

Documento de trabajo
9437

**COMPETITIVE CAPACITIES
OF SPANISH EXPORT FIRMS (A
multivariate analysis)**

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INTRODUCTION

Spain has a chronic tendency of trade deficits, and this has been increased in the years immediately following her entry into the European Community, after 1986. The increase in the deficit has been a result of the intensive deprotection process which accompanied Community membership, in a context of strong expansion of domestic demand -till mid-1989- and an overvalued currency -till the 1992 and 1993 devaluations- But, beyond these contemporary factors, trade performance in this period testifies to the particular weakness of an exporting sector which, essentially, is not very dynamic, closely dependent on competitors' price developments and strongly conditioned by the evolution of home demand.

Undoubtedly, this behaviour is conditioned by the traits of the sectors themselves -consumer goods of a traditional type- in which Spanish industry predominantly specialises¹; but, also, by particular characteristics -traits and attitudes- of its firms and its managers. On the basis of available information² the hypothesis can be put forward that the performance of Spanish foreign trade is markedly influenced by the reduced likelihood

¹ See, among others, Alonso (1994).

² See from the authors the following two studies: Características y estrategias de la empresa exportadora española (Characteristics and strategies of Spanish exporting firms), Madrid, Instituto Español de Comercio Exterior, 1989, and Competitividad de la empresa exportadora española, (Competitiveness of Spanish exporting firms), Madrid, Instituto Español de Comercio Exterior. 1994.

of exporting and the low exporting propensity of Spanish firms³. The work presented investigates which factors are related to export propensity, by applying different statistical and econometric techniques used for this purpose to a large sample of Spanish exporting firms.

The contents of the paper are in five parts: the first sets out a summary of the present state of affairs regarding export performance; the second describes the characteristic of the sample used; the third presents the model and the theoretical relationships postulated between the variables; the fourth, an initial approach to the variables associated with greater exporting intensity; the fifth is devoted to setting out a model of exporting behaviour, and, finally, a balance of results is presented.

I.- STATE OF THE ART

There is a great deal of literature which, from the point of view of business studies, attempts to analyse a firm's exporting behaviour⁴. The studies which can be grouped in this tradition -

³ We understand by exporting likelihood the ratio between the number of firms which export and the total number of firms; and by exporting propensity the ratio between the value of exports and the value of total sales of the firm.

⁴ An alternative tradition is provided by studies of industrial organisation which, likewise, subject firms' exporting performance to analysis. In this case, exporting performance is usually placed in relation to market structure variables - such as economies of scale and degree of concentration- and the conduct of the firm -such as differentiation policy-. See, among others, Jacquemin and Petit (1980), Jacquemin, De Ghellinck and Huverneers (1980), Caves and Kalilzadeh-Shirazi (1977), Auquier (1980), Caves, Porter and Spence (1980), Glejser, Jacquemin and Petit (1980) or Koo and Martin (1984); and for the case of Spain,

a markedly empirical one- are usually based on direct information obtained from firms through sampling and polls of a varyingly representative nature. As a result, these studies have the advantage of including in the analysis variables referring to organisational, training, and motivational aspects based on opinion, which are difficult to fit in with approaches and methods of industrial organisation. Nonetheless, their results are far from satisfactory, so that there is a surprisingly limited number of proposals that can be regarded as firmly based on empirical analysis. As has been correctly pointed out: "Given the quantity of published research on export practice it is surprising that so few solid conclusions are available⁵".

An undoubted influence on these modest achievements is the complexity of the phenomenon which they attempt to study, the systemic character of the relationships involved, and the existence of circular causality, which makes modelmaking difficult. But, furthermore, some more specific problems can be underlined, among which the three mentioned below are particularly significant:

a) First, there is a lack of a defined, generally accepted theoretical approach on which to base empirical work. Attempts had been made to cover this lack by formulating ad hoc

Maravall and Torres (1986) or Bajo (1987).

⁵ Aaby and Slater (1989) page 23.

hypothesis, in accordance with the findings of applied research⁶.

b) Second, there is a marked difficulty in defining in a homogeneous manner, the suitable variables for each company area, and in constructing the relevant indicators to express them.

c) And, finally, the difficulties are increased because, frequently, the data present problems of quality, and reliability and are not very representative, due to the bias or insufficiency of the samples from which they are obtained⁷. Also, the analysis methods used -generally, multivariate analyses- are not always the most suitable ones for favouring comparability and consistency in the results.

This heterogeneity in approaches and findings makes it difficult to filter out what this literature has established; a task which is made easier, nonetheless, by the existence of some surveys where specialised literature on the subject is reviewed. Outstanding among those works are those of Bilkey (1978), Cavusgil and Nevin (1981), Kamath et al. (1987), Aaby and Slater (1989) and Gemünden (1991).

In the light of these reviews, some hypotheses can be

⁶ "A prominent trait of this literature is the lack of theory. It is dominated by empiricist methodology, but no attempt is made to apply this methodology within a clearly specified theoretical approach" Kamath et al. (1987), page 399.

