings show that non-exporting wineries tend to use more traditional and conventional with environmental

awareness, totaling 87% of their production systems. Traditional and conventional with environmental awareness production systems relatively decrease when wineries increase export intensity; high-intensity exporting wineries have significant proportions of organic (22%) and biodynamic (4%) production systems.

Vines must be managed according to the produced wine's targeted style and price point. In the best of all worlds, the resulting vines are in perfect balance, and very little intervention or manipulation must be done, but this is rarely the case. Canopy management is necessary in inverse relationship to the qualities of the vineyard site – poorer sites usually require more intervention. Without a natural canopy and crop balance, the grower must apply viticulture practices to balance the vine and fruit, resulting in perfectly mature fruit for winemaking. Wine grape growers have two key objectives: to produce optimal mature fruit for winemaking and to acclimate vines fully to maximum cold hardiness (especially in cold-winter wine-growing regions). In practice, canopy management involves pruning, shoot thinning, sucker and waterspout removal, shoot positioning, leaf and lateral removal, hedging, and any other practice that manipulates shoots and leaves. Regardless of export intensity, wineries in Argentina mostly plant and manage their vines manually; however, the more they export, the more mechanized their canopy management becomes.

Good canopy management begins with careful and proper vine training, with special considerations given to canopy architecture, such as overall canopy height and fruit wire height. These dimensions will have significant implications for the performance of the canopy and fruit. The choice of training and trellis system, e.g., cordon, espalier, single or divided systems, will impact canopy design, performance, and management. Regardless of export intensity, wineries in Argentina mostly train their vines with a cordon system; however, the more they export, the more espalier system they adopt.

Regarding irrigation of the vines, the drip irrigation system is used by almost 75% of high-intensity exporters, while the flooding irrigation system is used by 31% of exporting wineries. All wineries mainly do the grape harvest manually, regardless of export intensity. However, mechanized grape harvest is only done by 7% of the non-exporting wineries but by 31% of the high-intensity exporting wineries.

Most wineries interviewed were able to provide valuable information about differences in agronomic practices comparing their production of entry-level wines and premium wines; 93% of these wineries export their premium wine. The most salient information is that wineries producing premium wine plant those vines almost always manually and do canopy management also almost always manually (mechanization plays a more important role in regular wines' vine planting and canopy management, reaching 14% and 19% respectively for high-intensity exporting wineries). Regarding vine training systems,

premium wine wineries tend to favor espalier (Guyot), corroborating that the more wineries export and produce high-end wines, the more they decide to use an espalier training system for their vines. Regarding irrigation systems or grape harvest mechanization, premium wine producers follow similar practices when producing entry-level wines. However, manual grape harvesting is the rule for all premium wine producers. Grape yields for premium wines are significantly lower than for entry-level wines, and the average yield for premium wine decreases with the level of export intensity: it is 12,000 kilograms per hectare for non-exporting wineries and only 7,000 for high-intensity exporting wineries. This is another example of successful Argentinean wine exporters seeking quality upgrades to capture export market opportunities. When looking at the cellar work, non-exporting wineries use a bladder membrane press in 31% of the cases. However, it is used almost double when referring to medium-intensity and high-intensity exporters. High-intensity exporting firms are more likely to produce blend wines (83.33%) than any other type of wineries, with non-exporting firms only producing blends in 56.06% of the cases. While there are no significant differences between the proportion of wineries that age their entry-level wines among the three first categories in the analysis (around 66%), this proportion increases for high-intensity export wineries (78%), an indication of a search for quality among these wineries. Natural and synthetic corks are used in most wineries for bottle capping, regardless of export intensity. However, screw caps are only used by 9% of non-exporting wineries but 26% of the high-intensity exporting wineries. It is interesting to mention that all wineries interviewed produce red wine regardless of their export intensity. There is no systematic pattern between the level of export intensity and the other types of wines produced.

Wineries, regardless of export intensity, showed a consistent preference for the following promotion methods for their entry-level wines: first and most importantly, word-of-mouth, then direct marketing, public relations, online marketing, and the Internet, and finally, wine tourism activities (other options given were sales promotion, wine tasting clubs, sponsors, international contexts and wine fairs). The choices were like the ones stated before for their preferences regarding promotion methods for their premium wines. However, public relations and direct marketing activities came on top, and wine tourism and online marketing came second, while word of mouth was a distant third option.

