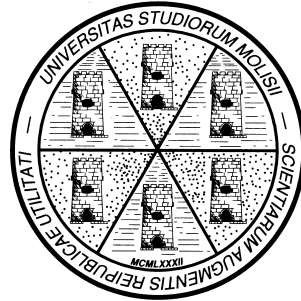


Università degli Studi del Molise  
Facoltà di Economia  
Dipartimento di Scienze Economiche, Gestionali e Sociali  
Via De Sanctis, I-86100 Campobasso (Italy)



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**The indirect effects of manufacturing internationalization on logistics:  
evidence from the Italian districts**

by

Elena Maggi,  
*University of Molise, Dept. SEGeS*

Ilaria Mariotti  
and  
Flavio Boscacci  
*Politecnico di Milano, DIAP*

# The indirect effects of manufacturing internationalization on logistics: evidence from the Italian districts

Elena MAGGI<sup>1</sup>, Ilaria MARIOTTI and Flavio BOSCACCI<sup>2</sup>

1 corresponding author: Università del Molise, Facoltà di Economia, SEGES, elena.maggi@unimol.it

2 Politecnico di Milano, DIAP, ilaria.mariotti@polimi.it; flavio.boscacci@polimi.it

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## Abstract

The aim of the paper is to investigate the indirect impact of internationalisation process, undertaken by the district firms located in Veneto region (north-eastern Italy), on the logistics' employment change within the same industrial districts.

The results of the empirical analysis have showed that within the districts there is not a clear positive relationship between internationalisation and the employment growth in the logistics sector. This might be due, either to a strong insourcing of logistics activities by district firms, or to a trend of outsourcing such activities to logistics suppliers located outside the industrial districts.

The paper is organised into five sections. An introduction is followed by a literary review on the direct and indirect effects of manufacturing internationalisation on the home country, with a specific focus on logistics. The sample and the methodology are described in section three, section four presents the empirical results. Conclusions and further research questions follow.

JEL classification: F23, L91, R40

*Keywords:* internationalisation, industrial districts, logistics sector, indirect effects.

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## 1. Introduction

Traditionally, scholars describe Italian industrial districts as closed manufacturing systems of small and medium size enterprises (SMEs) embedded in local contexts, able to interact with the outside only at the two ends of the value chain and where well-identified firms were in charge of managing the relationships with final markets (Becattini, 2002; Piore and Sabel, 1984). At the end of the nineteen-eighties and during the nineties, even local systems of SMEs perceived the importance of increasing their contacts with firms outside the local district area. The emerging internationalisation process carried out by Italian district SMEs highlights their abilities to globalise not only by selling products manufactured locally in international markets (export-based perspective), but also in terms of the international reorganisation of local supply chains, which promotes the transition of the industrial district from productive to logistics-distributive platform (Mazzarino, 2006).

The internationalisation of production, independently by the modes in which it is carried out (export, foreign direct investments, subcontracting, joint-ventures, etc.), produces an impact on the logistics sector because it increases the flows of goods to be moved and leads to a more expensive and complex logistics system.

The expansion into large international markets, consequently, brings about not only more supervision, coordination and control over geographically-dispersed activities, but also the extension of activities and functions that are generally centralised at the headquarters level, such as logistics, R&D, marketing, etc. (Blomstrom et al., 1997; Fors and Kokko, 1999; Mariotti et al., 2003). Such activities, and specifically logistics, can be either developed within the multinational company (insourced) or left to third party providers (outsourced). In the first case, we can talk about direct effects (i.e. on the company undertaking the foreign initiative); in the second case of indirect effects (i.e. on the company's supply chain and on the broader business environment in which it operates).

The present paper aims at investigating the indirect effects of internationalisation, undertaken by the district firms located in Veneto region (north-eastern Italy) in 1996-2001, on the logistics firms, which has occurred within the same districts in 1996-2003. The internationalisation is measured in terms of outward foreign direct investments (FDI); the indirect effects in terms of employment change in the logistics sector, i.e. firms which manage, handle, transport and warehouse freight on behalf of a third party (see Boscacci, 2003).

At least to our knowledge and referring to the Italian case, only two studies were carried out on the impact of manufacturing internationalisation on the service sectors' employment (Savona and Schiattarella, 2004; Mariotti and Piscitello, 2007); they agree that this impact is positive. In the present paper, following the methodology used by Mariotti and Piscitello (2007), the analysis is carried out at the level of the industrial

district, specifically, the 34 districts located in Veneto, as identified by the Istat classification in 1996, operating in the Made in Italy sectors (textile-clothing, home furniture, leather-shoes, electro-mechanics).

The paper is organised into five sections. The introduction is followed by a literary review on the direct and indirect effects of the internationalisation made by manufacturing firms on the home country – from which outward FDI originate. Specifically, attention is devoted to the indirect effects of outward FDI on the employment change of the logistics sector. The sample and the methodology are described in section three, section four presents the empirical results. Conclusions and further research questions follow.

## **2. The impact of internationalisation**

### *2.1 Direct and indirect effects*

The literature on the impact of internationalisation refers to countries of origin (home country) and destination (host country) of the investments. The studies at host country level are more extensive but the attention on the impact of internationalisation on the home country has strongly increased in the last two decades because of its social and economic consequences. In industrialised countries there is a fear of losing jobs because of outward FDI, and in Italy this fear rouses the debate on the “survival” of the Italian industrial district model, which is becoming a logistics-distributive platform.

