A predictive model of the export behaviour of small and medium sized firms: an application to the case of Castilla-La Mancha

Un modelo predictivo del comportamiento exportador de las pequeñas y medianas empresas: una aplicación al caso de Castilla-La Mancha

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Abstract:

Based on an extensive theoretical review, the aim of this paper is to carry out a closer examination of the differences between exporters according to their commitment to the international market. Once the main disparities are identified by means of a non-parametric test, a logistic analysis based upon data collected from small and medium sized manufacturing firms is conducted in order to construct a classificatory model.

Keywords:

Export behaviour, Manufacturing, Small to medium-sized firms, Logistic regression, Mann Whitney U-test.

Resumen:

Partiendo de una extensa revisión teórica, el objetivo de este trabajo es realizar un análisis más preciso de las diferencias existentes entre las empresas exportadoras en función del grado de compromiso asumido con el mercado internacional. Así, en primer lugar, se procede a identificar estos rasgos diferenciales mediante la aplicación de técnicas no paramétricas a datos correspondientes a un conjunto de pequeñas y medianas empresas manufactureras, para posteriormente efectuar un análisis logístico a partir del cual construir un modelo clasificatorio.

Palabras clave:

Comportamiento exportador, Manufacturas, Pequeñas y medianas empresas, Regresión logística, Test U de Mann Whitney.

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1. INTRODUCTION

One of the most relevant developments in recent decades has been the progressive internationalisation of the world economy. To a great extent, physical barriers have been removed by technological advancement, which has made possible the rapprochement between countries and their respective cultures. As regards firms, the growth of the potential market increases their business opportunities. At the same time, however, domestic firms will have to face a rise in competition, and, probably, a market-share decrease caused by the presence of foreign firms in local markets. Thus, to ensure survival, international expansion of firms becomes a necessity more than just an option.

Despite this evidence, not all firms feel inclined to address their internationalisation process. Even among those firms already exporting, it is possible to distinguish those that are fully engaged in export activity from those that just consider it an occasional task. That is to say, not all exporters have the same international orientation, nor show the same export intensity. Some low-involvement exporters are probably more strongly connected with non-exporters than with high-involvement exporters. Consequently, grouping exporters in a single category could not only be misleading but could also hinder obtaining solid results in this research area. Furthermore, such a classification can counteract the efficiency of governmental export assistance programmes (Diamantopoulos and Inglis, 1988), since information services, for example, must adapt to firm specific requirements (Denis and Depelteau, 1985), and these requirements are supposed to change according to the particular intensity of a firm's international exposure.

Taking for granted that to encourage international expansion governments should not only stimulate non-exporters to begin selling their products abroad but also improve the efforts made by low-involvement exporters (Katsikeas et al., 1996), the next step is to determine the principal differences between high and low-involvement exporters in order to create more suitable export programmes (Álvarez, 2007).

Thus, the aim of this paper is to carry out a closer examination of the differences between active and passive exporters and explore a predictive model to provide the basis for a better implementation of export promotion policies. Following on from this introductory section, we review relevant literature on export behaviour in Section II, focusing on those studies that have made a distinction between groups of exporters according to their level of commitment to the international market. We also develop several hypotheses on which are the factors that better explain this distinction. In Section III, we describe the data and variables used in the analysis. This analysis and the results are presented in Section IV. The final section discusses conclusions and implications, along with the limitations of the study and suggestions for future research.

2. THEORETICAL FOUNDATIONS AND RESEARCH HYPOTHESIS

Most of the literature on the export behaviour of firms focuses on the differences between exporters and non-exporters (i.e., Cavusgil and Naor, 1987; Ibeh, 2003; Kedia and Chhokar, 1986; Keng and Jiuan, 1989; Naudé and Rossow, 2010; Rettab et al., 2009; Yaprak, 1985). There are, nonetheless, some exceptions like the works inspired by the

Uppsala model developed by Johansson and Vahlne (1977; 1990) who consider the firm's internationalisation as a process that goes through several stages in which firms adopt different degrees of involvement with foreign markets. Apart from these contributions, the traditional distinction includes only the two aforementioned broad categories.

Nevertheless, this dichotomy is unrealistic since, as has been anticipated, not all the firms selling their products abroad display the same international orientation. So, in short, it is possible, and more opportune, to talk about the coexistence of high and low-involvement exporters (Diamantopoulos and Inglis, 1988).

Other researchers have remarked upon the same fact, although the terminology they have employed to denote both groups of exporters does not always coincide. For example, Czinckota and Johnston (1981) point out that motivations inducing firms to export can be proactive or reactive. Proactive motives are associated either with the possession of a distinctive advantage with regard to competitors, or with a positive attitude of managers towards exporting. Reactive motivations are instead related to competitive pressures, overproduction, declining domestic sales, excess capacity or a saturated domestic market. Thus, depending on the factors influencing the export decision, firms will be classified as proactive or reactive exporters. This distinction is similar to the one proposed by Piercy (1981), who differentiates between active and passive exporters according likewise to the reasons that stimulate the beginning of a firm's international expansion. This distinction between proactive and reactive stimuli to export is taken up again by Katsikeas (1996) in an effort to investigate the extent to which different types of export stimuli correspond to different types of export behaviour, distinguishing, for this purpose, between regular and sporadic exporters.

