J Int Entrep (2010) 8:254–272
DOI 10.1007/s10843-010-0046-x

Exporting barriers: Insights from Portuguese small- and medium-sized exporters and non-exporters

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Published online: 24 February 2010

Abstract This study aimed to identify some of the major barriers that may hinder potential exporters and non-exporters from exporting their operations. Both parametric and semi-parametric binary choice models were used to analyze the data with the aim of assessing which of the major barriers detected can better explain the surveyed SMEs' decision to export or not. Six out of the 23 distinct barriers defined initially in the survey were found as statistically significant determiners of the probability that a surveyed SME firm would be a non-exporter. If public agents are interested in promoting and implementing the most effective mechanisms to stimulate exporting of domestic firms, several policy measures are advisable in order to minimize or alleviate the perceived inhibiting impact of barriers on SME firms' exporting decisions. In summary, results from the study revealed that non-exporters consider the lack of knowledge of potential markets, lack of qualified export personnel, lack of technical suitability, degree of competition in the sector, lack of financial assistance (governmental and financial institutions), and lack of qualified human resources as the main export barriers. By comparison, exporters perceived warehousing and control of the physical product flow in the target market to be the biggest barrier.

Keywords Barriers to export · Internationalization · Small and medium enterprises · Portugal

The authors are grateful to the Editor (Prof. Hamid Etemad) and the three anonymous reviewers for their constructive comments and valuable ideas on earlier versions of the manuscript.

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Introduction

One of the major hallmarks of the twenty-first century business environment is the phenomenal growth of globalization. Impelled by significant and continuing advances in production, transportation, information technologies, financial systems, regulatory environments, and business networks, firms, irrespective of their size, have increasingly extended their operations to international markets in order to improve their competitive advantages, as well as reduce costs (Griffin and Pustay 1996; Young et al. 1989).

Internationalization in general and exporting in particular can enhance a firm's managerial skills and capabilities, better facilitate the use of resources, and give it a greater degree of flexibility for undertaking diversified business risks (Katsikeas and Skarmeas 2003; Young et al. 1989). Similarly, operating in overseas markets may allow a firm to benefit from international competition and increase its involvement in foreign markets, thereby becoming a stronger player in its home market (Lages and Montgomery 2004).

The benefits associated with exporting are not restricted to the individual firm itself. Countries can also benefit from foreign operations of domestic firms because from a long-run perspective these activities promote socio-economic development, increase employment opportunities, generate spillover effects such as societal prosperity and assistance for local industries to boost productivity (Katsikeas and Skarmeas 2003; Leonidou et al. 1998). Since exporting activities can generate such attractive benefits, with the steady rise in global business and the emergence of global competition, an understanding of the export barriers has become particularly important in today's business environment. Thus, it should be expected that national governments would be interested in promoting and implementing the most effective mechanisms to stimulate the exporting of domestic firms (Rocha et al. 2008). While larger companies often suggest that adjustments to international markets are not allowed because of "corporate policy," SMEs use their flexible structure to rapidly adapt their strategies to the specificities of each foreign market (Lages and Montgomery 2004). Exporting is one of the most attractive entry modes for SMEs because it involves minimum risks, requires low financial and human resources and, at the same time, offers high flexibility of movements. Many SMEs are still reticent of exporting because they believe that their lack of resources and expertise are not suited to such a risk venture (Young et al. 1989). Others, however, view exporting as an inevitable path to the globalization process. A number of studies have identified that exporting tends to be one of the most commonly used modes in the early stages of companies' internationalization patterns (Burgel and Murray 2000). In order to effectively motivate local firms, particularly SMEs, to enter foreign markets, it is necessary not only to understand the factors stimulating SMEs to export (Leonidou 2004) but also the barriers they face to successfully enter and operate sustainably and efficiently in foreign markets (Leonidou 2004; Morgan and Katsikeas 1998). Specifically, as acknowledged by Rocha et al. (2008), the understanding of barriers to exporting may help the adoption of government policies to stimulate domestic firms to export by eliminating or minimizing the major impediments to their foreign expansion. It is also widely recognized that these barriers can exist at any stage in the internationalization process, although the nature of these barriers tends to differ among each stage (Morgan 1997).

In line with Rocha et al. (2008), from an academic point of view, the need for understanding the nature and role played by perceived obstacles to exporting has also inspired a vast number of researchers (Leonidou 1995, 2004). Besides, exporting has been considered a challenging and promising area for theory building in international marketing by Zou and Stan (1998).

However, it is still recognized that the investigation of export barriers still lacks a comprehensive theory base that classify the main export-marketing problems of SMEs in small-sized countries whose economic growth strongly depends on this activity. Numerous attempts to classify different export barriers have been proposed by relevant literature (Cavusgil and Zou 1994; Morgan 1997; Tesfom and Lutz 2006; Leonidou 2004). For example, Cavusgil and Zou (1994) pointed out that the marketing strategy in an export venture is determined by internal forces (company and product characteristics) and external forces (industry and export market characteristics). Similarly, Tesfom and Lutz (2006) synthesize the export problems of small- and medium-sized manufacturing firms by considering two major export barriers: internal and external.

