



## **OVERCOMING GEOGRAPHICAL BARRIERS TO INTERNATIONAL PRESENCE. THE CASE OF THE ROMANIAN TUSCANY'S WINE EMERGING CLUSTER**

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**Abstract:** *(minimum 300 words)*

This research contributes to the debate on the determinants that favour access to global value chains by companies belonging to emerging clusters in transition economies. The role of these economies is becoming increasingly relevant in a global world, where discovering new opportunities is focused on increasing market knowledge to offer the proper products. From a territorial approach, managing both the knowledge flows circulating within the cluster and those coming from external sources can have a positive effect on the company's international presence. To analyse these research questions, we have studied the wine industry cluster in the Muntenia-Oltenia region of



Romania also known as Romanian Tuscany due to its geographical location. In this area, the wineries have different characteristics depending whether or not they have international projection. The results suggest that local knowledge of the cluster, managed through the network of connections, is necessary for the international presence of the cluster. On the other hand, there is a multiplier effect in those wineries where there is foreign ownership, due to their international entrepreneurial character. In summary, this paper contributes to a better understanding of how companies in an emerging cluster work in order to access local value chains.

**Keywords:** *(maximum 6 words) Emerging clusters, Transition economies, Cluster connectedness, International presence, Local organizations, Foreign ownership*

**JEL codes:** O18, R11

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## INTRODUCTION

Transition economies refer to a process of transformation that is taking place in some countries in Europe and Western Asia. These economies represent a transition from socialism to democratic political regimes, as well as a move to market or capitalist economies. Among the main factors in the transition process are liberalization towards a market free of trade barriers, macroeconomic stabilization by controlling inflation, privatization of the economy through a stable financial sector and a redefinition of the role of the State in the economy. In addition, it is noteworthy the role that transition economies are playing in the development of the global economy, mainly through the reallocation of resources to productive sectors and the improvement of the aggregate product in the regions in which they are located.

On the other hand, clusters are considered centres of economic activity and a key in economic development in general and in regional development in particular (Porter, 1990). Industrial clusters can be defined as a network of inter-organizational relationships between different actors, such as customers, competitors, suppliers, support organizations and local organizations (Piore, 1990). Geographical proximity and a strong feeling of belonging are primary elements facilitating such relationships,



which are in turn based on norms and values such as trust and reciprocity, among others (Antonelli, 2000).

From a territorial approach, collaboration networks established with other similar companies in the cluster, as well as with local organizations, can be an element that contributes to generating economies of scale and complementing the company's knowledge to make the leap into international markets (Johanson and Mattsson, 1988). In this vein, managing both the knowledge flows circulating within the cluster and those coming from external sources, can have a positive effect on the company's international presence.

Particularly, emerging clusters is a research topic that generates interest in recent cluster literature. Generally speaking, for companies in an emerging cluster, and more specifically, for those of small and medium size, the crossing of the country's geographic border themselves to have international presence is not an easy step. Limitations established by several characteristics such as size, human resources, technology, financial resources or the international entrepreneurial spirit of its managers are fundamental issues in this process. In addition, it is worth highlighting that one of the main barriers is the lack of knowledge about how to operate in the international market.

Recent studies on emerging clusters in transition economies have led researchers to reconsider the main drivers of cluster accessing to global value chains, shifting the focus to the role of local knowledge and the foreign ownerships acting as gatekeepers of external knowledge.

With the aim of deepening the understanding of these questions, we have studied the wine industry cluster in the Muntenia-Oltenia region of Romania also known as Romanian Tuscany. In this area, the wineries have different characteristics depending whether or not they have international projection. Consisting of different size winemakers, this cluster is the biggest group of wine producers in the country and with the largest presence of foreign investment.

Our theoretical proposal recognizes both, the cluster's internal heterogeneity, thus granting a prominent role to the characteristics of the individual firm (Giuliani, 2005; Boschma and Ter Wal, 2007), and the potential relevance of the portfolio of relationships of a clustered firm determined by its network position (Boari et al., 2002;

Capaldo, 2007; Coombs et al., 2009; Molina-Morales and Martinez-Fernandez, 2009, Li et al., 2013). Additionally, we consider the relevant role of technical supporting organizations and foreign investors.

