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GLOBALISATION AND THE RISE OF LOGISTICS FDI. THE CASE OF ITALY

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ABSTRACT

The globalisation of the economy, which has been fostered by the trade barriers reduction and the falling transport, communication and co-ordination costs, has changed the structure of the production processes from being concentrated in few plants to being fragmented in different plants and in different countries and has strongly increased the trade rate. This has fostered a tight increase of exchange flows, affecting the logistics activities, especially transport. Transport, indeed, plays a key role in connecting the different import and export markets and the vertically disaggregated components of production systems, which are widespread in the world. As a consequence, the Foreign Direct Investments (FDI) in logistics have quickly grown: in the last years, the growth rate of FDI in the utilities (energy, gas and water), logistics and communications has more than tripled and outward FDI in the logistics industry equals to 26% of the service total.

The aim of the present chapter is threefold. First, it presents the entity and the characteristics of outward and inward logistics FDI in Italy (section two). This country can be considered an interesting case because it is characterized by a fragmented, small sized transport industry and low value added logistics industry, which has attracted foreign logistics multinational enterprise (MNE) in the integrated logistics. Second, the work investigates in-depth strategies and motivations of the foreign MNE's investment decisions (section three). Specifically, the horizontal, vertical and conglomerate integration strategies are analyzed and the main motivations driving them are discussed. Third, it concerns the main drivers of inward logistics FDI's increase, and generally, the main factor fostering logistics growth: the manufacturing internationalization, which

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increases the demand for logistics services in the home country and consequently attracts providers from the other countries (section four).

The data on outward and inward FDI in Italy come from the LogINT database, developed by the Laboratory of Economics, Logistics and Territory (LabELT) of DiAP-Polytechnic of Milan in collaboration with the University of Molise, and covers the period 2000 – 2010.

1. INTRODUCTION

The logistics and transportation industry experienced the so-called logistics revolution (Vahrenkamp, 2010) starting in the 1950s. This industry, since that time, showed significant changes, which can be addressed to the following main phenomena: (i) the consumer-oriented economy; (ii) the internet-based information systems; (iii) the fall of transport costs; (iv) the European Traffic Policy; (v) the globalization of the economy.

The consumer-oriented economy (i) is not only addressed to mass consumption but also to mass production and mass distribution of consumer goods (Strasser, 1998). The consumer-oriented economy has, therefore, fostered an increased variety of models in material management, and has increased the complexity of logistics processes in production and trade.

Before the widespread availability of computers and telecommunications, the geographic dispersion of a complex production process was too hard to coordinate (Krugman *et al.*, 1995). The internet-based information systems (ii), developed in the 1990s, have drastically simplified and cheapened the exchange of information; besides, internet-based mail order businesses have strengthened parcel services.

Furthermore, in the last five decades, different technology innovations in freight moving and handling, such as containerization (Levinson, 2006), as well as the liberalisation process developed by the European Union, have contributed to drastically reduce also the transport costs (iii) (van Veen-Groot and Nikamp, 1999; Notteboom, 2007). In particular, over the twentieth century, the costs of goods' moving have declined by over 90% in real terms and this reduction is continuing. Therefore, the average cost of transport a ton a mile has decreased from 18.5 cents in 1890 (in 2001 dollars) to 2.3 cents in 2004 (Glaeser and Kohlhase, 2004).

As concerns the European countries, the Traffic Policy (iv), which has favored the liberalization of truck traffic, has strongly increased the truck fleet and the traffic flows in the European Union (EU). Only in about ten years, from 1990 to 1999, the road traffic within European member states increased by 76% (Vahrenkamp, 2010).

Finally, the globalization of the economy (v) has had a strong impact on logistics. As stated by van Veen-Groot and Nikamp (1999, pp. 331-332): "Globalisation is at present a "vogue" word that refers to opening up and increasing internationalization of markets, worldwide communications and mobility, changing consumption patterns and lifestyles, key positions of multinational firms in world markets, and shifting of industrial activities all over the world". Globalization has, then, been fostered by the above mentioned phenomena (consumer-oriented economy, the internet-based information systems, the fall of transport costs, the European Traffic Policy), as well as by the fall of goods, services, people and capital barriers, the liberalization of international trade and the adoption of free market principles by a wide range of countries (OECD, 1997). In particular, the structure of the

production processes, before concentrated in few plants, became fragmented in different plants and in different countries, at least as long as the costs for logistics and reorganization do not overwhelm the marginal advantage.