In the present paper the attention is turned to the home effects of outward FDI undertaken by manufacturing firms. They could be classified in: a) direct effects, when they impact on the multinational enterprises (MNEs); b) indirect, when they concern the actors (products or services’ suppliers or distributors) of the same supply chain in which the MNE operates or of other supply chains.

The analysis on the direct effects mainly describes the impact on (i) productivity, (ii) output and trade, (iii) employment, (iv) labour intensity and skills, (v) managerial capabilities and (vi) technology (for an overview see Lipsey, 2002; Barba Navaretti and Venables, 2004). They generally find that firms investing abroad are the best performers in terms of productivity, that foreign output does not substitute for the home output of MNEs, and that there is a price complementarity between employment in foreign affiliates in low-wage countries and home employment.

As far as the effects of FDI on domestic labour intensity, the empirical results are mixed. While US firms tend to use less labour per unit of output at home if they produce more abroad, the opposite holds for Swedish firms (Blömstrom *et al.*, 1997).

Outward FDI not only affects labour intensity, it can also induce so-called skill upgrading (i.e. the variation in the composition of home employment between skilled and unskilled labour). The bulk of the empirical literature measures skill upgrading as an increase in the share of skilled workers wages in industry total wage bill.

Hansson (2001) finds that the relocation of activities by Swedish MNCs to non-OECD regions has contributed to the skill upgrading of their home activities. Likewise, Castellani *et al.* (2006) underline that the impact of outward FDI, by Italian MNE, on domestic skill upgrading is positive and significant only when foreign initiatives are undertaken in Central Eastern European Countries (CEEC). This supports the hypothesis that the transfer of labour intensive production activities, which requires unskilled employees, leads to an increase in skilled workers at the parent company level.

Referring to indirect effects, the question is if the internationalisation, undertaken by manufacturing MNEs, generates an impact on the other firms belonging to the same business environment. Such an impact may concern: (i) number of establishments; (ii) employment and skills, (iii) performance<sup>1</sup>; (iv) trade; (v) managerial capabilities and (vi) technology. Nevertheless, because of lack of data, most of the studies analyse both direct and indirect effects on the manufacturing sector and just focus on employment change and skill-upgrading. Only two papers (Mariotti and Piscitello, 2007; Savona and Schiattarella, 2004) have investigated the indirect impact of the internationalisation of production on services.

As concerns the effects on the manufacturing sector, Slaughter (2000) points out that foreign production has no effects on skill intensity at home within industries, while Falzoni and Grasseni (2003), in their study at industry level, show that the expansion of international production by Italian multinationals has a positive impact on average relative wages at home that does not depend on the location of foreign affiliates.

Mariotti *et al.* (2003) take into account the geographical dimension and focus on regional industry, which is defined as the ensemble of firms operating in the same industrial macro-sector – consisting of interdependent sectors belonging to the same supply chain – and localised in the same geographical region. The authors found that the variation in employment in foreign affiliates of Italian manufacturing firms significantly influenced the labour intensity of domestic production. In particular, the impact is negative for vertical investments made in less developed countries and positive for horizontal and market-seeking investments in advanced countries. Likewise, Federico and Minerva (2005) analysed the Italian industrial province level and confirmed a positive and statistically significant effect on the local employment, especially when FDI is concentrated in the advanced countries (while the opposite is true when FDI targeted Eastern Europe).

As concerns the indirect effects on services, Mariotti and Piscitello (2007) in an analysis on the industrial districts in Veneto, find a positive relationship between

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<sup>1</sup> We mean performance at firm and industry levels. According to Ietto-Gillies (2005), at firm level, performance includes: growth, profitability and cash flow indicators; at industry level: productivity, profits, innovation, etc.

outward FDI and the employment growth in the service sector, causing a sectorial re-composition at the local level.

Similarly, Savona and Schiattarella (2004) emphasise that the internationalisation process, undertaken in the Italian provinces specialised in the made in Italy sectors, induced an employment growth in the services in 1991-1996. Specifically, the growth rate of employment within the most traditional service sectors (i.e. transport, wholesale and finance) is higher in the most internationalised provinces, as it will be discussed in the next section.

## *2.2 The impact of internationalisation on the logistics sector*

The internationalisation process has a strong impact on logistics both at macro and micro scales because it leads to an increase of goods' flows and warehousing activities and it requires an efficient and effective logistics system.

The export and the delocalisation of production activities outside the home country has led to an increase in the transportation intensity of goods and, although in a less substantial way, of people, specifically managers and technicians who control and supervise the affiliates of the multinational enterprises (MNE), which are geographically dispersed. The production cycle is fragmented in different countries in order: to exploit cost differentials (resource-seeking and cost-saving investments); to enlarge the market (market-seeking investment); to achieve complementary assets of strategic relevance (strategic asset-seeking investments). In particular, the resource-seeking and cost-saving investments induce a transfer of raw material, semi finished products and/or finished products from the home towards the host countries and *viceversa*.

These global flows lead to an increasing use of logistics networks, which promotes towards their reorganisation, enlargement and improvement. In particular, at micro-scale, following the centralisation and polarisation model, firms concentrate logistics activities in a lower number of largest nodes (all the structures supporting the supplying, production and final distribution phases: establishments, assembly places, storehouses, logistics platforms) and relocate them in order to serve several regional/international markets at the same time (ECMT, 1996; Maggi, 1998; Brewer *et al.*, 2001).