Finally, we can propose the following hypotheses:

**Hypothesis 1.** *The level of a cluster firm's network connectedness has a positive influence on firm's international presence in emerging clusters in transition economies.*

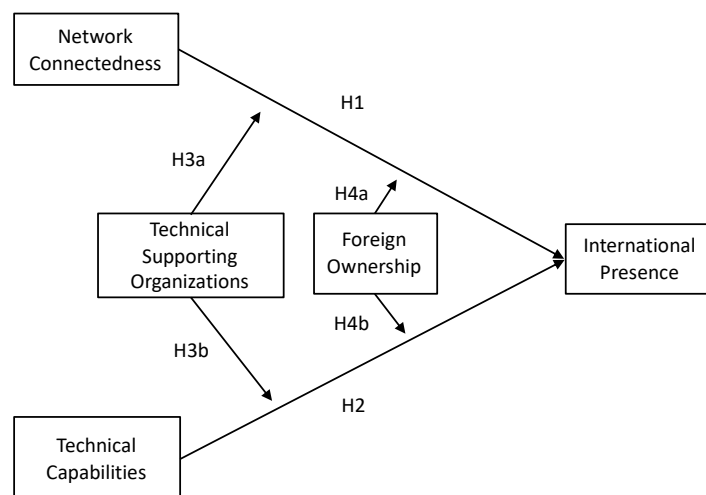
**Hypothesis 2.** *Technical capabilities have a positive influence on firm's international presence in emerging clusters in transition economies.*

**Hypothesis 3a.** *Technical supporting organizations would positively moderate the relation between emerging cluster firm's network connectedness and firm's international presence.*

**Hypothesis 3b.** *Technical supporting organizations would positively moderate the relation between technical capabilities and firm's international presence.*

**Hypothesis 4a.** *The foreign ownership would positively moderate the relation between emerging cluster firm's network connectedness and firm's international presence.*

**Hypothesis 4b.** *The foreign ownership would positively moderate the relation between technical capabilities and firm's international presence.*



**Figure 1.** Proposal model



## **METHODOLOGY**

### **Research setting**

In spite of the fact that Romania differs historically from traditional wine producing countries, nowadays it has becoming competitive on the international market of premium wine, ranked the thirteenth largest wine producing country in the world and challenging its competitors in terms of quality. Thus, the fast dynamic that in recent years Romanian's wine industry experienced draws attention to this country.

In Romania, wine production has a long tradition dating back to the ancient time. In the late 19th century, after the phylloxera epidemic had destroyed most of the wine grapes in Europe, the existence of tight relationships previously established with France allowed Romanian vineyards to be replanted with noble vines brought from France. At this time, the first scientific steps were taken to develop the native grape varieties. Later, the communist period (1948-1989) was characterized by the existence of some production structures belonging to the state, where the focus was on quantity and less on quality. This caused the vineyards to face the absence of advanced productive technologies. All these aspects were corroborated with the absence of a coherent strategy caused Romania to disappear for some years from the world wine map.

Nevertheless, the beginning of the 2000's decade marked a rebirth of the Romanian wine industry. The application of new technologies and innovations allowed the increasing of wine quality and its international competitiveness.

This change was possible thanks to the proliferation of investments that established new production plants in those areas, to the appearance of foreign investors that have brought new technical and management knowledge and last but not least, to the co-financing through competitive funding schemas which have sustained the restructuring and conversion of vineyards. The permanent growth of the production and the continuous improvement of quality have been achieved in the following years, and now, Romania has modern wineries comparable with the wineries in advanced countries, where up-to-date technologies and qualified employees are present in firms.

In summary, nearly 20 years of constant investment are reflected in the increasing number of medals obtained at international competitions, such as Chardonnay du Monde, International Wine Challenge, Mondial du Bruxelles, Decanter World Wine Awards and equally. In fact, more and more wines are being cited and rated in



international specialized wines journals (e.g. there are 41 Romanian wines in Wine Spectator in 2016).

Nevertheless, it is noteworthy that this fact has not been sufficiently communicated to the consumer from abroad, and the absence of a country brand makes the international presence to be still low.