In terms of preferences for distribution methods for their entry-level wines, wineries, regardless of export intensity, prefer distributors as the clear path to reach customers. Eventually, and further away, other preferences may be through direct sales, restaurants, and specialized stores (other options given were wine fairs, internet sales, and wine club memberships). The choices were like the ones stated before for those wineries that gave their preferences related to their premium wines' distribution methods. However, distributors, restaurants, specialized stores, and direct sales were mentioned almost equally.

Finally, the survey provides information on the price segment in which Argentinean wineries operate (Table IV). Non-exporting firms mainly operate in the value (less than 10 U.S. dollars) and premium (between 10 and 40 U.S. dollars) segments. On the other hand, the more significant the export share, the more firms are in higher price segments.

Table IV –Market Price Segment of Argentinean Wineries by Export Intensity

	Value (-10 USD)	Premium (USD 10-40)	Luxury (USD 40-100)	Iconic (+100 USD)
1-Non-exporters	77.3%	48.5%	4.5%	1.5%
2-Low-intensity exporters	79.7%	75.4%	21.7%	2.9%
3-Medium-intensity exporters	61.0%	95.1%	48.8%	24.4%
4-High-intensity exporters	44.4%	96.3%	63.0%	29.6%

Source: Own elaboration based on survey data

Steady wine exporters, medium-intensity exporting wineries, and fundamentally high-intensity exporting wineries adopt business practices that differ from those that prevail among wineries only targeting the domestic market. Exporting wineries significantly differentiate themselves from those that do not export.

IV.2 Capabilities

As mentioned before, the heterogeneous firm's trade and resource-based models suggest that a firm's resources and capabilities can give it a competitive advantage. Our findings show that this is the case for Argentinean exporting wineries.

The median number of employees per winery shows wineries that embark on exports to have more permanent employees than the ones not exporting (Table V). Wineries that export the most have the more academically prepared employees. Among exporting firms, the share of wineries with a permanent employee with an enology degree is constant across different levels of export intensity. On the other hand, the share of wineries with agronomy and business and marketing professionals increases with the winery's export intensity. The owner's experience in the wine sector is higher for exporting firms. However, among exporters, companies with the highest export intensity have the least experienced owners. This is a particularity of the Argentinean wine sector, where many companies were created in the 2000s to focus mainly on the export market.

Table V – Capabilities: Human Resources

	Permanent employees (median)	Temporary employees (median)	Agronomy degree	Oenology degree	Business degree	English spoken by permanent employee	Years experience owner
1-Non-exporters	3	10	36.4%	56.1%	9.1%	40.9%	14.1
2-Low-intensity exporters	10	15	53.6%	82.6%	62.3%	66.7%	22.8
3-Medium-intensity exporters	10	15	70.7%	82.9%	65.9%	75.6%	23.2
4-High-intensity exporters	24	25	77.8%	81.5%	75.9%	81.5%	18.8

Source: Own elaboration based on survey data

Table VI (below) shows a list of vineyard and cellar equipment existing in the four typologies of export-intensity wineries; the data reveals that, on average, the more available equipment, the more wineries export. This is consistent with the existing evidence that the further technologized firms are, the more successful they are in export markets.

Table VI – Capabilities: Equipment

	1-Non-exporters	2-Low-intensity exporters	3-Medium-intensity exporters	4-High-intensity exporters
<i>Vineyard Equipment</i>				
Under vine weeders	36.4%	47.8%	61.0%	63.0%
Pre pruners	10.6%	26.1%	36.6%	44.4%
Trimmers	7.6%	17.4%	34.1%	24.1%
Sprayers	68.2%	81.2%	82.9%	90.7%
Shredder	18.2%	20.3%	31.7%	33.3%
Picking machine	3.0%	21.7%	22.0%	31.5%
Tractors	69.7%	87.0%	82.9%	90.7%
Irrigation	59.1%	65.2%	73.2%	83.3%
Automated vineyard control	6.1%	11.6%	19.5%	14.8%
Crops cover	34.8%	42.0%	53.7%	64.8%
<i>Cellar Equipment</i>				
Grape sorting table	27.3%	47.8%	68.3%	74.1%
Grape crusher	71.2%	79.7%	80.5%	75.9%
Presser	78.8%	94.2%	92.7%	94.4%
Tanks	89.4%	95.7%	92.7%	96.3%
Pumps	86.4%	98.6%	92.7%	96.3%
Filters	60.6%	73.9%	58.5%	72.2%
Bottling equipment	59.1%	52.2%	48.8%	53.7%
Automated winery control	9.1%	23.2%	34.1%	29.6%
Simple average	44.2%	54.8%	59.2%	63.0%

Source: Own elaboration based on survey data

The development of these firm capabilities, human capital, and technology likely play a key role in quality upgrading and the participation of firms from Argentina in wine global markets; these results provide evidence in favor of our second hypothesis.