The old production system, in which establishments and storehouses had a specific size and worked at national scale, has gradually been substituted by the focused manufacturing, in which the whole production of a specific product, serving a whole market, is concentrated in one production place (Dallari and Marchet, 2003). Nowadays, the lean production model prevails. Firms transfer the final production phases, which essentially concern the customisation (packaging), outside their establishments and much more frequently close to the market. Besides, it can happen that those firms which are integrated into large transnational markets and undertake investments in low-wage

countries, may open a logistics node in these areas or outsource logistics to local suppliers.

The outsourcing of production phases allows, therefore, to differentiate the final product according to the specific regional or international markets of destination and induces to choose a location of the final production phases nearby the big hubs and the most important intermodal nodes (national or foreign), where the warehouse and distribution centres are settled.

In this global scenario, the logistics sector intends to guarantee a reactive and efficient supplying of these verticalised and dispersed production phases and to guarantee a just-in-time distribution, in order to contribute to the achievement of competitive advantages concerning cost and differentiation (Kobayashi, 1998; Aguiari and Marini, 1999; Civiero and D'Agostino, 2003).

Besides, the same effects of manufacturing internationalisation on performance, employment, skills, etc., which have been extensively described earlier, can also be traced in the logistics sector. Manufacturing firms investing abroad tend to focus on their core business and outsource non-core phases such as logistics activities. As a consequence, a growth in the number of logistics operators occurs and the performance of big logistics agents increases because they offer integrated services of transport, warehousing, packaging, labelling, etc. and are able to reach economies of scale.

The literature on the impact of internationalisation on the logistics sector is, nevertheless, rather scanty and focuses on employment. Specifically, the direct impact of internationalisation may involve a change (either positive or negative) in the number of logistics workers employed in the MNE; the indirect impact may induce a change in the number of logistics domestic firms and/or their employment. In the present paper we focus on the effects of internationalisation on employment.

Higher is the internationalisation degree of a manufacturing firm, stronger is the need of more supervision, coordination and control over geographically-dispersed activities as well as of the extension of activities and functions that are generally centralised at the headquarters level like logistics. If the MNE decides to outsource logistics activities, negative direct effects on the number of logistics workers within the firm might occur while positive indirect effects on the domestic logistics firms (in terms of employment, but also of performance, trade, managerial capabilities, technology, etc.) may be expected; *viceversa* in case of insourcing.

The existing works, at least to our knowledge, refer to the effects of internationalisation on: (i) the change of the number of workers, specialised in the logistics functions, employed in the manufacturing MNE (Unioncamere-Mediobanca, 2005); (ii) the employment change of the logistics sector (Savona and Schiattarella, 2004 for the Italian provinces) (iii) the logistics structure of the industrial district (Mazzarino, 2006 for the industrial district of Montebelluna in Veneto).

The first study, which focuses on the direct effects of internationalisation, refers to a sample of Italian manufacturing medium-sized firms which have internationalised. It results a positive relationship between the internationalisation degree of the firm and the logistics employment growth in the same firm after the investment in 2002-2005 (Unioncamere-Mediobanca, 2005).

The studies belonging to the second and third groups refer to the indirect effects. As stated earlier, Savona and Schiattarella (2004) find that the growth rate of employment within the service sectors, including logistics, is higher in the most internationalised Italian provinces. Mazzarino (2006) in his study on the Italian industrial district of Montebelluna in Veneto, finds that about 80% of warehousing and store management is insourced by manufacturing firms, while the bulk of transport activities is outsourced to district logistics suppliers. Actually, the logistics outsourcing in Italy is not very developed; the estimated rate of outsourcing is nearly 18%. As a consequence, the logistics services' supply is very fragmented and often specialised on one specific service, mainly transport.

### **3. Data and description of the sample**

In the present paper, the internationalisation of the Italian districts in 1996-2001 is measured as the ratio of the employment change in foreign affiliates (FDI) of firms located in a district and the total employment change that occurred in the same industrial district and in the same period. Data on FDI come from the Reprint database of the Politecnico di Milano<sup>2</sup>, which provides a census of inward and outward FDI since 1986, and it is updated every year.

Data on the salaried employees in the industrial districts for the period 1996-2003 are provided by the Italian National Social Security Institute (INPS).

The unit of analysis is the industrial district, in particular, the 33<sup>3</sup> districts, as defined by the ISTAT classification (Signorini, 2000)<sup>4</sup>, located in Veneto region, in the north east of Italy. More than 60% of the districts is concentrated in the North of the country while the central area accommodates 33% and the South 4.5% (Table 1). As far as the sectorial distribution is concerned, the Made in Italy industries prevail and account for the 80%.

Veneto is a relevant test bed for the analysis because it is characterised by a high internationalisation degree: about 82% of the district firms have foreign affiliates and almost half (49,8%) of foreign workers are located in CEE countries; advanced countries (ADV) and developing countries (DEV) follow with 26,5% and 23,7%,

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<sup>2</sup> The database is developed by the DIG - Politecnico di Milano and it is sponsored by ICE (National Institute for Foreign Trade).

<sup>3</sup> Although ISTAT defines 34 industrial districts in Veneto, the industrial district of Vicenza in the jewellery sector has been excluded by the analysis because of problems related to the sectorial classification of the district firms.