Regardless of denomination, in all these categorizations the active/regular exporters are those who show evidence of greater commitment and continuity in their international businesses. In this vein, Joynt and Welch (1985) distinguish between committed and non-committed exporters, where the former are those who work up a meticulous plan before initiating their export activities and employ more resources in carrying it forward; in a nutshell, those who enjoy a more pronounced international orientation. Tarleton and Tesar (1982) bring a different perspective to the matter when they say that passive exporters are production orientated whilst active exporters are more marketing orientated. For their part, Samiee et al. (1993) consider active exporters as innovators, whose greater commitment with overseas markets is due to their management's initiative.

Gençtürk and Kotabe (2001) draw on these previous contributions to build their own taxonomy of exporters. In this classification, firms are sorted into five groups according to their level of involvement in exporting, ranging from passive involvement exporters to committed involvement exporters, although differences between some of the intermediate categories are quite subtle. And, more recently, Morgan-Thomas and Jones (2009) classify newly internationalizing firms into three groups, namely rapid, regular and reluctant internationalizers, according to their speed of internationalization.

Leaving aside formal aspects, what all these classification efforts show is that there is a consensus in the literature about the desirability of grouping firms based on some common characteristics of their exporting behaviour. In this paper, because of its clarity and simplicity, we take as a starting point the distinction between active and passive exporters. The first objective is to examine the differences between both groups of firms. With this purpose, from a review of the literature we have selected the variables that *a priori* are as-

sumed to better discriminate active from passive exporters and we have made use of them to construct the next hypotheses:

❑ **International experience**. - Experience accumulated by firms in their international operations influences, to a great extent, their reaction to the opportunities offered by foreign markets (Piercy, 1981). In general, trading requirements in domestic markets differ from those that appear if the transaction is set up with an overseas counterpart. When trading activities go beyond national borders, differences in cultural, organizational and managerial factors between partners increase the uncertainty linked to the exchange relationship. This additional risk diminishes as firms acquire greater experience in the international arena. Denis and Depelteau (1985) refer to this mechanism of obtaining information on foreign markets as indirect intelligence. To sum up, the knowledge obtained through regular exporting contributes to reduce the perceived uncertainty of external markets and also to improve the firm's ability to efficiently manage international operations (Katsikeas, 1996).

Other studies highlighting the importance of international experience are Ali and Swiercz (1991), Cadogan, et al., (2001), Cavusgil and Zou (1994), Dominguez and Sequeira (1993), Madsen (1988) and Miesenbock (1985).

Thus, it is expected that:

H_1: *Active exporters are more internationally experienced than passive exporters.*

❑ **Timing of entry in export markets. -** The period of time that elapses until a firm begins exporting is a good indicator of a company's international orientation (Morgan and Katsikeas, 1997; Tuppura et al., 2008)). If a firm is internationally orientated, it will not delay the beginning of its overseas activity too much.

In addition, this lapse being excessively long, firms can be affected by organizational inertia. According to this, as time goes by, established firms adopt several organizational routines that make them reticent to implement changes. This inflexibility avoid firms perceiving new market opportunities, so that, those companies having got successfully accustomed to the domestic market will throw away eventual cross-border dealing chances (Oviatt and McDougall, 1995).

Hence, it is hypothesized:

H_2: *Active exporters delay the beginning of their export activity less than passive exporters do.*

❑ **Firm size**. – Empirical research on exports has not resulted in consistent conclusions concerning the relationship between firm size and firm export behaviour (Katsikeas et al., 1996; Miesenbock, 1985). Thus, while some studies make clear that size exerts a positive influence on a firm's export activity (Cavusgil and Naor, 1987; Javusgil et al., 2000; Yaprak, 1985), in others this linkage is not significant or proved to be negative (Bonaccorsi, 1992; Calof, 1993; Cooper and Kleinschmidt, 1985; Diamantopoulos and Inglis, 1988; Grisprud, 1990).

At any rate, size is a factor to take into account when distinguishing firms in accordance with their export commitment. As Dhanaraj and Beamish (2003) point out, size can be considered as a proxy for a firm's human and financial resources which are crucial for the decision to expand internationally. This may explain why, according to O´Rourke (1985), small firms exhibit a more passive attitude than larger firms. In this same line, Axinn (1985) considers firm size as a variable capable of predicting a firm's export behaviour. Moreover,

Walters (1985) verifies that the propensity to plan export activities increases with a firm's dimension. Since, according to Joynt and Welch (1985), active exporters are those who plan their export process, size reveals itself as an important indicator in order to discriminate between active and passive exporters. To end with, Calof (1994) infers from the results of his research that the larger the size, the more internationally orientated a firm is.