### **The Muntenia-Oltenia wine cluster**

The empirical study has drawn on the population of firms belonging to the Muntenia-Oltenia wine cluster in Romania, a region where many brand wines are produced. This region is not far from Bucharest, the capital of the country, and it is located in the Southern part of Romania along the 44° parallel, the same as Tuscany and Bordeaux, also known as “the quality wine parallel”. Due to these circumstances, the region is sometimes referred to as the Romanian Tuscany.

Stretching over a favourable terroir<sup>1</sup> in the proximity of Danube, the Muntenia-Oltenia region has at least 1440 hours of sunshine annually, which favours especially the red varieties, without discouraging the whites. The geo-climatic conditions allowed the cultivation of a considerable number of foreign varieties together with local Romanian ones.

Consisting of different size winemakers, this cluster, which can be considered in the growth stage of its lifecycle, is the biggest group of wine producers in the country. On the other hand, it is the cluster with the largest presence of foreign investment.

The cluster is influenced by four national associations and a regional association which supervise production processes and guarantee the products’ quality and also provide technical and commercial assistance to producers in the winemaking field. However, it is worth noticing that none of them has played a leading role in the growth and modernization of the wine sector in the region.

The expansion of the producers in the last years has made that the reduced number of oenologists trained in the Romanian universities were insufficient, which convinced the producers to take the following steps. On the one hand, hire oenologist from abroad mainly from Italy, France and Australia, countries with a rich winemaking tradition. On

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<sup>1</sup>Terroir represents the totality of all elements that define the character of the wine, that is, the entire geographical area made of soil, hill, slope, wind, sun exposure, varieties that are appropriate for cultivation in the area as well as the influence of the man, his care, picking and winemaking habits.





the other hand, an oenologist collaborates simultaneously with several small producers as a technical consultant.

The empirical study was carried out in two different phases between July and September 2016. In the first step, primary firm level data have been collected applying the roster-recall methodology. According to Ter Wal and Boschma (2009) this method is suitable when the size of cluster population is small. The complete list of the companies in the cluster was obtained from ONVPV (National Office of Vine and Wine Products), an institution subordinated to the Ministry of Agriculture and Rural. From this sample, 42 firms accepted to collaborate which means 93% response rate. According to the roster-recall method, each interviewee was shown a list with the other firms in the cluster while being asked to identify the firms that provided technical and commercial support.

In order to complete our analysis, in the second step of the study we aimed to analyze the companies that answered the roster in more detail by means of face-to-face interviews. Finally, we obtained semi-structured interviews with company CEOs and executives. These interviews allowed us to gain a detailed understanding of company information as company background, innovation performance, chief oenologist, business owners or top-level managers.

To describe the cluster, Table 1 shows the characteristics of the companies belonging to it.

**Table 1.** Sample Characteristics

<b>Characteristics of firms by</b>	<b>Number</b>	<b>(%)</b>
<b>Number of employees</b>		
small (1-19)	26	(61,90 %)
medium (20-99)	10	(23,80 %)
large ( $\geq 100$ )	6	(14,28 %)
<b>Ownership</b>		
domestic	29	(66,66 %)
mixed and foreign	13	(33,34 %)
<b>Years of foundation</b>		
before 1990	2	(4,76 %)
1990-2000	4	(9,52 %)
2001-2010	19	(45,24 %)
2011 to today	17	(40,48 %)
<b>Producer category</b>		
large (over 200 ha)	10	(23,81 %)
medium (between 20 and 200 ha)	21	(50,00 %)
small (under 20 ha)	11	(26,19 %)
<b>Producers</b>		



who hired Romanian oenologist	22	(52,38 %)
who hired foreign oenologist	13	(30,95 %)
who do not have their own oenologist	7	(16,66 %)

## Variables

### Dependent variable

- International Presence (IP). To measure the international presence of each of the wineries, and based on their turnover, we have asked the percentage corresponding to international turnover. In this way, the value of its export activity has been estimated as an international presence (Sing, 2009; Ciravegna et al., 2014a; Ciravegna et al., 2014b). Finally, a logarithmic function was applied to this data in order to smooth it.