In order to ensure a greater depth of understanding on SME exporting barriers and going a step further, this study focus on a number of home-country market barriers (or infrastructures) which may act as major drivers or barriers for improving the probability of a firm being an exporter or non-exporter. This issue is particularly important in a small EU country, which have received a large amount of EU funding for the development of its home-market infrastructures. Among these home-country market infrastructures particular emphasis is given to: lack of information from the sector/market; lack of financial assistance (financial institutions assistance and governmental incentives); lack of qualified administrative/export-related personnel; lack of qualified executives; lack of information technology platforms; lack of consultant expertise and advisory exporting services; lack of communication infrastructures (motorways, airports, etc); and lack of physical geographical spaces (industrial and businesses areas).

This study assumes that the non-existence of home-country market infrastructures may act as an important obstacle for SME exporting related activities. Relevant to notice that having SMEs as their main unit of analysis, Ayyagari et al. (2007) acknowledges the growing recognition of the role that these firms play in sustained global and regional economic recovery. Other barriers were also drawn from relevant literature. Another justification for the present study is the fact that once the relative importance of these barriers is detected, one can test their validity in predicting the probability of a SME firm being an exporter. This article contributes therefore to fulfill this gap by introducing a new methodological approach based on parametric and semi-parametric estimations of the selected binary choice regression models. Similarly, this article attempts to: (1) establish the degree of export orientation of Portuguese SMEs operating in the Northern region of Portugal which is a very export-active region; (2) compare the perception of the barriers to exporting in those firms which have exported with those which have not; (3) assess whether company, product, industry, market, and specifically the home-based infrastructures act as good predictors of the SME decision on engaging in export-based activities or not.

The following article is organized into three sections: the theoretical background, research methodology and results and discussion. Conclusions, implications, and limitations as well as areas for future research are explored later.

A brief review of literature about barriers to exporting

The study of export barriers has received considerable attention on both conceptual and empirical grounds (Hook and Czinkota 1988; Leonidou 1995). According to Leonidou (1995), export barriers are all those attitudinal, structural, operational, and other constraints that hinder a firm's ability to initiate, develop, or sustain business operations in overseas markets. Nevertheless, these barriers alone have not power enough to act as preventive measures to stop the firm entering or progressing through the various stages of internationalization proposed by the Uppsala model (Johanson and Vahlne 1977, 1990). For instance, several barriers originate internally to the firm, and are usually associated with the company and product characteristics, while others stem from the external environment, and are usually associated with industry characteristics, export market characteristics and macro-environment factors (Cavusgil and Zou 1994; Tesfom and Lutz 2006). According to Morgan (1997), the literature associated with the research about export barriers has tended traditionally to emphasize two forms of export barriers, namely: first, the problems which discourage firms from engaging in export activities and, second, problems experienced by firms which have already initiated export operations. While with regard to the latter, barriers identified are often experiential in nature (Leonidou 1994); on the contrary, in non-exporting firms, export barriers tend to be perceptual reflecting the decision maker's subjective opinion and beliefs (Morgan 1997).

Although, the first studies referring to perception of export barriers go back as far as the 60 and 70 s (Bilkey 1978), the study that exercised a major influence in a subsequent stream of research on the topic can be attributed to Rabino (1980). The relevance of Rabino's (1980) study relies on the fact that he identified not only the actual problems facing exporting firms, but also their perception as to why their peers did not export. Five major problems were considered in order of importance: paperwork, selecting a reliable distributor, non-tariff barriers, honoring letters of credit and communication with customers.

In the late 1980s, a number of relevant studies were also conducted. For instance, Hook and Czinkota (1988) found that while non-exporters placed great emphasis on problems associated with initiation of export activity (e.g., difficulties in raising the initial investment, tariff and non-tariff barriers, and lack of information about exporting), exporters were mainly concerned with operational issues (too much red tape, transport difficulties, ill-trained personnel). Other studies have investigated operational problems such as documentation, to see if these are perceived as barriers. Young et al. (1989) contended that the most serious barriers to exporting were; finance/delays in payment, export paperwork, market information, product suitability, suitable overseas representation and costs/profitability. Sharkey et al. (1989) classified export obstacles into five groups, namely those relating to government policy, procedural/technical complexity, contextual differences, perceived strategic limitations and competition from local firms. They concluded that marginal exporters were not significantly different from non-exporters. Significant differences, however, were found between marginal exporters and active exporters.

During the 1990s, a large number of studies were conducted in non Anglo-Saxon countries, namely Finland, Brazil, Germany, Greece, South Korea, and Turkey (Rocha et al. 2008). Leonidou (1995) acknowledged that keen competition in foreign

markets from either domestic or foreign firms was the strongest barrier preventing the engagement of non-exporters. Interestingly, this author found that intensive competition in international markets was systematically more perceived as an export problem by newer rather than older firms. The inability to offer competitive prices abroad was also a prevalent obstacle among firms lacking export experience. Of almost equal importance was the limited availability of information to locate/analyze foreign markets.

In the early 2000s, there was an apparent reduction of interest in the topic, with fewer studies appearing in the most relevant scientific journals. Among the fewer studies undertaken in this field, Shaw and Darroch (2004) found a number of significant differences in perceptions of barriers to internationalization across non-exporters, likely exporters, and exporters. While the major barriers faced by non-exporters were firm size, limited market knowledge, limited experience, and limited financial resources, among others, in the case of exporters and likely exporters the main obstacles were limited financial resources, limited access to capital, lack of government incentives, and limited market knowledge. Leonidou (2004) noted in a later work that, although exporting barriers can be found at any stage of the export-development process, their nature may vary noticeably from stage to stage. In fact, as he remarks, if the firm is unable to deal with impediments at the early stages (pre-export stage) then the firm will most likely withdraw from exporting. Therefore, the identification of problems at each stage is of paramount importance to recognize that certain barriers block the movement of a firm from one stage to the following stage (Leonidou and Katsikeas 1996). Furthermore, the perception of barriers can vary in intensity depending on the export stage of the individual firm (Katsikeas and Morgan 1994; Shaw and Darroch 2004). Noticeably, in most of these studies, exporters perceived the barriers to internationalization to be less important than did non-exporters or likely exporters (Shaw and Darroch 2004).