⁷ See, regarding this problem, Gemünden (1991), page 49.

obtained which are more solidly supported by empirical evidence. Some are of a negative type, rejecting assumed relationships; others, by contrast, are of a positive nature. Among the former, the following, by way of summary should be mentioned:

* It does not appear that company size has a linear influence upon exporting activity, even when there seems to exist a minimum size -a sort of threshold- which the company needs to deal with exporting tasks.

* Nor does there seem to exist a clear relationship between the firm's technological level and its export performance, except where the sector in which the firm operates is technology-intensive.

* Finally, there does not appear to be a valid generic strategy for promoting export success.

Among the positive hypotheses mention should be made of:

* A higher quality of management, compared to that of a firm exclusively geared to the home market.

* A higher level of training both of technical teams and operatives.

* A clear commitment by management to international activity.

* A coherent integration of international activity within the firm's strategy.

* A particular inclination on the part of the businessman to accept the risks pertaining to operating internationally.

II.- CHARACTERISTICS OF THE SAMPLE

As a starting point the group was made up of 49,191 processing firms -agricultural and industrial ones- who exported in 1991, according to information contained in the official data base, OFERES, of the Instituto Español de Comercio Exterior. These firms were distributed in 24 production sectors, in accordance with the tariff classification of their main export products. Also, each of the 24 sectoral groups was divided into five or six strata, as the case was, according to the volume of exports of the firms. The number of sample firms allocated to each sector was established according to the specific weight of that sector in the total of Spanish exports and according to how representative they were desired to be. This level was established for a confidence interval of 95.5% and an error of +2.1% for the whole of the sample and +10% for each sector. This goal was achieved for all sectors, except mining and paper pulp and paste.

To select the specific firms to be polled, a random sample was produced according to numbers and strata of firms, and finally, 2264 firms were chosen from a total of 24 sectors, belonging to the whole of the national territory. These firms

received a questionnaire which was completed by means of a personal interview with the managers most directly involved in export activity. Thus, a wide range of information was obtained from 92 questions referring to different sections of the firm (from production and supplies to strategy) constituting the empirical base of the analyses presented below.

III.- THE STARTING POINT MODEL

Literature on the topic has put forward a wide range of measures for export success⁸. A possible classification, based on Gemünden (1992), is the one contained in Table 1. In the case of the present study the choice made was a measurement of the commitment to exporting- the propensity to export- which is expressed as a percentage of sales which the firm devotes to overseas markets. With the aim of avoiding differences in levels of outside trade activity of the sectors, we used, as an alternative dependent variable, the firm's exporting propensity compared to the sector average.

A firm's exporting performance is considered, in turn, as the result of the coincidence of three main factors: the generic advantages of the country where the firm is located, the specific advantages of the unit of the firm and the strategy employed by

⁸ See, among others, the review works of Bilkey (1978), Aaby and Slater (1989) and Gemünden (1992); the latter also carries out a very systematic review of 49 studies, mainly from the 80s, on the subject. A review with an important methodological content is that of Kamath and others (1987). Also of interest, albeit with more limited aims, is the oft-quoted work of Cavusgil and Nevin (1981), and that of Louter, Ouwerkerk and Bakker (1991), the latter for the collection and systematic ordering of the variables it contains.

the latter in international markets (graph 1). Export performance will be a result of strengths and weaknesses detected at these three levels⁹.

In fact, a firm operates from a specific national base, so the advantages attributable to the country make up an initial support from which the specific advantages of firms in international markets can be deployed. The endowment and quality of production factors, the level of development of technological and educational capacities, the physical and communications infrastructure or the efficiency of the public sector are generic aspects of the country which influence firms' competitive possibilities, as do the economic policy pursued, the climate of competition prevailing in the markets or the degree to which institutions are open to international exchanges.

Moreover, the specific advantages of the firm are deployed as a result of the interaction among three basic factors: competitive capacities, the possibilities offered by the environment and management attitudes and aptitudes. By the firm's competitive capacities, we understand the set of resources the firm has at its disposal to capture customer loyalty and deal with competitive action in the markets. Basically, it refers to technological capacities which may impinge on production, organisation or marketing, and to the possibilities afforded by

⁹ Without claiming to be exhaustive, different modelmaking and graphically representational proposals can be enumerated in the works of Bilkey (1978), Cavusgil and Nevin (1981), Thomas and Araujo (1985), Kamath et al (1987), Aaby and Slater (1989), Louter, Ouwkerk and Bakker (1991) and Gemünden (1992).

its market position - size, market power and segmentation capacity-. Furthermore, the second factor refers to opportunities which, in a dynamic sense, are presented by the market for company action. Such opportunities depend, basically, on the dimension of the market, its dynamism, segmentation capacity and competitive climate. Finally, the third factor mentioned, management attitudes and aptitudes, refers to the set of subjective factors which condition business decisions; a wide area in which one must include the values prevailing in the company's midst, management styles, the willingness of the directors to take risks, their previous international experience and a long list of training and motivational factors which condition them.

