# ITALIAN DISTRICTS IN THE INTERNATIONAL ECONOMY[1]

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1. Introduction

The notion that Italy's comparative advantage is somewhat unconventional[2] receives support from the direct analysis of the Italian pattern of international specialisation. It can be synthetically characterised as being polarised and relatively persistent over the years. The first feature is described by the very strong specialisation in traditional sectors and in some specialised suppliers industries, and the very weak position in scale economy based sectors and, especially, in high-tech industries (Iapadre, 1996)[3]. This picture is robust to the taxonomy adopted. Figure 1 shows the evolution over time of the Balassa index of revealed comparative advantages (RCA) for the manufacturing sector and for three macro-sectors defined on the basis of factor intensity in production (Garnaut - Anderson, 1980).

Figure 1- Revealed Comparative Advantage Index for Macro-Branches: Italy
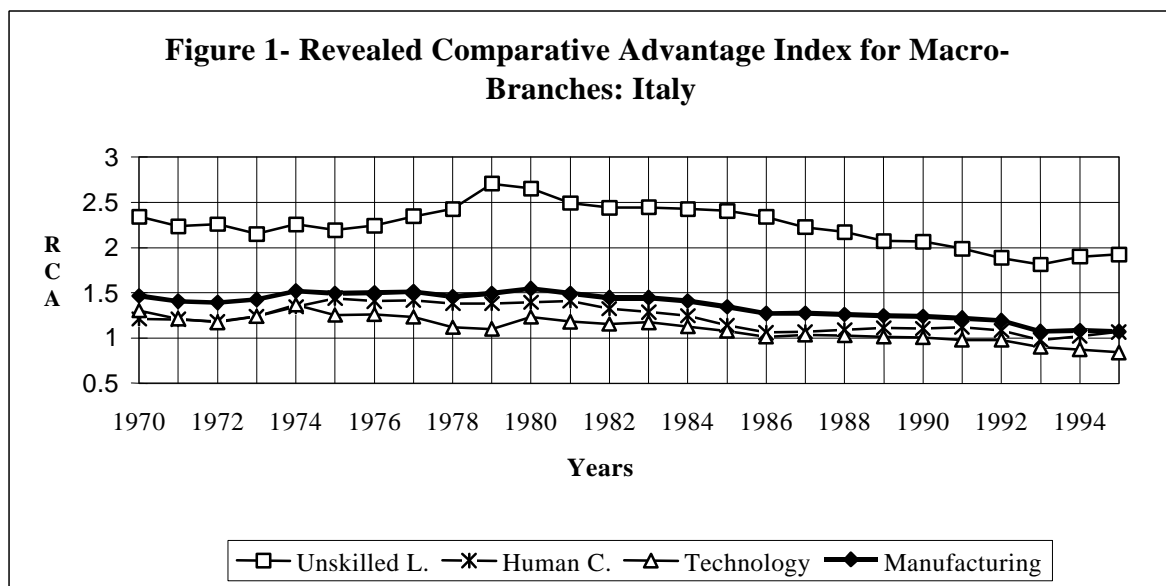
Source: WTDB - NBER and PC - TAS Database

In 1995 the RCA for the unskilled intensive sectors is around 2 (i.e. strong specialisation), while it is below one for the high-tech sectors[4]. The **stability** overtime of the Italian trade pattern is clearly shown in Figure 1. At a lower level of aggregation (two digits of the SITC rev.2 classification system), a similar message is obtained by analysing the similarity of the Italian trade specialisation in 1971 and 1992. Table 1 shows a high rank correlation coefficient (.87) between the RCA of the country in the two years[5]. In the same table results are reported also for the other G-6 countries and for the 4 NIEs and the remaining 4 most developed ASEAN countries. Italy has the highest trade pattern persistence among the G6. As expected the other Asian countries considered have a higher degree of mobility in their pattern[6].

Table 1
Stability in international specialisation patterns: Spearman's rank correlation coefficients between RCA in 1992 and in 1971 (* = significant at 5%)

Ita	hk	sin	taiw	s.kor	phil	Mal	thai	ind	jap	ger	fra	uk	Usa
.87*	.75*	.46*	.58*	.62*	.58*	.52*	.40*	.26*	.76*	.78*	.69*	.77*	.81*

Source: Helg (1999)

The peculiarity of the Italian trade pattern is reinforced by analysing how similar it is to that of other countries. Table 2 shows that Italy has more in common with the four NIEs (with the exception of Singapore) than with the remaining G6 countries (similarity is measured with the rank correlation coefficient between the RCA of two countries)[7].

