ISAE

ISTITUTO DI STUDI E ANALISI ECONOMICA

Things change
Foreign market penetration and firms' behaviour
in industrial districts: an empirical analysis

by

Roberto Basile

ISAE, piazza dell'Indipendenza, 4, 00185 Rome (Italy)

and

Anna Giunta

University of Calabria

ABSTRACT

With the introduction of information and communication technology, a brisker pace in market integration and the adoption of a fixed exchange rate, some changes seem to have occurred in the determinants of Italian industrial districts firms' competitive advantages. In this paper we use the overall degree of foreign market penetration as a performance variable and estimate which are its determinants in two different periods, 1997 and 2000, using a sample of 707 manufacturing firms located in industrial districts. The results of our ordered probit analyses suggest that indeed some "traditional" determinants are losing their relative weight, while new ones are gaining the scene.

NON-TECHNICAL SUMMARY

In the last decade, the introduction of information and communication technology (ICT, henceforth), a brisker pace in market integration (thanks to lower trade costs, freer capital and labour flows), the adoption of a fixed exchange rate (lira returned to the Exchange Rate Mechanism in 1996) all acted as powerful shocks, radically changing the context in which Italian firms operate. Indeed, the changes have come on such a scale as to make themselves finally felt even by the industrial districts' (ID, henceforth) firms, i.e. the economic agents that have enjoyed the greatest success on the Italian scene in the last twenty years. External Marshallian economies not longer appear to be a sufficient engine to sustain growth, while exports seem by now insufficient to contrast the increasing competitive pressure of newly industrialised countries (NICs, henceforth).

In this paper we use the overall degree of foreign market penetration of ID firms in the 1995 – 2000 period as a performance variable. Foreign market penetration is measured with an index called FEI whose values range from zero to three: zero for no exposure to international markets, one if the firm solely exports; two if the firm exports and is engaged into penetration operations, and three if the firm exports, does penetration operations and produces abroad (reflecting FDI abroad). FEI does not presume any cardinal relationship between different values. In particular, and based on the extent of commitment or sunk costs in each foreign expansion mode, we assume that the FEI of a firm that only exports is lower than that of another firm which exports but also carries out commercial penetration operations (such as having an agent abroad or trade agreements), which in turn is lower than another firm that, along with exports and commercial penetration, also has FDI abroad.

As it has been said, we use FEI as a performance variable, a test bench for firms located in ID since a direct relationship with international markets through operation of commercial penetration is called for to shelter the ID firms' competitiveness. In our analysis, we make use of firm-level data collected by Italy's Capitalia in 1997 for 1995-97 and in 2000 for 1998-2000. For each period, we select a sample of firms operating within industrial districts located both in the Centre-North and in the South of the country. The same firms have been included in the two periods, so that we properly used a balanced panel dataset.

Starting with 1995-97 period, our descriptive analysis shows that the internationalisation pattern of ID firms is mainly of a mercantile nature. The internationalisation of ID firms is confined to export (43%) i.e. the simplest

foreign expansion mode (FEI=1). More complex modes of internationalisation, such as exports enhanced by penetration operations are undertaken by 27% of ID firms, while a true minority carry out the highest levels of internationalisation, consisting of firms that export with penetration operations abroad and FDI (1.7%). The whole picture does not significantly change in the next period, 1998 – 2000, moreover the data show that the internationalisation behaviour of ID firms presents a significant degree of persistence.

The probit analysis of FEI determinants show that in the new technological and economic scenario traditional factors of ID firms competitive advantage are losing weight, while new ones are emerging. In particular, scale economies gain the scene: while size is not a constraint to mere export activities, large firms seem to perform better in terms of advanced internationalization modes both in 1997 and in 2000 (mainly FEI=2). With regard to the innovation variables, ID firms have been so far very successful as they have been able to continuously upgrade their products. However, our econometric analysis show that such innovative behavior needs to be complemented by the adoption of ICT technologies, which gain relevance and discriminate in the 1998-00 period between less and more internationalized firms. Here again the need of a major change in districts firms' organization comes up again. What is required for (and what districts firms have so far resisted to) is to move from contextual to standardized knowledge which can be easily transmittable. Finally, it is worth underlying that human capital becomes a critical resource for the foreign expansion of ID firms.

LE COSE CAMBIANO. PENETRAZIONE DEI MERCATI ESTERI E COMPORTAMENTO DELLE IMPRESE LOCALIZZATE NEI DISTRETTI: UN'ANALISI EMPIRICA

SINTESI

L'introduzione delle tecnologie dell'informazione e della comunicazione, l'accelerarsi della integrazione dei mercati e l'adozione del tasso di cambio fisso sembrano aver modificato i fattori del vantaggio competitivo delle imprese localizzate nei distretti. In questo lavoro utilizziamo un indicatore di penetrazione sui mercati esteri come variabile di performance e analizziamo quali sono le variabili esplicative nel 1997 e nel 2000. Il campione è costituito da 707 imprese manifatturiere localizzate nei distretti industriali. I risultati delle analisi probit indicano che alcune variabili "tradizionali" stanno perdendo peso, mentre si affacciano alla scena fattori nuovi di vantaggio competitivo.

Parole chiave: Foreign market penetration, Industrial districts, Modelli per variabili qualitative

Classificazione JEL: F23, R110, C25A

CONTENTS

1 INTRODUCTION

In the last decade, the introduction of information and communication technology (ICT, henceforth), a brisker pace in market integration (thanks to lower trade costs, freer capital and labour flows), the adoption of a fixed exchange rate (lira returned to the Exchange Rate Mechanism in 1996) all acted as powerful shocks, radically changing the context in which Italian firms operate. Indeed, the changes have come on such a scale as to make themselves finally felt even by the industrial districts' (ID, henceforth) firms, i.e. the economic agents that have enjoyed the greatest success on the Italian scene in the last twenty years.

Discussion of these phenomena has developed in two major directions. The first, at the macroeconomic level, analyses the sustainability of the district model in the face of centrifugal forces (i.e. delocalization of production and outsourcing), mainly driven by wage differentials and eased by ICT, which softens the friction of space. With the division of labour extending to new geographical areas, the question is to what extent such forces will undermine the advantages of agglomeration economies, thus downsizing the role of territory in the process of development. The second line of research, based on microeconomic data, assigns a great role to ID firms' behaviour as the rules of the game change: spatial reorganisation of the production process; relations with firms; investment processes; market strategies to address growing competitive pressure under the inflexible constraint of a fixed exchange rate.

Our work intends to contribute to the latter research stream, analysing foreign market penetration of ID firms in the 1995 – 2000 period. Foreign market penetration includes all those activities which help firms to establish a foreign market presence to sell their product[1]. And it is used as a performance variable, a test bench for firms located in ID as mere exports are by now insufficient to contrast the increasing competitive pressure of newly industrialised countries (NICs, henceforth). With a few exceptions (Federico, 2003), this is an under researched topic. So far, most of the empirical research has, in fact, solely concentrated upon industrial districts' export performance. In the paper we measure the foreign market penetration levels of the industrial district (ID) firms in 1997, i.e. one year after the returning to the Exchange Rate Mechanism, and in 2000, when we assume firms fully adjusted to the fixed

---

[1] We focus our attention on commercial activities, disregarding other important kinds of international expansion not directly related to the commercialisation of the product (e.g, many types of strategic technological alliances).

exchange system; subsequently, we identify the determinants of foreign market penetration levels and the possible variations in their relative weight that may have come about with the greater pressure exerted by lasting exchange discipline and increasing foreign competition.

