



*International Food and Agribusiness Management Review*  
Volume 18 Issue 3, 2015

## **Rethinking Entry Mode Choice of Agro-Exporters: The Effect of the Internet**

Raúl Serrano<sup>a</sup> and Isabel Acero<sup>ⓑ</sup>

<sup>a</sup> Assistant Professor, Department of Business Administration, Faculty of Economy and Business-Campus Paraíso  
Universidad de Zaragoza, Gran Vía, nº 2, 50005, Zaragoza, Spain

<sup>b</sup> Assistant Professor, Department of Business Administration, Faculty of Economy and Business-Campus Río Ebro,  
Universidad de Zaragoza, María de Luna, s/n, Edificio Lorenzo Normante, 50018, Zaragoza, Spain

---

---

### **Abstract**

Understanding a firm's internationalization process, including entry mode decisions, has attracted increasing attention from the literature in international business. However, most of the existing literature on exportation by agri-food firms examines single-stage decision making processes based on the decision of whether or not to export, which export mode to use (direct *versus* indirect export), or both of them simultaneously, with three independent alternatives. This article researches the impact of internet use on entry mode decisions of exporting agri-food firms. In this new context, we propose that the Internet influences the entry mode decision and that the decision regarding exporting and the choice of export channels are nested decisions. The results show a positive effect of internet use on the propensity to export. The empirical evidence of the paper also supports the existence of a nested structure.

**Keywords:** export mode, Internet, nested decisions, sequential logit model, two-stage choice process, internationalization.

<sup>ⓑ</sup>Corresponding author: Tel: + 34 876 55 49 89

Email: I. Acero: iacero@unizar.es

R. Serrano: raser@unizar.es

## Introduction

The literature on international trade points out that there are two main alternatives for conventional sales channels: a direct sales channel, or an indirect sales channel which employs independent members located in the foreign market (Frazier 1999, Gabrielson and Gabrielson 2011). The Uppsala model proposes a slow and sequential internationalization process that depends on the gradual accumulation of knowledge of foreign markets (Johanson and Vahlne 1977). Traditionally, in the first stages, export intermediaries perform an important “middleman” function by linking firms and customers in geographically distinct markets that could not have been connected otherwise. Later, as firms gain experience, they adopt the direct sales channel option (Gabrielson and Gabrielson 2011). However, since the Internet can reduce the liabilities of foreignness and newness and resource scarcity (Samiee 1998, Gabrielson and Gabrielson 2011) it could be modifying the entry mode choices. The Internet can be used as a direct sales channel and thus contribute to accelerating the firm’s internationalization process (Arenius et al. 2006, Gabrielson and Gabrielson 2011).

The intense process of the globalization of economic activity has made addressing the internationalization process a condition for the survival of enterprises in the agro-industrial sector. However, the entry into international markets is still a challenge for a number of companies, especially in industries such as wine, which is very fragmented and composed of small wineries. For small companies, crossing the border means facing the initial costs of the internationalization process and then competing and managing an international business in a heterogeneous and more demanding context than the local market. The agro-exporters’ lack of size and the absence of the necessary resources and skills make internationalization a high risk proposition. However, the Internet is reducing the initial costs associated with finding information and is shortening the internationalization process (Sinkovics and Penz 2005, Mariussen and Ndlovu 2012, Sinkovics et al. 2013). According to a recent report by the OEMV (Spanish Observatory of the Wine Market), e-commerce in wine is growing exponentially worldwide. The online wine trade in the US has reached 600 million dollars and is also playing a leading role in Europe, where for example, online wine sales account for a total of 200 million euros a year in Britain.

Despite the expansion and relevance of the Internet in the business world, the impact of the Internet on the configuration of international corporate modes of operations and sales channels has been overlooked in the literature (Arenius et al. 2006). However, some authors have argued that this impact can be significant (Gabrielsson et al. 2002), so it is necessary to analyze in detail the effect that the Internet can have on selecting the mode of entry. The Internet improves the access to information of foreign markets, reduces transaction costs, and has also mitigated the effect of distance between countries (Bojnec and Ferto 2010). All this is particularly important for the first entry mode decision, when the firm decides whether or not to export. Some authors have argued that the Internet is one of the ways for small size firms to sell abroad rapidly (Gabrielsson and Kirpalani 2004). As a matter of fact, some evidence shows that when properly used, the Internet can reduce the liabilities of foreignness and newness (Kotha et al. 2001) and resource scarcity, and thus contribute to a faster internationalization (Arenius et al. 2006).

In this sense, the Internet has the capacity to significantly increase not only the efficiency of market transactions, but also to enhance the learning process of international operations through faster and more extensive access to relevant information (Glavas and Mathews 2014). Therefore, the Internet can serve as a direct channel saving costs and eliminating intermediaries between wine producers and end consumers. Furthermore, as Rodríguez and Cervantes (2011) point out, the Internet is an important communication and distribution channel, particularly for SMEs due to the efficiency-cost relationship. By using the Internet through website applications, SMEs have been able to considerably reduce international business operating costs, thus increasing their ability to respond to new international market opportunities (Glavas and Mathews 2014).

The basic choice made by firms, i.e. whether or not to export to foreign markets, is usually treated in the literature of probabilistic choice as a single, independent decision and Binomial Logit Models are used (for example, García et al. 2002). As an alternative to previous research, Pan and Tse (2000) and Kumar and Subramaniam (1997) assume that the decision on entry mode is a more complex process, in which a natural hierarchy exists among the various modes of entry. Following this multi-stage approach, we propose that the Internet modifies the decision on entry mode so that the decision to sell abroad and the choice of export channel (indirect versus direct export) are nested decisions. In this context, this article researches the impact of internet use on the entry mode decisions of exporting agri-food firms. In light of the above the study carries out empirical analysis using a DOC (Designation of Origin) Rioja sample of 177 firms, with focus on internet use.