Another interesting piece of recent research was recently undertaken by Rocha et al. (2008) who investigated the same sample of exporting firms in three different moments, with a gap of 27 years between the first and the last surveys, with the aim to identify latent dimensions underlying the perception of specific obstacles and their change over time. It should be noted however, that among the aforementioned studies reviewed very few were undertaken in southern European countries. This is particularly true in the case of Portugal because it is a small EU country which depends strongly on the export orientation of their SMEs for its economic growth.

Proposed conceptual framework

The classification proposed by Cavusgil and Zou (1994) is of particular interest as they systematized the major internal and external export problems that can influence an export-marketing strategy (Table 1).

This typology provides a comprehensive basis for understanding the export problems and is useful for the formulation of suitable marketing strategies and national export assistance programs (Tesfom and Lutz 2006). Figure 1 shows the proposed conceptual model:

Table 1 Internal and external export barriers that determine export-marketing strategy

External barriers			Internal barriers	
Industry barriers	Market barriers	Macro-environment	Company barriers	Product barriers
Industry structure	Customer barriers	Direct export barriers	Marketing knowledge and information	Product quality
Competition	Procedural barriers	Indirect export barriers	Financial resources Human resources	Technical adaptability

Source: Cavusgil and Zou 1994

In line with Tesfom and Lutz (2006), this study divided internal export barriers into problems related to company and product characteristics while external export barriers include industry, host-country market barriers, and home-country market barriers.

Internal export barriers are mainly intrinsic to the firm and are usually associated with insufficient organizational resources for export marketing (Leonidou 1995). Within company export barriers, the capacity of the firm to execute properly its marketing functions should be taken into account. Several researchers have discussed the main obstacles associated with designing and implementing the marketing function, such as lack of knowledge of potential customer markets and lack of qualified export personnel (Czinkota and Ronkainen 2001; Samiee and Walters 2002; Leonidou 2004). As Leonidou (2004) acknowledged, identifying customers in overseas markets may constitute a serious barrier for many would-be and current exporters. The same can be applied to inadequate and untrained personnel. Many SMEs complain that they do not have sufficient personnel to handle excess work demanded by export operations (Leonidou 2004).

Concerning the product export barriers, they often affect the competitive advantage and influence the choice between an offensive and a defensive export strategy (Cook 1983). According to Tesfom and Lutz (2006) the product barriers influence the export-marketing strategy of the company and can be grouped into quality and technical suitability. In some cases, foreign governments apply special legislation to set quality standards for certain types of products making product adaptation an important requirement.

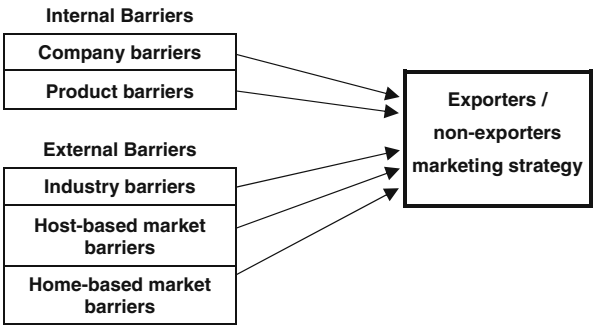

Fig. 1 Proposed model

(Adapted from Tesfom and Lutz 2006)

A number of researchers have acknowledged that the origin of a substantial number of exporting problems is rooted in the external environment (Tesfom and Lutz 2006). That is, external export barriers are rooted in the home and host environment within which the firm operates (Leonidou 1995). The nature of the external export barriers tend to vary according to the industry, to the host-market and home-market related factors (Cavusgil and Zou 1994; Tesfom and Lutz 2006).

With respect to the industry, it should be noted that the intensity of exporting activities may vary considerably according to both the attractiveness and degree of competition in the sector (Albaum et al. 2002; Czinkota and Ronkainen 2001).

Concerning the host-country market barriers, relevant literature evidenced that some important barriers that may affect export-marketing strategy are: lack of time to learn cultural/language differences (Terpstra and Sarathy 2000), tariff and administrative barriers (Albaum et al. 2002), risks associated with foreign currency exchange (Czinkota and Ronkainen 2001), unavailable foreign warehousing facilities (Cateora and Graham 2001), and slow payment or risk of non-payment by foreign buyers. With respect to this later factor, Leonidou (2004) argues that the lack of immediate contact with overseas markets, combined with the tendency of many foreign buyers to ask for more credit facilities, increases the possibility of slower payments.

Relevant literature also evidenced that home-country export barriers are external to the firm but are constrained to the domestic scope of geographic coverage. The nature of these barriers reflect lack of information from the sector/market, lack of financial assistance (governmental incentives/financial institutions incentives), lack of qualified administrative/export-related personnel, lack of qualified executives, lack of information technology platforms, lack of consultant expertise services, lack of communication infrastructures (motorways and airports), and lack of physical geographical spaces (industrial and business areas) (Rabino 1980; Kedia and Chhokar 1986; Morgan 1997, Samiee and Walters 2002).