Does such a pattern of specialisation make Italy particularly vulnerable to the competition of the new labour-abundant entrants? This concern is often raised, especially in the press. It may well be warranted, but some other elements about Italy's pattern of trade should also be considered.

Table 2
Similarity in patterns of international specialisation: Spearman's rank correlation coefficients for RCA in 1992 (* = significant at 5%)

	ita	hk	sin	taiw	s.kor	Phil	mal	thai	ind	jap	ger	fra	uk	usa
ita	1													
hk	.43*	1												
sin	-.12	.36*	1											
Taiw	.54*	.60*	.22	1										
s.kor	.45*	.52*	.26*	.58*	1									
phil	-.01	.16	.26*	.14	.17	1								
mal	-.09	.04	.54*	.12	.22	.44*	1							
thai	.06	.51*	.27*	.56*	.50*	.41*	.36*	1						
ind	-.06	.00	.15	-.01	.10	.61*	.47*	.24*	1					
jap	.08	.37*	.45*	.44*	.53*	-.15	.08	.18	-.28*	1				
ger	.30*	-.08	.04	.02	-.08	-.21	-.08	-.23	-.27*	.49*	1			
fra	-.02	-.05	-.13	-.24*	-.15	-.20	-.15	-.02	-.20	-.08	.22	1		
uk	.03	-.11	.06	-.19	-.08	-.22	-.21	-.14	-.28*	.23	.30*	.24*	1	
usa	.30*	-.26	-.08	-.32*	-.27*	-.05	-.14	-.15	-.21	.02	-.14	-.18	.29*	1

Source: Helg (1999)

In fact, as soon as we move to a less aggregate level of analysis (both in terms of sectors and of production factor definition), the picture becomes more complex. It is a common finding indeed that within the traditional/labour intensive sectors Italy is mainly specialised in the top end of the vertically differentiated spectrum of products. Many of these products are characterised by a relative high level of skill intensity and by a low price elasticity of demand[8]. By catering to the price inelastic segments of the market for differentiated goods, Italian firms and workers may then be less exposed to developing countries competition. New evidence in line with this interpretation can be found in de Nardis and Traù (1999). They show that "competitive pressures on Italian industries are rather low, when measured by quality-adjusted export similarity indices".

Recently, it has been argued that to understand the Italian pattern of industrial (and as a consequence international) specialisation one should take into account the peculiar geographical location of industrial activities in Italy. Italian industrial structure is characterised by the small dimension of its firms (in 1991 average dimension of a manufacturing firm was 9,1 decreasing to 8,9 in 1996 (ISTAT; 1999)) and by the clustering of certain industrial activities in specific locations. The fact that Italian specialisation (at the production and at the export level) has something to do with the industrial districts, emerges clearly when one looks at the distribution of this districts across sectors. In 1991 34,7% of them was specialised in textile and clothing activities; 13,6 % in the leather and footwear macro-sector; 19,6 % in the furniture and related

product industries. This sum up to approximately 68 % of total industrial districts. The remaining important group of industrial districts are the mechanical engineering macro sector (16,1 %) and food (8,5%) (ISTAT, 1996).

2. Italian districts and international trade

Studies on industrial districts have for a long time been characterised by their qualitative or case-study nature. Only in the last 10 years we started having quantitative studies presenting a comprehensive picture of Italian industrial districts[9]. The reason for this delay in the arrival of quantitative studies is the very nature of an industrial district: a mixture of economic, cultural and territorial elements. One of the most important basic forces that contributes to create an industrial district is the existence of external economies. Differently from its companion (internal economies of scale), the measurement of external economies poses formidable difficulties. As a consequences every attempt to measure the industrial district phenomenon imposes approximation costs that are on average higher than those incurred in measuring other economic variables. From this point of view a path breaking study has been that by Sforzi (1997) within the framework of ISTAT activities. Starting with a set of criteria and using data at the level of "comune", that research project has produced a systematic classification of Italian industrial districts[10].

In 1996, the 199 Italian industrial districts contributed for 43.3% to Italian total manufacturing exports. (ISTAT, 1999). As a matter of comparison, their weight in terms of total Italian manufacturing employment was 45 %.