The rest of the paper is organized as follows. In the next section we analyze the influence of the Internet on the decision of mode entry and then the superiority of a sequential multi-stage process for choosing entry mode type over a single-stage choice process. We specify the hypotheses in this section. Then we describe the data and methodology used to test the hypotheses and report the findings of our research. Finally, we discuss the main conclusions of the study.

## **Theoretical Framework and Hypotheses**

### *The Internet and the Export Mode Entry Decision*

The entry mode literature has attempted to explain channel selection on the basis of cost and efficiency considerations (Gabrielson and Gabrielson 2011). As it is well known, such entry can be done by external means (low control modes) or be internalized within the company (high control modes). In this sense, the Transaction Costs (TCs) approach has been one of the approaches used most frequently. The Transaction Costs approach posits that firms select the mode of entry that provides them with the lowest cost solution (Masten 1993, Shelanski and Klein 1995, Goldsmith and Sporleder 1998). Chiles and McMackin (1996: 74) put it succinctly: TCs approach focus the attention on the attributes of the transaction. Similarly, economizing on TCs is viewed as the main purpose of economic institutions (Brouthers et al. 2003).

Accordingly, the conventional view of the incremental process of internationalization (Uppsala model) proposes a slow and sequential internationalization process that depends on the gradual accumulation of knowledge of foreign markets (Johanson and Vahlne 1977). Since indirect

exporting involves a smaller commitment of financial resources than direct exporting (Johanson and Wiedersheim-Paul 1975), the literature predicts that smaller firms will prefer the indirect export mode (Osborne 1996, Campa and Guillén 1995, Rialp et al. 2002). However, recent developments in modern technologies, such as the Internet, can modify the transaction costs. In this regard, the Internet can decrease the minimum transaction size at which direct sales are efficient (Javalgi and Ramsey 2001, Gabrielson and Gabrielson 2011) and it can make early internationalization a more viable and cost-effective option (Sinkovics and Penz 2005, Sinkovics et al. 2013) In this sense, as Gabrielson and Gabrielson (2011) propose, when the Internet is used as a sales channel it has the potential to enable a remote connection that in many cases, would not be possible otherwise. Therefore, the Internet can influence the export mode entry decision because Internet suitability of products influences the channel selection (Gabrielson and Gabrielson 2011).

Applying the logic of TCs to the online context, the Internet as an alternative to a physical presence refers to the extent to which firms can use electronic integration to replace functions previously conducted by foreign distributors or agents with information acquired online and without establishing a physical subsidiary or joint venture (Sinkovics et al. 2013).

Some studies have already shown how ICTs allow companies to internationalize faster, leading to a "new wave" of global companies. For these companies the Internet is a central factor in business development and in the decision to enter into foreign markets (Bell and Loane 2010). These authors demonstrate how companies using ICTs can quickly become international companies. Likewise, Glavas and Mathews (2014) found a positive relationship between international entrepreneurship characteristics and the use of Internet capabilities for the international business processes. In this sense, authors such as Petersen et al. (2002) propose a rethinking of internationalization theory in light of significant changes to information dissemination due to the Internet. Johanson and Vahlne (2003) have revised their initial model to explain the increase in born-global firms, and others such as Arenius et al. (2006) have shown how the Internet can provide a means to decrease the effects of the liabilities of foreignness and resource scarcity, and thereby contribute to increasing the speed of internationalization.

Therefore, we propose that the use of the Internet has the potential to increase both the propensity for internationalization and the global diversity of the firm. By using the Internet, the firm can compensate the lack of firm size in international experience and business development. Arenius et al. (2006) believe that the Internet can simplify the internationalization path and the marketing organization structure necessary for conducting international business. We therefore predict that:

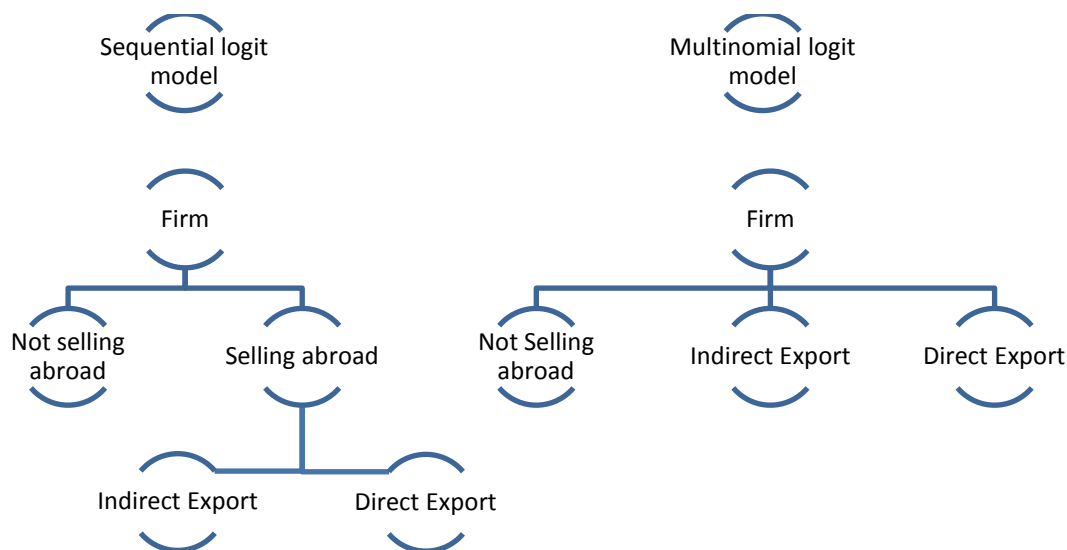
***Hypothesis 1: The emergence of the Internet will imply higher propensity to export***