IV.3 Business Strategies

Wine is a highly differentiated product, commanding potentially very different prices depending on the quality of the product. Wineries were asked if they differentiated their wines (Table VII). The share of wineries that differentiate their wines increases with the level of export intensity. Among non-exporting firms, 62% have different wine ranges. This proportion increases to almost 95% among the high-intensity exporting Argentinean wineries. The number of grape varieties vinified and labels produced also increases with export intensity. Many wineries generate revenues from activities other than selling wine. These activities include, among others, vineyard and cellar services, restaurants, hotels and spas, event renting, and selling local food. The share of wineries receiving more than 25% of their income from these sources is slightly over 20% for the first three winery export intensity profiles. However, this proportion decreases to 14.8% for the high-intensity exporters, showing more specialization in the sale of wine as the core business among these firms. When wineries were asked what the three most crucial steps in the production of their entry-level wine(s) were, non-exporters mentioned alcoholic fermentation, bottling, and grape harvesting in this order of importance; low-intensity exporters mentioned distribution, alcoholic fermentation, and grape maturation control; medium-intensity exporters mentioned product design, distribution, and alcoholic fermentation; and high-intensity exporters mentioned grape harvest, product design, and distribution. When the same question was asked for their premium wine, all types of wineries mentioned aging as a critically important step. Maturation control is mentioned by exporters but not by non-exporters. Blending was considered a critical strategic decision for premium wine among high-intensity exporters.