Methodology of the study

The first stage of the present study aimed to categorize firms according to their export activity. The export orientation was defined as the proportion of firm's sales that is secured through export activity (Schlegelmilch and Crook 1988). The second stage attempted to compare the perception of the barriers to exporting by both exporters and non-exporters. Finally, a parametric and semi-parametric estimation of the selected probability regression models was implemented in order to test the hypothesis formulated in the previous section of this paper.

Once the first task was accomplished, we started identifying the main predictors that may determine exporting and non-exporting activities. With this purpose in mind, several company, product, industry, market, and home-based infrastructures were examined as perceived barriers for both non-exporters and exporters.

The sampling frame for the study comprised firms operating in northern Portugal, where the industry structure is highly representative in terms of small- and medium-sized firms. Regional sample restriction was done since several authors have

acknowledged that firms within the same geographic area develop international undertakings under similar influences from environmental contingencies and complexities (Robinson and Pearce 1988). All the firms within the population had fewer than 250 employees and, therefore, qualified to be defined as SMEs (European Commission 2006).

A random sample of 1200 SMEs in the northern region of Portugal was drawn from the Dun & Bradstreet and ICEP databases. A detailed questionnaire was then mailed out to the senior executive (Managing Director) of the 1,200 firms. The choice of senior executives was justified as they were likely to be strongly involved in the strategic decisions of the firms, particularly those related to exporting. Hence, this decision maker was treated as the key informant in the sampling unit.

A small-scale pre-testing procedure was conducted among four academics and five practitioners (Carmines and Zeller 1979) before the questionnaire was mailed out to scrutinize the content validity of the items. The face validity of the questionnaire was assessed with exporting executives in an attempt to assess question clarity, to determine the required completion time and to examine the appropriateness of the subject matter for the population under study. Based on this feedback, final adjustments were made to the questionnaire. Two follow-up phone reminders were made to each non-responding firm approximately 3 to 6 weeks after the original mailing in an attempt to increase the response rate.

Overall, of the 1,200 SMEs, 138 returned usable questionnaires, which represent a response rate of nearly 12%, not uncommon for a mail survey studying international operations. Non-response bias was assessed by comparing early to late respondents (Armstrong and Overton 1977). We define early respondents as the first 75% to return questionnaires and late respondents as the last 25%. Univariate tests of significance (t tests) were conducted and no significant difference was found between the two waves of respondents along the main predictor variables.

With regard to the profile of the sample, it included firms spanning a size range from small (representing 53%, with 10–49 employees) to medium (representing nearly 47%, with 50–249 employees). Firms with less than ten employees (micro-enterprises) were not included in our analysis. The manufacturing sector comprised mainly of wood and furniture, textiles, clothes, shoes, computers, food and machinery was represented by 66.1% of the firms. The retailing sector was represented by 26.1% and services by 7.8%. In terms of organizational age, 43.5% of the sampled firms were created between 1976 and 1990, 31.3% were created between 1991 and 2000 and only 6.1% were created between 2001 and 2004.

Research findings

One of the objectives of the current study was to establish the degree of export orientation of the sampled firms. Of the participating firms 58% have exported (evidenced at least an export-to-total sales ratio equal or greater than 5%) while 42% have not, which indicates a relatively high percentage of exporting firms in the sample. Nearly 59% of both exporters and non-exporters consider the “internationalization of the economy” as an opportunity, 16% consider it a threat, and 24% considered that it

did not affect their activities, particularly with regard to the previous year. Interestingly, both exporters and non-exporters consider the enlargement of the European Union as follows: not affecting their activity, 34.8%; constituting a real threat, 33.9%; and as an important opportunity, 31.3%. The main EU countries where the exporting firms have developed their exports are Spain (48%), France (20%), and Germany (14%). Of the firms developing their exporting activities in non-EU countries, nearly 49% (although not exclusively) operate in Angola, Mozambique, and Brazil, and 12% in North America.

Table 2 shows the descriptive statistics for the list of perceived export barriers by both exporters and non-exporters. First, in order to determine whether there are significant differences between exporter and non-exporters researchers perform a two-tailed test for the differences of means (*t* tests). Relying on a five-point Likert scale (1=not a major barrier to 5=very important barrier) the most important perceived barriers for exporters seem to be: dimension of the firm; degree of attractiveness of the sector and warehousing and controlling the physical product flow in the target market. By contrast the most important perceived barriers for non-exporters seems to be; age of the firm lack of knowledge of potential markets; lack of qualified export personnel; lack of technical suitability; degree of competition in the sector; tariff and administrative barriers in the target markets; lack of time to learn cultural/language differences; lack of financial assistance and lack of qualified human resources.

As previously stated, this study aims to assess which of the export perceived barriers most commonly addressed in the SME literature act as good predictors of a SME decision on engaging (or not) in export-based activities. In other words, we wanted to empirically examine whether a number of variables grouped in five categories, are significant predictors of the probability of a firm being an exporter or a non-exporter. Based on the results described in Table 2, the parametric analysis is only performed for those variables that seem to most affect the SME export/non-export activity. The empirical results for each category of export barriers are broken down according to company, product, industry, host-country, and home-country barriers.