#### *Singles Stage versus Two-Stage Process of Decision Making*

In this context, traditional research on the choice of entry modes into international markets has assumed that the mode of entry is a single stage rational analytical decision by a manager or a team of managers. The previous literature assumes that managers consider all entry modes at the same level and that all factors are of equal importance. However, according to Kumar and

Subramaniam (1997), given the presence of multiple types of entry mode, some of them are more similar to one another than others, and therefore, a natural hierarchy exists among the various modes of entry.

In this sense, we consider that the Internet can influence the export mode entry decision so that the choice of entry mode then follows a hierarchical process in which managers would first structure various entry modes into a multi-level hierarchy and define a set of evaluation criteria for each level (Pan and Tse 2000). Drawing upon the previous literature, this research proposes that entry mode choice can be examined from a hierarchical perspective, where “exporting *versus* non-exporting” and “direct exporting *versus* indirect exporting” are nested decisions. Regarding the influence of internet use, we propose the superiority of this two-stage decision process over the single-stage decision process. In the sequential model, the response categories can be perceived as a sequence with stages. The response in a later stage is nested in the response in an earlier stage (Liao 1994, Goldsmith and Sporleder 1998). See Figure 1.



**Figure 1.** Alternative Logit Models

Therefore, the Internet could modify the entry mode choice since the Internet can be used as a direct sales channel. In this sense, if the firm uses the Internet, the decisions regarding exporting and the choice of the export channel are nested decisions. The following hypothesis was defined by taking into account the above arguments.

***Hypothesis 2. The emergence of the Internet also influences the choice between direct and indirect exports.***

## Research Design

### Methodology

This study evaluates two models in order to test the influence of the Internet. First, a single stage decision process with multinomial logit model in the choice of export mode (with three independent alternatives: no export, indirect export and direct export). Second, a two-stage decision process with a sequential logit model with the export decision preceding the export channel decision. The choice in the first stage is whether or not to export. In the second, firms decide between direct and indirect export modes. In the sequential logit model, the response categories can be perceived as a sequence with stages. The response in a later stage is nested in the response in an earlier stage (Liao 1994).

In order to match the econometric model to the decision process, a multinomial logit model is presented first.

The multinomial logit is estimated by the maximum likelihood method (Greene 2003) and for the purpose of this paper it takes the form  $\Pr(Y_i = k) = \frac{e^{\beta_j X_i}}{\sum_{j=0}^2 e^{\beta_j X_i}}$ , where  $k$  ( $k = 0, 1, 2$ ) refers to the different choices under analysis namely, no export activities, indirect export and direct export.

There are three equations for calculating the parameter estimates:

$$(1) \quad Y_1 = f(\theta_1, X_1)$$

where  $Y = (0: \text{Not exporting}, 1: \text{Indirect export})$

$$(2) \quad Y_2 = f(\theta_2, X_2)$$

where  $Y = (0: \text{Not exporting}, 1: \text{Direct export})$

$$(3) \quad Y_3 = f(\theta_3, X_3)$$

where  $Y = (0: \text{Indirect export}, 1: \text{Direct export})$  and  $\theta$  are the parameter estimates and  $X$  the set of attributes (regressors). We use the same regressors in the equations so  $X_1 = X_2 = X_3$ .

In order to test whether the two-stage model is superior to the single-stage decision process, a sequential logit model is presented. In our study, the decision to export can be perceived as a sequence with two stages: first, the firm plans to export or not and, if it does, the firm selects the export channel:

$y=1$  if the firm has decided not to export

$y=2$  if the firm has decided to export indirectly with the help of an intermediary

$y=3$  if the firm has decided to export directly to customers abroad

The related probabilities can be written as (Amemiya 1975, Maddala 1983):

$$(4) \quad P_1 = F(\sum_{k_1}^{K_1} \beta_{k_1} x_{k_1})$$

$$(5) \quad P_2 = [1 - F(\sum_{k_1}^{K_1} \beta_{k_1} x_{k_1})]F(\sum_{k_2}^{K_2} \beta_{k_2} x_{k_2})$$

$$(6) \quad P_3 = [1 - F(\sum_{k_1}^{K_1} \beta_{k_1} x_{k_1})][1 - F(\sum_{k_2}^{K_2} \beta_{k_2} x_{k_2})]$$

where the  $k_1$  and  $k_2$  subscripts indicate the sets of  $x$  variables included in Stages 1 and 2, respectively. The parameters  $\beta_{k_1}$  can be estimated by dividing the entire sample into two groups: firms who don't export and who do export. The Stage 2 parameter  $\beta_{k_2}$  can be estimated from the subsample of export firms by dividing it into two groups: those who have chosen direct exporting and those who have chosen indirect exporting.

Finally, there are two equations for calculating the parameter estimates:

$$(7) \quad Y_4 = f(\theta_4, X_4)$$

where  $Y = (0: \text{Not exporting}, 1: \text{Direct and Indirect exporting})$

$$(8) \quad Y_5 = f(\theta_5, X_5)$$

where  $Y = (0: \text{Indirect exporting}, 1: \text{Direct export})$  and  $\theta$  are the parameter estimates and  $X$  the set of attributes (regressors). We use the same regressors in the equations so  $X_4 = X_5$ .