<sup>4</sup> In 1996 ISTAT has divided Italy in 199 industrial districts.



respectively (Table 2). Of those, Conegliano (n. 81), Treviso (n. 85), Montebelluna (n. 82), Padova (n. 92), Pieve di Cadore (n. 78) and San Giovanni Ilarione (n. 68) districts present a stronger internationalisation degree (Table 2).

Besides, more than 70% of the foreign workers originating from the districts of Cerea (n. 66), San Giovanni Ilarione (n. 68), Thiene (n. 75), Cittadella (n. 88), Bassano del Grappa (n. 71) and Montebelluna (n. 81) are employed in the affiliates in Central Eastern Europe (CEE). On the other hand, advanced countries host more than 70% of the foreign employees of the districts of Badia Polesine (n. 94), Oderzo (n. 83) and San Bonifacio (n. 67) and developing countries more than 80% of the foreign employees of Montagnana (n. 91), Bovolone (n. 64) and Adria (n. 93) districts.

**Table 1:** Geographical and sectorial distribution of the Italian industrial districts in the manufacturing sector (ISTAT classification)

Sector	North West		North East		Centre		South		Italy		Veneto	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Textile and clothing	25	42.37	20	30.77	18	30.00	6	40.00	69	34.67	15	44.11
Leather	0	0.00	4	6.15	19	31.67	5	33.33	28	14.07	3	8.82
Home furniture	4	6.78	14	21.54	11	18.33	2	13.33	31	15.58	8	23.52
Electro mechanics	18	30.51	14	21.54	1	1.52	0	0.00	33	16.58	5	14.70
Food industry	7	11.86	7	10.77	2	3.03	2	22.22	18	9.05	0	0.00
Others	5	8.47	6	9.23	9	13.64	0	0.00	20	10.05	3	8.82
Total												
- N.	59	100.00	65	100.00	66	100.00	9	100.00	199	100.00	34	100.00
- %		29.65		32.66		33.17		4.52		100.00		

Source: Mariotti et al. (2005) – Elaboration on ISTAT data

**Table 2: Workers in the foreign affiliates of the district firms – total<sup>1</sup> and by host countries (%)**

Istat code	Industrial district	Total employment	Host countries			Total
			ADV	DEV	CEE	
64	BOVOLONE	1.4	0.0	83.3	16.7	100
65	CASTAGNARO	0.0	0.0	0.0	0.0	0.0
66	CEREA	0.1	0.0	0.0	100.0	100
67	SAN BONIFACIO	0.8	71.4	28.6	0.0	100
68	SAN GIOVANNI ILARIONE	0.5	0.0	0.0	100.0	100
69	SANT'AMBROGIO DI VALPOLICELLA	3.1	8.1	36.9	55.1	100
70	ARZIGNANO	3.2	42.2	38.5	19.3	100
71	BASSANO DEL GRAPPA	3.7	13.1	5.8	81.1	100
72	LONIGO	0.4	46.4	26.8	26.8	100
73	MAROSTICA	0.3	62.0	0.0	38.0	100
74	SCHIO	2.5	37.2	4.0	58.8	100
75	THIENE	3.7	5.1	0.0	94.9	100
77	PIEVE D'ALPAGO	0.4	0.0	33.3	66.7	100
78	PIEVE DI CADORE	9.2	26.9	31.0	42.1	100
79	SANTO STEFANO DI CADORE	0.0	0.0	0.0	0.0	0.0
80	CASTELFRANCO VENETO	1.2	29.0	45.2	25.8	100
81	CONEGLIANO	18.1	38.3	13.8	47.8	100
82	MONTEBELLUNA	12.5	10.5	12.8	76.6	100
83	ODERZO	2.0	76.5	0.0	23.5	100
84	PIEVE DI SOLIGO	0.5	25.0	25.0	50.0	100
85	TREVISO	15.8	41.5	35.6	23.0	100
86	VITTORIO VENETO	0.4	0.0	33.3	66.7	100
87	CAVARZERE	0.0	0.0	0.0	0.0	0.0
88	CITTADELLA	4.9	7.0	7.4	85.5	100
89	ESTE	0.8	0.0	35.8	64.2	100
90	MONSELICE	0.9	13.0	26.1	60.9	100
91	MONTAGNANA	0.3	0.0	87.0	13.0	100
92	PADOVA	12.4	18.9	34.9	46.2	100
93	ADRIA	0.6	20.0	80.0	0.0	100
94	BADIA POLESINE	0.1	100.0	0.0	0.0	100
95	CASTELMASSA	0.0	0.0	0.0	0.0	0.0
96	PORTO TOLLE	0.0	0.0	0.0	0.0	0.0
97	TRECENTA	0.0	0.0	0.0	0.0	0.0
Average		100.0	26.5	23.7	49.8	100.0

<sup>1</sup> The number is null when firms belonging to the industrial district do not have affiliates (and employees) abroad in the same period.

ADV: advanced countries (Europe, North America and other advanced countries); DEV: developing countries (Asia, Latin America, Africa); CEE: Central and Eastern Europe

#### 4. The employment change in the logistics sector within the industrial districts

The INPS data on the logistics employment refer to the ATECO category “I” (Transport, Warehousing, Communication). The majority of the workers in the industrial districts in Veneto are employed in road haulage and “other activities” because a transport-intensive model predominates (Table 3). This is in line with the literature on the districts’ logistics, according to which the transport by road is more frequent than the one by rail because the second is adopted by medium and large sized firms. As presented in Table 3, in the period of analysis the subsector which has grown more is the air freight, followed by inland transportation.