However, this number (upper-limit method) tends to over-estimates the "district effect", since it includes all industrial districts manufacturing exports. In fact, each industrial district has been defined empirically on the basis of its importance in a specific manufacturing sector that characterises its specialisation (the major-sector[11]: for example, Prato is an "industrial district" because of its specialisation in textile and clothing; Treviglio for its specialisation in agricultural machinery). Some of the productive activities located within the industrial district have very little to do with the specialisation of the area (non-related sectors). At the same time focusing only on data related to the major sector of specialisation (lower-limit method) of the district would under-estimate the "district effect". It is well known that one of the feature of an industrial district is the existence of backward linkages from the producer of the final product (textile, say) to the producer of the machinery required to produce that product (auxiliary or supporting

sector). Data related only to the primary sector of specialisation of the district, hide backward and forward linkages, and should be considered as a lower-limit for the "district effect".

The relevance of industrial districts exports, considering only their primary sector exports[12], is 22% of total Italian exports (Viesti, 1997 and Becattini, Menghinello, 1998)[13]. Hence, as a first approximation, the "district effect" on export can be positioned between 22% and 43 % of total Italian manufacturing exports.

This average picture of the industrial district contribution to Italian exports, hides a very heterogeneous behaviour of the different manufacturing sectors. Table 3 presents figures for some macro manufacturing sectors adopting the lower-limit method. For the group of so-called traditional sectors, industrial districts contributes for more than 40 % to Italian exports in textile and clothing, and leather etc; for more than 35 % in furniture and ceramic goods, and jewellery and musical instruments.   Going at a lower level of aggregation the contribution is even higher. For example, in the leather industry the industrial district contribution to Italian exports is 69,6 %. In the tyles industry it is 66.2 %. This number are even more impressive since they are a lower limit to the true contribution of the "district effect".

Table 3: Industrial district major-sector contribution to total Italian exports by macro-sectors (%)	
Macro-sector	**1996**
Textile and Clothing	42,6
Leather, Leather goods and Footwear	47,4
Furniture and parts, Ceramic goods	37,9
Jewellery and Musical instruments	39,6
Mechanical industry	18,1

Source: ISTAT (1999)

In the mechanical industry, the industrial district has a lower impact (18,1 %). However, within this macro-sector there is the agricultural machinery industry in which the industrial districts contributes for 42,9 % of Italian exports.

Moving to the contribution of the single district, Tables 4, 5, 6, 7 and 8 present the industrial districts that contributes more than 10 % to total Italian exports in their major-sector.

Table 4: Industrial districts contribution to Italian exports %, 1996 (major-sector in brackets)	
Textile and Clothing	
Biella (textile fibres)	10
Como (textile fabrics) (knitwear)	11,7 10,8
Treviso (knitwear products)	10,7
Empoli (leather garments)	20,8
Prato (textile fabrics) (knitwear)	24,6 22

Source: ISTAT (1999)

Table 5 Industrial districts contribution to Italian exports %, 1996 (major-sector in brackets)	
Furniture and related products	
Desio (plywood etc.)	15,1
Di Valpolicella (cutting stones)	25,6
Udine (furniture) (plywood)	10,7 13,3
Sassuolo (tile)	51,3
Civita Castellana (ceramic not for construction)	11,4

Source: ISTAT (1999)

Without entering into details, within the textile and clothing macro-sector, two districts, Como and Prato, represent more than 35% of Italian textile fabrics exports and more than 32% in knitwear (Table 4). Sassuolo alone covers more than 50% of Italian tile exports (Table 5).

Table 6 Industrial districts contribution to Italian exports %, 1996 (major-sector in brackets)	
Leather, leather goods and footwear	
Arzignano (leather)	26,8
Montebelluna (footwear)	10
Santa Croce (leather) sull'Arno	21,5
Solofra (leather)	16,3

Source: ISTAT (1999)

Table 7 Industrial districts contribution to Italian exports %, 1996 (major-sector in brackets)	
Jewellery and Musical instruments	
Vicenza (jewellery)	17,1
Arezzo (jewellery)	34,3
Recanati (musical instruments)	16,8
Osimo (musical instruments)	10

Source: ISTAT (1999)

In the leather sector 3 districts (Arzignano, Santa Croce sull'Arno and Solofra) account for more than 60 % of Italian exports (Table 6). A similar situation arises for jewellery where two

districts (Arezzo and Vicenza) represent more than 50 % (Table 7). Within the mechanical macro-sector the role of districts is less impressive, but it still has an important role especially in the agricultural machine where two districts (Modena and Treviglio) account for more than 25% of Italian exports.