Therefore, it is expected that:

H_{3a}: *Active exporters are larger than passive exporters*

❑ **Export intensity**- Export intensity, as measured by exports/total sales ratio, is an excellent indicator of the significance given by firms to their overseas activities. Considering that passive exporters operate sporadically in foreign markets, it is expected that their international sales represent just a minimal percentage of the total sales volume. Hence, scholars like Piercy (1981) and Cavusgil (1984a,b) employ export intensity as a way of quantifying a firm's cross-border involvement. In their respective investigations, they establish that this variable is associated with differences in the degree of internationalisation. In fact, in Cavusgil (1984a) export intensity is used to tell apart active from passive exporters, and quite the same appears in Diamantopoulos and Inglis (1988) and in Samiee et al. (1993).

Therefore, it is proposed that:

H_4: *Active exporters are characterized for having greater export intensity than passive exporters.*

❑ Assigning the managing of export activities to a **specific export department** is also evidence of a firm's international commitment (Naidu and Prasad, 1994). Diamantopoulos and Inglis (1988) confirm the presence of differences between high and low-involvement exporters, depending on their possession or not of a separate export department.

H_5: *In contrast to passive exporters, active exporters usually handle their overseas transactions by means of a specific export department.*

❑ **Management's attitudes and perceptions**.- For many authors this is one of the most relevant factors concerning the process of internationalisation (Gray, 1997; Joynt and Welch, 1985). A manager's global vision is, definitively, the engine that will impel a firm's international expansion (Svante, 2000). In effect, having resources and being aware of opportunities is not sufficient enough to expand overseas. A person who wants to unleash the process is also necessary (Boddewyn, 1988). Therefore, it is expected that active exporters' managers are more internationally orientated than those of passive ones. This global positioning will be reflected on a lower risk perception of transactions with foreign counterparts, and, consequently, on a lower value of international trade barriers (Brunning, 1995).

Accordingly, it is hypothesized that:

H_6: *Active exporters attribute less importance to foreign trade barriers than passive exporters do.*

The assessment of export promotion instruments is also strongly connected with managers' perceptions and international experience (Lages and Montgomery, 2005). Export planning is a distinctive feature of active exporters. Such a process requires a great deal of information, in whose provision export promotion institutions, both public and private ones, play a key role. For this reason, it is foreseeable that active exporters have a more positive assessment of this kind of mechanisms of information collection than passive exporters do (Samiee and Walters, 2002).

Thus, it is suggested that:

H_7: *Active exporters' assessment of export promotion instruments is more favourable compared to passive exporters'.*

3. **METHODOLOGY**

3.1. **Data**

The data used in the exploration of potential differences between active and passive exporters were collected through a mail survey of manufacturing firms located in the Spanish region of Castilla-La Mancha[1].

The sample of companies was drawn from the database EDICOM. The analysis is restricted to manufacturing firms with more than 20 employees, which results in a sample of 460 firms[2].

Before sending the questionnaires, a pilot study was conducted in order to ensure the adequacy of the research instrument. With this purpose, personal interviews were carried out with, either the CEO, or the export manager of eleven of the firms constituting the sample. After this pre-test, only minor changes were made.

Questionnaires were mailed together with a stamped self-addressed return envelope and a letter describing the objectives and importance of the study, guaranteeing anonymity. A total of 91 responses were received leading to a response rate of 20.3%, which is similar to that obtained by prior studies in the same research area (e.g., Keng and Jiuan, 1989; Souchon and Diamantopoulos, 1997; Samiee et al., 1993; Suárez et al., 2002; Winklehofer and Diamantopoulos, 1997; Yang, et al., 1992). Of this number, one response belonged to a firm declining to participate in the study, and two questionnaires were rejected because they corresponded to non-manufacturing firms. This yielded 88 usable responses, to which we added the questionnaires obtained in the pre-test. However, before doing so we have verified the non-existence of significant differences between firms responding by mail and those included in the pre-test, by comparing both groups with regard to four variables: number of employees, total sales volume, experience, and industry affiliation. Given that

[1] Castilla-La Mancha is a moderately industrialized region situated in the centre of Spain. Despite being specialised in traditional sectors with low technological content, such as textiles and food, the industry of Castilla-La Mancha has shown high dynamism in recent years. Indeed, in this region the rate of growth of manufacturing value added between 1995 and 2004 is one-third higher than the Spanish average (38.70 percent versus 29.90 percent). With regard to its international dynamism, in the period between 1997 and 2006 the export volume of firms in this region has more than doubled, with an increase of 102 percent (Dirección Territorial de Comercio de Toledo, 2007).

[2] Whitey (1980) suggests that the internationalization process is affected by a critical number of employees: when this figure is larger than 20, the percentage of firms that decide to export increases to a great extent. In line with Whitey´s contribution, Bonaccorsi (1992), in a revision of the Italian SMEs´ share in the total volume of national exports, excludes from this category of firms those organizations with less than 20 employees, whose participation in the Italian international trade, as a whole, is residual. By and large, small size must not be regarded as an absolute impediment for firms to operate overseas, but it is a considerable obstacle as it is often accompanied by scarce human, financial and technological resources (Alonso and Donoso, 1996). In addition, according to a recent study of the Spanish Institute for Foreign Trade (ICEX) (Buisán y Espinosa, 2007), the threshold to identify the group of Spanish internationalized companies stands at 20 employees. Therefore, to avoid that the final sample is biased due to a disproportionate representation of non exporting firms, the limit of 20 employees was established.

the results of the test confirmed the absence of significant differences, the responses from both groups were finally added.