### Independent variables

- Network Connectedness (NC). This variable is developed based on the idea of collaboration (Cockburn and Henderson, 1998). Considering a social network as a set of actors and the ties among them, Network Connectedness measures the number of connections in the social network developed by an actor (ego). In order to make operational the NC variable, we applied social network analysis techniques by using UCINET v.6 software (Borgatti et al., 2002). This technique provides a tool to explore the structural properties of a network, and encompasses theories, models, and applications that are expressed in terms of relational concepts or processes (Wasserman and Faust, 1994). Specifically, we have asked for the ties of the company concerning its knowledge network. The knowledge network facilitates the transfer of knowledge, mainly tacit, related to business issues (Giuliani and Bell, 2005; Giuliani, 2007; Morrison and Rabelotti, 2009, Ramírez-Pasillas, 2010). Thus, companies were asked to select from the listing, those companies that helped them to provided relevant knowledge in the recent years. This dependence of the winery respect to others in the cluster in obtaining relevant resources and advice is an adequate indicator of intensity in network interactions (Tsai and Ghoshal, 1998; Yli-Renko et al., 2001).
- Technical Capabilities (TC). This variable is intended to represent the capability of a firm to acquire and apply new technologies and technical resources for research and





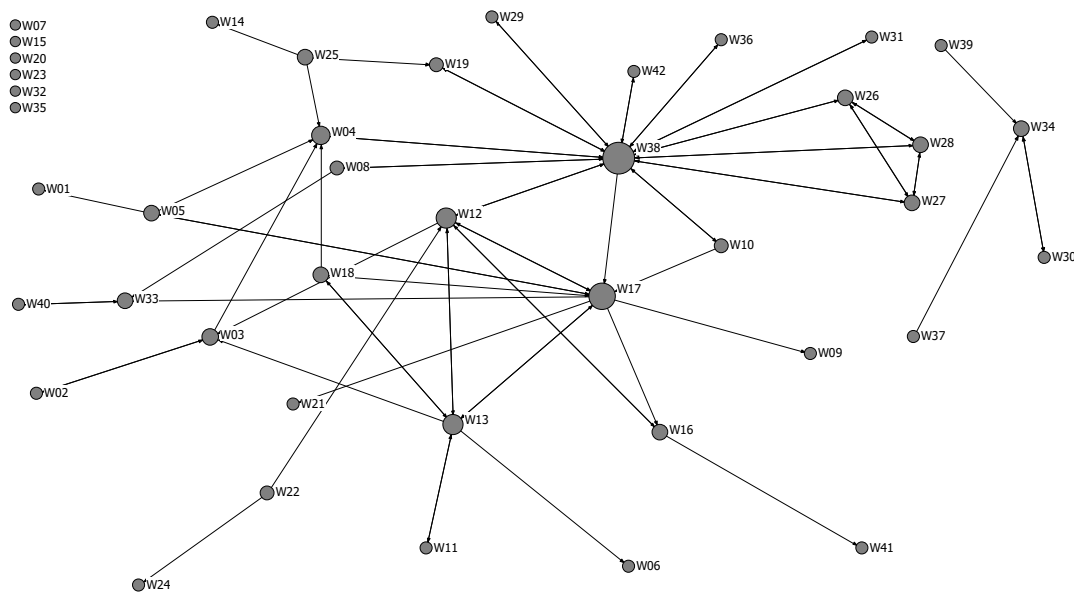
development practices and processes to improve the portfolio of products or services. Since wine production has considerably increased the use of technology and knowledge, professionals in the sector have improved their skills through university qualifications in technical and agri-food aspects, playing specialised knowledge workers a key role in wine innovation (Giuliani and Bell, 2005). Thus, following Giuliani (2007), we proxy technical capabilities as the number of firms' skilled workers in charge of the production process (oenologist).

