The export propensity of small firms

A comparison of organisational and operational management levers in exporting and non-exporting units

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Abstract *The abundant literature on what determines the export propensity and intensity of firms pays limited attention to some organisational and operational management variables, especially where small enterprises are concerned. It could be argued, however, that new effective organisation schemes and advanced operational management practices are required for small enterprises given the complexity of foreign ventures. An empirical investigation was carried out on a sample of small units. Exporters and non-exporters are compared in terms of just-in-time, concurrent engineering and total quality management practices adoption, as well as the management of human resources and inter-organisational relationships.*

1. Introduction

Whether by means of indirect (access to international markets through the sale of products to home based trading companies) or direct (the firm sells its products directly through its own network of agents or distributors) exporting, the number of small Italian firms doing business abroad has steadily grown over the past few years (Bonaccorsi, 1992). Several studies have revealed the growing international involvement of SMEs in other contexts (see Miesenbock, 1988; Bonaccorsi, 1992; Calof, 1994; Gibiat, 1994). Despite the volume of research on the topic, a lot still remains to be studied about the export processes of smaller firms, mechanisms adopted, steps taken, and factors determining export success (Calof, 1993; Westhead, 1995).

This study presents the results of empirical research conducted on a sample of 165 small Italian manufacturing firms. It analyses the differences between exporters and non-exporters focusing on some organisational and management levers. The export attitude of firms is widely debated. However, our study is characterised by two main aspects. First, small and very small firms are given particular attention. Few papers concern small or very small firms rather than SMEs or large-sized firms. Furthermore, attention is focused on some organisational and operational management levers, to which the literature gives less attention than structural features (size, age, technology) and the entrepreneur's characteristics.

After an overview of the literature in section 2, the objectives of the empirical study are presented in section 3. The methodology selected is described in

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section 4, followed by a presentation and discussion of the most significant evidence that has come to light as a result of the analysis of the factors which best distinguish exporters from non-exporters.

2. Literature review

Literature concerning a firm's export behaviour falls into one of two categories. In the first we find the strategies and steps taken towards international development. Most authors seem to converge on "stage models" in which export decisions are commonly described as a sequential process consisting of a series of steps (i.e. Cavusgil, 1984; Burton and Schegelmich, 1987). However, more recent studies cast doubt on the hypothesis of a strict and deterministic succession of steps. They observe that, in reality, the steps taken may vary enormously and depend on a wide range of firm, industry and country specific factors (Yang *et al.*, 1992).

The second category takes into account each single stage of the process towards internationalisation. Factors indicating the firm's propensity for exporting and level of success abroad are analysed. Various models have been proposed that describe export behaviour as a mix of the following variables (Bonaccorsi, 1992):

- structural factors of the firm (size, age, product characteristics, management, organisational and technological profiles, R&D intensity, etc.);
- characteristics of the entrepreneur (decision maker's export expectations, level of education and amount of experience, attitudes towards risk taking, etc.);
- motivation and obstacles in the process of internationalisation (unsolicited orders placed by foreign clients, competitive pressure, negative domestic trends, availability of information, etc.).

In the following pages we review some of the more significant contributions cited above, beginning with the entrepreneur's characteristics. We leave the review on structural factors until the end, since this research precisely concerns some levers of this class.

Entrepreneur's characteristics

According to several empirical findings, one of the principal determinants of export behaviour in smaller firms is entrepreneurial attitude. Some authors have claimed that the decision maker's capacity to perceive and interpret signals from the market and the competitive environment has a fundamental bearing on the decision of whether to export or not (Cavusgil and Zou, 1994; Chetty and Hamilton, 1993). The importance of factors such as aversion to risk taking and trust in future profits is confirmed by Birley and Westhead (1994). Some studies have tried to verify whether the entrepreneur's age, cultural

background, studies and knowledge of foreign languages have an impact on export performance. However, no consistent results have been obtained.

The key role played by export experience, which affects the capacity to perceive risks and opportunities on foreign market places and plan effective solutions, has been verified (Moini, 1995; Westhead, 1995; Ogbuehi and Longfellow, 1994). Other contributions examine a variety of decision maker's characteristics (i.e. commitments, international attitude, knowledge of international matters, perception of the level of risk involved and the opportunities present in foreign marketplaces). It has generally been shown that these factors can significantly influence the choices and chances of breaking into international markets (see the review of Leonidou *et al.* (1998) on the effects of these factors).

Motivation and obstacles

There is another branch of work on aspects – mostly external to the firm – either favouring or obstructing access to, and success in, foreign markets. Reduction in internal demand is one of the principal motivating forces (Das, 1994; Lim *et al.*, 1996) and should be distinguished according to its nature: "conjunctural" or "structural". In the first case, we have occasional, short-term motivation where impromptu business opportunities are seized as they arise: during negative domestic sales trends the product inventories can be sold off in foreign markets. However, when demand is sluggish or declining, a more fixed orientation towards foreign market places frequently arises: these occasional markets may become full-time areas of business. Research has shown that the move towards internationalisation by the smaller firms is often the result of odd opportunities or sporadic contact rather than precise strategic choices.