Subsequently, the final number of valid responses is 99, of which 61 belong to exporters. This yields a sampling error of ± 3.4 percentage points at the 95% confidence level.

3.2. **Description of the variables**

a. *Dependent variable: Active/Passive exporter*

The dependent variable in the model is dichotomously defined. This variable is coded as 1 if the firm is a passive exporter, and as 0 if not, that is to say, if the firm is a passive exporter. As in previous studies (e.g. Diamantopoulos and Inglis, 1988; Gençtürk and Kotabe, 2001), to assign each sample firm to one of these two categories, we have attended to firms' own perception of their level of commitment with export activities. In fact, this is the best way to capture the attitude held by a firm with regard to its overseas expansion. Thus, in our survey, firms were asked to indicate if they exported regularly (active exporter) or just sporadically (passive exporter)[3].

b. *Explanatory variables:*

- *Export experience (EXPER)*: Most of the studies including experience as a variable, independent of the research area, accomplish its quantification from a temporal perspective, and so using the year as measurement lengthwise. As regards the existing literature on exports, this has been the predominant option intended for gauging export experience in empirical research (e.g., Cavusgil and Zou, 1994; Hart et al., 1994; Kaynak, Ghauri and Olofsson-Bredenlöw, 1987; O'Rourke, 1985). Subsequently, export experience is measured as the number of years a firm is engaged in exporting.
- *Timing of entry in export markets (TIMING)*: As a result of analogous reasons to the aforementioned ones, this variable is measured as the difference between a firm's founding year and the year in which its export activities started.
- *Firm size*: In all empirical works whose focal point is firms' behaviour, including their export handling, there are two predominant ways of measuring a firm's dimension: the number of employees (Cavusgil and Zou, 1994; Hart et al., 1994) and the total sales volume (Calof, 1993; Christensen et al., 1987). Similar to some previous studies (Calof, 1994; Diamantopoulos and Inglis, 1985; Samiee et al., 1993), in the present research both alternatives are simultaneously used (*EMPLOYEES, SALES*).
- *Managers' perceptions of and attitudes towards exporting*: To calculate managers' perceived complexity of exporting, symbolized by export barriers perception (*BARRIERS*), as well as managers' perceived utility of current export promotion instruments (*PROMOTION*), one scale was constructed for each. The implicit intent in creating a scale is to measure a given phenomenon by comprising as many aspects of it as possible. This beco-

[3] Diamantopoulos and Inglis (1988) employ the distinction between *regular* and *irregular* exporters.

mes more crucial as the complexity of this phenomenon increases as occurs with attitudes and perceptions of individuals. Some examples of scholars who have developed multiple item scales for measuring managers' perceptions of exporting are Axinn (1988), Brunning (1995) and Yang et al. (1992).

Scales included in the present research have been built by employing 5-point Likert items. The Likert system has been frequently used in empirical works on exports (e.g., Bauerschmidt, Sullivan and Gillespie, 1985; Hart et al., 1994; Kedia and Chhokar, 1985; Leonidou, 1995). Items representing perceived export barriers were identified from previous studies (Kedia and Chhokar 1986; Yaprak 1985), while the herein considered export promotion instruments are a compilation of the most important export assistance mechanisms, either public or private, within reach of firms located in Castilla-La Mancha.

Respondents were asked to rate the importance of 11 export barriers and 7 export assistance mechanisms on a 5-point bipolar scale where 1 = not at all important and 5 = very important (see Annex). Then, in order to obtain a single final value of both aspects for each sample firm, responses to their respective items were summed up. Reliability of scales was assessed using Cronbach's alpha coefficient. In both cases, the Alpha value is greater than .7 which is the minimum level recommended by Nunnally (1978). The Cronbach's alpha coefficient for the *BARRIERS* scale is, exactly, .86 and .84 for the *PROMOTION* scale. Therefore, it is possible to assert that the designed scales have good internal consistency.

- *Export intensity (INTENSITY)*: This variable is measured as the proportion of turnover accounted for by export sales (Calof, 1993; Walters, 1985).
- *Export department (DEPARTMENT)*: The presence or the absence of an export department is measured by means of a dichotomous variable, coded as 1 if the firm has a specific organisational unit to deal with all the aspects relating to its overseas sales.

4. ANALYSES AND RESULTS

A) Summary statistics and univariate analysis

The first step in this research consists in verifying the existence of significant differences between active and passive exporters with reference to the selected variables, and so corroborating or rejecting Hypotheses 1 to 7. To do so, the Mann Whitney U-test for two independent samples has been applied to the variables with the only exception of *export department*. Since this variable is not continuous this test cannot be applied. Instead, a chi-square test for independence was employed.