A new model of production was spreading: the previously integrated productive activities are segmented and spread over an international network of production sites, which implies the international fragmentation of production (see, among others, Arndt and Kierzhowsky, 2001). As a result, the increasing trade flows do not only include final goods, but also intermediate and unfinished goods being transferred from one country to another in order to be processed (Baldone *et al.*, 2002; 2006).

Within this context, transport and logistics play a key role in connecting the different import and export markets and the vertically disaggregated components of production system, which are widespread in the world (Yieming *et al.*, 2002).

The above described trends have impacted on the Foreign Direct Investments (FDI) in logistics, rising them quickly. In the last years, the growth rate of FDI in the utilities (energy, gas and water), logistics and communications has more than tripled (UNCTAD, 2006) and outward FDI in the logistics industry equals to 26% of the service total.

The FDI is one of the three forms of internationalization which can be chosen by the firms in a globalised era; the others are international trade and cooperation agreements (see, among the others, Ietto-Gillies, 2005). In particular, international trade, consisting of import and export, is the most common form and often the first entry mode adopted by a firm facing the global scenario, because it implies low involvement and risk degree for the internationalized firm.

Cooperation agreement, a more advanced and risky strategy than international trade, is mainly adopted by small and medium size enterprises (SME) because it is of short – medium term and does not require capital investment (non-equity strategy). In fact, it consists in agreements (licensing, franchising, alliances, subcontracting) on the development, distribution, and/or manufacture of final goods to be sold in the foreign market. FDI, instead, on which the present book chapter focuses, represents the most articulated and binding mode to enter the foreign markets, because it requires a significant capital investment through greenfields or mergers and acquisitions and imply a medium-long term obligation. FDI is the main tool adopted by medium and large sized firms, which aim to share the capital of a foreign firm, eventually with one or more partners.

More specifically, the present chapter is dedicated to the analysis of outward and inward FDI in the Italian logistics industry. This industry can be defined as the ensemble of suppliers of single services (transport, storage, handling, etc.) or different integrated services, aiming to manage the flows of materials and goods along the supply chain. This analysis is based on the Log-INT database, which, since 2000, has been developed by the Laboratory of Economy, Logistics and Territory (LabELT) of DiAP-Polytechnic of Milan in collaboration with the University of Molise, and it is the only database available in Italy on the inward and outward FDI in the logistics industry [1].

[1] The LogINT database is updated every year and uses different sources: Reprint databank of the Italian FDI (developed by the Department of Management and Engineering of the Politecnico di Milano and sponsored by the Italian Trade Institute – ICE), newspaper and magazines on the logistics industry, direct interviews to logistics MNE, etc.

From the sector point of view, the data are organised according to the European classification of economic activities NACE REV1.1 (2002)[2]. Specifically, the focus of the analysis is on freight logistics firms belonging to the NACE category "I – Transport, warehousing, communications"[3], because they are more impacted by globalisation

The purpose of the present chapter is threefold. First, it aims at presenting the entity and the characteristics of outward and inward logistics FDI in Italy (section two), a country, which can be considered an interesting case because it is characterized by a fragmented, small sized transport industry and low value added logistics industry, which has attracted foreign logistics multinational enterprise (MNE) in the integrated logistics. The second purpose is to investigate in-depth strategies and motivations of the foreign MNE's investment decisions (section three). Specifically, the horizontal, vertical and conglomerate integration strategies are investigated and the main motivations driving them are discussed. The third purpose concerns the main drivers of inward logistics FDI's increase, and generally, the main factor fostering logistics growth: the manufacturing internationalization, which increases the demand for logistics services in the home country and consequently attracts providers from the other countries (section four). Moreover, the third purpose, highlights the importance of the manufacturing internationalization, as strategic component of the economy globalization, in rising the logistics industry FDI, and logistics growth in general.

More precisely, the chapter is structured into five sections. The introduction is followed by the description of outward and inward FDI in Italy. This section presents the number of FDI, sub-sectors and origin and destination areas, and briefly describes the amount of the total outward and inward FDI (in manufacturing as well as in services) in Italy.