In order to investigate the effects of the industrial districts’ internationalisation on the employment change in the logistics sector, in this section we define how to measure the internationalisation degree and the employment change.

Following Mariotti and Piscitello (2007), the internationalisation of the district in the period 1996-2001 is calculated as the ratio of employment change in foreign affiliates of the district firms on the employment change experienced by the industrial district in the same period.

$$I_i = (\Delta E_{Ai} / \Delta E_{Ti}) * 100$$

where:

$I_i$  = internationalisation degree of the industrial district  $i$  with  $i = (1, 2, \dots, 33)$

$E_{Ai}$  = employees in the foreign affiliates of the industrial district  $i$

$E_{Ti}$  = total number of employees in the industrial district  $i$

**Table 3:** Employment distribution in the different categories of logistics sector – industrial districts of Veneto

Sub-sector "I"	N. of employees in 1996	N. of employees in 2003	Var. % employees
Inland transport (road and rail)	9,759	12,348	26.53
Maritime transport	44	52	18.18
Air transport	101	831	722.77
Other auxiliary activities*	3,111	3,012	-3.18
Couriers	5	1	-80.00
Total	15,016	18,247	21.52

\* This category includes: a) handling operators; b) warehousing providers; c) operators which manage the nodal and linear transport infrastructure; d) shippers and multimodal transport operators; e) freight integrators.

Source: our elaboration on INPS data

Similarly, the employment change in the logistics sector in 1996-2003 is calculated as the ratio of employment change in the logistics firms, located in district ( $i$ ), and the total employment change which has occurred within the district ( $i$ ):

$$\text{Logistics-employment change (\%)} = (\Delta E_{Log_i} / \Delta E_{Ti}) * 100$$

The restriction to 33 industrial districts does not allow to run an econometric analysis, thus the results of descriptive statistics are presented.

Figure 1 and 2 provides a descriptive evidence of the relationship between the two dimensions (internationalisation and employment change in the district logistics firms); specifically, Figure 2 shows the internationalisation degree of district firms which have invested in CEE area, which attracts the majority of the FDI (50% of the employees in the foreign affiliates originating from Veneto work in this area as shown in Table 2).

All the internationalised districts show an employment growth in the logistics sector, with the exception of three of them (n. 77; 78; 92); nevertheless, in a few cases, an internationalisation degree above the average is positively correlated to a significant growth of the logistics' employment, as underlined by the little numerosness of districts located in quadrant I. By contrast, the opposite case is more frequent: a low logistics employment growth is associated to a scarce internationalisation (quadrant III).

An interesting case is offered by the Montebelluna district (n. 82), specialised in the sport system, which is the best performer in terms of employment growth. This pattern is synonymous of a strong outsourcing of the logistics activities by the district manufacturing firms (Isfort *et al.*, 2005; Mazzarino, 2006). Another peculiar case is represented by Thiene district (n. 75): its logistics employment growth is to be ascribed to the transport by air and, specifically, to the Volare Spa company which has been founded in the municipality of Thiene in 1998.

The relationship between internationalisation and logistics employment growth does not change significantly in case of vertical investments in CEE, as shown in Figure 2.

The analysis of the subsectors, namely “other auxiliary activities” (comprising the majority of the integrated logistics firms<sup>5</sup>) and “transport by rail and road”, is described in Figures 3 and 4.

The average growth of the “transport by rail and road” (7,2) is larger than the growth of the subsector “other activities” (0,8), which is mainly close to zero. These results from one side confirm that the transport by road is the most common transportation mode, specifically towards European countries and, from the other side, it stresses the trend to outsource more transport than the other logistics activities.

## 5. Conclusions and further research

The present paper aimed at investigating a topic that has not been explored in the literature: the indirect effects of manufacturing internationalisation on logistics employment. The performance of logistics firms may represent a crucial factor to enhance the competitiveness of the Italian industrial districts which are facing globalisation.

The empirical analysis has showed that within the districts there is not a clear positive relationship between internationalisation and the employment growth in the logistics sector. This might be due, either to a strong insourcing of logistics activities by district firms, or to a trend of outsourcing such activities to logistics suppliers located outside the industrial districts.

With reference to the first hypothesis, in Italy the outsourcing of logistics activities is below the European average. According to a recent study, for instance in the Montebelluna district about 80% of warehouses and stocks management is insourced (Mazzarino, 2006). If this is the case, it should, then, be interesting to measure the direct effect of internationalisation on the employment growth of the share of employees specialised in logistics functions working in the manufacturing district firms which have invested abroad.

As concerns the second hypothesis, the logistics activities of district firms might be supplied to third party logistics providers (national or foreign) or to players located in the countries where the investments have taken place. In this case, the indirect effects of

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<sup>5</sup> For an overview see Boscacci and Maggi (2002).

internationalisation spread outside the boundaries of the industrial districts, embracing national and even foreign firms.

This second hypothesis is reasonable considering that the Italian balance of payments of the logistics services is negative for about 4 billion euros, and this suggests that a loss of competitiveness by the national operators is occurring, and this is partially due to the strong supplying fragmentation. Federtrasporto and Nomisma (2005) state that in the decade 1995-2005 the market share of the Italian logistics firms has decreased from 50% to 35% for the overland transportation mode and from 61% to 24% for the air transportation, also due to the liberalisation processes.