The paper is structured as follows. In section 2 we briefly outline the most significant changes occurring in the districts in the course of the '90s. In sections 3 we present a foreign expansion index (henceforth FEI), first developed in Basile *et al.* (2003), whose scores, in this specific application, range from zero to two. In our analysis we make use of firm-level data collected by CAPITALIA in 1997 and 2000 for a representative sample of 707 firms located in ID and operating in traditional and specialised suppliers industries[2]. In sections 4 we identify the explanatory variables, while in section 5 we present the results of our econometric analysis. Section 6 sets out our conclusions.

2 THINGS CHANGE

In an article of 1997 (p. 302), Brusco and Paba, among the finest researchers of Italian ID, finally admitted: "As firms change, so do the districts". This insight into the process of ID evolution (or involution) began to find favour in the '80s, to become an accepted, established element of analysis only recently, in the '90s. The most significant change, a true departure from the ideal type of Marshallian ID, is firms' entry and exit from the districts and the consequent modification of "the frontier between interior and exterior, which had always shown a notable degree of impermeability" (Rullani, 1997: 64). In the last decade the international setting has in fact completely changed and the "district effect" appears no longer sufficient to a firm for keeping a good positioning on foreign markets. Such a district effect has been powerful and acting on exports' propensity, i.e. the most tangible sign of success shown by districts firms whose exports have been consistently high (around 40% of turnover), well above the average achieved by Italy's manufacturing firms, accounting for a significant share of national exports in manufactured goods (Menghinello, 2003). In order to overcome the mounting commercial pressure from NICs and gain better positioning in the international value chain, firms

---

[2] A methodological note on sample selection is in the Appendix.

partly exit the district in search of lower labour costs while entering the district to take advantage of Marshallian external economies.

Exit. Firms exit the district in search of lower labour costs, embarking on international outsourcing and investment in other geographical areas, mainly the countries of Central-Eastern Europe, the Balkans, the Mediterranean basin and South-East Asia. Foreign projection of the subcontracting chain differs in intensity according to industry and region. It is particularly marked in the fashion sector (Miceli *et al.*, 2003; Omiccioli, 2000), and in the regions of North-East Italy (Schiattarella, 1999).

Firms in part quitting the ID break through the territorial containment of the business cycle, impairing the self-sufficiency of supply with the risk that this "progressive emptying out" (Corò - Grandinetti, 1999, 909) of the district may entail the loss of local skills and technological spillovers. This hypothesis is borne out with the study of a number of districts, as in the case cited by Brusco *et al.*, (1997, 54) regarding the production of mopeds in Bologna, where "the district loses the final firms and simply becomes a producer of components".

Nonetheless, in other cases it is found that this "emptying out effect" is partly offset by an "upgrading effect" of individual firm, which improves its functional upgrading in the international value chain. In fact, savings on costs, thanks to international outsourcing, is invested by the ID firm in more remunerative functions (i.e., design, engineering, marketing, branding, sales). Such a choice by a single firm might well map into collectively efficient outcomes for the districts as a whole as long as the firm keeps all valuable functions, relatively unsusceptible to variations in costs, well inside the district.

From the empirical point of view there are a number of cases that lend support to the upgrading effect hypothesis[3]: good examples are the textile district of Prato, the footwear district in Brenta (Amighini and Rabellotti, 2003); ski boot manufacture in the district of Montebelluno; high quality shoes in the Marche district (Corò and Grandinetti, 1999). In all these cases the relocation drive has brought change to the organisation of firms and led to the upgrading of regions, successfully improving their positioning in the international production chain through specialisation of the area in marketing and design functions, promoting and safeguarding their trademark. This type of upgrading is usually piloted by a lead firm.

---

[3] On the effects of international delocalisation, see Schiattarella (2003) and Conti e Menghinello (1998).

Entry. The district boundary is also permeated by the entry of externally owned large firms, mainly national[4] (Cainelli and Zoboli, 2003). Subsidiaries of well known and innovative large companies, such as Benetton, FIAT, Zanussi, Philip Morris (Tessieri, 2000) entry the districts attracted by local external economies such as the quality of manufacture in subcontracting and the skill of the workforce. Again, this is a new phenomenon marking serious discontinuity with the proprietary pattern typical of the district, consisting of small and medium-size firms under local ownership and management with family structure. Large firms take on the role of lead firms, performing the functions of structures governing relations between firms introducing hierarchic elements into the relations between firms in the district. The key issue thus becomes to what extent such a power asymmetry could in turn modify the incentive structures of agents and undermine the reproducibility of traditional district factors constituting their competitive advantage. Here we are referring to that blending of collaboration and co-operation between economic agents of comparable status (small and medium-size firms) that has so far guaranteed the district the productive efficiency typical of a competitive market, together with the advantages accruing through co-operative relations among agents.

That mechanism is thrown awry because the process of internationalization is not so longer an empyrean of collaboration between peers but an engine calling for a "visible hand", a governing structure or, to assess it more explicitly, for leadership. This leadership is taken on by those agents which are in possession of the resources, skills and capacities to handle the functions of highest value added - research, engineering, design, marketing - and to afford the international transaction costs.

3 FEI : AN INDEX OF FOREIGN EXPANSION

The Italian model of specialisation is based on lines of production typical of the districts: the products of the traditional sectors (the celebrated "Made in Italy" merchandise) and specialised suppliers. Anomalous since it did not change in the course of time, such a specialisation has been showing a great many weak points including, most strikingly, the competition confronting it from NICs. Albeit retaining the broad framework of this specialisation model, there is

---

[4] Bronzini (2003) has shown that industrial districts do not seem to attract FDIs.

an all too evident need to venture beyond the narrow limits of a thoroughly mercantile internationalisation consisting solely in exports. Firms should adopt complex foreign expansion modes to consolidate their positions on the foreign markets such as technical and/or commercial collaboration, and commercial penetration – for example, creating own sales networks – as indeed is suggested by global value chain research (Gereffi, 1999; Humphrey and Schmitz, 2002). In particular, the key proposition of this research field is that functional upgrading means acquiring superior functions in the value chain, one of which – in labour-intensive, consumer goods industries – is the sale of own branded merchandise in internal and external markets.

Starting out from this hypothesis, we apply here a Foreign Expansion Index (FEI, henceforth), developed and tested in a previous article (Basile *et al*., 2003). FEI will be used to assess the levels of foreign market penetration achieved by the district firms in the 1995-2000 period, when devaluation leverage disappeared and competition grew keener with increasing integration of the economies. FEI will be subsequently used as a dependent variable of the ordered probit models.

FEI ranges in value from zero to three: zero for no exposure to international markets, one if the firm solely exports; two if the firm exports and is engaged into penetration operations, and three if the firm exports, does penetration operations and produces abroad (reflecting FDI abroad). FEI does not presume any cardinal relationship between different values. In particular, and based on the extent of commitment or sunk costs in each foreign expansion mode, we assume that the FEI of a firm that only exports is lower than that of another firm which exports but also carries out commercial penetration operations (such as having an agent abroad or trade agreements), which in turn is lower than another firm that, along with exports and commercial penetration, also has FDI abroad.