Table 8 Industrial districts contribution to Italian exports %, 1996 (major-sector in brackets)	
Mechanical industry	
Treviglio (agricultural machine)	15,7
Padova (optical instruments)	10,8
Pieve di Cadore (optical instr.)	12,2
Modena (agricultural machine)	10,1

Source: ISTAT (1999)

But how important are the industrial districts on world markets in their major-sector ?

Table 9 shows how some industrial districts play a major role also in world exports markets[14].

Table 9 World export market share of some industrial districts (major-sector in brackets)	
Sassuolo (tiles and ceramics)	39,2
Como (silk fabric)	25,9
Prato (wool web)	19,6
Belluno (glasses)	17,6
Carrara (marble)	13
Arezzo (jewellery)	13
Verona (marble)	10,1
Arzignano (leather)	10

Source: adapted from Fortis (1999)

The most impressive case is again that of Sassuolo with approximately 40 % of the tile world export market. Also Como is important with one quarter of the world silk fabric export market.

Additional evidence of the link between industrial districts and exports can be found in Bagella, Becchetti and Sacchi (1998). They show[15] that export intensity of distrectual firms is higher than for other firms (25,6 % against 21,1 %).

3. Are firms in industrial districts more efficient?

In the previous section we have reviewed how important are industrial districts for Italian exports even adopting the lower–limit method. A natural question arising at this stage is whether firms within a district are more efficient than firms outside it. An attempt to answer this question can be found in a series of studies prepared originally within the research department of the Bank of Italy. The study by Fabiani, Pellegrini, Romagnano, Signorini (1999) and Fabiani, Pellegrini (1998) analyse, on the basis of company accounts, the profitability of firms within the districts. Over the period between 1982 and 1995, firms within the districts have a higher profitability[16] than firms outside it. Moreover, within the districts firms specialised in the core business of the district (the major-sector) are more profitable than firms not belonging to it. The latter group of firms is heterogeneous in the sense that it includes firms with a backward or forward link to the major-sector firms (those belonging to supporter sectors) and those completely extraneous to the activity of the districts, but still localised within it (those belonging to the non-related sectors). The expectations are that the first group is more profitable than the second. No evidence is available at the moment on this issue.

Then, the higher profitability of industrial district firms can be due to lower labour costs and/or to higher efficiency. On the first issue (lower labour costs) the evidence is not very sharp. The already cited authors find that per capita labour cost seems to be lower for firms located in industrial districts. The labour market within the districts seems to be characterised by an average age of the young employee that is lower than outside it, by a higher mobility both among firms and toward an autonomous activity, by a higher wage when certain specific skills have been acquired (Casavola, Pellegrini, Romagnano, 1999).

As for the efficiency issue, the message emerging from the available literature is that in general distrectual firms belonging to the major-sector are more efficient than all other firms (i.e. firms located in the district, but not in its core business and firms located outside it) (Fabiani and Pellegrini, 1998).

4. Conclusions

In the previous sections we have reviewed some evidence on the Italian pattern of international specialisation. On one side, it emerges the usual picture of a trade pattern biased toward traditional sectors and a part of the mechanical macro-sector defined as specialised suppliers. This pattern is more similar to that of some emerging economies than to that of other industrialised countries. However, if the analysis is conducted at less aggregate level, the similarities with the emerging economies are reduced since within the various macro-sectors Italy is specialised mainly in the medium-high quality segment that don't enter in direct competition with the portfolio of products of these economies.

Not only the Italian trade pattern is biased toward traditional and specialised suppliers macro-sectors, but also the distribution of industrial districts is characterised by a strong presence within these two macro-sectors. Especially within traditional macro-sector industrial districts generate an important portion of Italian exports. We have also new quantitative evidence that on average firms within industrial districts are more efficient than those outside.