Bringing into play the competitive advantages of the country and the firm is translated into a particular international strategy. This is made up of a set of decisions marking out the targeted market and the competitive path the firm must follow, according to the goal to be pursued in each case. Even when there are many, diverse aspects to be considered, the two most important options of a strategy should be grouped around two major types of decisions, otherwise closely interrelated. A first one, the scope dimension, groups together the set of decisions relative to the definition of the business -area of competence- in which the firm finds itself. The second, the competitive dimension refers to the set of elements comprising the marketing mix, and which are related to the definition of the product, pricing policy, distribution mechanisms and information

and communication policy.

As in so many areas of the economy, one must not expect unidirectional relationships of simple causality, between the different elements referred to; nor of these with the export results which might be derived. Rather, the set of factors makes up a system, an aggregate of elements which interact and have a mutual relationship. The competitive potential of the firm can only be deployed if the management has the right attitude and if the market values it as such; the possibilities offered by the market only exist if management sees them and the firm has the capacity to materialise them; and, to sum up, the attitudes and aptitudes of management can only be accurately assessed if they are adjusted to those required by the firm's competitive capacity and the possibilities offered by the market. The result of the interaction of these elements is a particular exporting behaviour by the firm.

IV. - CONTRAST OF ASSOCIATIONS AND DISCRIMINANT ANALYSIS

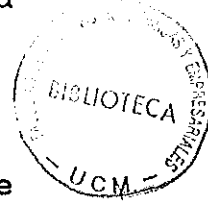
The empirical analysis which is made below, following the above-mentioned theoretical model, passes through two successive stages which complement each other; in the first place, there is a contrast of associations and a discriminant analysis among those groups of firms which show a greater or lesser export propensity; with this we attempt to discover which variables are associated with a higher intensity or exporting propensity. Secondly, the sample firms underwent an ANOVA analysis, to obtain

an explanatory function of their export performance.

As has been stated, the first step consists of detecting the variables associated with more intensive export behaviour. For this purpose, the sample was split into large collective groups based on whether the export propensity of the firms was more or less than that of the corresponding sector. The variables considered are those displayed in Table 2.

The variables chosen refer to basic aspects of the firm's competitive capacity -size, technological level, skills of the workforce or relative productivity-; to commercial strategy, including its organisational structure for exporting and the level of its international commitment -export department, international alliances, product and geographical dispersion of supply, exporting and importing propensity-; and to motivational aspects of management -perceived profitability and expected growth of export propensity-. Furthermore, three additional categoric variables are incorporated referring to the type of goods generated by the firm, to the extent that it was considered that this factor could affect the firm's commercial behaviour and strategies.

Consequently, the analysis uses as its starting point a wide range of variables which may be related to exporting behaviour. Nonetheless, the different nature of the variables makes a differentiated statistical treatment essential. Thus, the categoric variables were subjected to a Chi-square contrast to



check for the existence of significant differences in their distribution between the two collective groups compared; whilst the continuous variables were subjected to a discriminatory analysis to construct a classification function with forecasting capacity for the identification of the groups.

So, the findings reveal significant differences in the distribution of categoric variables between both groups of firms - with the exception of R&D expenditure and the production of raw materials-. According to the findings, firms with greater relative export propensity are characterised by having a more solid organisation for export control (the existence of export departments), a higher level of commitment abroad (international agreements), the opinion that exports are more profitable compared to home sales, and by greater activity in annual promotion and advertising abroad (Table 3). It must be pointed out, moreover, that firms producing industrial goods are predominant in the group with the highest propensity to export, while the producers of consumer goods are in the group with the lowest propensity. This result is coherent with the type of consumer goods- rather traditional ones- characterising Spanish exports.

Also, the continuous variables were subjected to a discriminatory analysis, as was mentioned above. It can be seen from this analysis that there are three significant variables: absolute export propensity, sales dispersion and expectations of growth of the export propensity (Table 3). According to these

findings, and given the correlation between the variables which measure absolute and relative propensities, it must be concluded that firms with a greater relative export propensity are characterised by their higher expectations concerning the future evolution of overseas sales and by their presence in a greater number of markets. The analysis has a high degree of validity, with 94.3% of firms correctly classified from the discriminatory function constructed.

None of the variables related to the firm's competitive capacity - size, productivity, degree of skill of the workforce or technological effort- has the power to discriminate among the collective groups that are the subject of our study. These findings confirm that it is the variables associated with company strategy (sales dispersion), and management motivation (expectations of export growth) which to the greatest extent discriminate exporting performance.

V.- ESTIMATING THE ANOVA MODELS

Following the classification made in the previous section, the sample was subjected to two ANOVA analyses, in one case using absolute export propensity and, in the other, relative export propensity, according to the theoretical model described. Thus, a firm's exporting performance was made to depend upon a set of factors related to the firm's competitive capacity, management attitudes and aptitudes and the exporting strategy finally adopted. The choice of variables incorporated into the analysis stems from a transaction between that model and the suitability

of the information derived from the survey (graph 2). Regarding the model defended there, there are two areas which are not considered here: the generic advantages of the country and the possibilities afforded by the market.