In our analysis, we make use of firm-level data collected by Italy's Capitalia in 1997 for 1995-97 and in 2000 for 1998-2000. For each period, we selected a sample of firms operating within industrial districts located both in the Centre-North and in the South of the country (see the Appendix). The same firms have been included in the two periods, so that we properly used a balanced panel dataset.

The main forms of internationalization identified in the database are:

a) exports;

b) operations of commercial penetration (i.e., various types of sales outlets, promotional initiatives; trade agreements);

c) FDI. Table 1 shows the sample distribution of ID firms and employees by macro regions and industry in 1997 and 2000.

Table 1   Sample size. Number of Firms

	All firms	District firms
North West	505	294
North East	368	257
Centre	205	137
South	130	19
Total	1,208	707

Table 2   Total employment, 1995-1997 and 1998-2000

	1995-1997		1998-2000	
	Employees	%	Employees	%
All firms	134,073		143,930	
District firms	64,149	47.8	67,922	47.2

Table 3   ID Firms and Employees distribution by sectors and periods

Sectors	1995-1997		1998-2000	
	Firms (%)	Employees (%)	Firms (%)	Employees (%)
Food	44.2	61.2	44.2	55.3
Textile & Clothing	74.2	57.7	74.2	57.9
Leather & Footwear	82.5	89.3	82.5	86.9
Furniture	58.2	58.7	58.2	49.7
Mechanics	61.9	45.0	61.9	46.0
Petrochemicals	52.9	51.4	52.9	51.9
Paper & poligraphics	59.2	44.5	59.2	47.6
Wood	59.5	55.2	59.5	55.2
Electronics	42.0	19.5	42.0	20.2
Metals	61.9	65.6	61.9	65.2
Transport	35.5	16.0	35.5	16.0
Mining	55.2	57.4	55.2	55.7

Notes: the figures indicate the percentage ratio between the number of ID firms and employees and the total number of firms and employees in each sector and in each period. The figures for the residual category "other sectors" are not reported.

Table 4 shows the possible combinations of the various internationalisation modes, whose frequencies for 1997 and 2000 are depicted in figure 1.

Table 4   **Modes of Foreign Expansion**

Modes of foreign expansion	Export	Penetration operation [a]	Foreign direct investment
No Internationalization			
Only Export	*		
Export and penetration Operations	*	*	
Export, Penetration Operations and FDI	*	*	*
Export and FDI	*		*
Only Penetration Operations		*	
Only FDI			*
Penetration Operations and FDI		*	*

[a] Includes any one or more of: a) sales outlets, b) sales through local traders, c) sales outlets through firms belonging to the group; d) other promotional initiatives, e) trade collaboration. At the bottom of the table we report respectively the percentages of exporting firms, of firms involved in penetration operations and of the ones investing directly abroad, regardless of the other international activities carried out by these firms.

Figure 1   **Modes of Foreign Expansion. ID firms**
(frequencies and cumulative freq. of sample firms)

15
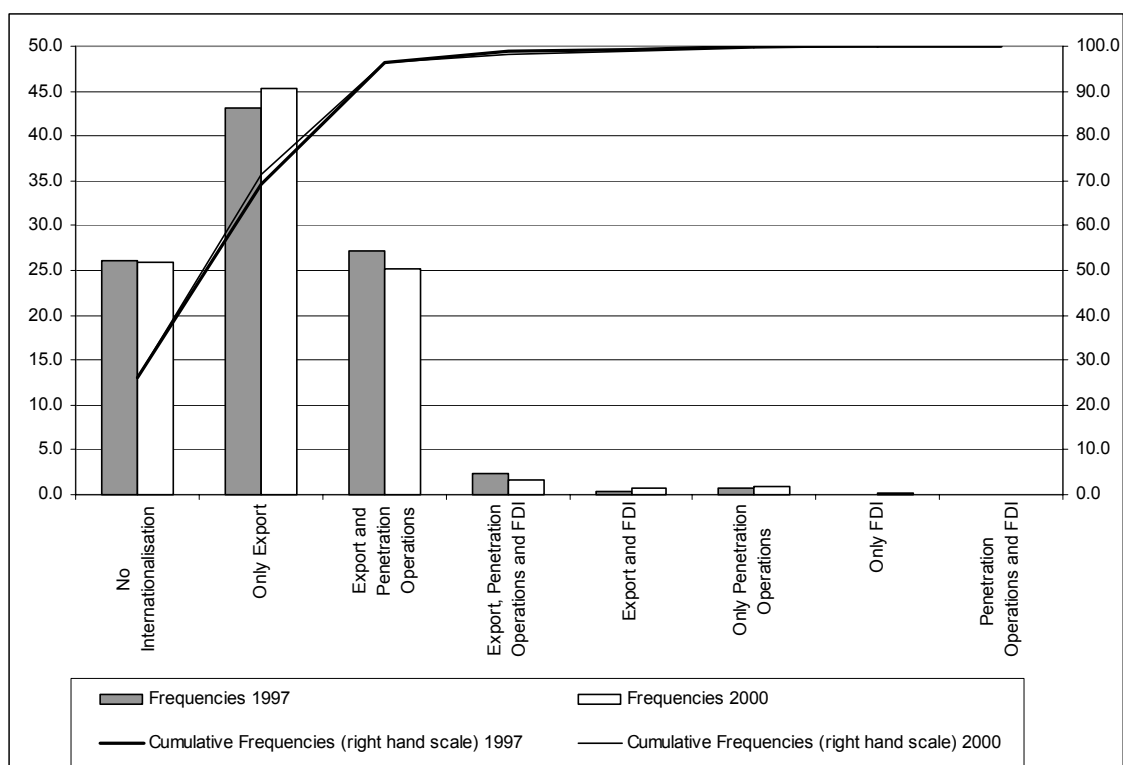
Several interesting features emerge from the data.

a. The internationalisation pattern of ID firms is of a mercantile nature. The internationalisation of ID firms is mainly confined to export (43%) i.e. the simplest foreign expansion mode (FEI=1); in fact, the percentage of firms steadily decreases as we move on from export to more complex modes of internationalisation, such as exports enhanced by penetration operations[5] (27%), up to the highest levels of internationalisation, consisting of firms that export with penetration operations abroad and FDI (1.7%);

b. the whole picture does not significantly change in the next period, 1998 - 2000. The percentage of ID firms which only exports slightly increases, thus showing ID firms capacity to face the discipline imposed by a fixed exchange rate. On the other side, the percentage of firms which combine exports with commercial penetration (FEI=2) diminishes by little. Stable and low remain the percentage of firms which pursue more demanding forms of involvement abroad, such as exports combined with penetration operations and FDIs (FEI=3). This observation led us to exclude from the econometric analysis those firms with a FEI higher than 2;

c. the internationalisation behaviour of ID firms presents a significant degree of persistence. Table 5 shows that almost 81% of ID firms which did not export in 1997, refrained from exporting in 2000 (FEI=0); 64% of ID firms export in both periods (FEI=1) and 43% keeps carrying out exports combined with penetration operation. This observation suggested us to take into account the issue of autocorrelation or persistency in the econometric analysis.