Overall, the picture presented here is not as pessimistic as usually claimed. However, one should not hide the fact the process of globalisation, even assuming net benefits in the medium run, imposes adjustment costs in the short run. The mobility asymmetry between capital (highly mobile) and labour (low mobile), in a situation of increasing competitive pressure, poses the majority of the adjustment on the labour side (higher flexibility, unemployment). In addition, the increasing fragmentation of the production process put a lot of pressure on the network link between the firm and its territory. In the past, this link has been one of the cornerstone of the industrial district. The delocation abroad of some production stages should not be thought as a necessarily negative sum game. It can be exactly the strategic move that might allow other stages of the same production process to remain internationally competitive and located within the district. The final results will depend crucially on which phases of production will be relocated. If the knowledge intensive phases will remain in place, then the industrial district will not change very much in nature.

If the attitude toward the delocation process should be benevolent, what should really worry is the low attractiveness that the Italian system has for foreign direct investment.

Table A: Revealed Comparative Advantage Index for some industrial districts, 1997 (districts that coincide with provinces according to Sforzi, 1997)

PROVINCES→ / Sectors ↓	Biella	Bergamo	Brescia	Como	Lecco	Udine	Padova	Treviso	Vicenza	Forlì-Cesena	Modena	Reggio Emilia	Arezzo	Prato	Lucca	Pistoia	Ascoli Piceno	Pesaro Urbino	Teramo
Prod. agricol., silvic. e pesca	0.2	0.0	0.3	0.1	0.2	0.5	0.8	0.4	0.3	6.6	0.4	0.2	0.4	0.1	1.8	4.3	0.7	0.2	1.3
Prod. energetici	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.2	0.0
Minerali ferrosi e non	0.0	1.7	3.1	0.9	3.0	1.8	0.5	0.2	1.3	1.6	0.1	0.0	1.2	0.0	1.4	0.4	0.2	0.7	0.9
Minerali e prod. non metallici	0.0	0.5	0.4	0.3	0.2	0.4	0.5	0.6	0.6	0.4	7.4	3.7	0.4	0.1	3.3	0.1	0.1	0.4	0.6
Prod. chimici	0.9	1.3	0.2	0.8	0.5	0.3	0.3	0.2	0.5	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.7	0.1	0.6
Prod. metalmeccanici	0.5	1.2	1.2	0.9	1.4	1.2	1.3	1.1	1.0	1.0	0.9	1.4	0.3	0.2	0.5	0.4	0.7	1.2	0.7
Prod. in metallo	0.2	0.9	3.0	1.9	3.7	2.0	1.4	1.3	1.1	1.4	0.6	1.2	0.4	0.1	0.5	0.6	1.7	2.5	1.8
Macchine agricole e industriali	0.4	1.0	0.9	0.5	0.8	1.1	1.1	0.7	0.8	0.8	0.9	1.4	0.1	0.2	0.5	0.3	0.1	0.9	0.2
Macchine per ufficio	1.0	1.0	0.3	0.5	0.1	0.4	1.3	0.8	0.4	0.4	0.7	0.2	0.1	0.1	0.2	0.0	0.1	0.3	1.3
Materiale e forniture elettriche	0.5	1.1	0.4	0.9	1.1	0.6	0.6	1.1	0.8	0.7	0.3	0.7	0.6	0.2	0.3	0.2	1.3	0.4	0.6
Mezzi di trasporto	0.0	0.6	1.2	0.3	0.4	0.2	0.8	0.2	0.2	0.4	1.3	0.3	0.1	0.2	1.1	0.8	0.1	0.3	0.2
Autoveicoli	0.0	0.6	1.5	0.3	0.2	0.2	0.9	0.2	0.1	0.3	1.8	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.3
Altri mezzi di trasporto	0.0	0.5	0.1	0.2	1.0	0.1	0.6	0.3	0.6	0.8	0.0	0.1	0.0	0.8	4.0	2.7	0.0	1.0	0.0
Prod. alimentari	0.0	0.0	0.4	0.3	0.5	0.6	0.5	0.7	0.3	1.3	1.2	1.2	0.9	0.0	1.4	0.8	0.2	0.2	1.6
Tessile	17.5	1.6	0.8	5.4	1.9	0.3	0.6	0.7	1.0	0.2	0.1	0.2	0.7	17.0	0.2	4.2	0.2	0.1	1.6
Abbigliamento e maglieria	1.2	1.0	0.7	2.5	0.4	0.1	0.8	3.0	1.7	0.8	1.7	1.9	1.6	3.6	0.6	2.6	0.7	1.5	3.0
Cuoio e calzature	0.2	0.1	0.4	0.3	0.0	0.3	1.3	1.8	2.7	1.3	0.1	0.1	1.6	2.0	4.4	3.7	12.3	0.2	2.7
Legno e mobili in legno	0.3	0.4	0.3	2.5	0.2	7.8	1.1	3.5	0.6	3.7	0.2	0.3	0.3	0.3	0.2	4.7	0.6	9.7	3.4
Carta, articoli di carta e stampa	1.2	1.1	0.4	0.6	0.8	1.0	1.4	0.6	1.3	0.4	1.0	0.4	0.1	0.1	10.1	2.5	0.8	0.1	1.1
Prod. in gomma e plastica	0.4	1.4	0.9	1.4	0.9	0.8	1.2	0.9	0.9	1.0	0.4	0.5	0.2	0.2	1.0	1.4	2.7	0.8	2.2
Altri manufatti	0.1	0.2	0.2	0.6	0.2	0.2	0.5	1.9	6.3	0.0	0.2	0.1	26.4	0.6	0.4	0.2	0.7	0.1	1.6