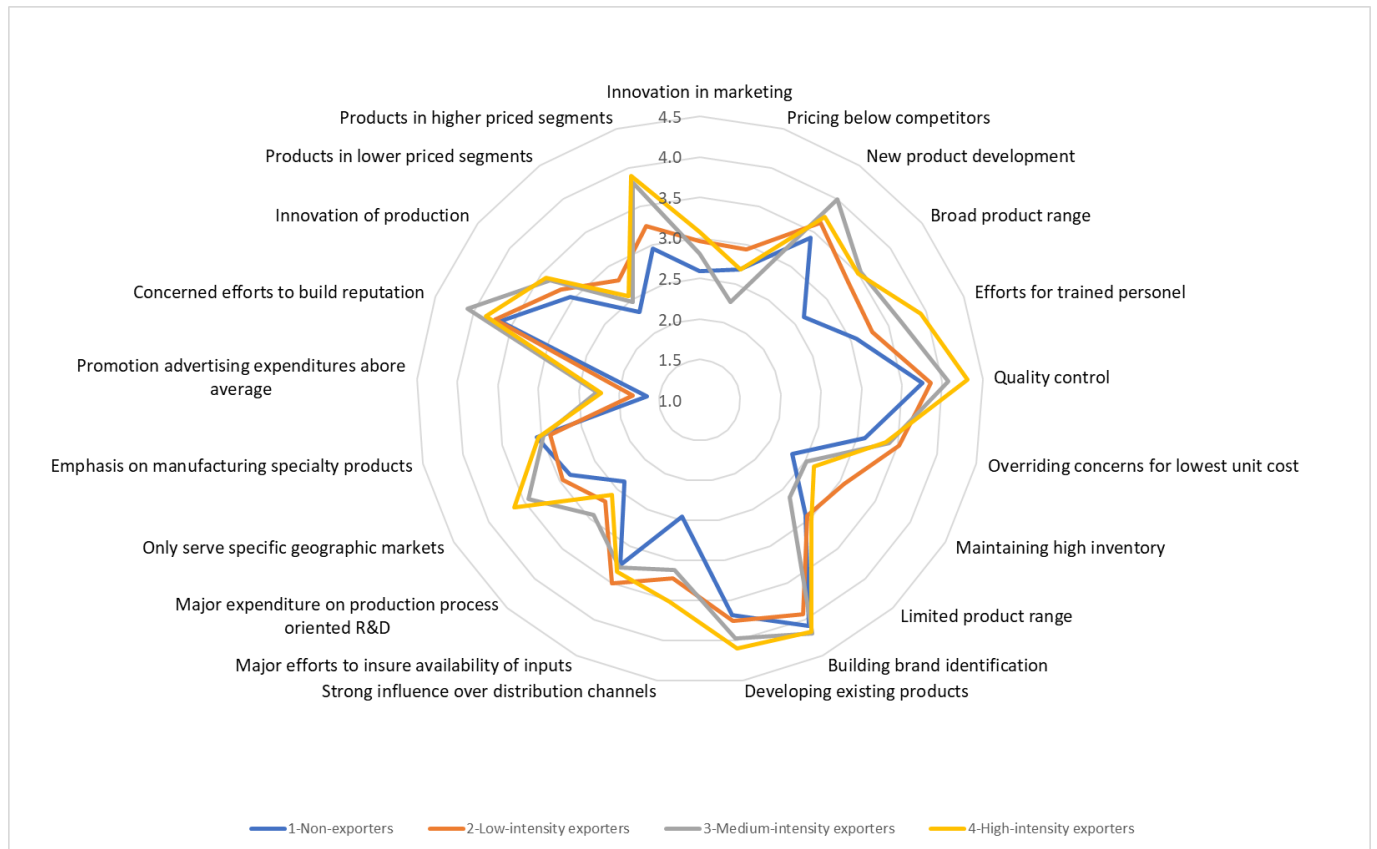
Table VII – Product Differentiation

	> 25% from other activities	Range Differen tiation	Median grapes vinified	Median labels produced	Three most important steps – entry level wine	Three most important steps – premium level wine
Not exporting	21.2%	62.12%	5.0	4.0	Fermentation - Bottling - Harvest	Aging - Fermentation - Harvest
Low intensity exporter	21.7%	84.06%	7.0	8.0	Distribution - Fermentation - Maturation control	Aging - Maturation control - Product design
Medium intensity exporter	22.0%	87.80%	6.0	10.0	Product design - Distribution - Fermentation	Aging - Maturation control - Grape sorting
High intensity exporter	14.8%	94.44%	7.5	12.5	Harvest - Product design - Distribution	Blending - Aging - Maturation control

Source: Own elaboration based on survey data

We surveyed the competition method emphasized by wineries over the last five years. We offered 21 potential competition strategies and asked the wineries how often they have used each, from 1 (never used) to 5 (primary competition strategy). The results are displayed in Figure 1. All wineries have emphasized quality control, brand identification building, and the continuous development of existing products as their central competition strategies. However, high-intensity exporting wineries emphasize the importance of these methods even more. Promotion of above-average advertising expenditures and products in lower-priced segments are the two competition strategies that are emphasized the least by Argentinean wineries regardless of their export intensity.

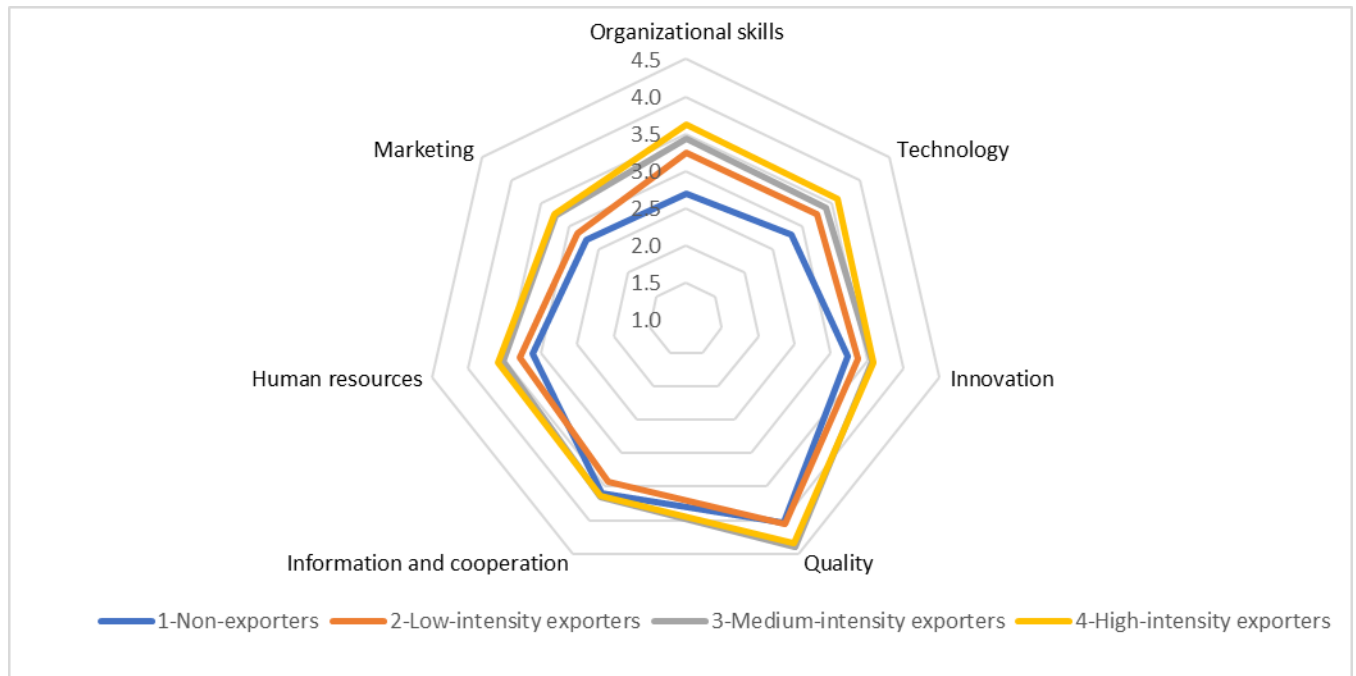
Figure 1 –Business Strategy I: Competition Methods