- Technical Supporting Organizations (TSO). Local organizations provide specialized knowledge, operating as an interface between firms' knowledge base and the wider knowledge base of the economy. Specifically, technical supporting organizations play an important role in the development of new products, processes and services (Muller and Doloreux, 2009). These institutions include R&D services, consultancy activities, technical and training services, and so on. In the context of emerging clusters, regional institutions can offer services to help firms to improve the quality of their products in order to connect cluster firms with global value chains. We asked firms to evaluate the collaboration agreements established with this kind of local actors to boost their international business. As a measure, we use the number of direct contacts with technical supporting organizations in the cluster.
- Foreign Ownership (FO). Foreign ownership is based on the control, either total or majority, of the winery's resources by an investor outside the country. The variable is measured from the capital of the winery that belongs to an external investor. A logarithmic function was applied to this data in order to smooth it.
- Control variable. To complete the model, Age is used as control variable. This non-hypothesized variable can be expected to be associated with the dependent variable, since some authors have suggested that in clusters temporary evolution affects performance (Pouder and St. John, 1996). Thus, the years old of the winery can be expected to influence in investing more resources in obtaining new knowledge sources to explore new markets.

## EMPIRICAL RESULTS

### Network analysis

To study the relational structure of the cluster, we used the social network analysis technique included in the software UCINET 6.0 (Borgatti et al., 2002). Figure 2 shows the knowledge network of the sample analysed. In the network, one node represents one winery, and a line between two nodes indicates the presence of a relation between them. Furthermore, the size of the nodes is associated with their degree of relational activity. In this way, the larger the size of the node, the higher their degree of interaction. This is an indicator of the Network Connectedness variable of each company in the cluster. On average, the number of connections established by each actor is (3.167), with a standard deviation of (3.635).



**Figure 2.** The knowledge of cluster firms

### Regression models

Table 2 summarizes the basic descriptive statistics and the Pearson's correlation for all independent variables. Detailed analysis of the results in Table 2 confirms the non-existence of significant correlations between the variables.

**Table 2.** Descriptive statistics and correlations of the independent variables

Variables	Mean	S.D.	1	2	3	4	5
(1) Network Connectednes	3.167	3.635	1				
(2) Technical Capabilities	1.310	1.047	.306*	1			
(3) Tech. Supporting Org.	1.500	1.436	.157	.543**	1		
(4) Foreign Ownership	.3571	27.279	.060	-.115	.217	1	
(5) Age	12.830	9.471	-.155	.052	-.058	.029	1

N=42 \*\* p<.01; \* p<.05

To test the hypotheses, we ran a stepwise hierarchical regression approach (Dawson, 2014) to assess the explanatory power of each set of variables and the effect for the interactions. The models are as follows:

$$\text{Model 1: } IP = \alpha_1 + \beta_1 NC + \beta_2 TC + \beta_3 TSO + \beta_4 FO + \beta_5 Age$$

$$\text{Model 2: } IP = \alpha_1 + \beta_1 NC + \beta_2 TC + \beta_3 TSO + \beta_4 FO + \beta_5 Age + \beta_6 NC * TSO + \beta_7 TC * TSO$$

$$\text{Model 3: } IP = \alpha_1 + \beta_1 NC + \beta_2 TC + \beta_3 TSO + \beta_4 FO + \beta_5 Age + \beta_6 NC * TSO + \beta_7 TC * TSO + \beta_8 NC * FO + \beta_9 TC * FO$$

Model 1 represents how international presence are controlled by the linear effect of network connectedness, technical capabilities, technical supporting organizations, foreign ownership and the control variable. Models 2 and 3 reflect moderating effects of the variables technical supporting organizations and foreign ownership. In order to deal with multicollinearity, variables included in the interaction terms were z-centered before they were entered into the regression equations (Aiken and West, 1991). In any event, to ensure that multicollinearity was not a problem in the models, variance inflation factors (VIF) were calculated for all the variables included in the models. All VIF levels were below the critical threshold of 10, thus indicating that the results were not contaminated by multicollinearity (O'Brien 2007).

Results of the proposed Model 1 (Table 3) showed a significant and positive association between network connectedness on the international presence of the wineries ( $\beta = .696$ ,  $p < .01$ ), thus confirming hypothesis 1.