Table 5   Transition and Persistence in the Internationalization Status.
District Firms

		FEI 2000		
		0	1	2
	0	80.9	16.2	2.9
FEI 1997	1	10.3	64.2	25.5
	2	5.6	51.6	42.7

---

[5] Penetration operations include any one or more of: a) sales outlets; b) sales through local traders; c) sales arrangements with firms belonging to the group; d) others promotional initiatives; or e) trade collaboration.

d. in both years the percentage of firms which pursue a cumulative process of foreign expansion is quite high (99.1 in 1997 and 98.2 in 2000)[6]. Such evidence seems to support our framework of analysis thus allowing us to apply the FEI index developed above to Italian districts' firms with no risk of distorting the results. Table 6 shows that export propensity and FEI are positively correlated suggesting that, in general, export intensity is complementary to higher levels of FEI. Labour productivity is also positively correlated with FEI. Both these findings give further support to the use in the econometric analyses of FEI as a ID firms' performance variable.

Table 6   FEI, Export Intensity (the percentage of the value of exports in total sales of the firms) and Productivity (value added/employed workers). Mean values and standard deviation (in parenthesis)

Export Intensity	FEI=0	0.0 (0.0)
	FEI=1	35.2 (28.2)
	FEI=2	47.3 (27.5)
Labour Productivity	FEI=0	58.3 (29.5)
	FEI=1	64.2 (35.9)
	FEI=2	70.6 (45.3)

---

[6] The relative frequencies of firms which pursue the remaining and somewhat disparate modes of internationalization (respectively and in decreasing order: export and FDI; solely penetration operations; solely FDI; penetration operations and FDI) are quite low, accounting for only 0.9% in 1997 to 1.8% in 2000.

4 THE EXPECTED DETERMINANTS OF FEI

Among the determinants of FEI allowed for are different firm-level factors, such as structural characteristics of firms (size, industry and location), firms' ownership, inter-firm relationships (subcontracting relationships), their innovation strategies, including ICT investments and the education level of employees. In a dynamic specification of the foreign expansion decision is included the lag of the dependent variable as well to take account of the degree of persistence in the internationalization status, that is to take account of the previous internationalization experience of the firm. The full set of variables used in the analysis is identified in table 7 and their hypothesised effects are identified below.

Size. The successful and long-lasting export performance of Italian industrial districts has shown that size may not matter as long as firms could benefit from external economies of the district itself. The latter may not suffice when ID firms pursue more advanced form of internationalisation (FEI=2) which is subject to economies of scale, and thus constitute the arena in which size of firm would have its greatest and positive effect. The empirical evidence previously discussed (section 2) on the role of leading large firms in industrial districts seems to point to the same direction.

Group. Strictly related to the relevance of economies of scale is the (relatively new) presence of corporation in industrial districts, briefly outlined in section 2. Generally speaking, the relationship between belonging to a group and advanced modes of foreign expansion should be positive for the reasons brought forward up to now. In the econometric analysis we also take into account firms' position within the group, such as firms which are in an intermediate position (they are controlled by the parent company but do control other firms) and subsidiaries, i.e., fully under parent company's control. We would take a positive relation between FEI and intermediate firm or subsidiaries as a sign of their organisational autonomy and evaluate it positively for firm's embeddedness in the territory.

Location. The South is the least developed part of the country. Nevertheless, 1992 lira's devaluation spurred a significant growth of exports signalling, according to some scholars (Bodo and Viesti 1997), a structural change in Southern industry and the occurrence, in some area, of industrial districts which seem to replicate the earlier experience of "Third Italy". Going to the expected sign, in principle firms located in Southern industrial districts should be less

disadvantaged than "isolated" ones, therefore able to survive the fixed exchange rate regime of the 1995-2000 years.

Table 7 **Variables Description and Summary Statistics**

Group of variables	Variables	Description	Mean	Std.Dev.
INTERNATIONALISATION	FEI	See Table 4		
STRUCTURAL CHARACTERISTICS	lnSIZE	Log of the number of employees	3.711	0.942
	lnSIZE2	Square of lnSIZE	14.657	8.358
	SOUTH	SOUTH=1 if the firm is located in the South		
	SECTORS	See Table 3		
RELATIONSHIPS WITH OTHER FIRMS	SUBCON	% of revenues realised working as a subcontractor for other firms	46.252	46.765
OWNERSHIP	PARENT COMPANY	Parent Company=1 if the firm is a Parent Company	0.045	0.207
	INTERMEDIATE POSITION	Intermediate Position =1 if the firm has an Intermediate Position within the group	0.058	0.235
	CONTROLLED	Controlled =1 if the firm has a Controlled Position within the group	0.089	0.285
INNOVATION	PRODPROC	PRODPROC=1 if the firms carried out both a product innovation and a process innovation	0.236	0.424
	ONLYPROD	ONLYPROD=1 if the firms carried out only a product innovation	0.079	0.270
	ONLYPROC	ONLYPROC=1 if the firms carried out only a process innovation	0.308	0.462
INVESTMENT IN ICT (INFORMATION AND COMMUNICATION TECHNOLOGY)	HARDWARE	% of expenses in ICT for hardware	37.991	29.669
	SOFTWARE	% of expenses in ICT for software	33.806	27.800
	TELECOMMUNICATION	% of expenses in ICT for telecommunications	4.046	8.993
HUMAN CAPITAL	EDUCATION	% of workers with high-school and/or bachelor degree	34.473	26.661
	PREVIOUS EXPERIENCE	Time lag of FEI (predicted)		

Innovation. Different empirical studies (Basile 2001; Wakelin 1998) have recently analysed the relationship between innovation and export at the firm level, finding that process and or product innovation improves export performance. This is even more true for industrial districts' firms which have defended their position on international markets continuously upgrading their products line and which implement process innovations thanks to the close ties among producers.

An important limitation of such studies is that, by focusing exclusively on exports, they ignored other forms of internationalisation that may be more closely related to innovation. Indeed, given the imperfections and information asymmetries of the markets for technology and know-how, innovating firms should prefer to expand their activity abroad through agents and commercial agreements abroad than through arms-length market transactions. Specifically, we hypothesise that innovating firms are more likely not only to export but also to have agents and commercial agreements abroad.

Information technology. Positioning on the foreign market is decidedly an area where the advantages of ICT adoption are most appreciated. The positive relation derives from the fact that foreign expansion is information intensive and thus favoured with the use of the new, market oriented technologies (a firm's web site, for example). ICT tools decrease international transaction costs, as in the case of presenting the firm's own product, identifying and communicating with commercial partners, drawing up collaboration contracts and financing international transactions.

While ICT is positively related to foreign expansion modes, we would not expect a positive relation because the innovation widespread in the district is typically incremental (Signorini, 2000)[7]. Until now firms in the districts have not produced any radical innovation and seem culturally unprepared to absorb the new technologies such as ICT. Some authors (Trento and Warglien, 2001) observe that organisational systems and procedures used by the districts' firms are indeed far from being highly formalised, whether internally or in their market transactions, and thus tend to make less use of e-mail, PCs and web sites, exhibiting a lower ICT demand. We may therefore reasonably suppose that in this case, too, there is a negative relation between ICT investments and FEI. The relation may however became positive as time passes with new agents entering the district and guiding the other (small) firms to adopt ICT technologies.

---

[7] The term incrementalism is used by several researchers to describe a specific approach to the innovation process (…) which use relatively short development times for each technical advance, small project size, low capital investment level (Freeman and Soete 1997, 421).

Relations with other firms. As a proxies for relationship with other firms we use subcontracting. Generally subcontracting firms count as "indirect players" on the international markets since they feed downstream users. So it would be expected a negative relationship between FEI and subcontracting.