### *Sample, Data and Variables*

This paper analyses the wine industry from a region of Spain (Rioja). Other authors, such as Wickramasekera and Bamberly (2001), also explore the phenomenon of internet use by born-global firms within the Australian wine industry. The main sources used to obtain the list of wineries in the objective population were the directories drawn up by the Regulatory Council of the Rioja Designation of Origin (DOC).

The interest of analyzing this sample lies in the fact that recent changes in the technological environment have had a significant impact on the available alternatives of sales channel for agri-food firms. At the forefront of this development are the wine industry firms, which have been relatively quick to adopt internet-based channels. Some studies have confirmed that wineries in Rioja are pioneers in the use of the Internet and social networks in Spain (Regulatory Council of the Rioja Designation of Origin 2012). Moreover, 42.5% of Spanish wineries have website with between 1 and 5 years old and 38.2% of them have their own online store (OEMV 2012). It should be noted that the production area of Rioja leads the ranking of the use of these new technologies (OEMV 2012).

The Spanish wine sector in general, and the Qualified Designation of Origin Rioja wine industry in particular, have a markedly international character (Martínez-Carrión and Medina-Albaladejo 2010). Nowadays, Rioja's region is the clear leader in international markets among Spanish wine regions, with a market share of over 40% of total sales of premium wines (Fernandez-Olmos

2011). Although Rioja wine is sold in over a hundred of countries, the sales are concentrated in United Kingdom, nearly 32 per cent of total exports, followed by Germany (18 %) and United States (10.25%).

The data for this study were collected through the use of a structured survey. The survey data collection period ended in September 2010. The population from which the sample is drawn consists of wineries that fulfill the following requisites<sup>1</sup>: (1) they belong to the Rioja Designation of Origin of Spain, (2) they are wine-making processors, (3) they are obliged to present accounting information to the authorities and (4) they are not cooperatives. We received usable responses from 177 (83%).

### *Dependent Variables*

To test the single-stage simultaneous model, this research uses a polychotomous variable with three options: (i) non-exporting, where a value of 1 shows that it has been chosen and 0 if not; (ii) indirect export, which takes a value of 1 when this combination is chosen and 0 if not; and (iii) direct export, which takes a value of 1 when direct export is chosen and 0 if not. To test the separate two-stage model, we use two dummy variables: (i) the export decision, where 1 is exporting and 0 non-exporting; and (ii) the export channel, where 1 is direct and 0 is indirect.

### *Independent Variable*

*Internet:* We operationalized this variable by means of a direct question which enabled us to construct a dummy variable, which was given the value of “1” when the firm has its own website and “0” if not. This measure has been used by Nieto and Fernández (2005) and Dejo and Ramírez (2009). Moreover, as Kos-Labedowicz (2013) states, the most popular and commonly used Internet tool is the website, a tool of great information capacity and a platform allowing use of other communication tools.

### *Control Variables*

In line with previous literature, the following control variables were included in the specification of the models:

*Product differentiation:* Previous studies (for example, Coughlan and Flaherty 1983, Coughlan 1985, Anderson and Coughlan 1987) have measured product differentiation with dummy variables coded 1 for highly differentiated goods and 0 for less differentiated goods.

The Control Board of DOC Rioja provides a classification of Rioja wines ordered by value added. From a qualitative point of view, “reserva” and “high profile” wines are the categories that underpin the DOC's great reputation and quality. Following this classification of the Board, product differentiation was defined as the percentage that this category represents of the winery's wines.

---

<sup>1</sup> The population was drawn from the 2007 list provided by the Regulatory Council of the Rioja Designation of Origin.



*Human Capital:* The literature on human capital theory often uses the education level of the employees as a source of labor productivity. In this paper, we include the proportion of the firm's employees with university degrees as a proxy for human capital. Plechero and Chaminade (2010) have used this value in a similar way.

*Firm's Size:* Following previous studies, such as Brouters et al. (2003) and Goerzen and Beamish (2003), we operationalize the variable size using the number of employees. We apply this measurement in logarithmic form in order to remedy the significant positive skew (Tabachnick and Fidell 2001). Hessels and Terjesen (2010) also compute the natural log of firm size.

*Firm's Age:* Similarly to other empirical studies (Delios and Henisz 2003, Bouquet et al. 2004, and Majocchi et al. 2005) we measured firms' experience through a logarithmic transformation of their age.

*Foreign Investors:* We built a dichotomous variable indicating whether the firm has foreign ownership in its capital structure as in López and García (2005).

Table 1 shows the summary statistics of the data. We observed that 77% of the firms have their own website. Considering the size of firms and in relation to the number of employees, we can consider that the firms are SMEs. The average number of employees is 13.27 and only 9 companies have more than 50 employees.

**Table 1.** Summary Statistics

Variables	Mean	Standard Deviation	Minimum	Maximum
1. Differentiation	22.27	28.35	0	100
2. Human capital	0.21	0.23	0	1
3. Size (number of employees)	13.27	26.81	1	250
4. Age (number of ages)	37.67	46.07	3	408
5. Foreign investors	0.10	0.29	0	1
<b>6. Internet</b>	<b>0.77</b>	<b>0.42</b>	<b>0</b>	<b>1</b>

## Results

A preliminary analysis was conducted to determine the relationships between pairs of independent and control variables. Table 2 displays Spearman's correlations<sup>2</sup> for each pair. Correlations ranged from -0.08 to 0.39, which indicates weak to moderate associations. This study also calculates the variance inflation factor (VIF) for each of the regression coefficients. The maximum VIF obtained in the three models is 2.10, which is substantially less than the conservative cut-off of 10 for multiple regression models (Neter et al. 1985, Hair et al. 1998).