The Mann-Whitney U test for two independent samples is used to test for differences between two independent groups on a continuous measure. This test is the non-parametric alternative to the t-test for independent samples[4]. Instead of comparing means of the two groups as in the case of the t-test, the Mann Whitney U-test actually compares medians.

[4] The reason that has motivated the use of the Mann-Whitney test instead of the t-test is that variables do not follow a normal distribution. In this situation, so common in the empirical analysis, one option is to transform the variables (for example, taking logarithms) to obtain normality. However, this is a distortion of the original information which is not recommended if there is a non-parametric alternative, as in this case.

Obtained results are presented distinguishing between firm-related variables and manager-related ones.

a) *Firm-related variables*

Mean scores for *EXPERIENCE*, *TIMING*, *EMPLOYEES*, *SALES*, and *INTENSITY* for active and passive exporters are shown in Table 1. With the only exception of the number of employees, the means of the two groups of firms differ considerably with regard to all the variables.

Table 1

Firm-related variables: mean scores

	Active exporters	Passive exporters
EXPERIENCE	15	5
TIMING	10	18
EMPLOYEES	89	88
SALES	27.34	8.77
INTENSITY	35	8

It is apparent from Table 1 that the two groups do not differ with regard to the number of employees. However, disparity between active and passive exporters is clear in relation to the second approach used to measure firm size. Mean scores reveal that active exporters are approximately three times bigger than passive ones.

In addition, active exporters have a greater stock of export experience, an average of 15 years, as opposed to passive exporters, who exhibit an average of just 5 years exporting. On the other hand, active exporters delay less the beginning of their export activity, with a mean score of 10 years as opposed to the 18 years it takes passive exporters to start exporting.

As was expected, the low involvement with international markets shown by passive exporters ties in with the fact that just 8 % of their total sales stems from overseas operations. In contrast, for those firms regarding themselves as dynamic exporters the export sales contribution to total business is above a third (35 % to be precise).

Therefore, active and passive exporters seemingly differ with regard to all the firm-related variables, excepting the number of employees. Nevertheless, to assert that these differences are statistically significant we must take note of the statistics associated with the Mann-Whitney U test.

Table 2

Firm-related variables: Mann-Whitney U test

	Mann-Whitney U	Z	p
EXPERIENCE	104.00	-4.090	0.000
TIMING	189.00	-2.694	0.007
EMPLOYEES	333.50	-0.313	0.754
SALES	280.00	-1.192	0.233
INTENSITY	85.50	-4.100	0.000

The first and second hypotheses of this research are corroborated by the results given in Table 2. In both cases, the significance level associated with the *z* value is less than 0,05, indicating that the difference in *EXPERIENCE* and *TIMING* scores of active and passive exporters is statistically significant. To sum up, active exporters are characterized by having a greater stock of experience in dealing with foreign markets, and for postponing less the beginning of their overseas operations.

As shown in Table 2, the Mann-Whitney U test confirms the absence of significant differences between active and passive exporters regarding their number of employees. In addition, the results display that both groups of exporters do not significantly vary in relation to their total sales volume either. According to this, it seems that firm size cannot be considered as a feasible factor in order to discriminate active from passive exporters. Thus, the third hypothesis of this study is not supported.

On the contrary, as might be expected, the low probability value pertaining to the variable export intensity indicates that there are significant differences between the two groups of firms with reference to the contribution of export sales to their respective businesses. Therefore, the fourth hypothesis is supported.

As a final point, differences between active and passive exporters regarding the employment of a specific export department to manage their overseas sales are put to the test. To do this, a Chi-square test for independence has been applied, since the variable export department is dichotomously defined. This test is used to explore the relationship between two categorical variables. In this case we want to describe the relationship between the variable *DEPARTMENT* and the type of exporter, active or passive, in order to investigate if active exporters are more likely to handle their international operations by means of an export department rather than the passive ones. Table 3 displays the crosstabulation of these two variables.

Table 3

Crosstabulation of *DEPARTMENT* and Type of exporter:

			Type of exporter	
			Active	Passive
DEPARTMENT	YES	Count	28	2
		% within DEPARTMENT	93.3%	6.7%
		% within Type of exporter	59.6%	14.3%
		% of total	45.9%	3.3%
	NO	Count	19	12
		% within DEPARTMENT	61.3%	38.7%
		% within Type of exporter	40.4%	85.7%
		% of total	31.1%	19.7%

From the results detailed in Table 3, two facts must be highlighted. Firstly, 93.3% of the firms who avail themselves of a specific organisational unit to deal in international markets are characterized as active exporters. Secondly, 85.7% of passive exporters lack this specialised export department. In short, these details seem to indicate *a priori* that both variables are related. Results of the Chi-square test will statistically confirm or refute this statement.