TABLE B - Concordance for macro-sectors.

Macro-sectors	Sectors (SITC Rev.2)
Total Merchandise	all sectors
Agricultural Resource Intensive	0, 1, 21-26, 29, 4
Mineral resource Intensive	27, 28, 3, 661-663, 667, 671, 68
Manufacturing	51-59, 61-65, 664-666, 672-679, 69, 71-75, 761-764, 771-776, 778, 78, 791-793, 81-85, 87, 881-885, 892-898, 899
Unskilled Labour Intensive	61, 63, 65, 664-666, 793, 81-85, 893-895, 899
Human Capital Intensive	53, 55, 62, 64, 672-679, 69, 761-763, 775, 78, 791, 885, 892, 896-898
Technology Intensive	51, 52, 54, 56, 58, 59, 71-75, 764, 771-774, 776, 778, 792, 87, 881-884

Source: adjusted from Krause (1982), Garnaut and Anderson (1980), Park and Park (1990).

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Notes.

[1] Presented at the ASEM conference "Italian districts and technology transfer" organised by MinComEs and ICE in Bari, 5 October 1999.

[2] This term is referred to the average pattern of specialisation of the industrialised countries.

[3] The macro-sectors considered here are those corresponding to the Pavitt's (1984) taxonomy.

[4] The RCA is here defined as the Italian share of world exports in the i-th sector divided by the same share referred to total Italian exports.

[5] Spearman's rank correlation coefficients have been computed on the bases of the 2 digits aggregation level of SITC rev.2 sector classification.

[6] For a more detailed analysis of the dynamics in the trade pattern for all these countries see Brasili-Epifani-Helg (1999).

[7] De Nardis and Traù (1999) find similar results including in the comparison also the pattern of specialisation of some Eastern European countries.

[8] Not all, however. For a distinction between the low price-elasticity textile sectors and high price-elasticity clothing sectors see Faini (1991).

[9] One of the first studies analysing Italian export performance from a perspective of local system of production (a concept that approximates that of industrial districts) is Viesti (1994). See also Conti (1995), Conti and Menghinello (1996).

[10] For a discussion of the limits of the criteria adopted in the empirical definition of industrial districts see Brusco e Paba (1997).

[11] On the basis of the INPS data base, Fabiani and Pellegrini (1998) estimates that on average only 35 % of the employee in an industrial district work within the major-sector.

[12] This data is not strictly comparable with the one of 43,3%, since both Viesti (1997) and Becattini and Menghinello (1998) use export for 1995 at the "province" level to obtain information on the local system of production (differently from the most recent data in ISTAT, 1999, that are at the "comune" level). Fortis (1998) also utilizes exports data at the province level, but adopt the upper-limit method, to obtain a share for industrial district exports of 35.4 %.

[13] Even if the procedure in the two studies differ, they obtain the same result.

[14] The data in this table are not directly comparable to those of the previous ones, because of the different methodology utilised in the less precise definition of industrial districts in Fortis (1999). In his work the lack of export data at firm/comune level, impose the use the "province" as the unit of analysis, with obvious costs in terms of precision.

[15] They use the Mediocredito database based on a representative sample of 5000 firms.

[16] Measured either with the return on investment or with return on equity.