<sup>2</sup> The Kolmogorov-Smirnov test determined that the variables are not normally distributed. Consequently, we cannot use Pearson's correlations.

**Table 2.** Spearman's Correlations and Variance Inflation Factors

Variables	1	2	3	4	5	6	VIF
1. Differentiation	1						1.15
2. Human capital	0.08	1					1.01
3. Size	0.32**	0.06	1				1.34
4. Age	0.18*	0.06	0.11	1			1.08
5. Foreign investors	0.02	-0.05	-0.08	-0.04	1		1.01
<b>6. Internet</b>	<b>0.27**</b>	<b>0.13</b>	<b>0.39**</b>	<b>0.11</b>	<b>-0.05</b>	<b>1</b>	<b>1.20</b>

Note. \*\* prob <0.01; \* prob<0.05

Two models were estimated to carry out the study and analyze the Internet's influence on the decision to export and the selection of the entry mode; a single-stage process estimated with a multinomial logit model and a two-stage nested model estimated with a sequential logit model.

Model 1 (Table 3) represents the decision of whether or not to export and the channel selection as independent decisions so that the company chooses three possibilities simultaneously: *Decision (1)* Indirect export versus not exporting; *Decision (2)* Direct export versus not exporting; *Decision (3)* Direct export versus indirect export. If we pay attention to the Internet's effect on these decisions, it appears that the Internet has a positive influence in decisions 2 and 3, i.e., when deciding to use a direct channel. This result could indicate that having a company website favorably affects the decision to export using a direct channel. As Vázquez et al. (2015) indicate the Spanish wineries can opt for the direct sale of their products through online trade as a business strategy. However, these authors note that this sales channel (e-commerce) is still not widespread in the sector.

**Table 3.** Results of the Multinomial Logit Model (Model 1)

Independent and Control Variables	Simultaneous Single-Stage (3 Options) Structure					
	Decision (1):		Decision (2):		Decision (3):	
	Indirect Export <i>versus</i> Not Exporting		Direct Export <i>versus</i> Not Exporting		Direct Export <i>versus</i> Indirect Export	
Internet	0.267	(0.552)	1.360**	(0.571)	1.093**	(0.542)
Differentiation	0.036*	(0.020)	0.044**	(0.020)	0.007	(0.008)
Human capital	-0.982	(1.102)	0.881	(0.966)	1.863*	(1.033)
Size	0.895**	(0.354)	1.502***	(0.347)	0.607**	(0.241)
Age	0.089	(0.269)	-0.062	(0.257)	-0.152	(0.229)
Foreign Investors	1.094	(0.929)	1.029	(0.926)	-0.065	(0.644)
Constant	-1.864*	(0.938)	- 2.898***	(0.956)	-1.033	(0.868)

Note. Standard errors in parentheses. \*\*\* Significant at the 1 percent, \*\* at the 5 percent, \* at the 10 percent level. Number of observations=177

On the other hand, a two-stage model is evaluated with the export decision preceding the export channel decision (Model 2 in Table 4). This model takes into account a two-stage structure in which the decisions are nested, that is, the company first evaluates whether or not to export (Level 1), and once the firm has decided to export it selects a channel (Level 2). As shown in Level 1 in Table 4, the export decision is not independent of the firm's internet use. Our results indicate that wineries that use new ICTs tend to export more than their counterparts ( $\beta=0.837$ ,

$p < 0.10$ ). Also, the existence of a positive relationship between internet use and direct export is supported (Level 2 in Table 4  $\beta = 1.376$ ,  $p < 0.05$ ).

As shown in Tables 3 and 4 we find support for Hypothesis 1. In this sense the results show that the Internet has a positive influence on the decision to export. Our findings also indicate that wineries are more likely to export using the direct mode if they have their own websites<sup>3</sup>.

**Table 4.** Results of the sequential logit model (Model 2)

Independent and Control Variables	Two-Stage Structure			
	Level 1: Direct & Indirect Export <i>versus</i> Not Exporting		Level 2: Direct Export <i>versus</i> Indirect Export	
Internet	0.837*	(0.491)	1.376**	(0.569)
Differentiation	0.041**	(0.020)	0.009	(0.008)
Human capital	0.082	(0.868)	2.616**	(1.107)
Size	1.248***	(0.323)	0.642***	(0.245)
Age	0.007	(0.236)	-0.246	(0.243)
Foreign Investors	1.029	(0.869)	0.079	(0.682)
Constant	-1.661**	(0.839)	-1.222	(0.910)

**Note.** Standard errors in parentheses. \*\*\* Significant at the 1 percent, \*\* at the 5 percent, \* at the 10 percent level. Number of observations=177

In order to corroborate that the entry mode choice corresponds to a two-stage structure in which decisions are nested, we use the Akaike and Schwarz Information Criteria (AIC and SIC) which are the most widely used in practice among the various model selection methods using information criteria. The results indicate that the two-stage structure (See Table 5, Model 2) provides a better fit (the preferred model is that with the lowest AIC and SIC values). Thus the optimum structure to represent the export decision sequence is a nested structure, with a first stage in which managers decide whether or not to export and a second stage in which those who decide to export choose between indirect and direct export channels. Therefore, these results validate the second hypothesis of this paper. The use of the Internet influences the decision process of the choice of the entry mode for exporting. In this context, a hierarchical decision process is superior to a single-stage process in the choice of direct or indirect export.