In the present case, the ANOVA estimate integrates the above-mentioned explanatory variables by means of a log-linear model of the following type:

$$\text{Ln}(PX) = F_1 + F_2 + \dots + F_k + c_1 \text{Ln}(V_1) + c_2 \text{Ln}(V_2) + \dots + c_n \text{Ln}(V_n)$$

F being the factors -- the discrete variables mentioned-- measured as deviations to the mean, and V the continuous variables. Without logarithms it takes the form:

$$PX = e^{F_1} e^{F_2} \dots e^{F_k} V_1^{c_1} V_2^{c_2} \dots V_n^{c_n}$$

Thus, each covariable appears elevated to an exponent, which is the measure of its elasticity; and the effects of belonging to a particular category of factors are considered as multiplicative.

In principle it should be expected that exporting intensity would appear positively associated with firms' competitive capacities, as measured by company size-- at least up to a certain threshold-- the firm's productivity level and the technological potential as expressed by the workforce and R&D expenditure. Likewise, it is to be expected that the presence of foreign

capital would be positively associated with the deployment of greater competitive capacities, whether in the technological areas, or the management one. At the same time, a positive association is presumed between exporting intensity and the deployment by the firm of a more committed commercial strategy, measured by sales dispersion, the existence of international alliances, the presence of an export department or the use of promotion and advertising campaigns abroad. And, finally, the motivational factors associated with perceived profitability of exports, and the expected growth of export propensity are expected to have a positive influence on a firm's exporting performance.

Despite the model having been alternatively estimated for absolute export propensity and export propensity relative to the sector, the basic findings do not differ, which reveals that relationships do not depend upon which is the dependent variable chosen.

Going into a more detailed consideration, the most influential variables can be summarised as the following:

Covariables

* Sales dispersion: it is the most influential continuous variable, it appears with the expected sign, and records practically the whole variation of the covariables. Its influence is detected in both models used.

* Foreign participation: it also appears as a significant variable, though with less influence. The relationship adopts the expected sign.

Factors

* The existence of an export department: as was to be expected, firms with an export department show higher values in the two dependent variables studied.

* The use of promotion and advertising campaigns abroad: absolute export propensity appears positively associated with the annual holding of campaigns abroad; in the case of relative export propensity, the association is produced when there are annual or frequent campaigns, but not when they are sporadic.

* Perceived export profitability: as foreseen, a positive association is shown between the perceived profitability of exports and export propensity, both absolute and relative.

There are two additional significant factors the behaviour of which does not correspond to the sense of the foreseen relationships:

* Existence of international alliances: the connection of which with the dependent variables is negative, the

absolute and relative export propensity of firms with international alliances being lower. This finding could be interpreted in the sense that the search for alliances is stimulated in those cases where the firm lacks capacity to maintain by itself an active presence in international markets.

* R&D expenditure: which also shows a negative association with export propensity, when expenditure is measured in percentage of the sales. Even though this finding may appear paradoxical, there is correspondence with other studies made in Spain on the subject¹⁰.

The values corresponding to the variables, as well as the deviations of the factors with regard to the mean are shown in the annexe. The model constructed has an 85.5% explanatory power for absolute export propensity, and 83.7% for relative export propensity, which can be regarded as satisfactory.

CONCLUSION

If it were necessary to draw a general conclusion from these findings it would point to the fact that it is the factors linked

¹⁰ This is the case, for example, of the study made by the Círculo de Empresarios (1988) which concluded, on the basis of a wide-ranging empirical survey, that there was no correlation between a firm's innovatory effort and export propensity. The same conclusion was reached, based on wide empirical support, by BUESA and MOLERO (1992) and BUESA (1993).

to a firm's organisation and strategy, along with motivational variables, that have the greatest influence on the export performance of those firms already exporting. This performance is not obtained as an immediate or spontaneous result of what in a large part of the literature on the subject is considered a firm's competitive capacities; but rather, the firm must equip itself with the right organisation, strategy and attitude to convert those potential capacities into specific advantages in overseas markets. These findings chime with that of international literature on the subject, and thus seems to be confirmed for the case of Spain as well.

TABLE 1
EXPORT PERFORMANCE INDICATORS

- a) Measures of export *commitment*
 - Does it export or not
 - Absolute volume of exports
 - Exporting propensity
- b) Measures of exporting *dynamism*:
 - Growth rate of exports.
 - Growth rate of export propensity.
 - Growth rate of exports compared to home sales.
- c) Measures of export *profitability*.
 - Profits from exports.
 - Profitability of exports compared to profitability of home sales.
 - Perceived profitability of exports compared to home market.
- d) Other measures of a *diverse nature*.
 - Mixed scale of measures
 - Scales of attitudes and conduct vis-a-vis exporting (proactive/reactive; passive/aggressive; systematic/occasional)



TABLE 2

VARIABLES CONSIDERED IN THE ANALYSIS

Five categoric variables

- R&D expenditure
- Existence of export departments
- Existence of international alliances
- Promotion campaigns abroad
- Subjective profitability of exports.