Section three is dedicated to the investigation of the strategies and motivations driving logistics inward FDI in Italy in the period 2000-2010. A literature review on the integration strategies (horizontal, vertical and conglomerate), undertaken by foreign MNE, and on the drivers moving these strategies, is presented; besides descriptive statistics follow.

Section four focuses on the impact of manufacturing internationalization on the employment growth in transport and logistics in the home country. A theoretical framework on this issue is presented and particular attention is devoted to one empirical study, carried on by the authors of the present chapter, because the evidence on this topic is rather scanty. This work by Elia *et al.* (2011) investigates the impact of manufacturing internationalization on the transport employment growth at the NUTS2 regions level.

Section five concludes the chapter, drawing feasible policy recommendations and suggesting further research needs.

[2] NACE is the acronym ("Nomenclature générale des Activités économiques dans les Communautés Européennes", i.e. Statistical classification of economic activities in the European Communities) used to designate the various statistical classifications of economic activities developed since 1970 in the European Union. It provides the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics. NACE is derived from ISIC, in the sense that it is more detailed than ISIC. ISIC and NACE have exactly the same items at the highest levels, where NACE is more detailed at lower levels (for more details see Eurostat, European Commission, 2008). Because of lack of data, we refer to NACE rev 1.1 version, developed by EU in 2002.

[3] In particular, the analysis is based on the following NACE codes: (i) I 60.10 – rail transport; (ii) I 60.24 – freight road transport; (iii) I 60.30 – transport via pipelines; (iv) I 61.10 – sea and coastal transport; (v) I 61.20 – inland water transport; (vi) I 62.10 – scheduled air transport; (vii) I 63.1 – cargo handling and storage; (viii) I 63.21 – other supporting transport activities; (ix) I 63.40 - activities of other transport agencies (forwarders, intermodal transport and logistics integrators); (x) I 64.12 – courier activities.

2. THE RISE OF OUTWARD AND INWARD FDI IN ITALY

As underlined in the previous sections, the globalisation of the economy, together with the consumer oriented economy, the internet-based information systems, the fall of transport costs, the European Traffic Policy, has fostered an increasing demand and, consequently, supply, of logistics activities. Within a country, the demand can be either satisfied locally, by national firms, or by foreign firms, which undertake specific internationalisation strategies. It happens that countries with a fragmented, small sized and low value added logistics sector, like for example Italy, become more and more attractive for foreign investors.

The present section focuses on Italy[4], a European country, which has attracted, in the last decade, an increasing number of foreign logistics FDI, mainly originating from the richest EU countries and concentrated in high value added activities, and shows a relatively limited number of outward FDI.

The first subsection presents the outward logistics FDI in Italy registered in the year 2010, while the second subsection focuses on the logistics inward FDI in the same year. The description of both outward and inward FDI includes details on the investment logistics sub-industry and on the FDI areas of origin and destination. As stated in the introduction, the data on logistics FDI are provided by the LogINT database.

2.1. Outward Logistics FDI in Italy

Italy has been defined a "multinational follower" (Mariotti and Mutinelli, 2009), because of its lower rate of outward direct investments compared to the other industrialized countries. In fact, in 2006 the percentage ratio between the outward FDI and the GDP is about 20% (UNCTAD, 2007), the half of the European Union media and strongly lower than the main ratio of the closest partners (i.e. Germany with a rate of 34.5% and France with 48.3%).