Table 4

Export department / Type of exporter: Crosstabulation

	Value	p	Exact Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	8.852	0.003		
Continuity correction	7.133	0.008		
Fisher's exact test			0.005	0.003

For 2x2 tables it is recommended that the expected frequency should be at least 10. If this assumption is violated, as happens in this case where the minimum expected count is 6.89, it is advisable to use Fisher's Exact Probability Test instead. The significance level of this statistic is 0.005 for an Exact Sig. (2-sided) and 0.003 for an Exact Sig. (1-sided). Therefore, it is possible to conclude that a significant relationship between the two considered categorical variables exists. This, in turn, reveals that the existence of an export department is a factor that significantly differentiates active from passive exporters. Thus, the fifth hypothesis is supported.

b) *Manager-related variables*

The two manager-related variables considered in this study are those refering to perceptions and attitudes of the management with regard to the barriers affecting international trade, and the usefulness of existing export promotion mechanisms. Average scores for both variables are presented in Table 5.

Table 5

Manager-related variables: Mean scores

	Active exporters	Passive exporters
BARRIERS	2.4	3.2
PROMOTION	3.3	3.6

It is noticeable that active exporters give less importance to the potential obstacles affecting international trade than passive exporters do. This is quite logical in view of the fact that the greater export experience of active exporters has allowed them to accumulate a valuable knowledge about the functioning of foreign markets, diminishing the uncertainty linked to operating overseas. On the other hand, passive exporters perceive current export promotion instruments as more useful than active exporters do. This is consistent with some authors' opinion, according to which, the greater a firm's international involvement is, the less it resorts to the export assistance lent by either public or private institutions (Samiee et al., 1993). In part, this is due to the different needs of export information of active and passive exporters (Denis and Depelteau, 1985). When a firm begins exporting, its information requirements are more generic. However, as the firm increases its commitment to and, consequently, its knowledge of the international market, it starts to demand a more specific type of information. The problem is that the information provided by those organisms in charge of encouraging export activities is rather common and does not fit in well with the particular necessities of active exporters. As a result, active exporters assign lower value to current export promotion mechanisms than passive exporters do.

Table 6

Manager-related variables: Mann-Whitney U test

	Mann-Whitney U	Z	p
BARRIERS	117.00	-3.587	0.000
PROMOTION	256.00	-1.395	0.163

The Mann-Whitney U test demonstrates that the difference between active and passive exporters regarding their perception of export barriers is strongly significant. In contrast, the rating for the assessment of export promotion instruments is not statistically different

between both groups of firms. Thus, the sixth hypothesis of this research is supported, while the seventh one must be rejected.

B) **Development of the predictive model**

According to the results obtained from the univariate analysis, it is evident that active and passive exporters themselves differ with regard to a group of key variables. The next step in this research consists in verifying if the interaction of these variables permits the composition of an efficient model for classifying exporters within the two aforementioned groups. In order to do this, I perform a logistic regression analysis[5]. Logistic regression has been used in numerous empirical studies focused in exporting with the purpose, for example, of investigating the factors explaining a firm's export commitment (Álvarez, 2007; Samiee et al., 1993; Suárez et al., 2002), identifying potential exporters (Yang et al., 1992), and determining the likelihood that a firm has an export department (Rico, 2000). Consequently, the logistic regression analysis has demonstrated itself as being efficient in previous similar works. This circumstance, in conjunction with the use of a dependent dichotomous variable and the necessity of combining continuous and categorical independent variables, has led to the application of this statistical technique.

The proposed model is specified as:

P_i = probability (Passive Exporter = 1),

and

$$\log\left(\frac{P_i}{1-P_i}\right) = \Sigma\, \beta_k X_k$$

where p is the probability of a firm being a passive exporter and the X_k's represent the set of explanatory variables incorporated in the model.

In order to maximize the classificatory power of the model, three different logistic regression equations have been run using a backward process. Table 7 reports the regression results including the coefficients of logistic regression, the associated estimated asymptotic standard errors and measures of goodness of fit.

More concretely, as an omnibus test of model fit, we calculate the model's Chi-square for each equation, which represents the improvement of the –2 log likelihood as compared to the –2 log likelihood of the null model (only consisting of an intercept). The higher the χ^2 value of the model, the better it describes the data. We also consider two goodness-of-fit statistics, the Nagelkerke R^2 and the Hosmer and Lemeshow Test. The Nagelkerke R^2, or pseudo r-square, is similar to the R^2 in linear regression (Hair et al., 2000). So, the larger the pseudo r-square statistics, the more of the variation in the response the model explains. The latter statistics, the Hosmer and Lemeshow Test, indicates the existence of significant

[5] Despite being a parametric technique, logistic regression makes fewer assumptions as compared with other multivariate analyses such as linear regression or discriminant analysis. In particular, it is not constrained by the normality assumption.

differences between the observed and model-predicted numbers of cases per response category. For this test higher significance levels denote a better fit of the model.