Ten continuous variables

- EMPLOYMENT: size measured by workforce.
- P86A: size measured by turnover.
- PRODEL: productivity relative to sector average.
- CAPEXT: level of presence of foreign capital.
- P66: skill level of workforce.
- ENTV: geographical dispersion of sales.
- P31: concentration by products of export range.
- PROPEX: export propensity.
- CRESPOS: growth expectations of export propensity.
- PROPIM: import propensity.

Three additional categoric variables

- MATPRIM: produces raw materials.
- BIENIND: produces industrial goods.
- BIENCON: produces consumer goods.

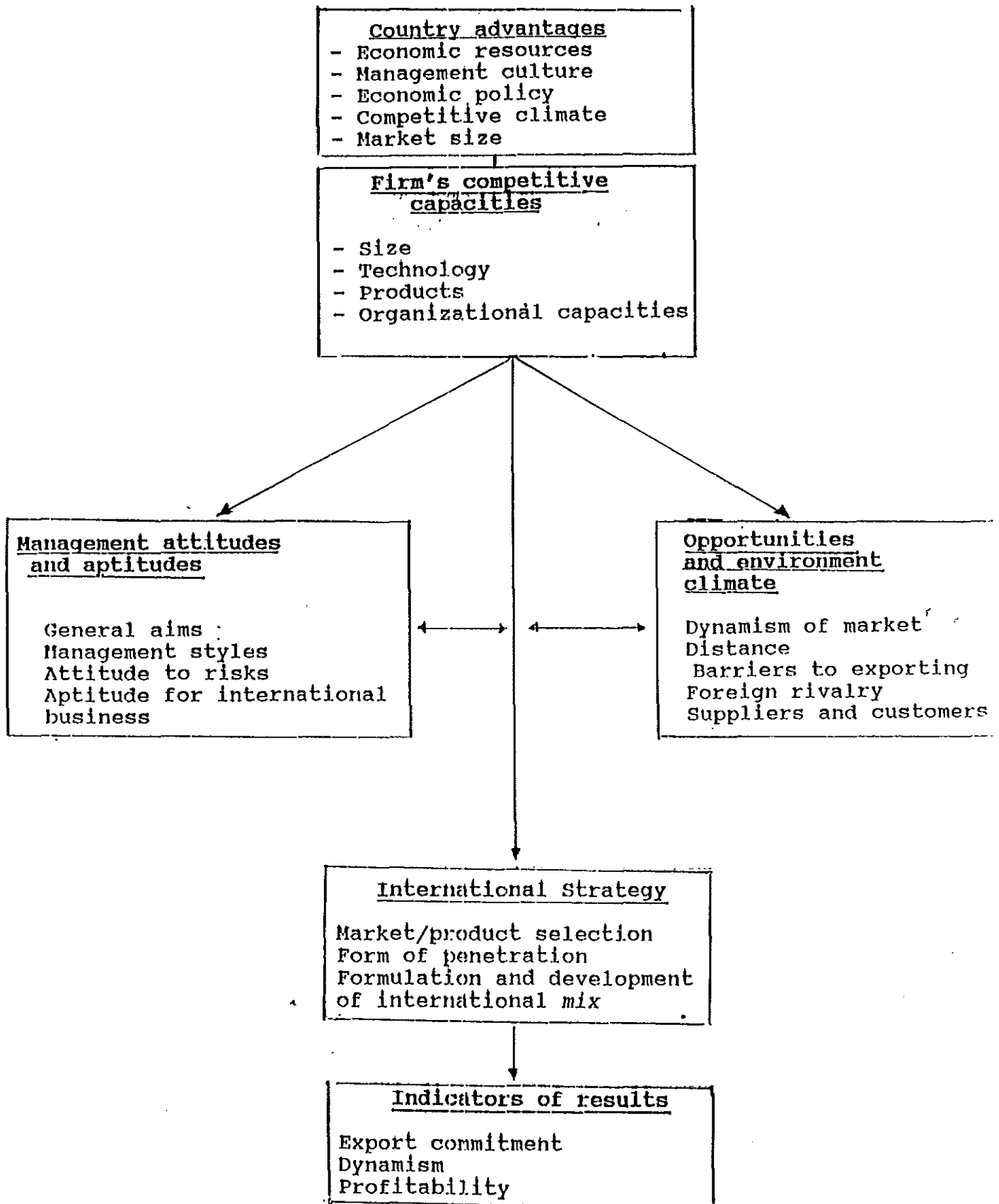
TABLE 3

RESULT OF THE CONTRAST OF ASSOCIATIONS AND THE DISCRIMINANT ANALYSIS

| | Lower export propensity relative to its sector | Higher export propensity relative to its sector |
|---|---|--|
| <u>A.- Discriminatory variables</u> | | |
| Absolute export propensity | 14,10 | 56,20 |
| Sales dispersion | 0,22 | 0,48 |
| Growth expectations | 12,13 | 22,04 |
| <u>B.- Variables passing the Chi-Squared contrast</u> | | |
| Export department | 46,20 | 56,50 |
| Promotion campaigns abroad | | |
| - Not held | 53,00 | 57,00 |
| - Annually | 22,30 | 26,00 |
| - Frequently | 12,70 | 8,30 |
| - Sporadically | 11,90 | 8,50 |
| Subjective profitability of exports | | |
| - Much higher | 2,50 | 17,70 |
| - Higher | 25,50 | 43,10 |
| - The same | 44,70 | 25,40 |
| - Lower | 23,10 | 9,50 |
| - Much lower | 3,60 | 1,50 |
| Produces industrial goods | 66,90 | 78,40 |
| Produces consumer goods | 3,60 | 1,50 |