**Table 5.** Comparison among structures: single stage decision process *versus* two-stage decision process

	Model 1	Model 2
	Multinomial Logit	Sequential Logit
Akaike Information Criterion	287.233	284.283
Schwarz Information Criterion	331.699	328.749

<sup>3</sup> As an example, we can cite the case study of one of the wineries of the sample. This winery has a website where it can be selected the language (Spanish, English, Russian and German). This winery currently exports to Russia, Europe, USA and China. It is interesting to highlight the interest of this winery by the Russian market. In this sense, the website is available in Russian, there is a Russian contact, etc.

With regards to the other control variables, we analyze the results obtained in Table 4, since it is the best fitting model. Our results indicate that wineries marketing differentiated (high-priced) wines tend to export more than their counterparts marketing lower quality products ( $\beta=0.041$ ,  $p<0.05$ ). However, the existence of a positive relationship between a higher level of product differentiation and direct export is not supported (Level 2 in Table 4).

The results also show no evidence that firms that employ more highly educated workers are more likely to export. One possible explanation could be found in the existence of many export assistance programs provided by public sector institutions, which assist domestic firms in the export process. With regard to the choice of channel, the data in Level 2 in Table 4 reveals a significant positive relationship between human capital and direct export for the wineries in our DOC Rioja sample. This is in line with findings from past studies that indicate that the abilities developed by highly educated employees, such as speaking foreign languages (Knowles et al. 2006) or understanding new technologies (Bojnec and Ferto 2010), make it easier for the firm to establish its own export channel.

The coefficients of size are positive and significant at all equations. These results coincide with those previously obtained (for example, Rialp et al. 2002), confirming that larger firms are more likely to export using the direct mode. It thus seems that exporting, and in particular direct exporting, requires a high level of investment.

The data also show that there is not a significant effect for age. This echoes the inconclusive results that have generally been obtained by other authors (for example, Majocchi et al. 2005, Fryges 2006, Moen and Servais 2002).

Finally, it is postulated that firms receiving foreign investment capital make significantly greater use of direct export than other firms; however, our data do not support this. Possibly the limited level of foreign participation in DOC Rioja wineries could explain this result.

## Conclusions

Recent developments in modern technologies, such as the Internet, have decreased the minimum transaction size at which direct sales are efficient because the cost of a single transaction has been reduced (Javalgi and Ramsey 2001). Applying the logic of TCs approach to the online context, the Internet as an alternative to a physical presence refers to the extent to which firms use electronic integration to replace functions previously conducted by foreign distributors or agents with information acquired online and without establishing a physical subsidiary or joint venture (Sinkovics et al. 2013). Additionally, the Internet could be modifying the entry mode choices because it can be used as a direct sales channel and thus contribute to accelerating the firm's internationalization process (Arenius et al. 2006, Gabrielson and Gabrielson 2011).

The literature reviewed in this paper shows that the Internet has the potential to moderate the liabilities of newness and foreignness so that the globalization process can be accelerated (Arenius et al. 2006). Existing models of the internationalization process, for instance, have not captured the important phenomenon of accelerated international growth of born-global firms,

which led Johanson and Vahlne (2003) to revise their model and some authors propose a rethinking of internationalization theory in light of significant changes due to the Internet.

In line with this, this article researches the impact of internet use on export decisions and the entry mode choices for agri-food firms. Our results show that the Internet has a positive influence on the decision to export. Our findings also indicate that wineries are more likely to export using the direct mode if they have their own website. Results corroborate earlier research findings that suggest a link between export intensity and the successful use of the Internet (Morgan-Thomas and Bridgewater 2004, Samiee 1998).

Additionally, our results have shown the sequential character of export decisions and, therefore, the decomposition of the choice of export channels into a two-stage process: the decision to export and the choice of the direct-indirect mode. The results of the estimated models confirm that a two-stage structure is the model that best explains the selection of the entry mode and shows that the use of the Internet determines these decisions. The decision on the channel type should be modeled jointly with the decision to export due to their interdependency (nested decisions), while taking into consideration the use of the Internet, since the Internet determines the entry mode, as shown by the results of this study.

The results have some implications for managers and politicians with special attention for food and beverages industry. First, Internet-based channels open new opportunities to firms' internationalization because as our results show the use of the Internet promotes export through direct channels. Second, the use of the Internet as a direct channel could involve an improvement in the management of logistics processes, for example, better control of circulation of goods and faster communication of requests, that could reduce transactions costs. Third, the Internet could improve the service to customers because the Internet could become a good and ideal support for sales, post-sales and customer services. Moreover, eliminating external agents improves access to information of customer for decision-making. To sum up, our results suggest that managers interested in expanding their wines into international markets should consider the Internet as a key factor influencing export activity. As such, it may be advisable to set up institutional programs that provide e-commerce learning or programs that improve the understanding of new technologies for managers and employees. Moreover, the results show that the outlook on internationalization is changing as a result of the rapid development of ICTs, including the use of the Internet. Thus, the barriers to exporting that small businesses were facing, are now minimized by the use of ICTs, so it is necessary to consider factors other than the size of the organization, or human capital, used traditionally, and consider new elements such as internet use. All of this should be taken into account, especially in programs to aid exports.

The paper also highlights some limitations which point to interesting avenues for future research. Our study has focused on the simple dichotomy in the decision of direct *versus* indirect exporting. We are sensitive to the fact that there is a wide array of indirect export channels, such as export promotion organizations or trade representatives (Albaum and Edwin 2002). Although they share some features, they exhibit many distinct strengths and weaknesses that may affect the choice process. However, we do not consider specific export channels because this could affect our ability to determine the impact of the characteristic factors of a particular export mode.