**Table 3.** Regression results of models

Dependent variable: International Presence			
	<b>M1</b>	<b>M2</b>	<b>M3</b>
Independent and moderating variables			
Network Connectedness (NC)	.696** (5.824)	.708** (5.672)	.527** (4.801)
Technical Capabilities (TC)	.129 (.882)	.122 (.776)	.026 (.200)
Technical Supporting Organizations (TSO)	-.031 (-.220)	-.018 (-.118)	-.024 (-.194)
Foreign Ownership (FO)	-.169 (-1.413)	-.173 (-1.404)	-.134 (-1.292)
Control variable			
Age	.110 (.961)	.104 (.882)	.091 (.943)
Linear moderating effects			
NC x TSO		-.084 (-.510)	-.067 (-.503)
TC x TSO		.040 (.229)	.083 (.584)
NC x FO			.559** (4.370)
TC x FO			.280* (2.292)
Model <i>F</i>	9.048**	6.194**	9.412**
Adjusted <i>R</i> <sup>2</sup>	.495	.470	.646
Change in <i>R</i> <sup>2</sup>		.004	.165**

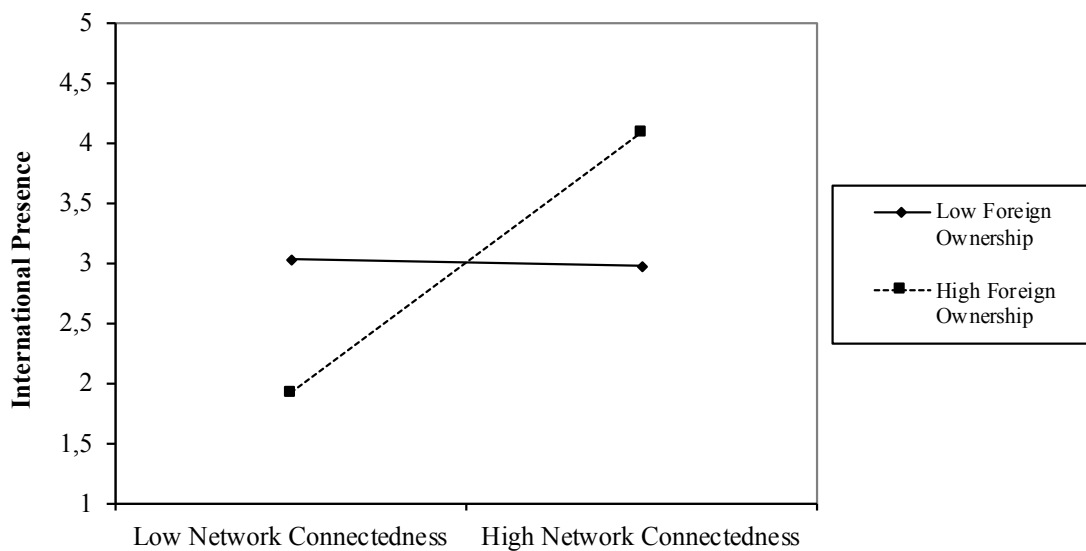
N= 42; \*\*p< .01; \*p< .05  
 Standardized regression estimates (t-values)

On the other hand, the linear effect of technical capabilities on the international presence of the wineries cannot be contrasted in the regression's models. This result is partially astonishing however, as it is an emerging cluster in transition economy these capabilities are not advanced enough to be significant on the internationalization of the winery. Consequently, is not possible to confirm hypothesis 2.