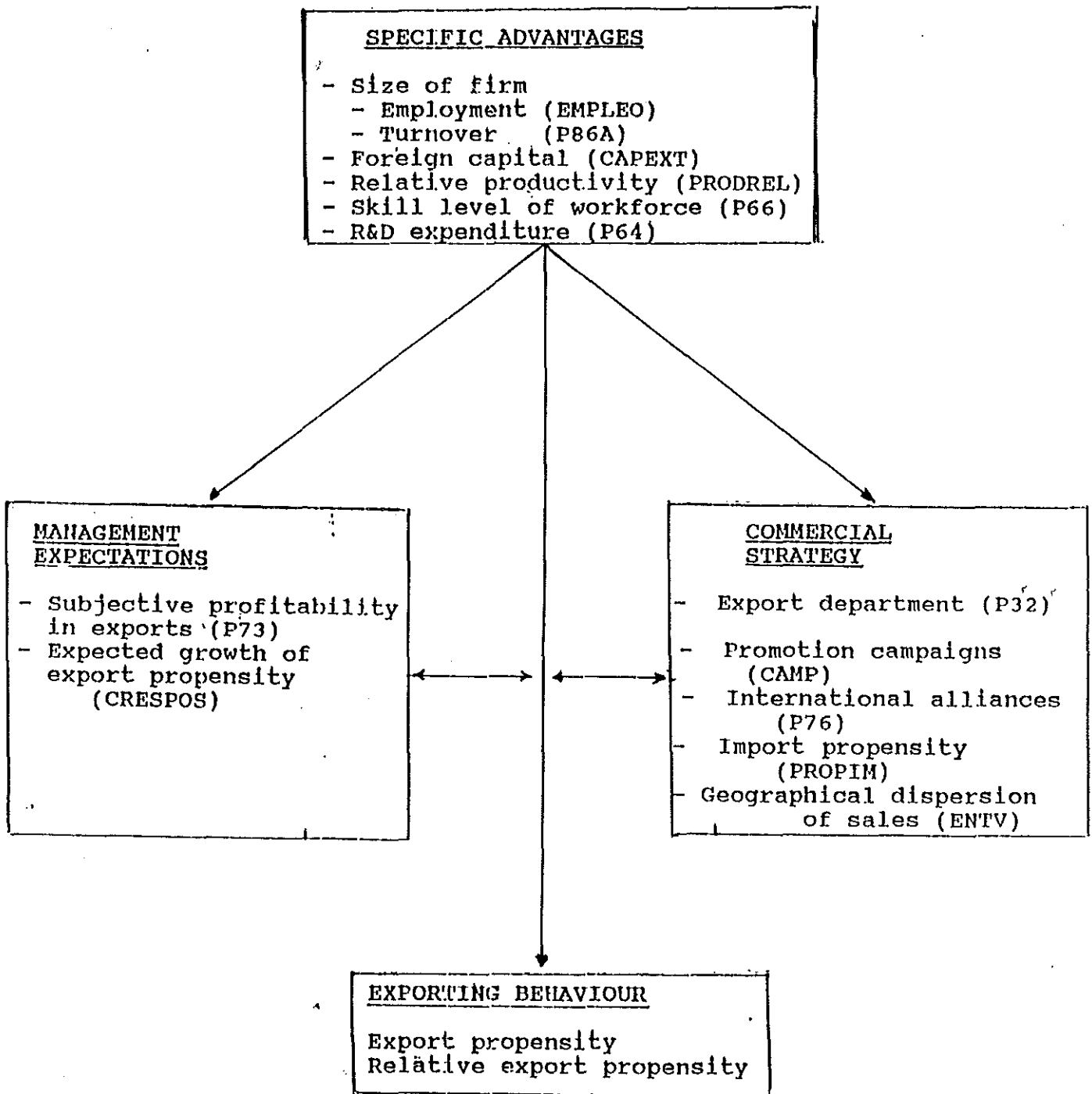
GRAPH 1.