Industry instability (operationalised as rate of change in technology, predictability, riskiness) is found to positively influence export sales (Zou and Stan, 1998). While some studies found that export market attractiveness has a positive effect on export performance, other reported a negative effect (Kaynack and Kuan, 1993). Few works identify, as a source of motivation, the search for better business opportunities, the objective to share the entrepreneurial risks among a number of market areas, the desire to leave a highly competitive domestic market, the urge to emulate similar companies already present abroad, the firm's objective of achieving scale economies, or the wish to effectively exploit specific and distinctive competencies (among these studies: Moini, 1992; Madsen, 1989; Johnston and Czinkota, 1982).

Regarding obstacles encountered by firms during the process of internationalisation, three main problems are pointed out in many papers. First and foremost, the lack of information concerning foreign market places (Miesenbock, 1988). Second, the difficulty of obtaining favourable conditions for credit; and third, coming to grips with administrative and customs procedures different from the domestic ones.

Finally, a few investigations look at the importance environmental factors have on the chances of international success. The general conclusion is that the

smaller companies are apparently more penalised than the larger ones by foreign legislative restraints and fiscal imposition as well as being prone to infrastructural inadequacies (i.e. telephone and transportation lines, etc.), even though the impact of these factors has begun to decrease in recent years (Chetty and Hamilton, 1996; Styles and Ambler, 1994).

Structural factors

Firm size emerges as probably the most discussed of all the structural variables. Following an in-depth review of the empirical research carried out on the subject, Bonaccorsi (1992) points out that no definitive conclusions can be drawn on the relationship between export intensity or success and the firm's size. Also Westhead (1995), Calof (1994), Abbas and Swiercz (1991) and Holzmueller and Kasper (1991) come to a similar conclusion. However, some studies have shown how size influences the export entry decision (whether or not to undertake the internationalisation process), the move from occasional to full-time exporter, and the forms and modes of international involvement (Calof, 1993). The age of the firm is a frequently considered variable in the literature. The conclusions reached by many authors are divergent. Some studies have failed to find any correlation between this variable and export performance (Reid, 1982), others have verified a positive correlation (Abbas and Swiercz, 1991), while still others have ascertained a negative one (Das, 1994).

Technological variables seem to have been examined quite closely. Yet, attempts to link various aspects of technological innovation (product/process technological superiority, advanced technology, number of patents owned, etc.) to export performance have yielded contradictory results. Wagner (1995) and Mechling *et al.* (1995) report, on the basis of an empirical study, a positive correlation between the use of advanced manufacturing technologies and export success, while Moini (1995) claims that exporting units are characterised by possessing a higher number of patents. Lefebvre *et al.* (1988) demonstrate that the capacity to improve existing products, as well as a closer collaboration with competitors and a more technically oriented workforce, distinguish small exporters from non-exporters. On the other hand, Reid (1986) found little correlation while Sriram *et al.* (1989) observed a negative relationship between technology and export intensity.

In contrast, the literature seems to pay less attention to organisation variables. In Zou and Stan's (1998) review of the empirical research carried out between 1987 and 1997 on the determinants of export performance, the overwhelming majority of variables investigated refer to the decision maker's attitudes and perception, characteristics of the firm and market and the marketing mix elements (price, product, promotion, sales channels) of the export strategy. The sole organisational variable investigated is the level of extension and structuring of the export organisation. This variable appears to be positively correlated to export performance in all the 13 studies within the review that consider these issues.

Among the studies that have specifically analysed the relations between organisational variables and export activity, Holzmueller and Stoettinger's (1996) survey on a sample of Austrian SMEs must be mentioned. These authors test a causal model, verifying a negative correlation between "formal organisational values" (a construct composed of the following items: level of formalisation of work position, procedures and targets; organisational centralisation; motivation tools; work procedures) and the firm's position in international markets.

More often debated is the role played by inter-organisational variables. Autkio *et al.* (1997) observe that most of the models depicting the (international) growth of the firm view the limits to growth as being determined by the market, by the external environment, according to the industrial organisation perspective. Co-operation between firms is not given much consideration: the firm is viewed atomistically, keeping suppliers and customers at arms length. In other words, existing models and studies only rarely consider their need to access and control external complementary assets. Also McDougall *et al.* (1994) point to a similar gap in the literature, noting that external resource-leveraging and co-operative relationship occupy a central position in the exporting choice and activity of firms. Among the authors who analysed these aspects, Johanson and Mattson (1988) see internalisation as a cumulative process in which relationships are continually established, developed, maintained and dissolved. Styles and Ambler (1994) developed the "relational paradigm", showing the importance for export performance of relationships and interactions with key suppliers and customers, along with other network members such as distributors or market research agencies. More recently, Ambler and Styles (2000) underline the social (relational) dimension for business activity, in particular for international businesses. The importance of network relationship has also been emphasised by Coviello and Munro (1995, 1997) (see also Ahokangas (1997) for a review of network approaches to internationalisation).