The independent variables included in the first model are only those showing a statistically significant difference between active and passive exporters in the previous univariate analyses, that is to say, *export experience* (*EXPER*), *timing of entry in export markets* (*TIMING*), *export intensity* (*INTENSITY*), *export barriers perception* (*BARRIERS*), and *export department* (*DEPARTMENT*). As shown in Table 7, parameter estimates for *EXPER*, *INTENSITY* and *BARRIERS* are statistically significant ($p<.05$), whilst the remaining two variables, *TIMING* and *DEPARTMENT*, failed to reach significance. As regards the chi-square (χ^2) value of model 1, the obtained results show that the model significantly improves the fit when compared to the null model including only an intercept ($p< .001$). This means that the model describes the data satisfactorily well. The large Nagelkerke R^2 (.737) and the high significance level of the Hosmer and Lemeshow Test (.984) corroborate this outcome. Moreover, the proportion of correctly classified cases (93 %) supports the validity of the model.

Despite its accuracy, the initial model was reestimated by removing the variable *TIMING*, which has revealed itself as not significant. The reestimated model, labelled model 2, is statistically significant ($\chi^2 = 37.860$, $p<.001$), which suggests that the incorporated variables, as a group, discriminate well between active and passive exporters. In addition, both the two reported goodness-of-fit indicators and the classificatory ability of the model do not vary. This suggests that the variable *TIMING*, despite its significance in the univariate analysis, does not contribute to improving the efficiency of the model. For the rest, the exclusion of this variable does not change the significance of the others. In particular, the estimated parameter for *DEPARTMENT* remains insignificant. Therefore, as done before, the analysis is repeated dropping this variable.

The obtained model, identified as model 3, is also statistically significant[6] ($\chi^2 = 34.841$, $p<.001$), but it is apparent from the results displayed in Table 7 that its classificatory power and its accuracy with respect to the two previous models have decreased. Consequently, model 3 is discarded.

Table 7

Logistic Regression Analysis [a]

Dependent variable: TYPE OF EXPORTER (Active = 0 and Passive = 1)			
Variables	Model 1	Model 2	Model 3
EXPER	-.267** (.137)	-.261** (.129)	-.249** (.112)
TIMING	-.006 (.048)		
INTENSITY	-.072** (.036)	-.070** (.034)	-.072** (.036)
BARRIERS	2.609** (1.114)	2.593** (1.113)	2.593** (1.108)
DEPARTMENT	-1.927 (1.269)	-1.962 (1.242)	
Intercept	-4.459 (3.185)	-4.556 (3.124)	-5.261* (3.091)

[6] Furthermore, none of the models can be rejected when compared to a saturated model that perfectly describes the data (-2 log likelihood = 23.334, 23.351 and 26.370, respectively, significant at a 5 % level).

Model Chi-square	37.877***	37.860***	34.841***
-2Log-likelihood	23.334**	23.351**	26.370**
Nagelkerke R2	.737	.737	.695
Hosmer and Lemeshow Test	.984	.983	.840
Active exporters cases correctly classified (%)	97.7	97.7	95.5
Passive exporters cases correctly classified (%)	76.9	76.9	69.2
Overall classification rate (%)	93	93	89.5

[a]. Figures shown are beta coefficients of the logistic regressions. Figures in the parenthesis are standard errors.
*** p <.01, **p <.05, *p <.10

On account of its accuracy and simplicity, model 2 is selected as the final model. Nevertheless, as an ultimate evaluation, the explanatory power of the logistic regression equation corresponding to this model was assessed using the Huberty test statistic. The percentage of exporters who were correctly classified (i.e., either as active or passive), using model 2, was compared with the percentage of exporters who would be correctly classified by chance alone. As shown in Table 7, model 2 correctly classifies 93% of exporters, and this proportion is significantly higher (p = .05) than the chance classification rate of 64.8%.

The signs of the estimated parameters confirm that the probability of being a passive exporter becomes higher (1) with decreasing export experience, (2) with declining export intensity, (3) with higher levels of perceived importance of barriers affecting international trade and (4) if the firm does not cope with their overseas operations using a specific export department.

5. CONCLUSIONS

The results achieved allow us to give an answer to the proposed objectives. First, we have shed light on some of the characteristics that better discriminate the most dynamic exporters from those whose level of international commitment is lower. These variables are the export experience, the time passed before to start exporting, the export intensity, the attitudes and perceptions of management with regard to export activity –in particular, foreign barriers perceptions- and, finally, the existence of a specific export department to deal with all the aspects related to the overseas transactions.

Moreover, firm size, as measured by both the number of employees and total sales volume, is not significant for differentiating between active and passive exporters. Previously, we remarked that empirical attempts to study the relationship between firm dimension and export activity do not show definitive results. In fact, several scholars have inferred from the results of their empirical analysis that the relationship between firm size and export activity is not significant. According to this, it is supposed that, more than the stock of resources (whose availability is, a priori, superior in large firms), the main factors influencing the export process are the knowledge stock and the managerial attitudes. In effect, the pre-

sent study reveals that all the variables which allow us to discriminate active from passive exporters are somehow connected with these intangible assets.