Binary choice modeling

We used parametric and semi-parametric estimations of the probability regression models in order to test the hypothesis formulated in a previous section of this paper. We considered the binary choice modeling framework as the most appropriate for analysis of the data available. Robustness checks using semi-parametric estimation techniques have not, to our knowledge, been previously investigated within this topic's literature context, although there has been well documented research, using binary choice models.

In our model, the firms' exportation decision variable is “zero” if the firm does not export and ‘one’ if the firm has a positive number of exportations. In order to analyze binary (0/1) choice decision processes several parametric models have been proposed in the literature. These frameworks enable us to link the decision made by the firm (y_i) to a set of explanatory variables (x_i) within the general context of a

Table 2 Descriptive statistics of export barriers

List of major export barriers	Exporters (58%)		Non-exporters (42%)		*t* value
Company-related barriers	Mean	S.D	Mean	SD	
Dimension of the firm	1.66	0.478	1.21	0.41	−5.25*
Age of the firm based on the foundation year	2.09	0.77	2.46	0.87	2.361*
Lack of knowledge of potential markets	2.66	1.05	3.60	0.89	5.07*
Lack of qualified export personnel	2.72	1.08	3.19	0.91	2.46*
Product related barriers					
Lack of product/service quality	1.55	0.74	1.58	0.71	0.21
Lack of technical suitability	2.54	1.04	3.25	0.91	3.82*
Lack of response time to the consumer's need	1.77	0.76	1.73	0.73	0.28
Industry related barriers					
Degree of attractiveness of the sector	3.00	1.11	2.65	0.95	1.77**
Degree of competition in the sector	2.52	0.92	3.60	0.76	6.66*
Host-country market barriers					
Slow payment by foreign buyers	2.97	1.18	2.96	0.77	0.05
Risk of non-payment by foreign buyers	3.13	1.16	3.00	0.87	0.65
Foreign currency exchange risks	2.22	0.93	2.48	0.79	1.57
Tariff and administrative barriers in the target markets	2.66	1.12	3.00	0.68	1.88**
Warehousing and controlling the physical product flow in the target market	3.42	0.92	2.69	0.92	4.20*
Lack of time to learn cultural/language differences	3.00	0.96	3.33	0.88	1.88**
Home-country market barriers					
Lack of information from the sector/market	2.88	0.78	3.06	0.93	1.12
Lack of financial assistance (financial institutions assistance/governmental incentives)	1.99	0.50	2.58	0.89	4.52*
Lack of qualified administrative/export-related personnel	2.78	0.81	2.83	0.66	0.35
Lack of qualified human resources	2.58	1.06	3.60	0.81	5.62*
Lack of information technology platforms	2.18	0.73	2.15	0.85	0.20
Lack of consultant expertise services	2.46	0.78	2.40	0.79	0.40
Lack of communication infrastructures (motorways, airports, etc.)	2.87	0.91	3.15	0.89	1.63
Lack of geographical physical spaces (industrial and business area)	3.03	0.75	3.19	0.73	1.13

Most items were measured on a 5-point Likert scale (1=not a major barrier; 5=very important barrier)

*0.05 cut-off, statistically significant difference in the means; **0.10 cut-off, statistically significant difference

probability model. Usually these binary choice models are of a single-index form and exhibit a conditional probability given by:

$$p_i = Prob[y_i = 1|x_i] = F(\beta' x_i) \quad (1)$$

in which β is a vector of unknown constant parameters. In these models, the probability p_i will vary across firms as a function of the explanatory variables (x_i). In

order to ensure that p_i is within the zero-one range $F(.)$ has been specified as a cumulative distribution function. The most common binary outcome models used in the literature are the Logit and Probit models. If the model assumes that $F(.)$ is the cumulative distribution function of the logistic distribution we get the Logit model:

$$F(\beta' x_i) = \frac{e^{\beta' x_i}}{1 + e^{\beta' x_i}} \tag{2}$$

If, instead, the model assumes that the probability distribution $F(.)$ can be modeled using the cumulative normal distribution we get the Probit model:

$$F(\beta' x_i) = \int_{-\infty}^{\beta' x_i} \frac{e^{-\frac{t^2}{2}}}{\sqrt{2\pi}} dt \tag{3}$$

As our research interest lies on predicting the probability of a SME firm being an exporter, and despite the empirical similarities of Logit and Probit models regarding marginal effects[1], we opted here to present both methodologies' estimates.

In this study we also estimate a model where it is assumed that the probability distribution $F(.)$ can be modeled using the Gompertz (or Gompit or Log-log) cumulative distribution function (which differs from the previously described models in being an asymmetric distribution) as:

$$F(\beta' x_i) = e^{-e^{\beta' x_i}} \tag{4}$$

These models do not have the interesting linear regression model characteristic of parameter estimates being equal to the marginal effects of the explanatory variables (x_i) on the dependent variable (y_i). In the linear regression models the coefficients estimate (β_j) gives us the marginal effects. By contrast, in these nonlinear models the effect of a change in an explanatory variable on the conditional probability that $y=1$ (marginal effect) vary with the point of evaluation x_i and vary with the different specifications of $F(.)$. In this study, we report (in Table 3) the marginal effects computed as the sample means for the three previously described models.

In order to assess the validity of the parametric models classification results obtained in this analysis we also use a maximum score estimator (MSCORE), as suggested in Bult (1993)[2]. Semi-parametric models make much weaker assumptions about the distribution of the disturbance term. In this study (MSCORE), is an alternative classification tool whose results can be compared to the classification obtained by the parametric models and so a relative performance assessment can be made. Following Manski and Thompson (1986), we can expect that if heteroscedasticity is present, maximum score classification results are superior to those obtained with the Logit model estimation. Table 4 shows the classification results for the parametric models and the semi-parametric model MSCORE.