As far as operational management techniques are concerned, the role played by the management systems such as just-in-time (JIT), total quality management (TQM) and concurrent engineering (CE) does not seem to be adequately explored. The possibility itself of adopting these operational management techniques by small units is a debated question. On one hand, some typical features of small firms (the limited resources available, the lack of market power, the modest managerial background, etc.) seem to limit the extension of these management approaches to small units. On the other hand, small units have some favourable structural conditions as, for example, considerable involvement of the workforce, its multi-functionality, the existence of more direct communication channels; all conditions which support the hypothesis of an effective implementation of the above mentioned approaches and their impact on (export) performance. There is in fact empirical evidence of the effective implementation of these management practices within small firms (cf. Stamm and Golhar, 1991; Ahire and Golhar, 1996; Meneghetti *et al.*, 2000).

In brief, the abundant literature on what determines a firm's export propensity and intensity pays little attention to some organisational and operational management variables, especially where small enterprises are concerned. Most researches in fact start with the hypothesis that an individual entrepreneur's characteristics and other structural features (size, technological and financial resources, etc.) of small firms influence the export decision and activity much more than in large-sized ones. It could be argued, however, that new effective organisation and managerial schemes are required for small enterprises given the complexity of foreign ventures. Our impression is that these organisation and these management aspects have been neglected in the empirical literature, and in addition have been underestimated by many firms, especially the smaller ones. Often the small unit remains rooted to the local culture and economy, without opening up to global issues and re-thinking both organisation structure and management. Our hypothesis is that these changes can make the difference between the small firms able to enter foreign market and the remaining units.

3. Aims of the study

This paper presents the results of an empirical study conducted on a sample consisting of 165 small manufacturing companies in the wood-furnishing, mechanic and electro-electronic sectors. Its aim – part of a larger research project on innovation inside small businesses (De Toni *et al.*, 1999; Meneghetti *et al.*, 2000) – was to point out the differences between exporters and non-exporters in terms of three classes of factors:

(1) *Firm's characteristics*: age of the firm; number of employees, turnover;

(2) *Management levers*: a series of operational management techniques including just-in-time, total quality control and concurrent engineering practices;

(3) *Organisation levers*: a series of practices referring to the management of human resources (incentives, training, turnover) as well as to inter-organisational relationships (rapport with clients and suppliers, consortia affiliations, outside services utilisation).

4. Methodology

The survey was confined to three sectors: mechanics, wood-furnishings and electro-electronics. It deals with areas where it has been demonstrated empirically that small Italian businesses have become active exporters (De Toni and Nassimbeni, 1996; Bonaccorsi, 1987). The unit of analysis chosen was the "small firm"[1]. Random sampling was used and all the firms selected were contacted by telephone in advance to check their structural characteristics and type of product. First, the entrepreneurs were approached by letter[2]. Then, they were contacted by phone to explain the aims of the study in greater detail and ask whether they were willing to co-operate. This contact strategy resulted in a high response rate (65 per cent). Consequently the final sample consisted of

165 firms, 65 in the mechanical sector, 65 in the furnishings sector and 35 in the electronic sector; these numbers are in proportion to firm-sector distribution[3]. The main characteristics of the sample units are set out in Table I.

The questionnaire used in the survey was developed by the research team partially using or re-elaborating measurements proposed in the literature (Sakakibara *et al.*, 1993; De Toni *et al.*, 1999). The operational choices are:

- *Management levers*. Likert scales were used to measure four just-in-time practices related to inbound logistics and plant management (JIT delivery by suppliers, plant lay-out rationalisation, set-up time reduction, small lot-size production), five concurrent engineering practices (supplier involvement in new product development, co-design with clients, use of design for manufacturing/design for assembly techniques, component standardisation and product modularisation efforts, use of project management tools), five total quality control practices (establishment of procedures and norms for total quality achievement, use of defect analysis technique, quality control on entry and exit flow, level of investments in preventive maintenance, use of statistical process control).
- *Organisation levers*. Three Likert scales were used to collect information concerning some human resource management practices: the level of specialisation of the work force; the use of group (rather than individual)

	Global sample n = 165		Mechanical n = 65	Furnishings n = 65	Electronics n = 35
	Average	s.d.	Average	Average	Average
Number of employees	15.9	5.69	17.5	17.1	10.9
Turnover (in millions of EUROs)	1.14	0.84	1.28	1.18	0.75
Export on sales (%)	16.96	22.67	11.00	22.34	16.93
Sales					
Sales to large-sized industrial firms (%)	14.22	27.54	19.77	6.92	17.49
Sales to medium and small-sized industrial firms (%)	66.18	36.24	60.23	68.49	72.95
Sales to commercial agents or firms (%)	16.35	28.20	16.00	21.82	6.86
Other kind of sales (%)	3.24	8.50	4.00	2.77	2.71
Kind of products					
Products made on forecasts (%)	9.34	24.51	8.74	13.28	3.14
Products assembled to order (%)	6.11	18.74	8.08	5.28	4.00
Products made to order (%)	18.62	33.61	18.31	22.97	11.14
Products designed and made to order (%)	23.35	38.13	27.58	9.08	42.00
Subcontracted workings or services (%)	42.14	45.57	37.29	48.29	39.71