Human capital (education and experience). An empirical question that we try to address in this paper is how differences in human capital influence the choice and degree of internationalization of ID firms. Internationalization can be seen as a function of knowledge about foreign markets and lack of knowledge can be remedied either through education and previous internationalization experience. As indicator of education we use the percentage of workers with high-school and/or bachelor degree, while as indicator of previous internationalization experience we use the time lag of FEI. In particular, in order to avoid endogeneity problems, we include in the model specification the predicted value of FEI-lag, rather than its actual value. We hypothesise that a high degree of international involvement (FEI=2) requires a strong investment in human capital, while forms of internationalisation, based on pure export activity driven by buyers, do not require such an investment. Thus, we also claim that by focusing only on whether firms are exporters or non-exporters, studies generally neglect (or they fail to highlight) the importance of education on the level of internationalisation.

5 ECONOMETRIC RESULTS

In this section the estimation results of our empirical model of international expansion are discussed. The econometric model used to analyse foreign expansion in this paper is conditioned by the nature of the data. Since our foreign expansion index (FEI) is categorical, the standard econometric techniques used for continuous dependent variables are not appropriate. The ordinal nature of FEI indicates that internationalisation performance is appropriately modelled here as an ordered response. Thus, the ordered probit model has been used to analyse the determinants of FEI. The discussion on FEI, reported in section 3, highlighted the scarce propensity of industrial district firms to get involved in the highest levels of internationalisation which include also FDI, as already pointed out (and regretted by) by other researchers (Federico, 2004; Mariotti and Mutinelli 2004). For this reason and unlike Basile

et al. (2003), here in the econometric analysis of FEI we choose to truncate the FEI index to level two in the econometric analysis.

Table 8   Foreign Expansion Index: Ordered Probit model. ID Firms
(coefficients and standard errors)

Variables	Panel RE		CS 1995-97		CS 1998-2000	
	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
LnSize	1.166***	0.436	0.383	0.344	0.802***	0.295
LnSize2	-0.093*	0.051	-0.012	0.040	-0.071**	0.033
Food	-0.518***	0.212	-0.394**	0.187	-0.337*	0.184
Textile & Clothing	0.400**	0.173	0.282**	0.135	0.230*	0.130
Leather & Footwear	0.812***	0.340	0.454**	0.217	0.638***	0.213
Furniture	0.651*	0.351	0.217	0.223	0.574***	0.215
Mechanics	0.974***	0.177	0.597***	0.129	0.634***	0.122
Paper & poligraphics	-0.519**	0.223	-0.287	0.195	-0.334*	0.189
South	0.171	0.350	0.406	0.287	-0.098	0.275
Subcon	-0.004***	0.001	-0.006***	0.001	-0.002**	0.001
Parent company	-0.135	0.211	0.691**	0.323	0.111	0.197
Intermediate position	0.206	0.232	-0.106	0.220	0.171	0.202
Controlled	-0.014	0.177	-0.301*	0.164	0.103	0.165
ProdProc	0.640***	0.120	0.550***	0.142	0.453***	0.110
OnlyProd	0.337**	0.169	0.378**	0.179	0.182	0.185
OnlyProc	0.126	0.106	0.106	0.114	0.041	0.122
Hardware	-0.001	0.001	0.001	0.002	-0.001	0.002
Software	0.004**	0.002	0.004**	0.002	0.003*	0.002
Telecommunication	0.014***	0.005	0.005	0.006	0.015***	0.005
Education	0.004**	0.002	0.003	0.002	0.005***	0.002
μ	2.252***	0.112	1.425***	0.070	1.500***	0.068
No. of observations	1340		640		700	
No. of individuals	707					
Log-likelihood	-1,201		-601		-659	
Percentage of corrected predictions	51.8		54.2		51.9	

Source: Authors' calculations based on Capitalia data.

Coefficients which are statistically significant at 1% (p<0.01) are given with three stars, those at 5% (p<0.05) are given with two stars, and those at 10% (p<0.10) are given with one star.

Notes: Intercept coefficients have not been reported. BIC (Bayesian Information Criterion) = -2*log-lik. + ln(N)*K, where N is the number of observations and K is the number of parameters.

Table 8 reports the estimated coefficients for the random effect model (first column), which allows us to exploit all the information given by the selected balanced panel data sample for the two periods 1995-1997 and 1998-2000, and the two cross section models (one for each period), to identify temporal variations in the coefficients; table 9 shows the marginal effects, while table 10 reports the dynamic specification of the model, which controls for the effect of previous internationalization experience by including the (estimated level of the) time lag of the dependent variable. Asterisks identify the statistically significant parameters. Single, double and triple asterisks indicate significance at 0.10, 0.05 and 0.01 levels, respectively. The threshold value (μ), defining the boundaries between the different FEI levels, is always statistically significant and its coefficient is different from 1, implying that the ordinal categories are not equally spaced.

The square term of size (**LnSIZE2**) has been introduced to assess the presence of some non-linearities in the relationship between internationalisation and size. Its coefficient is negative and significantly different from zero in the RE model and in the cross-section for the second period, thus suggesting a parabolic relation between size and FEI. However, we cannot ignore the possibility that other types of non-linearities may exist.

Compared to the reference category Centre-North, the South coefficient is positive but not significant in all the specifications, except for the 1998-2000 cross section where it remains not significant but becomes negative. Such finding may suggest that advantage of location in Southern industrial district is about to vanish, and that the process of catching up on the commercial internationalisation by firms located within industrial districts in the South proved temporary, as it was solely based on price factor competition.

A dummy variable for each sector of specialisation of industrial districts (food, textile and clothing, leather and footwear, furniture, mechanics and paper and poligraphics) has been included in the empirical model to take account of sectoral heterogeneity in the foreign expansion behaviour of ID firms. The reference category is the overall group of firms operating in other sectors. The results clearly suggest that ID firms operating in traditional sectors and in mechanics have a higher propensity to be involved in an international projection than the other firms, except for those firms which operate in food and paper and poligraphics.

Table 9   Marginal Effects for Random effects Ordered Probit model.
ID Firms

Variables		FEI=0	FEI=1	FEI=2
LnSize	Random effect	-0.225	-0.009	0.234
	1995-1997	-0.110	-0.017	0.127
	1998-2000	-0.244	0.004	0.238
LnSize2	Random effect	0.018	0.001	-0.019
	1995-1997	0.004	0.000	-0.004
	1998-2000	0.022	0.000	-0.022
Food	Random effect	0.110	-0.017	-0.093
	1995-1997	0.127	-0.011	-0.116
	1998-2000	0.112	-0.023	-0.089
Textile & Clothing	Random effect	-0.702	-0.013	0.085
	1995-1997	-0.074	-0.024	0.099
	1998-2000	-0.066	-0.007	0.073
Leather & Footwear	Random effect	-0.128	-0.057	0.184
	1995-1997	-0.108	-0.058	0.166
	1998-2000	-0.150	-0.074	0.225
Furniture	Random effect	-0.107	-0.038	0.145
	1995-1997	-0.057	-0.019	0.076
	1998-2000	-0.139	-0.061	0.200
Mechanics	Random effect	-0.161	-0.055	0.216
	1995-1997	-0.145	-0.070	0.214
	1998-2000	-0.165	-0.047	0.212
Paper & poligraphics	Random effect	0.110	-0.017	-0.093
	1995-1997	0.090	-0.003	-0.088
	1998-2000	0.112	-0.023	-0.088
South	Random effect	-0.032	-0.004	0.036
	1995-1997	-0.098	-0.050	0.148
	1998-2000	0.031	-0.003	-0.028
Subcon	Random effect	0.001	0.000	-0.001
	1995-1997	0.002	0.000	-0.002
	1998-2000	0.001	0.000	-0.001
Parent company	Random effect	0.027	-0.001	-0.026
	1995-1997	-0.144	-0.116	0.206
	1998-2000	-0.033	-0.002	0.035