VARIABLES CONDITIONING FINDINGS



GRAPH 2

ESTIMATED ANOVA MODELS



ANNEXE 1

DISCRIMINANT ANALYSIS FOR GREATER OR LESSER
PROPENSITY THAN THE SECTOR AVERAGE

CONTRAST OF DIFFERENCE OF MEANS IN THE
DISCRIMINANT VARIABLES IN EACH GROUP

| VARIABLE | WILKS LAMBDA | F | P-VALUE |
|----------|--------------|------------|---------|
| Prodel | 99.974 | 1.664 | 6.835 |
| P66 | 99.997 | 1.710 E-01 | 8.960 |
| Entv | 99.994 | 4.067 E-01 | 8.402 |
| Crespos | 48.482 | 6.918 | 0 |
| Propim | 99.419 | 3.807 | 515 |
| Propex | 33.598 | 1.287 | 0 |
| Capext | 1.000.000 | 6.397 E-03 | 9.798 |
| Empleo | 99.334 | 4.362 | 371 |
| P31 | 99.524 | 3.111 | 782 |
| P86a | 99.937 | 4.104 | 5.220 |

EXPLANATORY POWER OF THE DISCRIMINANT FUNCTION

| FUNCTION | OWN VALUE | VARIANCE | CANONIC CORRELATION | INCL. FUNC. | WILKS LAMBDA | CHI SQUARED | G.L. | P-VALUE |
|----------|--------------|----------|------------------------|----------------|-----------------|----------------|------|---------|
| 1 | 23.927 | 10.000 | 8.398 | 0 | 2.948 | 789.162 | 10 | 0 |

RESULTS OF THE CLASSIFICATION

| REAL GROUP | PREDICTED GROUP WITHOUT PARTICIPATION | PREDICTED GROUP WITH PARTICIPATION |
|--------------------|--|---------------------------------------|
| Less than the mean | 97,9% | 2,1% |
| More than the mean | 10,7% | 89,3% |

Percentage of correctly classified cases: 94.33
ANNEXE 2

CATEGORIC VARIABLES ACCORDING
TO RELATIVE EXPORT PROPENSITY

| | CHI-SQUARED VALUE | G.L. | P-VALUE |
|-------------------------------|-------------------|------|---------|
| P 64 R&D expenditure | 4,03691 | 4 | 0,40103 |
| P 32 Export department | 13,73351 | 1 | 0,00021 |
| P 76 International alliances | 0,19470 | 2 | 0,90724 |
| CAMP Promotion campaigns | 11,16577 | 3 | 0,01086 |
| p 73 Subjective profitability | 259,59172 | 5 | 0,00000 |

ANNEXE 3

VARIANCE ANALYSIS FOR EXPORT PROPENSITY

FOR THE WHOLE SAMPLE

| SOURCE OF VARIATION | SUM OF SQUARES | DF | MEAN SQUARE | F | SIGNIF. OF F |
|---------------------|----------------|-----|-------------|-----------|--------------|
| Main effects | 112,582 | 17 | 6,622 | 40,141 | 0,000 |
| P32 | 24,450 | 1 | 24,450 | 148,198 | 0,000 |
| MATPRIM | 0,536 | 1 | 0,536 | 3,250 | 0,072 |
| BIENIND | 0,741 | 1 | 0,741 | 4,491 | 0,034 |
| BIENCON | 3,913 | 1 | 3,913 | 23,718 | 0,000 |
| P64 | 5,880 | 4 | 1,470 | 8,911 | 0,000 |
| P73 | 22,497 | 4 | 5,624 | 34,090 | 0,000 |
| CAMP | 14,334 | 3 | 4,778 | 28,960 | 0,000 |
| P76 | 1,551 | 2 | 0,776 | 4,701 | 0,009 |
| Covariates | 393,959 | 8 | 49,245 | 298,488 | 0,000 |
| LPRODREL | 0,249 | 1 | 0,249 | 1,511 | 0,219 |
| LCAPEXT | 0,639 | 1 | 0,639 | 3,872 | 0,050 |
| LP86A | 0,195 | 1 | 0,195 | 1,183 | 0,277 |
| LP66 | 0,081 | 1 | 0,081 | 0,489 | 0,485 |
| LENTV | 377,756 | 1 | 377,756 | 2.289,691 | 0,000 |
| LPROPIM | 0,455 | 1 | 0,455 | 2,758 | 0,097 |
| LCRESPOS | 0,084 | 1 | 0,084 | 0,508 | 0,476 |
| LEMPLEO | 0,025 | 1 | 0,025 | 0,149 | 0,700 |
| Explained | 506,542 | 25 | 20,262 | 122,812 | 0,000 |
| Residual | 98,494 | 597 | 0,165 | | |
| TOTAL | 605,036 | 622 | 0,973 | | |
| Múltiple R. squared | 0,855 | | | | |
| Múltiple R. | 0,925 | | | | |