Since the logistic density looks very similar to the normal density (used in the Probit model) except at the tails where the logistic function is higher, Probit and

[1] See Cameron and Trivedi (2005) for details.

[2] A revision of the advantages and disadvantages of parametric models when compared to semi-parametric models can be found in Bult (1993). This author defines MSCORE procedures and compares its performance with some parametric models.

Table 3 Logit marginal effect estimates in comparison with other mainstays of empirical research on binary choice

Export perception barriers/marginal effects $(\frac{\partial F(\beta' x_i)}{\partial x_i})$Estimates	Logit $F(\beta' x_i) = \frac{e^{\beta' x_i}}{1+e^{\beta' x_i}}$	Log-log $F(\beta' x_i) = e^{-e^{\beta' x_i}}$	Probit $F(\beta' x_i) = \int_{-\infty}^{\beta' x_i} \frac{e^{-\frac{t^2}{2}}}{\sqrt{2\pi}} dt$
Constant	3.35 (0.74)*	2.65 (1.33)*	3.49 (0.71)*
Company-related barriers			
Lack of knowledge of potential Markets	−0.16 (0.06)*	−0.14 (0.07)**	−0.17 (0.06)*
Lack of qualified export personnel	−0.17 (0.06)*	−0.14 (0.08)**	−0.18 (0.06)*
Product related barriers			
Lack of technical suitability	−0.21 (0.06)*	−0.15 (0.07)*	−0.22 (0.06)*
Industry/sector related barriers			
Degree of competition in the sector	−0.30 (0.07)*	−0.23 (0.11)*	−0.31 (0.06)*
Market related barriers			
Warehousing and controlling the physical product flow in the target market	0.11 (0.07)	0.10 (0.06)	0.12 (0.08)
Lack of home-based infrastructures			
Lack of financial assistance (financial institutions/governmental incentives)	−0.17 (0.09)**	−0.16 (0.08)*	−0.19 (0.09)*
Lack of qualified human resources	−0.19 (0.06)*	−0.12 (0.06)**	−0.19 (0.05)*
N	115	115	115
Log likelihood	−28.696	−28.233	−28.310
Hosmer–Lemeshow chi-squared (*df*=4)	6.899 (0.141)[a]		6.371 (0.173)[a]
LR chi-squared (*df*=7)	98.88 (0.000)[a]	99.802 (0.000)[a]	99.649 (0.000)

N number of observations (23 cases have been excluded), *df* degrees of freedom

*0.05, statistically significant; **0.10, statistically significant

[a] *P* values

Table 4 MSCORE and the parametric model frequencies of actual and predicted outcomes

Actual	0	1	Total	Error rate
MSCORE predicted				
0	42	6	48	0.12
1	10	57	67	0.14
Total	52	63	115	
$S^a(b)$	0.86			
Probit and Logit predicted				
0	41	7	48	0.14
1	5	62	67	0.07
Total	46	69	115	
$S^a(b)$	0.895			
Log-log predicted				
0	38	10	48	0.20
1	3	64	67	0.04
Total	41	74	115	
$S^a(b)$	0.88			

$S^a(b)$ is the model's normalized score function

Logit usually do not give very different outcomes, as is the case in our study. The results shown in Tables 3 and 4 indicate that the Logit and Probit models give very similar information about firms' behavior.

Moreover, both models seem to be superior to the Log-log and to the MSCORE estimation in terms of accuracy of prediction. Once this result had been found we gave particular attention to the Logit model results. This binary choice model is also often the preferred model in the literature. Also Logit has often been considered analytically more convenient. As the Logit model can be transformed into:

$$p_i = \frac{e^{\beta' x_i}}{1 + e^{\beta' x_i}} \Rightarrow \frac{p_i}{1 - p_i} = e^{\beta' x_i} \tag{5}$$

a very common interpretation of the coefficients is in terms of marginal effects on the odds ratio rather than on the probability (p_i) (as represented in Table 3). Suppose the j explanatory variable increases by one unit, then the odds ratio has increased by a multiple e^{β_j} which is a proportionate increase of $\left(e^{\beta_j} - 1\right)$ times the initial odds ratio, so the relative probability of a firm being an exporter increases by $\left(e^{\beta_j} - 1\right)$*100 per cent. In Table 5, we present this indicator for convenience in the interpretation of the estimation results. The other usual estimates for the Logit model are also specified in Table 5.

Results and discussion

The remainder of this section deals with the analysis and discussion of the findings. Consistent with previous studies a number of significant differences in perceptions of barriers to internationalization were observed across non-exporters and exporters. Inspection of the several t tests and estimated coefficients derived from the binary

Table 5 Logit model regression estimates

Export perception barriers/estimates	Coefficient	SD	Marginal effects odds ratio (e^{β_j})	SD	*P* value	$(e^{\beta_j}-1)*100$
Constant	20.76*	5.87			0.00	
Company-related barriers						
Lack of knowledge of potential markets	–1.01*	0.40	0.36*	0.14	0.01	–64%*
Lack of qualified export personnel	–1.10*	0.48	0.33*	0.15	0.02	–67%*
Product related barriers						
Lack of technical suitability	–1.35*	0.41	0.25*	0.10	0.00	–74%*
Industry/sector related barriers						
Degree of competition in the sector	–1.85*	0.50	0.15*	0.07	0.00	–84%*
Market related barriers						
Warehousing and controlling the physical product flow in the target market	0.72**	0.44	2.06**	0.92	0.10	106%**
Lack of home-based infrastructures						
Lack of financial assistance (financial institutions and governmental)	–1.08*	0.53	0.33*	0.18	0.04	–66%*
Lack of qualified human resources	–1.17*	0.43	0.30*	0.13	0.00	–65%*