Table I. Characteristics of sample units

economic incentives as a motivation tool; the intensity of personnel training programmes. As far as inter-organisational factors are concerned, the level of collaboration with customers and with suppliers was evaluated through two Likert scales measuring the time horizon of the relationship. Binary variables were used to capture the firm's affiliation to consortia (for purchasing, technological development, promotion and sales) and its resort to outside services (for quality control, product design, software development, maintenance, transportation, storing, wage management, waste elimination, access to technological database).

A pilot test of the questionnaire was conducted on 15 firms – five in each sector. These visits enabled us to gather qualitative data on sector dynamics and on the problems encountered in export activity. After the revisions suggested by the pilot test, the survey was undertaken and carried out by specialised interviewers, previously instructed by the research group.

An important methodological option worth thinking about concerns which criterion to adopt in discriminating between exporters and non-exporters, that is the operationalisation of the dependent variable in the model considered. The binary dependent variable, by which the sample was divided, is defined on the basis of the export-to-sales ratio. The firm was labelled "exporter" if the ratio was above 0 per cent and "non-exporter" if the ratio was equal to 0 per cent. A similar approach was used, among others, by Westhead (1995), Moini (1992), and Burton and Schlegelmich (1987).

The sample consists of 77 exporters (47 per cent of the total) and 88 non-exporters (53 per cent of the total). The statistical analyses adopted for analysing the factors that most affect the export propensity of small manufacturing firms was the logistic regression analysis. This analysis is appropriate when the dependent variable is binary; moreover it demands less restrictive statistical hypotheses than other analyses (i.e. the multiple discriminant analysis (Hair *et al.*, 1995)). We included two dummy variables (DUM1, DUM2) to control the influence of the industrial sector.

The results of the statistical analysis are reported in Table II, which shows the beta coefficients, the Wald statistics and the significance of each independent variable. Eight predictors are significant (sales ($p = 0.000$), age of firm (0.005), small lot size (0.008), supplier involvement in NPD (0.001), investments in preventive maintenance ($p = 0.054$), group incentive ($p = 0.023$), consortial bonds ($p = 0.003$), resort to outside services ($p = 0.046$)), and data suggest a weak sectoral effect on export propensity (DUM1: $p = 0.079$). The logistic model is able to classify 80.26 per cent of the sample correctly.

5. Discussion

With regard to the structural characteristics investigated, the first discriminating aspect that emerges is the size of the firm (measured in terms of sales volume). Exporters claim a volume of sales slightly above those of non-

	Mean Exporters $N = 77$	Mean Non-exporters $N = 88$	β coeff	Wald stat.	Sig
Sales (millions of EUROs)	1.53	0.89	0.001	15.233	*0.000*
Number of employees	16.73	15.24	–0.044	0.465	0.495
Age of firm (years)	21.1	16.2	0.070	7.820	*0.005*
Management					
JIT practices adoption					
JIT delivery by suppliers	4.03	4.05	–0.159	0.547	0.459
Plant layout rationalization	3.65	3.65	0.069	1.433	0.716
Set-up time reduction	3.82	3.80	–0.253	1.331	0.248
Small lot size	3.55	3.92	–0.552	7.052	*0.008*
CE practices adoption					
Supplier involvement in NPD	2.45	1.98	0.628	10.225	*0.001*
Co-design with clients	2.92	2.58	–0.167	1.069	0.301
DFM/DFA techniques	3.76	3.43	0.034	0.024	0.877
Standardization/modularization	2.93	2.80	–0.069	0.125	0.724
Project management tools	1.87	1.60	–0.093	0.150	0.699
TQM practices adoption					
Quality system formalization	3.26	3.26	–0.013	0.002	0.962
Defect analysis techniques	1.66	1.65	–0.392	1.989	0.158
Quality control on entry/exit flows	3.01	2.72	0.192	1.046	0.307
Investments in preventive maintenance	2.78	2.83	–0.445	3.707	*0.054*
Statistical process control	1.74	1.83	0.020	0.010	0.922
Organization					
Workforce specialization	3.38	3.28	0.314	2.044	0.153
Group incentive	2.52	2.15	0.363	5.142	*0.023*
Personnel training programs	2.49	2.41	–0.031	0.030	0.863
Inter-organizational forms of cooperation:					
With supplier	4.26	4.01	0.211	0.721	0.396
With customer	4.19	4.01	–0.075	0.078	0.780
With other firms (consortial bonds)	0.15	0.04	4.907	8.964	*0.003*
Resort to outside services	0.52	0.41	3.443	3.977	*0.046*
DUM1			0.781	0.445	0.079
DUM2			0.152	0.374	0.684