Source: Own elaboration based on survey data

Wineries were asked to compare themselves to their competitors concerning critical aspects of survival and success (Figure 2). They could choose from very weak (1) to powerful positions (5) regarding technology, innovation or innovative practices, quality, human resource management, managerial competencies, organizational skills, and marketing. Their perceived strength generally increases with export intensity. The only exception is their comparison with competitors in terms of cooperation and sharing information, where the situation is the opposite; non-exporting wineries consider themselves stronger in this aspect than exporting wineries. Taken together, Argentinean wineries perceived themselves as strong in quality and weak in marketing.

Figure 2 –Business Strategy II: Perceived strengths



Source: Own elaboration based on survey data

When wineries were surveyed regarding their evaluation of the competition they face in different competitive areas, high-intensity exporter wineries mentioned they felt intense competition regarding product characteristics (most firms produce premium Malbec wines). The more wineries depend on exports, the more competition they perceive, not only in the need for product differentiation but also in promotion strategies and access to distribution channels. Again, the analysis of the business strategies of wineries in Argentina shows that medium-intensity exporting wineries and fundamentally high-intensity exporting wineries adopt a set of business practices different from those that prevail among wineries only targeting the domestic market.

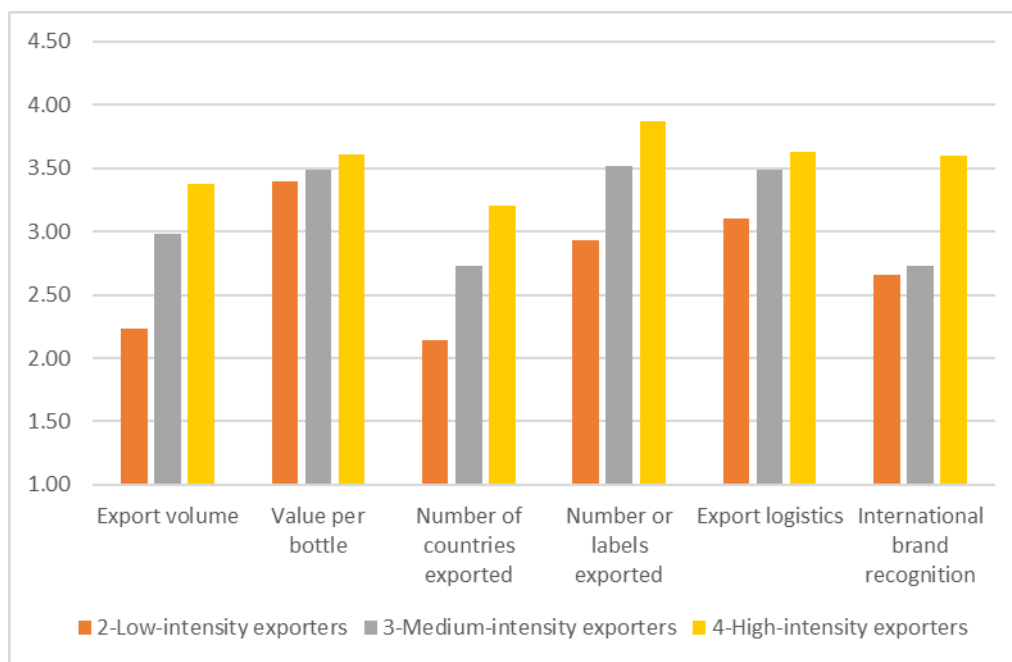
IV.4 Export performance

A notable finding of our survey is that most of the non-exporting wineries would like to export in the future. Only 15% of the non-exporting firms are not planning to export, mainly because of scale concerns. The 85% looking to export would like to do it mainly to develop and diversify their business, not because of concerns regarding decreasing domestic demand. These firms perceive the most important factors to be able to export the exchange rate, marketing and logistics, and the reliability of trading partners. These wineries perceived Asia as the most attractive market, followed by North America.