ANNEXE 4

VARIANCE ANALYSIS FOR RELATIVE EXPORT PROPENSITY

FOR THE WHOLE SAMPLE

| SOURCE OF VARIATION | SUM OF SQUARES | DF | MEAN SQUARE | F | SIGNIF. OF F |
|---------------------|----------------|-----|-------------|-----------|--------------|
| Main effects | 124,020 | 17 | 7,295 | 45,908 | 0,000 |
| P32 | 27,605 | 1 | 27,605 | 173,716 | 0,000 |
| MATPRIM | 0,058 | 1 | 0,058 | 0,361 | 0,546 |
| BIENIND | 0,463 | 1 | 0,463 | 2,911 | 0,088 |
| BIENCON | 4,360 | 1 | 4,360 | 27,438 | 0,000 |
| P64 | 6,799 | 4 | 1,700 | 10,696 | 0,000 |
| P73 | 26,463 | 4 | 6,616 | 41,632 | 0,000 |
| CAMP | 11,253 | 3 | 3,751 | 23,605 | 0,000 |
| P76 | 1,176 | 2 | 0,588 | 3,700 | 0,025 |
| Covariates | 435,352 | 8 | 54,419 | 342,452 | 0,000 |
| LPRODREL | 0,168 | 1 | 0,168 | 1,059 | 0,304 |
| LCAPEXT | 0,651 | 1 | 0,651 | 4,091 | 0,043 |
| LP86A | 0,010 | 1 | 0,010 | 0,063 | 0,803 |
| LP66 | 0,346 | 1 | 0,346 | 2,178 | 0,141 |
| LENTV | 419,882 | 1 | 419,882 | 2,642,265 | 0,000 |
| LPROPIM | 0,211 | 1 | 0,211 | 1,328 | 0,250 |
| LCRESPOS | 0,052 | 1 | 0,052 | 0,328 | 0,567 |
| LEMPLEO | 0,304 | 1 | 0,304 | 1,914 | 0,167 |
| Explained | 559,372 | 25 | 22,375 | 140,802 | 0,000 |
| Residual | 94,869 | 597 | 0,159 | | |
| TOTAL | 654,241 | 622 | 1,052 | | |
| Multiple R. squared | 0,837 | | | | |
| Multiple R | 0,925 | | | | |

REFERENCIAS BIBLIOGRAFICAS

- Aaby, N.E. y Slater, S.F.(1989):
"Management, Influence on export performance: A review of the empirical literature 1978-1988", International Marketing Review, vol. 6, num. 4, págs.7-22.
- Alonso, J.A. y V. Donoso (1994)
Competitividad de la empresa exportadora española, Instituto Español de Comercio Exterior, Madrid.
- A. Auquier (1980):
"Size of firms, exporting behaviour and structure of french industry", Journal of Industrial Economics, december.
- Bajo, O. (1987):
"Organización industrial y comportamiento exportador de los sectores industriales españoles ante la CEE", Investigaciones Económicas, num. 3, september.
- Bilkey, W (1978):
"An attempted integration of the literature on the export behaviour of firms", Journal of International Business Studies, vol. 9, primavera-verano, págs. 33-46.
- Buesa, M. (1993):
"La política tecnológica en España:Una evaluación en la perspectiva del sistema productivo", Documento de trabajo, núm. 9.311, Facultad de Ciencias Económicas y Empresariales, Universidad Complutense de Madrid.
- Buesa, M. y J. Molero (1992):
"Capacidades tecnológicas y ventajas competitivas en la industria española: análisis a partir de las patentes", Ekonomiaz, núm. 22, págs. 220-245.
- Caves, R. E. y J. Khalilzadeh-Shirazi (1977):
"International trade and industrial organization: Some statistical evidence", in A. Jacquemin y H.W. de Jong (eds.), Welfare Aspects of Industrial Markets, Leiden.
- Caves, R.E., M.E. Porter y A.M. Spence (1980):
Competition in Open Economy: A Model Applied to Canada, Harvard University Press, Cambridge, Mass.
- Cavusgil, S.T. y J.R. Nevin (1981)
"Internal determinants of export marketing behaviour: An empirical investigation", Journal of Marketing Research, vol. 18, febrero, págs. 114-119.
- Círculo de Empresarios (1988):
"Actitud y comportamiento de las grandes empresas españolas ante la innovación", Publicaciones Monográficas, Noviembre.
- Gemünden, H. D. (1992):
"Success factors of export marketing. A meta-analytic critique of the empirical studies", en S.J. Paliwoda (ed.), New

perspectives in international marketing, Routledge, Londres.

Glejser, H., A. Jacquemin y J. Petit (1980):
"Exports in an Imperfect Competition Framework: An Analysis of 1466 Exporters", Quarterly Journal of Economics, may.

Jacquemin, A., E. De Ghellink y C. Huvenners (1980):
"Concentration and profitability in a small open economy", Journal of Industrial Economics, february.

Kamath, S. et al. (1987):
"Research on success in exporting: Past, present and future", en Ph. Rosson y S. Reid: Managing export entry and expansion, Praeger, Nueva York, págs. 359-371.

Koo, A.Y.C. y S. Martin (1984):
"Market Structure and US Trade Flows", International Journal of Industrial Organization, vol. 2, num. 3.

Louter, P., C. Ouwerkerk y B. Bakker (1991):
"An inquiry into successful exporting", European Journal of Marketing, vol. 25, núm. 6, págs. 7-23.

Maravall, F. y A. Torres (1986)
"Comportamiento exportador de las empresas en competencia imperfecta", Investigaciones Económicas, special issue.

Thomas, M.J. y L. Araujo (1985):
"Theories of export behaviour: a critical analysis", European Journal of Marketing, vol. 19, núm. 2, págs. 42-52.