A further research might focus on investigating the different impact on logistics activities of the internationalisation strategies: when cost-saving strategies occur it is important to avoid that the larger logistics costs are counterbalanced by the obtained savings; in case of market seeking and strategic asset seeking investments the logistics efficiency might become secondary.

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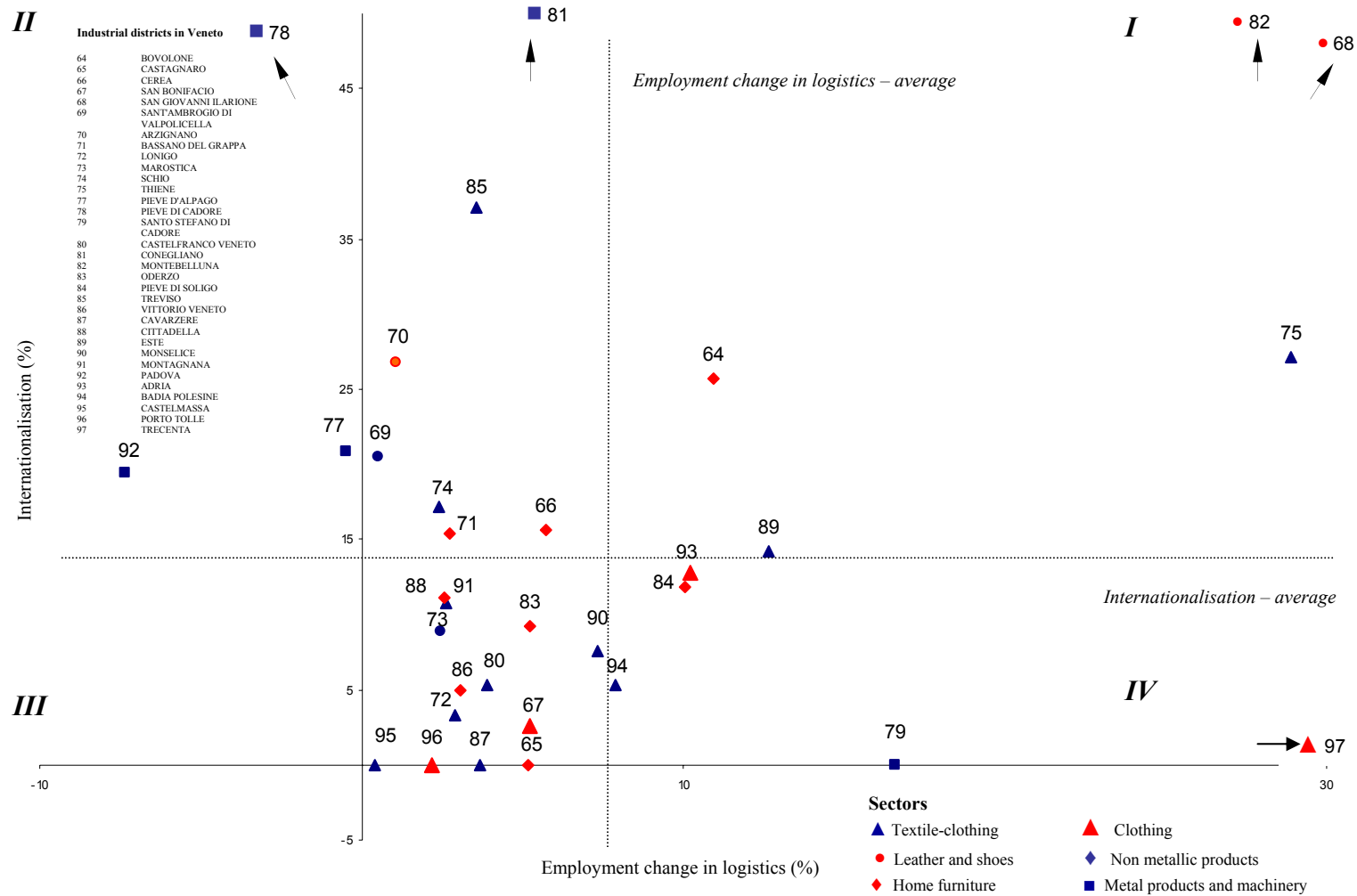