(continues) **Table 9   Marginal Effects for Random effects Ordered Probit model. ID Firms**

Variables		FEI=0	FEI=1	FEI=2
Intermediate position	Random effect	-0.038	-0.005	0.043
	1995-1997	0.032	0.003	-0.035
	1998-2000	-0.049	-0.005	0.054
Controlled	Random effect	0.003	0.000	-0.003
	1995-1997	0.095	-0.003	-0.092
	1998-2000	-0.030	-0.002	0.032
ProdProc	Random effect	-0.113	-0.024	0.137
	1995-1997	-0.136	-0.060	0.196
	1998-2000	-0.126	-0.019	0.145
OnlyProd	Random effect	-0.060	-0.011	0.071
	1995-1997	-0.094	-0.041	0.135
	1998-2000	-0.052	-0.006	0.057
OnlyProc	Random effect	-0.024	-0.002	0.026
	1995-1997	-0.030	-0.005	0.035
	1998-2000	-0.012	0.000	0.012
Hardware	Random effect	0.000	0.000	0.000
	1995-1997	0.000	0.000	0.000
	1998-2000	0.000	0.000	0.000
Software	Random effect	-0.001	0.000	0.001
	1995-1997	-0.001	0.000	0.001
	1998-2000	-0.001	0.000	0.001
Telecommunication	Random effect	-0.003	0.000	0.003
	1995-1997	-0.001	0.000	0.001
	1998-2000	-0.004	0.000	0.004
Education	Random effect	-0.001	0.000	0.001
	1995-1997	-0.001	0.000	0.001
	1998-2000	-0.002	0.000	0.002

Source: Authors' calculations based on Capitalia data.

Note: Marginal effects for dummy variables are Pr[FEI|X=1]-Pr[FEI|X=0].

With regard to the role played by the ownership variable, being a parent company has a significant and positive impact on the more evolved internationalisation mode (FEI=2) only in 1995-97; having an intermediate position within the group, i.e., being controlled and exercising some control on other firms of the group, is never significant. Being a controlled firm has a slight negative effect in 1995-97, the sign becomes positive, but non significant, in 1998-00. Although needed of a further investigation, this result may signal organisation autonomy of the controlled unit, increasing involvement with potential embeddedness in the local system (Bellandi, 2001).

Relationships with other firms, proxied by the subcontracting variable, are found to be very important for the international projection of ID firms. Specifically, subcontracting relationships exerts a significant negative influence on FEI in all the specifications, thereby supporting our hypothesis.

The notion that innovation capabilities have a strong positive influence on the FEI of the Italian industrial districts firms finds support in the positive and significant effects of PRODPROC (highly significant in all the specifications) and ONLYPROD (significant at 0,05% level in the RE model and in the 1995-1997 cross-section). Clearly, in both periods considered the innovating firms are more likely to have a higher FEI than non-innovating firms. However, there seems to have been a shift in these effects over time. In particular, in 1995-1997, if PRODPROC were to rise from 1 to 2, the predicted probability of exporting and carrying out commercial penetration abroad (FEI=2) increases by 19,6% (holding all other variables at $\bar{x}$), whereas in 1998-2000 it would have increased by 14,5%.

Among the **ICT investment** variables, hardware investments seem to have no impact on FEI, investment in software is positive and significant while investment in telecommunication becomes in the 1998-2000 period an important variable to discriminate between the different levels of FEI.

Finally, our data confirm that **human capital** is a critical resource for the foreign expansion of ID firms, or at least they become so in the last period examined (1998-2000). Both the coefficients of education and of experience (i.e. the time lag of FEI) are positive and highly significant in the cross-section for second period. Moreover, our hypothesis that a high degree of international involvement (FEI=2) requires a strong investment in human capital, while forms of internationalisation based on the pure export activity (FEI=1) does not

require such an investment is strongly corroborated by the results of the calculation of marginal effects.[8]

Table 10   Foreign Expansion Index: Ordered Probit model. ID Firms.
Cross-section 1998-2000. Dynamic specification

Variables	Coeff.	Std.Err.	Marginal effects		
			FEI=0	FEI=1	FEI=2
LnSize	0.656**	0.313	-0.200	0.006	0.194
LnSize2	-0.065*	0.035	0.020	0.000	-0.020
Food	-0.170	0.201	0.054	-0.007	-0.047
Textile & Clothing	0.203	0.139	-0.059	-0.004	0.063
Leather & Footwear	0.512**	0.219	-0.128	-0.046	0.174
Furniture	0.534**	0.228	-0.132	-0.051	0.183
Mechanics	0.491***	0.145	-0.132	-0.028	0.160
Paper & poligraphics	-0.138	0.197	0.044	-0.005	-0.039
South	-0.198	0.280	0.064	-0.010	-0.054
Subcon	-0.001	0.001	0.000	0.000	0.000
Parent company	0.045	0.212	-0.013	0.000	0.013
Intermediate position	0.171	0.211	-0.049	-0.004	0.053
Controlled	0.095	0.184	-0.028	-0.001	0.029
ProdProc	0.450***	0.117	-0.126	-0.017	0.143
OnlyProd	0.121	0.189	-0.035	-0.002	0.037
OnlyProc	0.054	0.129	-0.016	0.000	0.016
Hardware	-0.001	0.002	0.000	0.000	0.000
Software	0.002	0.002	-0.001	0.000	0.001
Telecommunication	0.016***	0.005	-0.005	0.000	0.005
Education	0.004**	0.002	-0.001	0.000	0.001
Lag of FEI (predicted)	0.362***	0.115	-0.110	0.003	0.106
μ	1.513***	0.072			
No. of observations	633				
Log-likelihood	-592				
Percentage of corrected predictions	54.5				

Coefficients which are statistically significant at 1% (p<0.01) are given with three stars, those at 5% (p<0.05) are given with two stars, and those at 10% (p<0.10) are given with one star.

---

[8]   The inclusion of the (predicted value of the) time lag in the cross-section for the second period does not determine significant changes in the estimated parameters, except for the coefficient of subcontracting, which turns out to be non-significant.

6 CONCLUSIONS

Through a Foreign Expansion Index we have tried to assess the overall degree of foreign market penetration of ID firms in 1995 and in 2000, to analyze its dynamics and to investigate its determinants. In our work, FEI is treated as a performance variable, a test bench of firms located in industrial districts since mere exports are insufficient to contrast the increasing competitive pressure of NICs.   In fact, as shown by Gereffi (1999) by now NICs sustain their competitive edge by integrating their manufacturing expertise with the design and sale of their own branded merchandise. A direct relationship with international markets through operation of commercial penetration is thus called for to shelter the districts specialization model.