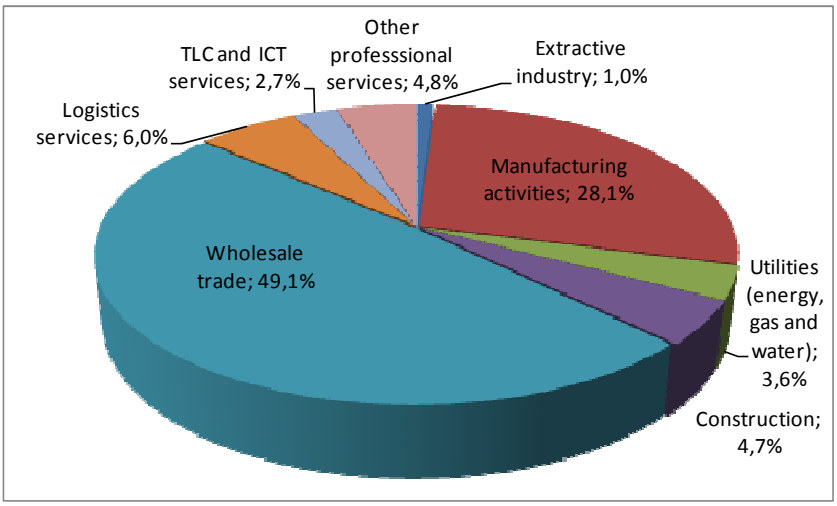
The main cause of this situation is the prevalent small size of Italian firms, which does not allow to have the financial and human resources needed for foreign investments. This competitive gap is higher in the logistics industry than in other sectors: 60% of the logistics firms are single-person companies and 16.2% has two employees (ISTAT, 2007)[5]. According to the REPRINT-ICE database[6], in 2009 the logistics outward FDI are a small percentage (6%) of the total Italian outward FDI (Figure 1), but they account for the 23% of outward FDI in the service sector. As concerns the other industries, Italian outward FDI are concentrated in wholesale (49%), followed by manufacturing industry (28%), services (13%) and construction (5%).

Nevertheless, in the last decades the investments of the Italian logistics firms have grown very quickly. According to Mariotti and Mutinelli (2009), since 2000 to 2006 the number of employees in the foreign affiliates of the logistics Italian MNE increased of 64.3%, while in the same period the investments undertaken by the Italian manufacturing MNE decreased.

[4] Italy is a EU country located in south-central Europe. With 60.4 million inhabitants, it is the sixth most populous country in Europe. Its GDP in 2008 amounted to 1,572,243 million euro (Germany: 2,495,800; France: 1,950,085; UK: 1,818,523) (Eurostat data).

[5] The Italian firms are small and very small sized: while the average size in the EU is 6.4 workers per firm, in Italy, like in Spain, the average size is 4 workers per firm (ISTAT data, year 2008).

[6] For more details see www. ice.gov.it and Mariotti and Mutinelli (2009).



Source: our elaboration on REPRINT-ICE database (2009).

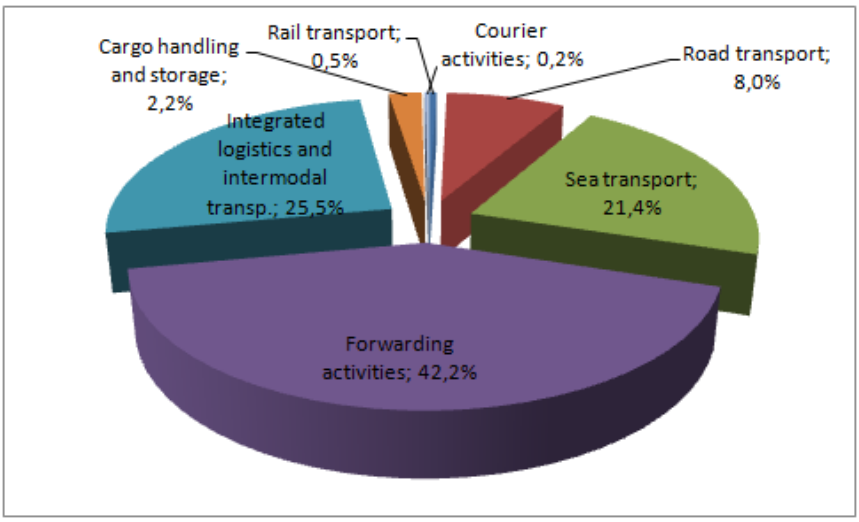
Figure 1. Total Italian outward FDI, by investment industry.

The LogINT database shows that in the Italian logistics industry, at the beginning of 2010, the number of outward FDI (817), is higher than the number of inward FDI (372). Moreover, as it will be stated in the next section, Italy is less attractive to FDI than other countries. The 817 outward FDI have been undertaken by 165 Italian MNE.