Notes: Model indices: Model Chi square = 86.990 (p = 0.000); percentage of firms correctly classified: 80.26 per cent; significant predictors are in italics

Table II. Results of the logistic regression analysis

exporters (1.53 million EUROs in EXP, 0.89 in NON-EXP, p = 0.000, Table II); however, the number of employees was non discriminating (16.73 in EXP, 15.24 in NON-EXP, p = 0.495): the value of production per person is higher within in exporting units (= higher added value and/or a higher productivity per person). The age of the firm was also found to be a discriminating factor between exporters and non-exporters (21.1 vs 16.2 years, p = 0.005). Age appears to be connected to structural solidity and acquired experience in the sector, factors which are clearly important when a firm plans to expand abroad.

Turning attention to management levers, only one just-in-time (JIT) lever ("small lot size") discriminates between exporters and non-exporters (3.55 within EXP, 3.92 within NON-EXP, $p = 0.008$). However, the average value of the items analysed (JIT delivery by suppliers, plant layout rationalisation, set-up time reduction, small lot size) is quite high for both sub-samples. This is probably because speed and flexibility in responding to client demand[4] is a "survival" condition for every small firm, irrespective of its international presence. In fact, one of the principal elements that differentiates the smaller firms from the larger ones is the speed of intervention and quick response to customer demand, which they can achieve by virtue of their reduced size and low inertia.

However, we expected more lay-out problems in exporting firms, since these units have numerically superior and more advanced productive assets. This was not so, probably because the small size favours rapid flow and low lead times. Instead, it is not surprising that the variable "small lot size" discriminates between the two sub-samples. This variable measures the capability of the firm to work with lots equal in size to the actual requirements: exporting enterprises work more on forecast (make to stock production), storing the finished product in the final warehouse. Therefore, their lot size is greater than in non-exporting firms, which are more oriented towards a make to order production (lot size = requirements).

Not even concurrent engineering levers bring out significant differences between exporters and non-exporters. The only discriminating factor among those analysed (supplier involvement in product development, co-design with clients, adoption of DFM/DFA techniques, component standardisation and product modularisation, use of project management tools) is that concerning the suppliers' involvement in product development, which is statistically more significant with exporters (2.45 within EXP, 1.98 within NON-EXP, $p = 0.001$). Perhaps the higher level of competition abroad puts pressure on exporters to involve their supplier in product development activities, in order to reduce the time to market and increase quality and product innovation. Beyond their statistical significance, the data seem to confirm that exporting enterprises resort more to CE levers. These levers enable the product development activities to be simplified and speeded up using practices such as: part reduction and standardisation, product modularisation, and design for manufacturability and assembly.

With regard to total quality management levers, no significant differences emerged between the two sub-samples. The data are, at first glance, surprising: the export activity should focus particular attention on objectives and procedures that give quality. In reality, what was discovered during our pilot visits was that product quality is felt to be achieved through state-of-the-art machinery and a professional workforce, rather than the use of specific TQM practices and tools. Full TQM implementation was found to be limited to very few firms, whereas overall quality control systems appear to be only partially implemented and confined to the terminal phases of the process. Indeed, few

enterprises seem to be aware of the fact that the TQM perspective demands not only adequate technological resources, but also organisational interventions and a cultural change. Only the item "investments in preventive maintenance" among those investigated (quality system formalisation, defect analysis techniques, quality control on entry/exit flows, investments in preventive maintenance, adoption of statistical process control) discriminates between exporters and non-exporters (2.78 in EXP, 2.83 in NON-EXP, $p = 0.054$). This is the only TQM item that is connected to the firm's technological equipment: the exporting firms – which are equipped with younger and more advanced productive assets – demonstrate a greater awareness of preventive maintenance. Therefore the judgement about the adequacy of maintenance's investments is lower within these units.

As far as organisation levers are concerned, the series of questions relating to the management of human resources have confirmed a basic trait among smaller firms, that is a general lack of interest in issues regarding workforce organisation. Even in this area significant differences between the two sub-samples failed to emerge. Notwithstanding this, exporters did show a preference for group incentives (2.52 in EXP, 2.15 in NON-EXP, $p = 0.023$), probably due to a greater use of teams and work shifts.

From the pilot visits it emerged that the exporting units generally seem less vulnerable to personnel turnover problems, having a smaller temporary work-force and number of apprentices. The greater stability of the workforce should therefore justify more investment in training programmes; but data do not support this hypothesis.

The comparison between non-exporters and exporters regarding client and supplier relations does not give statistically significant differences, although there is a general tendency for exporters to have greater integration and relational stability with both suppliers and customers. Proof of this is found in the greater contractual power of exporters, given their superior ability to establish long-term relationships and to gather substantial feedback on customer satisfaction.