## Acknowledgments

Financial support for this paper has been provided by the Spanish Ministry of Economy and Competitiveness and FEDER (project ECO2012-36290-C03-01 and project ECO2012-33286) and the Regional Government of Aragón and FSE (project S125: Compete Research Group).

## References

- Albaum, G., and D. Edwin 2002. *International Marketing and Export Management*. Prentice Hall.
- Amemiya, T. 1975. Qualitative response models. *Annals of Economic and Social Measurement* 4: 363-372.
- Anderson, E., and A. Coughlan 1987. International market entry and expansion via independent or integrated channels of distribution. *Journal of Marketing* 51 (1): 71-82.
- Arenius, P., V. Sasi, and M. Gabrielsson 2006. Rapid internationalisation enabled by the Internet: The case of a knowledge intensive company. *Journal of International Entrepreneurship* 3(4): 279-290.
- Bell, J., and S. Loane 2010. New-wave'global firms: web 2.0 and SME internationalisation. *Journal of Marketing Management* 26 (3-4): 213-229.
- Bojnec, S., and I. Ferto 2010. Internet and international food industry trade. *Industrial Management and Data Systems* 110 (5): 744-761.
- Bouquet, C., L. Hébert, and A. Delios 2004. Foreign expansion in service industries: Separability and human capital intensity. *Journal of Business Research* 57 (1): 35-46.
- Brouthers, K.D., L.E. Brouthers, and S. Werner 2003. Transaction cost-enhanced entry mode choices and firm performance. *Strategic Management Journal* 24 (12): 1239-1248.
- Campa, J.M., and M. Guillén 1995. Firm determinants of export internationalization and the choice between commercial alliances and proprietary distribution channels. unpublished manuscript. Massachusetts Institute of Technology, Cambridge, MA.
- Chiles, T.H. and J.F. McMackin 1996. Integrating variable risk preferences, trust, and transaction cost economics. *Academy of Management Review* 21(1): 73-99.
- Coughlan, A. 1985. Competition and Cooperation in Marketing Channel Choice: Theory and Application. *Marketing Science* 4 (2): 110-129.
- Coughlan, A., and T. Flaherty 1983. Measuring the International Marketing productivity of U.S: semiconductor companies. In *Productivity and Efficiency in Distributions Systems*, edited by David, A.,Gautschi, 123-153. North-Holland, New York.

- Dejo, N., and M. Ramírez 2009. Export Behavior: a Study of Spanish SMEs. *GCG: Revista de Globalización, Competitividad y Gobernabilidad* 3 (2): 52-67.
- Delios, A., and W. Henisz 2003. Political hazards, experience, and sequential entry strategies: The international expansion of Japanese firms, 1980-1998. *Strategic Management Journal* 24 (11): 1153-1164.
- Fernandez-Olmos, M.F. 2011. The determinants of internationalization: Evidence from the wine industry. *Applied Economic Perspectives and Policy* 33 (3).
- Frazier, G.L. 1999. Organizing and managing channels of distribution. *Academy of Marketing Science* 27 (2): 226-240.
- Fryges, H. 2006. Hidden Champions – How Young and Small Technology-Oriented Firms Can Attain High Export-Sales Ratios. Center for European Economic Research. Discussion Paper, No. 06-045.
- Gabrielson, M. and P. Gabrielson 2011. Internet-based sales channel strategies of born global firms. *International Business Review* 20: 88-99.
- Gabrielsson, M., and M.V.H. Kirpalani 2004. Born globals: How to reach new business space rapidly. *International Business Review* 13 (5): 555-571.
- Gabrielsson, M., M.V.H. Kirpalani, and R. Luostarinen 2002. Multiple channels strategies in the European personal computer industry. *Journal of International Marketing* 10: 73-95.
- García, J.M., F.R. Álamo, and S.M. Suárez 2002. Determinantes organizativos y directivos de la actividad exportadora: evidencia empírica en el sector vitivinícola español. *Cuadernos de Economía y Dirección de la Empresa* 13: 519-544.
- Glavas, Ch. and Sh. Mathews 2014. How international entrepreneurship characteristics influence Internet capabilities for the international business processes of the firm. *International Business Review* 23: 228-245.
- Goerzen, A., and P. Beamish 2003. Geographic scope and multinational enterprise performance. *Strategic Management Journal* 24 (13): 1289-1306.
- Goldsmith, P.D. and T.L. Sporleder 1998. Analyzing foreign direct investment decisions by food and beverage Firms: an empirical model of transaction theory. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroéconomie* 46(3): 329-346.
- Greene, W. 2003. *Econometric Analysis*, 5<sup>th</sup> ed. Prentice Hall. Upper Saddle River, NJ.
- Hair, J., A. Rolph, R. Tatham, and W. Black 1998. *Multivariate Data Analysis* 5<sup>th</sup> ed. Prentice-Hall, Englewood Cliffs, NJ.