Exporting firms vary in terms of the years of exporting experience, the number of countries they export to, and the range of products they export. Low-intensity exporters tend to be newer in the export market.

At the time of the survey, 36.2% had been exporters for less than five years. On average, they also tend to export to fewer countries (4.7) and export fewer labels (8.9). Medium-intensity exporters export to more countries on average (16.2) and have a higher proportion of firms (22%) with more than 20 years of export experience. On average, wineries in the high-intensity exporting segment export the most labels, with 14. Exporting wineries were asked to measure their level of satisfaction with different export outcomes from 1 (not satisfied at all) to 5 (highly satisfied). These outcomes include export volume, value per bottle, number of countries exported to, number of labels exported, export logistics, and international brand recognition. As expected, the level of satisfaction increases with export intensity (Figure 3). On average, Argentinean wineries are more satisfied with the number of labels exported and less with the number of countries they export to. This is unsurprising because Argentina lacks free trade agreements with most wine-consuming countries, jeopardizing access.

Figure 3 –Satisfaction with Export Outcomes

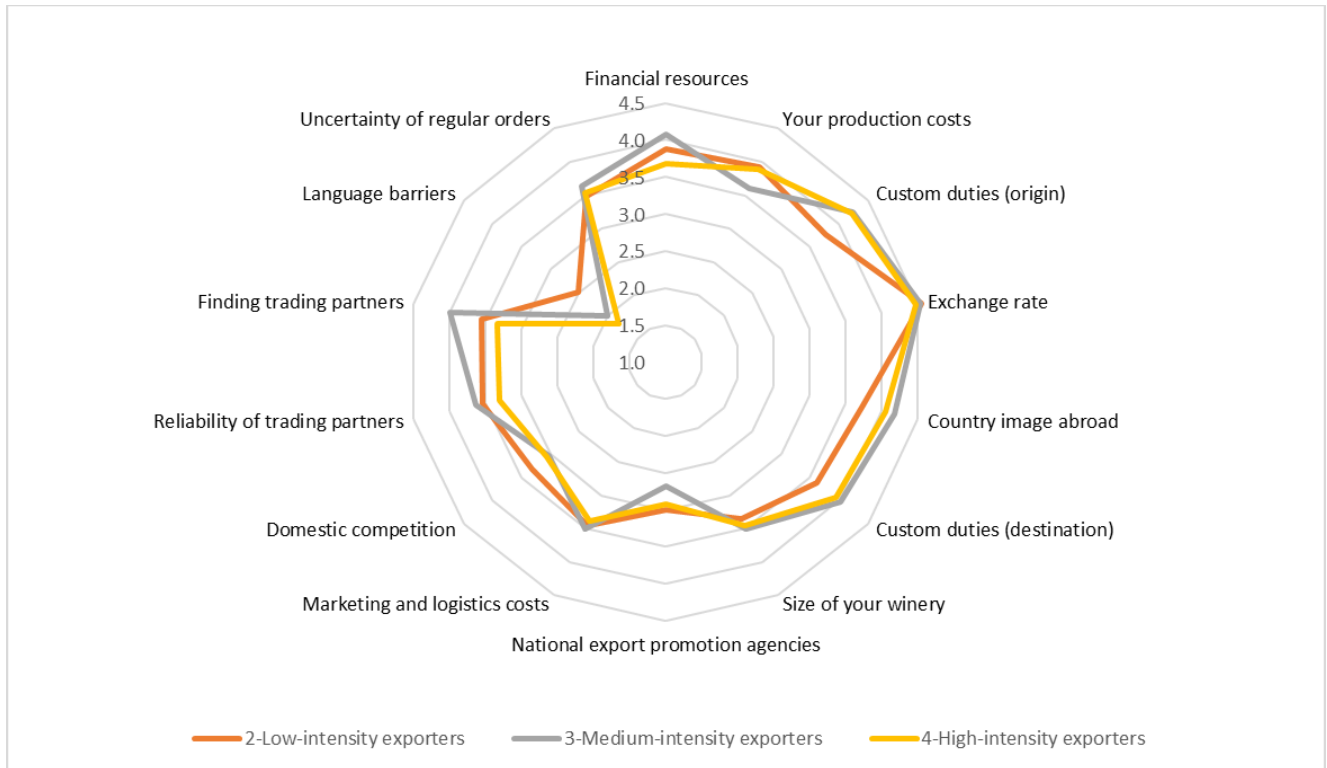


Source: Own elaboration based on survey data