The data show that roughly one third of the firms located in the districts pursue exports and commercial penetration (FEI=2), this percentage is only slightly above the Italian average (26.4 in 1997, see Basile *et. al*, 2003), signaling that the "district effect" fades somewhat away as we move from exports (where the district effect is indeed strong, 51.8% exporting firms located in the districts vs 43% in Italy) to more evolved internationalization modes.

It has to be underlined that the South loses ground, after the striking foreign expansion performance of the 1992 - 97 period. Continuing with the determinants of FEI, we do find preliminary support to our working hypothesis that the true source of comparative advantage of Italian districts firms is changing. In particular, as we have seen in section 2, external Marshallian economies are indeed an undoubted attraction factor for firms entering the districts, but no longer a sufficient engine to sustain growth. A new technological paradigm, a fixed exchange rate regime combined with an increasing competitive pressure are powerful shocks forcing firms (and districts) to change. In the new technological and economic scenario, scale economies gain the scene: while size is not a constraint to mere export activities, large firms seem to perform better in terms of advanced internationalization modes both in 1997 and in 2000 (mainly FEI=2). The finding also points out to organizational changes taking place within large companies.   In fact, while in 1995-97 being a controlled company has a negative and significant effect on its commercial internationalization, in 2000 the variable is not significant. This may imply that controlled firms are gaining increasing levels of organization autonomy from the parent company with good results on their foreign expansion process. Such organizational autonomy is welcome because it is among the first requisites to embeddedness in a local

system as shown in the debate on the possible role of large firms as local development agents.

Going to the innovation variables, as we have already mentioned districts firms have been so far successful as they have been able to continuously upgrade their products. However, the data show that such innovative behavior needs to be complemented by the adoption of ICT technologies, which appears to gain relevance and in 2000 discriminate between less and more internationalized firms. Here again the need of a major change in districts firms' organization comes up again. What is required for (and what districts firms have so far resisted to) is to move from contextual to standardized knowledge which can be easily transmittable. Finally, it is worth underlying that human capital becomes a critical resource for the foreign expansion of ID firms.

A desirable extension of this study would be to go back to years previous to 1994 and test which were the competitive advantage factors of industrial districts under different exchange rate system, technological regime and markets integration. Such analysis could hopefully provide a complementary evidence to the hypotheses and arguments advanced in this study.

APPENDIX. Our sample

In our analysis, we make use of firm-level data collected by Capitalia in 1997 for the 1995-1997 period and 2000 for 1998-2000. Each Capitalia survey covers a sample of more than 4000 Italian manufacturing firms. Following Fabiani *et al*. (2000), within this sample, we selected those firms located in the local labour systems where an industrial district was (according to ISTAT) present.

The methodology adopted by ISTAT (1996) to identify and define the industrial districts is based on the common definition of industrial districts: "The industrial district is a local system characterized by the active co-presence of a human community and a dominant industry constituted by a set of small independent firms specialized in different phases of the same production process" (Sforzi, 2002, pp. 443-444).

In the first place, Italy is divided into 784 local labour systems[9]. These systems are then classified as industrial districts following a procedure consisting of the following stages: 1) identification of the those among them that can be defined manufacturing systems; this applies if the percentage of staff employed in the manufacturing industry as compared with the total economic activities exceeds the Italian average; 2) singling out among the local manufacturing systems those representing small and medium-size firms. This is the case if the percentage of staff engaged in small and medium-size (fewer than 250 staff) local manufacturing units as compared with the total manufacturing staff exceeds the Italian average; 3) identifying the main industry of each small and medium-size firm local manufacturing system, which is done by weighing up employment in each sector with respect to the total manufacturing activity, comparing it with the Italian average, and selecting the

---

[9] The local labour systems (LLS) are identified according to a methodology (Istat, 1997) based on the commuter patterns recorded by the population Census. The aim is then to define areas where the populations both live and work, consequently delimiting the zones with mathematical algorithms maximizing "territorial self-satisfaction". Each LLS includes a number of communes. Capitalia surveys give information about the commune where the firm is located. Thus, we identified as ID firms those located in a commune belonging to a LLS classified as industrial district. Obviously, by following this criterion, we included in the sample also firms producing goods not exactly belonging to the sector in which the industrial district is specialised. However, as suggested by Fabiani *et al.* (2000), this is not a relevant problem, since the share of firms producing in sectors not linked to the specialisation of the district is lower than the average; and all firms located within an industrial district, independently from their activity, benefit from the favourable socio-economic milieu created by the district.

one with the relatively strongest showing; 4) verifying whether at least half the staff employed in the main industry are in small and medium-size firms (fewer than 250). Following these criteria, Istat has identified 199 industrial districts in 1991, which absorb 42.5% of the total manufacturing employment.

Of course, basing the selection criterion also on small and medium size does not imply the absence of large firms within the area of the industrial district thus identified. Over the years, as indeed is stressed in our work, a number of large firms have emerged in many of the SMEs, while new medium-large firms have found their way in and in various cases groups of firms have formed. Our primary aim in this analysis is in fact to verify how this process of consolidation of hierarchical structures within the industrial districts has influenced the organisational characteristics and innovative strategies of the district firms most involved in internationalisation activities. To this end we have also included medium-large and large firms in our sample.

In synthesis, we have selected a balanced panel of 707 firms classified as ID firms. 69% of them have less then 50 employees, 25% have more than 50 employees but less then 250, and, finally, 6% have more than 250 employees. 35% of these firms are located in the North West regions of the country (Lombardia, Piemonte, Val d'Aosta, Liguria), 36% in the North East (Veneto, Friuli Venezia Giulia, Emilia Romagna, Trentino Alto Adige), 19% in the Centre (Lazio, Marche, Toscana, Umbria) and 3% in the South (Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia, Sardegna). As far as the sectors are concerned, more than 45% of firms operate in traditional sectors (food, textile and clothing, leather and footwear, furniture), more than 20% in mechanics, about 10% in petrolchemicals, about 10% in paper and poligraphics, and the others operate in electronics, metals and transport.

REFERENCES

Amemiya T., 1981, Qualitative response models: a survey, Journal of Econometric Literature, 19, 1483-1536.

Amemiya T., 1985, Advanced Econometrics, Basil Blackwell, Oxford.

Amighini A. and Rabellotti R., 2003, The effects of globalisation on industrial districts in Italy: evidence from the footwear sector, paper presented at the Conference: Internazionalizzazione dei distretti industriali, Department of Industry, Rome, 20 March.

Basile R., Giunta A., Nugent Jeffrey B., 2003, Foreign Expansion by Italian Manufacturing Firms in the Nineties: an Ordered Probit Analysis, Review of Industrial Organization, 23, 1-24.

Basile R., 2001, Export Behaviour of Italian Manufacturing Firms over the Nineties: the Role of Innovation, Research Policy, n.30, 1185-1201.

Bellandi M., 2001 Local development and embedded large firms, in Entrepreneurship and Regional Development, vol. 13, n.3, 189-210.

Bronzini R., 2003, Distretti industriali, economie di agglomerazione e investimenti esteri in Italia, paper presented at the Conference: Economie locali, modelli di agglomerazione e apertura internazionale, Banca d'Italia, Bologna, 20 November.

Brusco S., Paba S., 1997, Per una storia dei distretti industriali italiani dal secondo dopoguerra agli anni '90, in F. Barca (ed. by) Storia del capitalismo italiano, 265 - 329, Rome, Donzelli Editore.