- Hessels, J., and S. Terjesen 2010. Resource dependency and institutional theory perspectives on direct and indirect export choices. *Small Business Economics* 34: 203-220.
- Javalgi, R., and R. Ramsey 2001. Strategic issues of e-commerce as an alternative global distribution system. *International Marketing Review* 18 (4): 376-391.
- Johanson, J. and J-E. Vahlne 1977. The internationalization process of the firm: A model of knowledge development on increasing foreign commitments. *Journal of International Business Studies* 8 (1): 23-32.
- Johanson, J. and J-E. Vahlne 2003. Business relationship learning and commitment in the internationalization process. *Journal of International Entrepreneurship* 1 (1): 83-101.
- Johanson, J., and F. Wiedersheim-Paul 1975. The internationalization of the firm four Swedish cases *Journal of Management Studies* 12 (3): 305-322.
- Knowles, D., T. Mughan, and L.L. Reason 2006. Decision-maker Characteristics and Performance of Internationalised SMEs. *Journal of Small Business and Enterprise Development* 13 (4): 620-641.
- Kos-Labedowicz, J. 2013. Influence of modern technologies on internationalization of small and medium enterprises. *Information Systems in Management* 2 (1): 12-22.
- Kotha, S., V.P. Rindova and F.T. Rothaermel 2001. Assets and actions: Firm-specific factors in the internationalization of U.S. Internet firms. *Journal of International Business Studies* 32 (4): 769-791.
- Kumar, V., and V. Subramaniam 1997. A contingency framework for the mode of entry decision. *Journal of World Business* 32: 53-72.
- Liao, T. 1994. *Interpreting Probability Models Logit, Probit and Other Generalized Linear Models*, Sage Publications, London.
- López, J. and R. García 2005. Technology and export behaviour: A resource-based view approach. *International Business Review* 14: 539-557.
- Maddala, G.S. 1983. *Limited-dependent and Qualitative Variables in Econometrics*. Cambridge University Press.
- Majocchi, A., E. Bacchiocchi, and U. Mayrhofer 2005. Firm size, business experience and export intensity in SMEs: A longitudinal approach to complex relationships. *International Business Review* 14: 719-738.
- Mariussen, A. and T. Ndlovu 2012. Internet-enabled value co-creation in SME internationalisation: current practices from the UK food and drink industry. *European Journal of International Management* 6 (5): 503-524.



- Martínez-Carrión, J.M. and F.J. Medina-Albaladejo 2010. Change and Development in the Spanish Wine Sector, 1950–2009. *Journal of Wine Research* 21 (1): 77-95.
- Masten, S.E. 1993. Transaction costs, mistakes, and performance: Assessing the importance of governance. *Managerial and decision economics* 14 (2): 119-129.
- Moen, O., and P. Servais 2002. Born Global or Gradual Global? Examining the Export Behavior of Small and Medium-Sized Enterprises. *Journal of International Marketing* 10 (3): 49-72.
- Morgan-Thomas, A. and S. Bridgewater 2004. Internet and exporting: Determinants of success in virtual export channels. *International Marketing Review* 21(4/5): 393-408.
- Neter, J., W. Wasserman, and M.H. Kutner 1985. *Applied linear statistical models: Regression, analysis of variance, and experimental design*, Homewood, IL, Richard Irwin.
- Nieto, M.J., and Z. Fernández 2005. The Role of Information Technology in Corporate Strategy of Small and Medium Enterprises. *Journal of International Entrepreneurship* 3(4): 251-262.
- OEMV (Observatorio Español del Mercado del Vino – Spanish Observatory of the Wine Market) 2012. Consumo de vino en España y el vino en las redes sociales.
- Osborne, K. 1996. The channel integration decision for SMEs manufacturing exporters. *International Small Business Journal* 14 (3): 40-56.
- Pan, Y., and D. Tse 2000. The hierarchical model of market entry modes. *Journal of International Business Studies* 31 (4): 535-554.
- Petersen, B., L.S. Welch and P.W. Liesch 2002. The internet and foreign market expansion by firms. *MIR: Management International Review* 42 (2): 207-221.
- Plechero M., and C. Chaminade 2010. Different competences, different modes in the globalization of innovation? A comparative study of the Pune and Beijing regions. In circle working paper 3/2010.
- Regulatory Council of the Rioja Designation of Origin 2012. Boletín Informativo (Newsletter) 84.
- Rialp, A., C. Axinn and S. Thach 2002. Exploring channel internationalization among Spanish exporters. *International Marketing Review* 19 (2): 133-155
- Rodríguez, C. and M. Cervantes 2011. The Internet as an alternative distribution and communication channel for SMEs producing quality agro-food product. *aDResearch ESIC* enero-junio: 50-63.

- Samiee, S. 1998. Exporting and the Internet: A conceptual perspective. *International Marketing Review* 15 (5): 413–426.
- Shelanski, H.A. and P.G. Klein 1995. Empirical research in transaction cost economics: a review and assessment. *Journal of Law, Economics, & Organization* 11 (2): 335-361.
- Sinkovics, R. and E. Penz 2005. Empowerment of SME websites: development of a web-empowerment scale and preliminary evidence. *Journal of International Entrepreneurship* 3 (4): 303-315.
- Sinkovics, N., R. Sinkovics and R.J. Jean 2013. The internet as an alternative path to internationalization? *International marketing Review* 30 (2): 130-155.
- Tabachnick, B.G. and L.S. Fidell 2001. Using multivariate statistics, 4th ed. Needham Heights, MA: Allyn & Bacon.
- Vázquez de la Torre, G.M., J.M. Arjona Fuentes and F. Vázquez Palmero 2015. El Comercio Electrónico En La Comercialización Del Vino Español: Una Aproximación a Su Repercusión En El Sector Y a Sus Posible Sinergias Con El Turismo Enológico. *International Journal of Scientific Management and Tourism*, Forthcoming.
- Wickramasekera, R., and G. Bamberly 2001. Born globals within the Australian wine industry: an exploratory study. Faculty of Commerce, Charles Sturt University.