The affiliation to consortia results indicates a discriminant factor between the sub-samples (0.15 in EXP, 0.04 in NON-EXP[5], $p = 0.003$). The different forms of co-operation investigated (consortia for purchasing, technological development, promotion and sales) are clearly prevalent among exporters. Moreover, co-operation permits firms, especially smaller ones, to set up relational networks that can expand the pool of accessible information, share production and commercial/business capabilities (an area in which they are culturally and structurally weak) and draw from external specialist competencies.

The firm's resort to outside services is seen as a consequence of their expansion into foreign markets. This factor too has proved to be statistically discriminant (0.52 in EXP, 0.41 in NON-EXP; $p = 0.046$). The services that are most referred to are: consultancies on product quality control, design, and access to technological data banks. The resort to external services permits the

smaller units to gain access to external technical capabilities and helps the firm gather vital information on new technologies and management practices.

In conclusion, we can synthetically compare the main result of this study with those of the empirical literature. To this purpose, we will use the already cited review of Zou and Stan (1998) on 50 articles concerning the determinants of export propensity and intensity which appeared in the more important international journals. The comparison is necessarily approximate, for two reasons. First, because the dependent variable used in many of these studies is in some cases the same as is used here (the export choice – dichotomous variable), but in other cases is different (percentage of profits from export activity, percentage foreign sales, variation percentage of the sales to the foreign country, a mix of these variables, etc.). Second, because the unit of analysis considered in these studies is the small-medium enterprise, and not specifically the small unit.

In this study the firm size is a factor positively correlated to the export choice, while most of the existing empirical evidence does not show a significant correlation. The variables "firm's age" and "horizontal" and "vertical relations" exhibit the same behaviour: they are significantly discriminating in this study but this is not reflected in the literature. In the review of Zou and Stan (1998), the age appears generally not correlated with the export performance, while the variable "channel relationships" (link with clients and suppliers) is positively correlated to the export performance in nine studies and uncorrelated in 17. As far as JIT, TQM and CE levers are concerned, the comparison is not possible since these levers are neglected in the literature on export behaviour.

6. Conclusions

This study has analysed the impact of some organisational and operational management factors on export propensity. The main results of the research can be summarised as follows.

First, most of the managerial practices analysed do not discriminate between exporting and non-exporting units. As far as just-in-time and CE levers are concerned, probably the reason relies on the fact that these practices can be considered in some cases structural features, in others a survival condition for small enterprises. Many of these units work as subcontractors for customers who demand prompt deliveries of small quantity orders, so speeding up the purchasing (=JIT delivery by suppliers) and production (set-up time reduction) activities. Therefore, the capability to rapidly fulfil customer requirements and the elasticity to customer order are needed to qualify the offer of small units, independently of their export activity.

The question is probably different where TQM variables are concerned. Here small enterprises seem to suffer from a cultural delay: the adoption of quality tools, particularly for defect analysis and process control, is limited in both the sub-samples (exporters and non-exporters). Moreover, the implementation of TQM concepts would require a cultural change, which is

often far removed from the mentality of these firms. The entrepreneurs, in fact, often have only a technical education and tend to invest mainly in machinery and production tools (which are tangible resources).

Not even significant differences emerge with regard to human resource (organisational) practices. In terms of workforce specialisation, incentives and training, exporters are more sensitive, but anyway the difference from non-exporters is slight.

Rather, the role of inter-organisational relationships appears critical, in particular the affiliation to consortia and the external service utilisation. The affiliation to consortia for technological development, promotion and sales, permits the small units to share resources and experience, thereby simplifying entry into foreign market places. In the same way, the utilisation of external services fosters internal improvements which a small company alone would be unlikely to achieve. These services cover critical areas (such as product design and technological developments) where small companies may not possess enough competencies.

Two other factors discriminate between exporters and non-exporters: the firm's size – probably connected with the structural solidity and the availability of adequate financial resources – and age – probably connected with the experience and level of consolidation of the organisation. In conclusion, this research reappraises the role of JIT, TQM and CE managerial practices in the export behaviour of small businesses. It also emphasises the importance of the firm's "relational" dimension, as well as that of experience (age) and size in order to face the challenges of foreign markets.

Notes

1. Since the meaning of the term "small firms" is often unclear it was found necessary to define the object of the investigation. Usually the criteria used to define the company size are: turnover and number of employees. However these criteria vary considerably from industry to industry and country to country. The Italian legislation recognises that the borderline between the various enterprise classes – particularly the borderline between small and very small firms – varies (between eight and 40 employees) according to the sector, the productive typologies (repetitive or lot production), and the level of automation. By Italian law all small enterprises must be entered in the provincial register. Data for our sampling procedures were collected from these province registers. We considered firms with more than ten employees, excluding therefore the units lacking in a sufficiently industrial connotation and less interested in using the levers analysed by this study. On average there are almost 16 employees in the sampled enterprises, while the maximum number is 33.
2. When the firm's owner or a partner was not available, a senior manager with adequate knowledge of the firm was approached.
3. The sub-sectors analysed are the following (in brackets the ISTAT – Italian National Institute for Statistics – code is reported). Mechanical sector: metallic carpentry constructions (314), machines (321-325, 326-328) and tools (316) production. Furniture sector: production of furniture and furnishing elements (467). Electronic sector: electronic motors and electrical-electronic equipment (342-347).