Argentinean firms face numerous constraints when looking to export, and some factors become critical for their success in international markets. Our survey asked all exporting wineries how vital 14 potential critical factors to export are for them. Once again, each factor was scored from 1 (unimportant) to 5 (very important). The results are presented in Figure 4 below. Unsurprisingly, regardless of their export intensity, wineries agreed that the most crucial factor in being able to export is the exchange rate. Export taxes and country image abroad were the second and third most crucial factors for medium and high-intensity

exporters but not for those exporting less than 30% of their production. Low-intensity exporting firms choose their production costs and financial resources as the other important factors affecting their capacity to export. Language barriers, national export promotion agencies, and domestic competition were considered less critical to export.

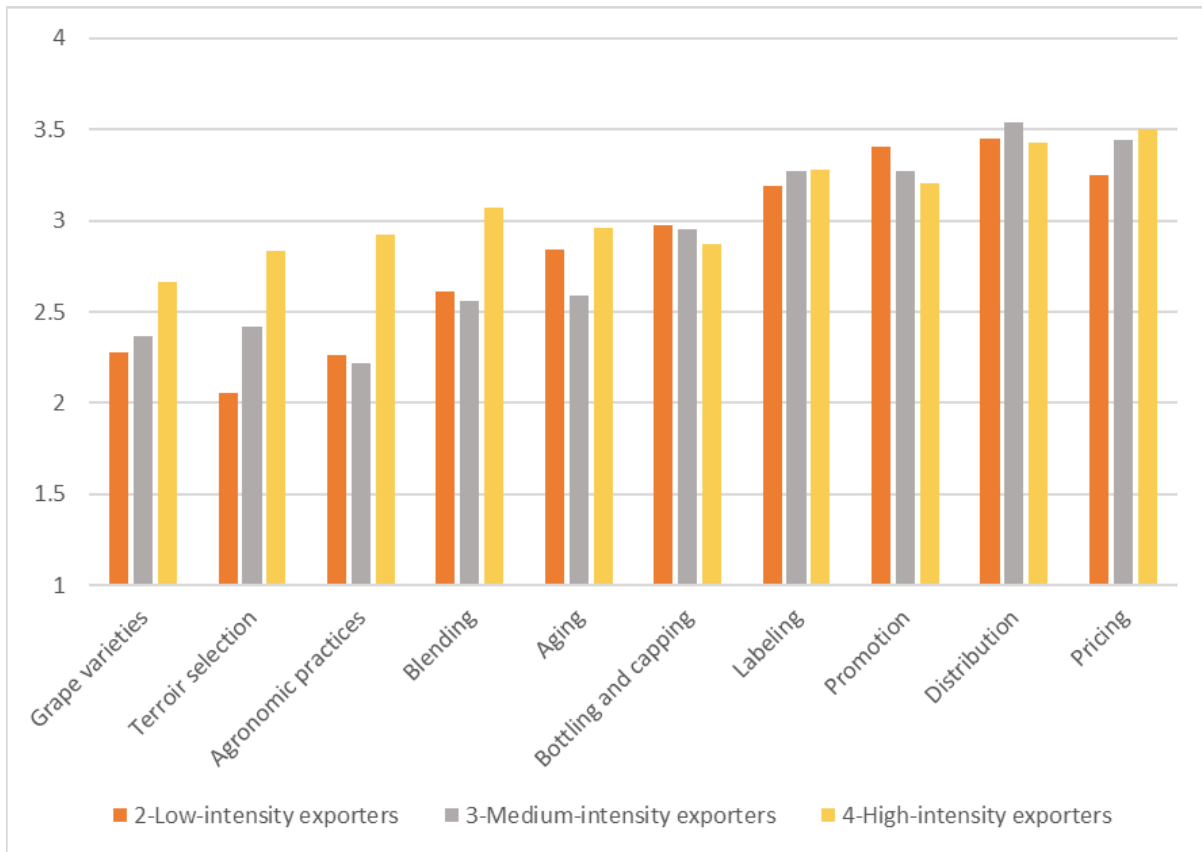
Figure 4 – Critical Factors to Export



Source: Own elaboration based on survey data

Firms that consistently export quality-differentiated products to developed countries introduce drastic changes in how business is conducted domestically to achieve international integration. They adopt "good exporting practices" (Artopoulos et al., 2013, p.46). The survey asked exporting wineries how strongly they needed to adapt some critical elements of their business to export on a scale from 1 (no need to change) to 5 (significant change). The results are presented in Figure 5 below. In seven of the ten categories proposed, high-intensity exporting firms were the ones that had to introduce the most changes. On average, changes were modest regarding grape varieties, terroir selection, and, more importantly, pricing and distribution.