Since the logistics industry is very heterogeneous (Carbone and Stone, 2005), a disaggregation of the analysis in different sub-industries needs to be done (Figure 2). The investments mainly concern the forwarding activities (42% - NACE I63.40.1 code), followed by integrated logistics and intermodal transport sector (19% - NACE I63.40.2 code[7]) and by sea transport (21% - NACE I61.10.0 code). Thus, about 70% of the investments belong to the 63 NACE sub-industry ("supporting and auxiliary transport activities of travel agencies"), which comprises higher value-added activities than just transport. The high percentage of investments in the maritime transport can be justified by the important increase of this transport mode, which has occurred in the last decades because of the globalization process and, particularly, the growing trade exchanges between Europe and Asia.

Reflecting a national trend, the larger part of outward FDI comes from the richest areas of Italy (33% from North West and 32% from North East), followed by the Centre (22%) and South and Islands (13%) (Table 1). In particular, Lombardy region, in the North West, which is the region with the highest GDP pro-capite, generates the 20% of the investments; it is, then, followed by Tuscany (18%) and Emilia Romagna (13%), respectively in the Centre and in the North East, where different important industrial districts are located, and by Campania (10%) in the South, in which it is located the headquarter of the Italian most important global players, operating in the sea transport (Grimaldi Group).

[7] Actually, the NACE I63.40.2 code is called "other supporting and auxiliary transport services", but it comprises a large number of firms offering integrated services and intermodal transport which doesn't find alternative location in other specific voices of the NACE REV 1.1 classification.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 2. Italian outward logistics FDI, by investment sub-industry.

Table 1. Areas of origin and destination of the Italian logistics outward investments

Distribution of FDI by destination (100 = areas of destination)

AREAS OF ORIGIN		AREAS OF DESTINATION						
	West Europe	Latin America	Asia	Central East Europe	North America	Africa	Other countries	Total
North West	33.7	38.2	25.3	30.5	28.8	54.0	20.0	33.3
North East	28.3	22.5	40.7	49.6	33.3	12.0	50.0	32.4
Centre	18.9	24.7	33.3	16.8	33.3	10.0	25.0	21.5
South and Islands	19.1	14.6	0.0	3.1	4.5	24.0	5.0	12.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Distribution of FDI by origin (100= areas of origin)

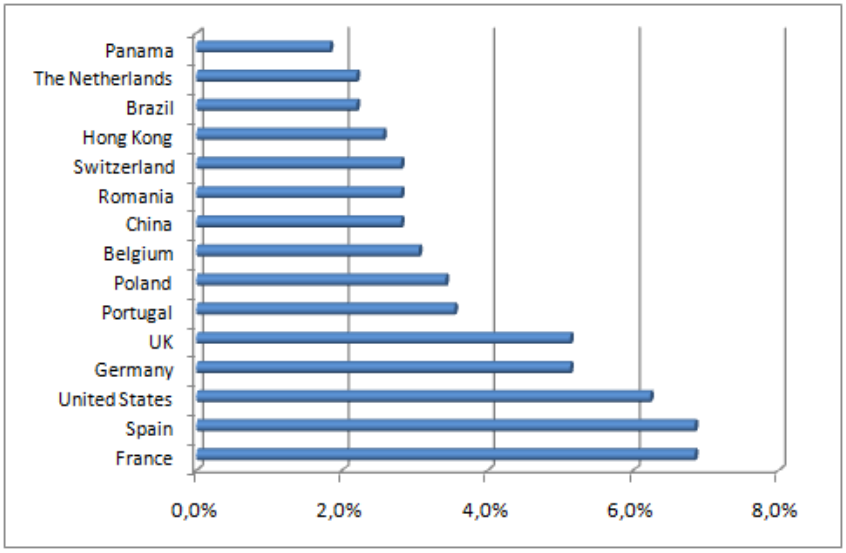
AREAS OF ORIGIN		AREAS OF DESTINATION						
	West Europe	Latin America	Asia	Central East Europe	North America	Africa	Other countries	Total
North West	46.0	12.5	8.5	14.7	7.0	9.9	1.5	100.0
North East	39.6	7.5	14.0	24.5	8.3	2.3	3.8	100.0
Centre	39.5	12.4	17.0	12.4	12.4	2.8	2.8	100.0
South and Islands	68.3	12.5	0.0	3.8	2.9	11.5	1.0	100.0
Total	45.4	10.9	11.0	16.0	8.1	6.1	2.4	100.0

Source: our elaborations on LogINT database, LabELT, 2010.