4. Although these JIT practices refer only to in-bound logistics and plant management and they do not consider the outbound logistics/physical distribution activities, they evidently influence the speed of deliveries and the flexibility to customer's requirements.
5. The variable "affiliation to consortia" was calculated as: number of consortia each firm belongs to / number of consortia investigated (min = 0, max = 1). Even the variable "resort to outside services" was calculated as: number of external services utilised/number of external services investigated (min = 0, max = 1).

References

Abbas, A. and Swiercz, P.M. (1991), "Firm size and export behavior: lessons from the Midwest", *Journal of Small Business Management*, April, pp. 71-8.

Ahire, S.L. and Golhar, D.Y. (1996), "Quality management in large vs small firms: an empirical investigation", *Journal of Small Business Management*, Vol. 34 No. 2, pp. 1-12.

Ahokangas, P. (1997), "Internationalisation and resources. An analysis of processes in Nordic SMEs", *Acta Wasaensia*, Vol. 64, pp. 1-60.

Ambler, T. and Styles, C. (2000), *The Silk Road to International Marketing*, Prentice-Hall, Englewood Cliffs, NJ.

Autkio, E., Yli-Renko, H. and Sapienza, H. (1997), "Leveraging resources under threat of opportunism: predicting networking in international growth", Paper presented at the first Finnish SME Research Forum, February, Turku.

Birley, S. and Westhead, P. (1994), "A taxonomy of business start-up reasons and their impact on firm growth and size", *Journal of Business Venturing*, Vol. 9, pp. 7-31.

Bonaccorsi, A. (1987), "L'attività esportativa delle piccole e medie imprese in Italia: una rassegna delle indagini empiriche", *Economia e politica industriale*, Vol. 54, pp. 229-67.

Bonaccorsi, A. (1992), "On the relationship between firm size and export intensity", *Journal of International Business Studies*, Vol. 23, Fall, pp. 605-36.

Burton, F.N. and Schlegelmich, B.B. (1987), "Profile analysis of non-exporters vs. exporters grouped by export involvement", *Management International Review*, Vol. 27 No. 1, pp. 38-49.

Calof, J.L. (1993), "The impact of size on internationalization", *Journal of Small Business Management*, Vol. 31, October, pp. 60-9.

Calof, J.L. (1994), "The relationship between firm size and export behavior revisited", *Journal of International Business Studies*, Vol. 25, second quarter, pp. 367-87.

Cavusgil, S.T. (1984), "Differences among exporting firms based on their degree of internationalization", *Journal of Business Science Research*, Vol. 12, pp. 195-208.

Cavusgil, S.T. and Zou, S. (1994), "Marketing strategy-performance relationship: an investigation of the empirical link in export market ventures", *Journal of Marketing*, Vol. 58, January, pp. 1-21.

Chetty, S.K. and Hamilton, R.T. (1993), "Firm-level determinants of export performance: a meta-analysis", *International Marketing Review*, Vol. 10 No. 3, pp. 26-34.

Chetty, S.K. and Hamilton, R.T. (1996), "The process of exporting in owner-controlled firms", *International Small Business Journal*, Vol. 14 No. 2, pp. 12-25.

Coviello, N. and Munro, H. (1995), "Growing the entrepreneurial firm: networking for international market development", *European Journal of Marketing*, Vol. 29 No. 7, pp. 49-61.

Coviello, N. and Munro, H. (1997), "Network relationships and the internalisation process of small software firms", *International Business Review*, Vol. 6 No. 4, pp. 361-86.

Das, M. (1994), "Successful and unsuccessful exporters from developing countries: some preliminary findings", *European Journal of Marketing*, Vol. 28 No. 12, pp. 19-33.

De Toni, A. and Nassimbeni, G. (1996), "Strategic and operational choices for small subcontracting firms", *International Journal of Operations & Production Management*, Vol. 16 No. 6, pp. 41-55.

De Toni, A., Meneghetti, A., Nassimbeni, G. and Tonchia, S. (1999), *Imprese artigiane e innovazione*, Franco Angeli, Milano.

Gibiat, M. (1994), "Les modèles intégrés de la décision d'esporter en PME/PMI: synthèse des reserches depuis 20 ans", *Revue Internatonale P.M.E.*, Vol. 7 No. 2, pp. 11-29.

Hair, J.F., Anderson, E.A., Tatham, R.L. and Black, W.C. (1995), *Multivariate Data Analysis with Readings*, 4th ed., Prentice-Hall, Englewood Cliffs, NJ.

Holzmueller, H.H. and Kasper, H. (1991), "On a theory of export performance: personal and organizational determinants of export trade activities observed in small- and medium-sized firms", *Management International Review*, Vol. 31 (Special Issue), pp. 45-70.