*0.05, statistically significant; **0.10, statistically significant

choice modeling analysis for the proposed company-related barriers perceptions reinforces the importance of *lack of knowledge of potential markets* and *lack of qualified export personnel* as main predictors of non-exporting activities. Both export perceived barriers are highly significant for non-exporters, which partly explains their internal difficulties in developing an adequate export-marketing strategy and executing it in an effective manner.

A unit increase in the measure of perception of lack of knowledge of potential markets (qualified export personnel) multiplies the initial odds ratio by 0.36 (0.33) which represents a proportionate decrease of −0.64 (−0.67) times the initial odds ratio, so the relative probability of the firm being an exporter decreases by 64% (67%).

This result may be justified by the fact that information is crucial in reducing the high level of uncertainty surrounding the heterogeneous, sophisticated and turbulent foreign business environment (Leonidou 2004). In fact, numerous SMEs are not familiar with national and international sources of information. Thus, gathering information by participating in trade fairs or on trade visits, for instance, may contribute to encouraging non-exporters to take responsibility for gaining marketing knowledge (Shaw and Darroch 2004). Additionally, the advent of the Internet has increased the possibility of SMEs accessing relevant information from foreign markets. That is, it has the potential to throw many firms rapidly into exporting before the step has been evaluated and planned. Additionally, it enables firms to communicate with foreign customers, distributors, suppliers, and potential partners (Fletcher et al. 2004).

Concerning the second variable considered within the company-related barriers, several studies support the view that knowledgeable and experienced managers are better able to help the firm to identify and leverage international opportunities while avoiding international threats (Zou and Stan 1998). This result is consistent with previous studies (Katsikeas and Morgan 1994) which found that having highly qualified export personnel is crucial before export marketing can occur. In fact, knowledgeable and experienced managers plays a critical role in selecting, entering, and expanding into foreign markets; in designing export-marketing strategies and in conducting business with overseas customers (Leonidou et al. 1998).

With regard to the perceived barriers related to the product, the *lack of product/service suitability (design/functionality)* assumed particular importance for non-exporters. This can be explained by the different conditions of use, dissimilar consumer tastes, and diverse socio-cultural settings which favor a major adaptation to the idiosyncrasies of each foreign market (Leonidou 2004). It is expected that exporters are likely to perceive this barrier as less harmful than non-exporters. The selected model estimates, namely the Logit model estimates, reflect this expectation, as they show that the relative probability of a firm being an exporter decreases by −74% when this measure of perception increases by one unit.

Concerning the industry perceived barriers, although both variables showed significant difference of means (*t* test) between exporter and non-exporter firms, only *the degree of competition in the sector* acted as a potential predictor of non-exporters. According to the selected model results, and among the studied perception barriers with a negative impact on the exportation decision, this item has the strongest effect. A unit increase in this perception measure seems to promote a decrease of −84% in the relative probability of being an exporter. Although the firm may enjoy a competitive advantage in the domestic market, when the firm internationalizes its activities may lose these previous advantages and may find intense competition (Leonidou 2004).

Concerning the market perceived barriers, after performing several *t* tests it was found that *tariff and administrative barriers* and *lack of time to learn cultural/language differences* are important predictors of non-exporters, whereas *warehousing and controlling the physical product flow in the target market* is perceived as a major concern for exporter firms. This latter barrier seems to indicate that exporter firms are mostly concerned with those operational issues related to logistics and warehousing when compared to non-exporter firms. However, after computing the parametric analysis, only the latter variable acted as a potential predictor of the dependent variable. All parametric models seem to indicate that *warehousing and controlling the physical product flow in the target market* positively affects the relative probability of being an exporter, reflecting the fact that firms that already have export experience tend to define this as a more important factor in the decision process.

Although beyond the control of an SME, this study went further by including eight home-based infrastructures' barriers that may act as important export inhibitors. However, among eight home-based infrastructures only two, namely the *lack of financial assistance* and the *lack of qualified executives* seem to be relevant predictors for non-exporters when compared to exporters. The magnitude of their effect on the export decision seems to be sizeable. It appears to be comparable to the effects of the company barriers identified above. A unit increase in each of these items

seems to promote a negative change in the relative probability of the firm being an exporter by more than 65%. This can be explained by the fact that there is an overall perception by non-exporters that the tax and financial incentives for exporting activities are not sufficiently attractive, or perhaps non-exporters may have little or no interest in exporting or lack of time and expertise to apply for government funds. Surprisingly, lack of financial assistance is not perceived as an important barrier for exporters, perhaps because they have already internationalized or their expectations about export assistance programs are low. Another striking conclusion relates to *lack of qualified executives*, which may indicate that a major effort should be carried out to train senior managers and executives in areas of formal exporting. This is in line with Samiee and Walters (2002), who found that sporadic exporters exhibit significantly less interest in formal exporting education than regular exporters. This partly explains why sporadic exporters are less likely to evolve into regular exporting firms.