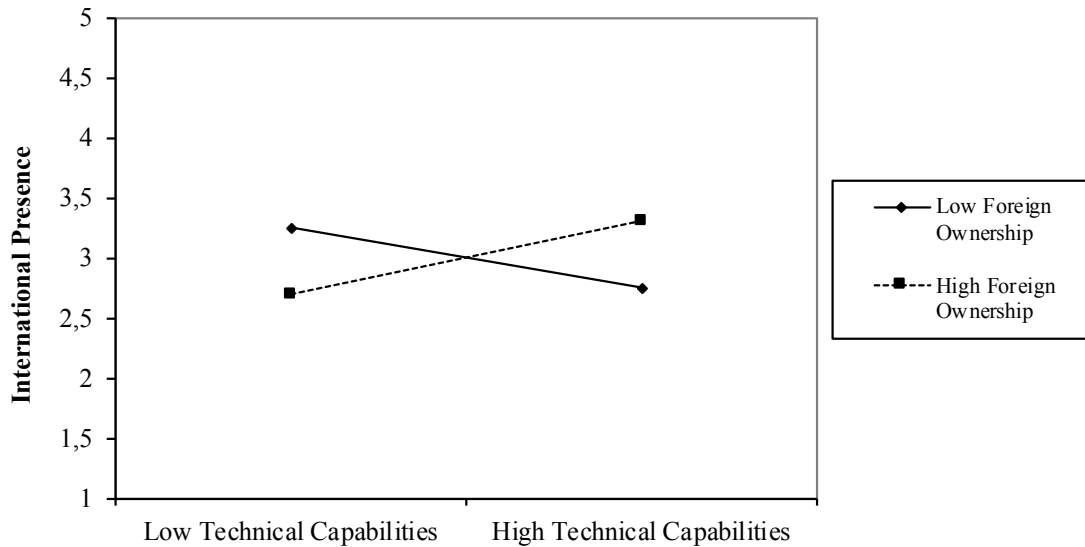
Furthermore, the moderating role played by technical supporting organizations and foreign ownership (Models 2 and 3) on the individual relationship between network connectedness and technical capabilities on firm's international presence is only supported for the variable foreign ownership. In this respect, only hypotheses 4a and 4b can be confirmed. Moreover, it should be noted that the explanatory capacity of the

model 3 increased significantly after the introduction of the foreign ownership (increment of  $R^2 = .165$ ,  $p < .01$ ).

Finally, Figures 3 and 4 show a graphic representation of the moderating effect of foreign ownership as proposed in the original model (Figure 1). As can be seen, the involvement of the winery in the knowledge network exert a higher effect on international presence when the firm has high values of foreign ownership. That is, as a firm develops cluster relational capacities, having foreign ownership becomes essential to enhance the international presence of the winery. Likewise, technical capabilities are relevant to the winery's international presence when it is foreign-owned.



**Figure 3.** Moderating effect of foreign ownership on the relationship between network connectedness and international presence.



**Figure 4.** Moderating effect of foreign ownership on the relationship between technical capabilities and international presence.

## CONCLUSIONS

The wine industry is located in different countries throughout the world, and its greatest strength is usually linked to factors such as terroir. This implies that the development of links between the cluster's wineries is a key element for the competitiveness of the territory itself (Mitchell and Schreiber, 2007). In addition, these circumstances are attractive for foreign investment, which through the insertion of new knowledge flows, seeks to find positive returns on the capital invested in the sector, mainly by strengthening the international presence of the winery.

By using different analysis techniques, the results suggest that the local knowledge of the cluster, managed through the network of connections, is necessary for the international presence of the wineries. On the other hand, the access to global value chains is not homogeneous across the cluster firms, there is a multiplier effect in those wineries where there is foreign ownership, due to their international entrepreneurial character. Nevertheless, technical supporting organizations do not represent a key element for the international presence of wineries.

It should be noted that the wine production with sufficient quality to compete in international markets is an activity that requires a knowledge-intensive process. Thus, it





is considered that wineries need to be strengthened with new knowledge inputs to reinforce these capabilities. Additionally, in emerging clusters, technical capabilities are necessary but not sufficient for competitive advantage. Thus, foreign consultants, from other countries with a longer tradition in the production of quality wines, represent a vehicle of transfer of knowledge. Giuliani and Bell (2005) refer to them as “flying winemakers”.

In summary, the involvement of the winery in the knowledge network exerts a higher effect on its international presence when the firm has high values of foreign ownership. That is, as a firm develops cluster relational capacities, having foreign ownership becomes essential to enhance the international presence of the winery. Definitively, we consider that this paper contributes to a better understanding of how companies in an emerging cluster work to access global value chains.

Finally, this work is not without limitations that may affect the generalization of the conclusions. On the one hand, it has been carried out in a single low-medium knowledge-intensive cluster, so it would be interesting to compare the results with other higher knowledge intensive clusters. On the other hand, because it is an emerging cluster, considering evolutionary dynamics in the structure of the network would provide new evidence to research in the context of industrial clusters. In short, this is a first study that covers the objectives initially proposed, but which is open to new advances proposed in future lines.

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