Holzmueller, H.H. and Stoettinger, B. (1996), "Structural modelling of success factors in exporting: cross-validation and further development of an export performance model", *Journal of International Marketing*, Vol. 4 No. 2, pp. 29-55.

Johanson, J. and Mattson (1988), "Internationalisation in industrial systems? A network approach", in Buckely, P. and Ghauri, P. (Eds), *The Internationalisation of the Firms*, Academic Press, London, pp. 303-21.

Johnston, W. and Czinkota, M. (1982), "Managerial motivations as determinants of industrial export behaviour", in Czinkota, M. and Tesar, G. (Eds), *Export Management: An International Context*, Praeger, New York, NY.

Kaynack, E. and Kuan, W.K. (1993), "Environment, strategy, structure, and performance in the context of export activity: an empirical study of Taiwanese manufacturing firms", *Journal of Business Research*, Vol. 17, pp. 249-58.

Lefebvre, E., Lefebvre, L.A. and Bourgault, M. (1988), R&D-related capabilities as determinants of export performance", *Small Business Economics*, Vol. 10, pp. 365-77.

Leonidou, L.C., Katsikeas, C.S. and Piercy, N.F. (1998), "Identifying managerial influences on exporting: past research and future directions", *Journal of International Marketing*, Vol. 6 No. 2, pp. 36-51.

Lim, J.S., Sharkey, T.W. and Kim, K.I. (1996), "Competitive environmental scanning and export involvement: an initial inquiry", *International Marketing Review*, Vol. 13 No. 1, pp. 65-80.

McDougall, P., Shane, S. and Oviatt, B. (1994), "Explaining the formation of international new ventures: the limits of theories from international business research", in Birley, W. *et al.* (Eds), *Frontiers of Entrepreneurship Research*, Babson College, Massachussets, pp. 533-46.

Madsen, T.K. (1989), "Successful export marketing management: some empirical evidence", *International Marketing Review*, Vol. 6 No. 4, pp. 41-57.

Mechling, G.W., Pearce, J.W. and Busbin, J.W. (1995), "Exploiting AMT in small manufacturing firms for global competitiveness", *International Journal of Operations & Production Management*, Vol. 15 No. 2, pp. 61-76.

Meneghetti, A., Nassimbeni, G. and Tonchia, S. (2000), "Innovation and performance in small manufacturing firms: results of an empirical research", *International Journal of Technology Management*.

Miesenbock, K.J. (1988), "Small businesses and exporting: a literature review", *International Small Business Journal*, Vol. 6 No. 2, pp. 42-61.

Moini, A.H. (1992), "A study of exporting and non-exporting small manufacturing firms", *Journal of Business and Entrepreneurship*, Vol. 4 No. 3, pp. 77-88.

Moini, A.H. (1995), "An inquiry into successful exporting: an empirical investigation using a three-stage model", *Journal of Small Business Management*, July, pp. 9-25.

Ogbuehi, A.O. and Longfellow, T.A. (1994), "Perceptions of US manufacturing SMEs concerning exporting: a comparison based on export experience", *Journal of Small Business Management*, October, pp. 37-47.

Reid, S.D. (1982), "The impact of size on export behaviour in small firms", in Czinkota, M.R. and Tesar, G. (Eds), *Export Management: An International Context*, Praeger, New York, NY, pp. 18-38.

Reid, S.D. (1986), "Is technology linked with export performance in small firms?", in Hubner, K. (Eds), *The Art and Science of Innovation Management*, Elsevier Science Publishers, Amsterdam, pp. 273-83.

Sakakibara, S., Flynn, B.B. and Schroeder, R.S. (1993), "A framework and measurement instrument for just-in-time manufacturing", *Production and Operations Management*, Vol. 2 No. 3, pp. 177-94.

Sriram, V., Neelankavil, S. and Moore, R. (1989), "Export policy and strategic implications for small-to-medium sized firms", *Journal of Global Marketing*, Vol. 3 No. 2, pp. 43-60.

Stamm, C.L. and Golhar, D.Y. (1991), "Customer and supplier linkages for small JIT manufacturing firms", *Journal of Small Business Management*, Vol. 29 No. 3, pp. 43-9.

Styles, C. and Ambler, T. (1994), "Successful export practice: the UK experience", *International Marketing Review*, Vol. 11 No. 6, pp. 23-47.

Wagner, J. (1995), "Exports, firm size, and firm dynamics", *Small Business Economics*, Vol. 7, pp. 29-32.

Westhead, P. (1995), "Exporting and non-exporting small firms in Great Britain – a matched pairs comparison", *International Journal of Entrepreneurial Behaviour & Research*, Vol. 1 No. 2, pp. 6-36.

Yang, Y.S., Leone, R.P. and Alden, D.L. (1992), "A market expansion ability approach to identify potential exporters", *Journal of Marketing*, Vol. 56, January, pp. 84-96.

Zou, S. and Stan, S. (1998), "The determinants of export performance: a review of the empirical literature between 1987 and 1997", *International Marketing Review*, Vol. 15 No. 5, pp. 333-56.