Therefore, it is possible to conclude that experience is the vehicle of expertise. The more internationally experienced a firm is, the more extensive its accumulated knowledge on the procedures, instruments, and the rest of elements concerning foreign exchange will be. Furthermore, benefits derived from export experience are not only related to cognitive aspects, since international practice also provides firms with other types of advantages. Oviatt and McDougall (1995), for instance, point out that firms systematically operating overseas are more likely to establish a solid network than those just performing in domestic markets.

Export intensity can be equally considered an indicator of the export experience acquired by a firm, but in reference to another dimension distinct from the temporal one. Actually, what really matters is the export dynamism observed by a company during this period, more than the length of time a firm is exporting. In this sense, export intensity is a good measure of this dynamism.

Quite the same can be argued with regard to the creation of a specific export department. Besides being a representation of management's favourable commitment towards overseas expansion, handling export activity through a particular organizational unit allows the firm to benefit from the positive effects derived from specialisation, which is ultimately related to the process of knowledge accumulation.

So, the axis separating active from passive exporters is built around knowledge and information. This evidence has several implications for public administration. If knowledge is what differentiates the most internationally committed firms from those that just gaze at overseas opportunities in the distance, the solution lies in providing this knowledge to those that lack it. Herein, governments play a crucial role within which they will have to establish the appropriate mechanisms of export assistance. Certainly, it would be unjust to ignore all the efforts made to date by public institutions in order to promote international expansion of firms. Nevertheless, the existence, on the one hand, of a considerable group of firms that have still not embarked upon their internationalisation process, and on the other, of those that in spite of having set it in motion, show signs of a scant commitment to foreign markets, raises the alarm about the potential inefficiency of current export assistance programmes.

In the international academic sphere, several researchers have called into question the helpfulness of certain export promotion instruments. Crick and Czinkota (1995) assert that, given the scarcity of public resources, it is a mistake to defray those export activities that in any case will be developed by firms even without bargaining for this official aid. According to these authors, this kind of aid could be primarily considered as a subsidy more than a strictly export promotion instrument.

As a general rule, export assistance instruments must combine two characteristics: first, the information and assistance they provide have to be adapted to the particular requirements of each firm. The results of the present study make clear that active exporters hold a more negative assessment of export promotion instruments than passive exporters do. Consistent with some researchers (Denis and Depelteau, 1985; Dichtl et al., 1990), this circumstance is due to the lack of adequacy of these instruments to the specific necessities of the former group of exporters. Second, export promotion policies must be endowed with

a more dynamic spirit. The typical absence of motivation of passive exporters to increase their cross-border involvement renders it improbable that these firms come spontaneously to the support of public agencies. Alonso and Donoso (1996) criticize precisely this: the passive attitude of public institutions in offering their assistance programmes. They also point out that the success of any export promotion programme requires a change in managers' attitudes and mentality, which in turn calls for a close relationship between firms and public authorities.

Models like the one shown in this paper can contribute to identify, and consequently, to classify exporters according to their specific commitment with overseas markets, and so, facilitating the application of suitable export programmes in line with a firm's individual attributes.

6. **REFERENCES**

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7. ANNEX

Figure 1

Items in the scale of the manager's perception of export barriers

	Muy baja	Baja	Media	Alta	Muy alta
1. Incertidumbre asociada al desconocimiento de los mercados extranjeros	☐	☐	☐	☐	☐
2. Falta de familiaridad con los procedimientos de exportación	☐	☐	☐	☐	☐
3. Escasez de recursos materiales y humanos	☐	☐	☐	☐	☐
4. Difícil acceso a fuentes de financiación	☐	☐	☐	☐	☐
5. Barreras derivadas de la necesaria adaptación del producto a la normativa extranjera sobre homologación y certificación	☐	☐	☐	☐	☐
6. Barreras derivadas de las diferencias culturales entre países.	☐	☐	☐	☐	☐
7. Restricciones asociadas al control del volúmen de las exportaciones (contingentes y restricciones voluntarias a la exportación)	☐	☐	☐	☐	☐
8. Barreras fiscales y arancelarias	☐	☐	☐	☐	☐
9. Riesgos asociados al cobro de las operaciones	☐	☐	☐	☐	☐
10. Falta de adecuación de los canales de distribución	☐	☐	☐	☐	☐
11. Elevados costes de transporte	☐	☐	☐	☐	☐
12. Otras (especificar)_____					
_____	☐	☐	☐	☐	☐

Figure 2

Items in the scale of the manager's perception of export promotion instruments

	Muy baja	Baja	Media	Alta	Muy alta
1. Programas de información y asesoramiento	☐	☐	☐	☐	☐
2. Actividades de formación	☐	☐	☐	☐	☐
3. Participación en ferias y misiones comerciales	☐	☐	☐	☐	☐
4. Ayudas y subvenciones	☐	☐	☐	☐	☐
5. Créditos a la exportación	☐	☐	☐	☐	☐
6. Instrumentos de promoción de la cooperación interempresarial	☐	☐	☐	☐	☐
7. Seguros de crédito a la exportación	☐	☐	☐	☐	☐
8. Otras (especificar)_____					
_____	☐	☐	☐	☐	☐