Brusco S., Cainelli G., Forni F., Franchi M., Malusardi A., Righetti R., 1997, L'evoluzione dei sistemi produttivi locali in Emilia-Romagna, in F. Cossentino, Pike F. and Sengenberger W. (ed. by) Le risposte locali e regionali alla pressione globale: il caso dell'Italia e dei suoi distretti industriali. Bologna, Il Mulino, 35 - 60.

Cainelli G. and Zoboli R. (Eds) The Evolution of Industrial Districts. Physica-Verlag, New York

Conti G. e Menghinello S., 1998, Modelli di impresa e di industria nei contesti di competizione globale: l'internazionalizzazione produttiva dei sistemi locali del made in Italy, Rivista di economia e politica industriale, 2, XIX.

Corò G. and Grandinetti R., 1999, Strategie di delocalizzazione e processi evolutivi nei distretti industriali italiani, L'Industria n. 4, 897 924.

De Arcangelis G., Ferri G., 2003, La specializzazione dei distretti: dai beni finali ai macchinari del made in Italy, paper presented at the Conference: Economie locali, modelli di agglomerazione e apertura internazionale, Banca d'Italia, Bologna, 20 November.

Fabiani S., Pellegrini G., Romagnano E. and L.F.Signorini, 2000, L'efficienza delle imprese nei distretti industriali italiani, in Signorini L.F. (ed.), Lo sviluppo locale. Un'indagine della Banca d'Italia sui distretti industriali, Roma, Donzelli Editore.

Federico S., 2003, L'internazionalizzazione produttiva italiana e i distretti industriali: un'analisi degli investimenti dall'estero, paper presented at the Conference: Economie locali, modelli di agglomerazione e apertura internazionale, Banca d'Italia, Bologna, 20 November.

Freeman C. and Soete L., 1997, The Economics of Industrial Innovation. Cambridge, MIT Press Edition.

Garofoli G., ed. by) 2003, Imprese e territorio, Il Mulino, Bologna.

Gereffi G, 1999, International trade and industrial upgrading in the apparel commodity chain, Journal of International Economics 48, 37 - 70.

Greene W.H., 2000, Econometric Analysis, Fourth Edition, Prentice Hall.

Humphrey J. and Schmitz H., 2002, How Does Insertion in Global Value Chain Affect Upgrading in Industrial Clusters, Regional Studies, vol. 36, n.9, December, 1017 - 1028.

Istat (1996), Rapporto Annuale, La situazione del paese nel 1995, Rome.

Istat (1997), I sistemi locali del lavoro 1991, Rome.

Mariotti S., Mutinelli M, Small multinational groups in the Italian industrial districts: interpretation and empirical evidence from the mechanical engineering industry, in Cainelli G. and Zoboli R. (Eds) The Evolution of Industrial Districts, pp. 336-347. Physica-Verlag, New York.

McKelvey M. and Zavoina R., (1975), A Statistical Model for the Analysis of Ordinal Level Dependent Variables, Journal of Mathematical Sociology, Summer, n. 4, 103-120.

Miceli S., Chiarvesio M., Di Maria E., 2003, Processi di internazionalizzazione e strategie delle imprese distrettuali tra delocalizzazione e innovazione, paper presented at the Conference Internazionalizzazione dei distretti industriali, Department of Industry, Rome, 20 March.

Omiccioli M., 2000, L'indagine sul campo: una presentazione, in L. F. Signorini (ed. by) Lo sviluppo locale, Rome, Donzelli editore, 289 - 298.

Rullani E., 1997, "L'evoluzione dei distretti industriali: un percorso tra decostruzione e internazionalizzazione" in R. Varaldo e L. Ferrucci (rds) Il distretto industriale tra logiche di impresa e logiche di sistema. Milan, Angeli, 54 - 85.

Sforzi F. 2002, The industrial district and the 'new' Italian economic geography, European Planning Studies, 439-447

Signorini L. F., (edited by) 2000, Lo sviluppo locale, Rome, Donzelli Editore.

Tessieri N., 2000, Multinazionali e distretti industriali in Italia, Sviluppo locale, VII, 13, 71 - 99.

Trento S., Warglien M., 2001, Nuove tecnologie and cambiamenti organizzativi: alcune implicazioni per le imprese italiane, Temi di discussione n. 428, Banca d'Italia.

Working Papers available:

n. 25/02	M. CAGIANO DE AZEVEDO	Recent Developments in the Environmental Debate Before and after the Kyoto Protocol: A Survey
n. 26/02	M. BOVI	The Nature of the Underground Economy. Some Evidence from OECD Countries
n. 27/02	R. BASILE	Acquisition versus Greenfield Investment: the Location of Foreign Manufacturers in Italy
n. 28/02	G. BRUNO M. MALGARINI	An Indicator of Economic Sentiment for the Italian Economy
n. 29/02	G. ARBIA R. BASILE M. SALVATORE	Regional Convergence in Italy 1951-1999: a Spatial Econometric Perspective
n. 30/03	F. KOSTORIS PADOA SCHIOPPA	Il mercato e le politiche economiche in Italia
n. 31/03	S. DE NARDIS C. VICARELLI	The Impact of Euro on Trade: the (Early) Effect Is not So Large
n. 32/03	S. LEPROUX	L'inchiesta ISAE-UE presso le imprese del commercio al minuto tradizionale e della grande distribuzione: la revisione dell'impianto metodologico
n. 33/03	G. BRUNO C. LUPI	Forecasting Euro-area Industrial Production Using (Mostly)\ Business Surveys Data
n. 34/03	C. DE LUCIA	Wage Setters, Central Bank Conservatism and Economic Performance
n. 35/03	E. D'ELIA B. M. MARTELLI	Estimation of Households Income from Bracketed Income Survey Data
n. 36/03	G. PRINCIPE	Soglie dimensionali e regolazione del rapporto di lavoro in Italia
n. 37/03	M. BOVI	A Nonparametric Analysis of the International Business Cycles
n. 38/03	S. DE NARDIS M. MANCINI C. PAPPALARDO	Regolazione del mercato del lavoro e crescita dimensionale delle imprese: una verifica sull'effetto soglia dei 15 dipendenti

Working Papers available:

n. 39/03	C. MILANA ALESSANDRO ZELI	Productivity Slowdown and the Role of the Ict in Italy: a Firm-level Analysis
n. 40/04	R. BASILE S. DE NARDIS	Non linearità e dinamica della dimensione d'impresa in Italia
n. 41/04	G. BRUNO E. OTRANTO	Dating the Italian Business Cycle: a Comparison of Procedures
n. 42/04	C. PAPPALARDO G. PIRAS	Vector-auto-regression Approach to Forecast Italian Imports
n. 43/04	R. DE SANTIS	Has Trade Structure Any Importance in the Transmission of Currency Shocks? An Empirical Application for Central and Eastern European Acceding Countries to EU
n. 44/04	L. DE BENEDICTIS C. VICARELLI	Trade Potentials in Gravity Panel Data Models
n. 45/04	S. DE NARDIS C. PENSA	How Intense Is Competition in International Markets of Traditional Goods? The Case of Italian Exporters
n. 46/04	M. BOVI	The Dark, and Independent, Side of Italy
n. 47/05	M. MALGARINI P. MARGANI B.M. MARTELLI	Re-engineering the ISAE manufacturing survey