Conclusions and implications of the study

In line with previous studies, this article was motivated by a desire to gain a better understanding of the perceptions of exporters and non-exporters on a number of predictors classified within company, product, industry, market, and home-based infrastructures barriers (Leonidou 1995; Cavusgil and Zou 1994; Shaw and Darroch 2004). This is an important issue since the way these barriers are perceived by both exporters and by non-exporters often determines a firm's success in international business activities.

This study shed some light on the impact of some perceptions of export barriers on the probability of a firm's decision to export. These barriers constitute important predictors of non-exporting behavior, and the stronger the perception of the barrier importance the less likely is the decision to export. At the company level this study identifies the lack of knowledge of potential markets and the lack of qualified export personnel as the most important negative aspects affecting the decision to export. The lack of product/service suitability and the degree of competition in foreign markets also seem to inhibit the exportation decision among SMEs. These findings are in line with Alexandrides (1971), Leonidou (1995) and Shaw and Darroch (2004).

By contrast, all parametric models seem to indicate that *warehousing and controlling the physical product flow in the target market* affects the relative probability of being an exporter positively. Firms that already have export experience tend to categorize these items as more important in the decision-making processes. These results are consistent with those obtained by Hook and Czinkota (1988), who found that exporters were mainly concerned with operational issues while non-exporters placed great emphasis on problems associated with the initiation of export activity.

In summary, the lack of knowledge of potential markets, the lack of qualified export personnel, the lack of technical suitability, the degree of competition in foreign markets, coupled with the lack of knowledge of potential markets and lack of qualified executives are among the major perceived barriers for non-exporter firms. However, these seem not to be equally perceived by exporter firms, which tended to attach a major importance to warehousing and controlling the physical product flow in the target market, payment risks from foreign buyers and lack of physical space or industrial area. A possible explanation for this is the fact that they are already operating in foreign markets.

Various implications can be drawn from the findings of the present study which address the major concerns of policy makers, managers and academics. With regard to policy makers, several policy measures are advisable in order to minimize or alleviate the perceived inhibiting impact of barriers on non-exporters. It has long been considered that if barriers to a firm's export could be identified, efforts by public policy makers could be better targeted to support firms overcome such obstacles. Relying on the results of the present study, particular emphasis should be given to not only providing accurate and reliable information for the location/analysis of foreign markets but also to improving the level of qualified export personnel and executives for export-marketing performance related activities. In fact, the graduate courses in most Portuguese business schools are still limited and do not address the most relevant issues for export managers. In some cases, international business and international marketing courses are considered as highly specialized areas with few employment prospects from the point of view of SMEs. There is a need to re-position and promote these courses within the context of small medium enterprises. Additionally, there is a need for adequate governmental export promotion programs by designing them according to the specific need of SMEs. Some more research needs to be taken in this particular field. Support governmental programs for addressing exporting barriers related with SMEs' lack of financial assistance has been reinforced by an export credit insurance scheme which offers financial assistance for costs involved in developing export markets, particularly in Portuguese speaking countries. This includes trade missions, international exhibitions and market research (www.portugalglobal.pt). It should also be emphasized that some support programs aimed at redressing the barriers to exporting may also stimulate international activities. At the managerial level, efforts should be taken to minimize the inhibiting effect of perceived export barriers, particularly on pre-export stages by using management consultancy and advisory services (Leonidou 1995). Thus, perceptual barriers need to be broken down and positive word of mouth needs to be communicated about the main exporting drivers, particularly in relation to non- or likely exporters. Although the present study found that, overall, there are little differences between exporters and non-exporters (six out of 23), it is still important to encourage SME managers to minimize company and product barriers and find export assistance programs to attract the resources needed for successful foreign market involvement. Although relied on a regional basis, this study may provide an interesting case for other countries which evidence similar social and cultural backgrounds and that have been undertaken large investments in a number of home-country market infra-structures. However, it should be emphasized that support government programs directed at minimizing lack of knowledge of potential markets or contacts and lack of qualified export personnel may have a dual perspective, such as giving SMEs access to a valuable network of key foreign stakeholders which is itself an important exporting driver. A number of exporting barriers can be circumvented as the SMEs managers build and exploit social networks with members of other domestic and overseas organizations. Besides, the internationalization of SMEs from the perspective of social networks seems to be most adequate since it enables the company to overcome a number of problems associated with limited resources, experiential knowledge and credibility (Lu and Beamish 2001).

Limitations and directions for further research

The foregoing interpretations of the findings must be balanced with the limitations of the study. From a methodological point of view, a major limitation of this study is the small sample size associated with the fact that the participating firms are restricted to a specific context. The question of generalization inevitably arises from the use of limited number of participants and one should be cautious in attempting to generalize these findings to other geographical contexts.

From the point of view of exporter firms, and consistent with several authors (Moon and Lee 1990; Bilkey and Tesar 1977), assuming that export behavior differs along the various export stages, it would be interesting to analyze the relationships between several organizational characteristics (firm size, age, business volume, area of activity, and others) and export market experience along each stage. It is also worth examining the impact of the same exporting barriers over a long period of time, by carrying out a longitudinal study. Furthermore, this study could also be complemented by a qualitative approach whose main objective should be to understand how and why the export problem occurred, how and why it was successfully resolved and what have been the direct and longer-term opportunity costs (Scharf et al. 2004). Finally, it is hoped that the present article sheds light on this field of study and encourages future research.

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