Figure 5 – Need of Adaptation to Export



Source: Own elaboration based on survey data

V. Conclusions

Our analysis shows that high-intensity exporting wineries in Argentina differ from other Argentinean wineries in several dimensions. In particular, the most internationalized Argentinean wineries are endowed with higher capabilities and follow a specific business model emphasizing product differentiation, quality upgrading, brand building, and the development of distribution channels. These findings align with the predictions of the international trade model based on firm heterogeneity in differentiated product markets and with the firm's resource-based view model.

The average performance of the Argentinean wine industry hides significant heterogeneities that are often missed using aggregate-level statistics. This study uses a large representative sample of winery-level data that provides a more accurate picture of the current configuration of Argentina's exporting wineries. Our study finds relevant differences between exporting and non-exporting wineries in Argentina and between low-intensity and high-intensity exporters. High-intensity exporting firms are a Mendoza phenomenon. These wineries are larger and more vertically integrated, operate in all price segments, dominate high-

price segments, and are less dependent on other income-generating activities. Their competitive business strategy focuses on quality control, the continuous development of their existing products, and building brand identification. High-intensity Argentinean exporting wineries have higher human and equipment capabilities but only sometimes more experience in the wine business. Exporting wineries in Argentina tend to be more innovative and open to exploring new wines and complementary activities to support and preserve the traditional core characteristics of their distinguishing Malbec presence worldwide. The scale is essential in creating the cluster environment that allows real chances for feasible exports. Successful exporters tend to vinify more grapes, differentiate their wines, always sell premium wine abroad, and choose direct export channels, an importer or distributor based in the target export market. They work heavily in word-of-mouth as a source of promotion, direct marketing, public relations, online marketing, and the Internet. They have engaged in wine tourism activities, where restaurants are becoming a complementary activity in the winery.

Our study provides evidence in favor of our two hypotheses: exporting wineries of Argentina adopt a set of business practices that are different from those that prevail among wineries only targeting the domestic market and have developed firm capabilities such as human capital and technology as a critical role in quality upgrading for their participation in wine global markets. The way exporting wineries of Argentina manage their core value chain functions allows them to compete worldwide with wineries from other wine-producing countries and differentiate themselves from the non-exporting or less successful exporting wineries of Argentina. Our results seem to corroborate the importance of the leading ten exporting companies' business models influence to the rest: bottled Malbec wine of quality from Mendoza at an affordable American middle-class consumer target seems to be the industry exports orientation; this scope may present some constraints and challenges in the immediate future in particular because of the existing solid competition on product characteristics.

Our study is subject to several noteworthy limitations that warrant attention. Notably, establishing a causal link between firms' capabilities, market opportunities, and export performance remains elusive when employing a cross-sectional analysis of firms, regardless of the richness of survey data. This challenge is pervasive in much of the international trade literature. As such, our findings should be cautiously approached and considered within the specific context of the wine industry. Existing empirical literature has consistently demonstrated that exporting firms tend to be larger and more productive than their non-exporting counterparts. While we have corroborated the finding for Argentina that exporting firms are more prominent, it is crucial to note that our study does not attempt to compare firms based on their

productivity. This could be the subject of future work if our dataset can be extended to include sales or value-added data. Our work shows a relationship between self-reported pursuit of quality and export intensity. This quality measurement could be supplemented using ratings from wine guides to verify if this relationship still holds.

Our work is a significant contribution, offering new micro-level evidence regarding the Argentinean wine export model. Nevertheless, our winery's classification into four export intensity categories conceals underlying heterogeneity. For instance, within the category of high-intensity exporting wineries, a distinction could be made between traditional large companies that derive their competitive advantage from size, influencing both cost and distribution (logistic efficiency), and the more recent "born to export" wineries, which leverage distinct niche advantages. This could be the subject of further work. Finally, it would be essential to contextualize this work within a highly globalized wine industry. Argentinean high-intensity exporting wineries exhibit distinctions from other Argentinean wineries; however, an essential question arises regarding their similarities or dissimilarities to high-intensity exporting wineries in other countries. There is potential to broaden the scope of our research by exploring the convergence and divergence of business practices in the global wine industry.

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