Figure 1 Internationalisation and employment change in the logistics sector



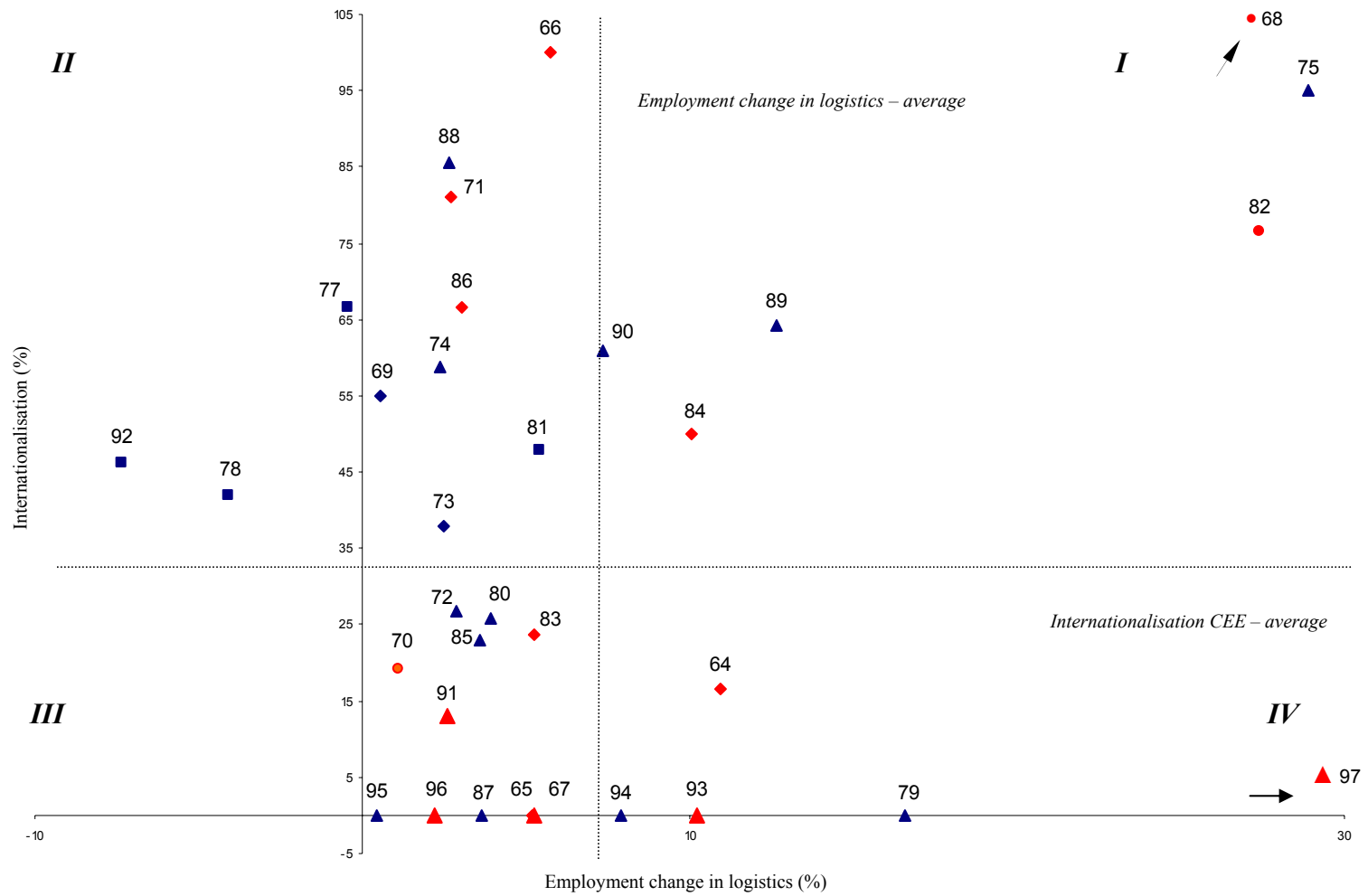


Figure 2 Internationalisation in CEE and employment change in the logistics sector

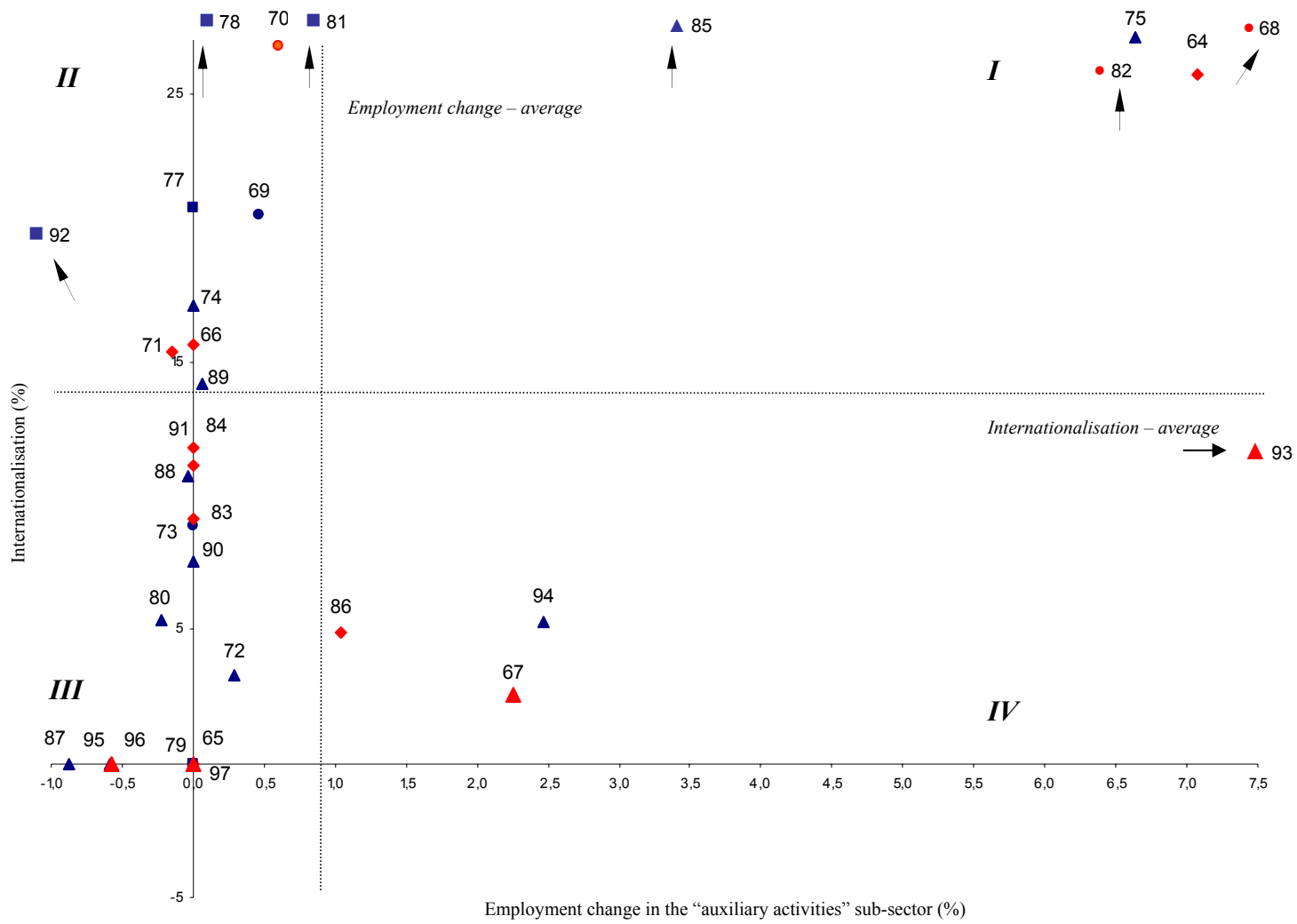


Figure 3 Internationalisation and employment change in the "auxiliary activities" sub-sector

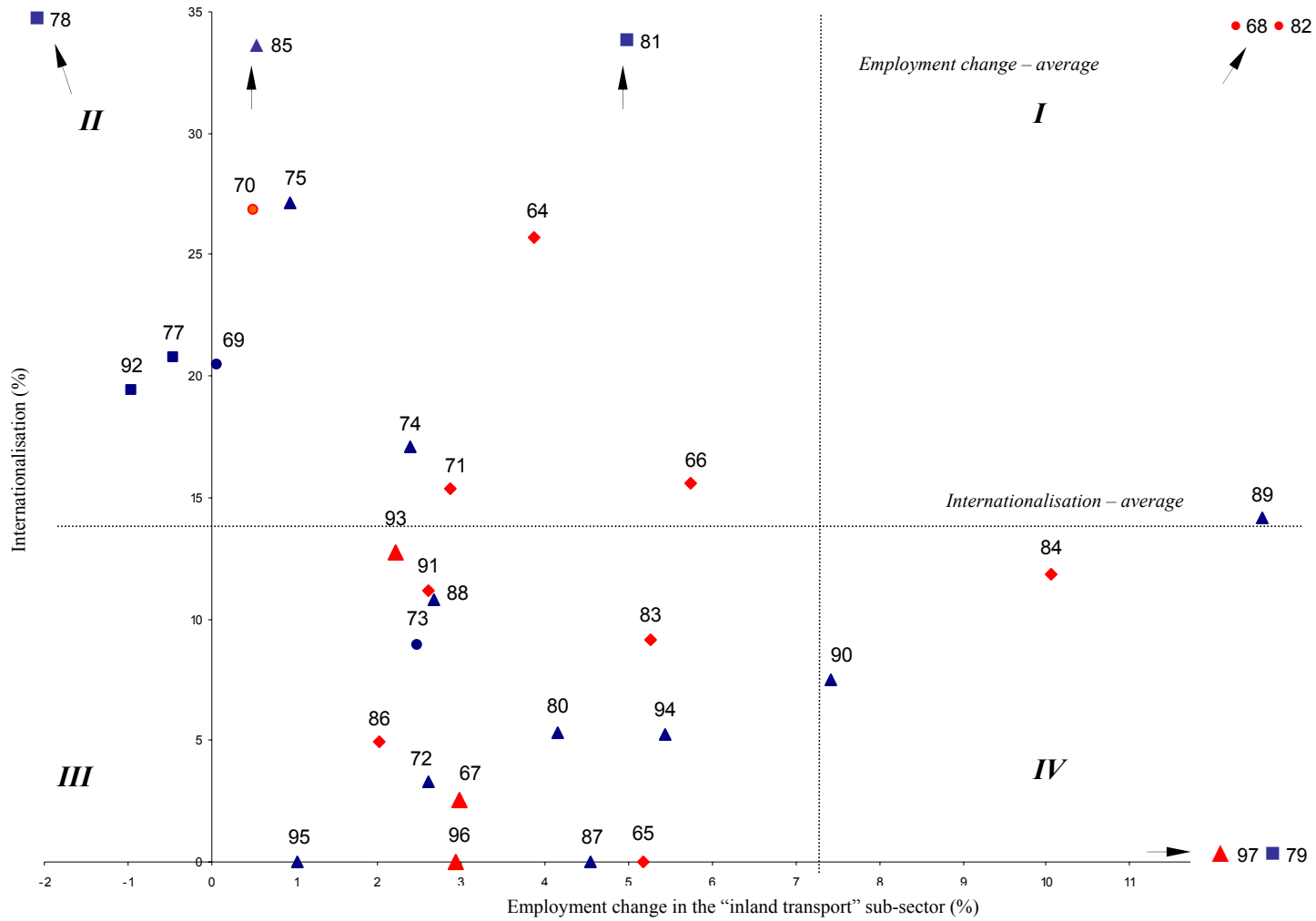


Figure 4 Internationalisation and employment change in the "inland transport" sub-sector