Similarly to the other industries, the main destination areas of outward logistics FDI are the European countries, especially West Europe (45%), while Central East Europe accounts for the 16% of total FDI. This trend confirms that the logistics industry is strongly demand-driven: the logistics providers follow their customers in the internationalisation processes (market-seeking investments). Specifically, West European countries are the main destination of Italian export, while the Centre-Eastern countries in the '80s and '90s have attracted several manufacturing delocalisation projects (see, among the others, Chiarvesio *et al.*, 2003; Corò *et al.*, 2006; Mariotti and Montagnana, 2008). Asia and Latin America, which are other important areas hosting the Italian industrial delocalisation, both attract 11% of total FDI. North America (8%), Africa (6%) and other countries, particularly Middle East and Oceania, follow.

As concerns the investment countries, Spain, France, United States, UK and Germany are at the first places (Figure 3). Poland and Romania are the main destinations of Central East Europe, China of Asia, Brazil and Panama of Latin America.

The cross table (1), showing the origin and destination areas, confirms that the investments are mainly driven by market-seeking strategies. The logistics providers of the North West macro-area mainly invest in the closest European countries and in Latin America, while the North Eastern logistics MNE in West and Centre-East Europe and Asia. The firms located in the Centre prefer West Europe and Asia. Finally, the South and Islands companies look at West Europe, Latin America and Africa, which are very close to these regions.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 3. The first 15 countries of Italian logistics outward FDI.

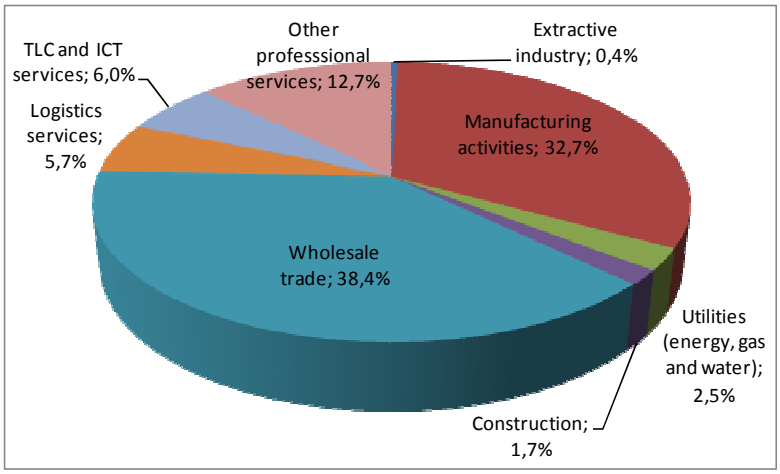
2.2. Inward Logistics FDI in Italy

Italy shows a poor attractiveness to inward FDI in comparison with the other developed countries. This is mainly due to the lower quality of the localisation factors' supply and of the

external economies supply (Mariotti and Mutinelli, 2009). Italy has a limited flow of inward FDI, mainly in the high tech sector and in the advanced services. Several studies (see among the others, Bianchi *et al.*, 2005; Mariotti and Piscitello, 1995; Basile *et al.*, 2005) have stated that the lower attractiveness seems to be associated with some national institutional characteristics, such as the low level of bureaucracy's efficiency and of the ability of the legal system to adequately enforce property rights. In the last decade, the most dynamic sectors of inward FDI have been: (i) utilities (+54%), logistics (+25,2%), and the other professional services (+22,7%). Specifically, services show a higher growth rate than the other sectors in terms of number of firms, employees, turnover and value added.

The recent increase of inward FDI in logistics and professional services is due to new infrastructure and the economy's outsourcing undertaken by the more developed countries. At the same time the increase in inward FDI expresses the higher competitiveness of the foreign logistics providers, in comparison with the Italian firms. As stated by Brouwer and Mariotti (2009), foreign logistics MNE tend to outperform domestic firms in the period 2002-2005, in terms of turnover and productivity. Logistics foreign MNE favor locations in the core area of the country, and have a preference to be active in the higher values added sub-sectors.

In 2009, the Italian industries attracting a significant number of inward FDI are: wholesale (39%), manufacturing (33%), services (25%) (Figure 4). Logistics and transport account for the 23% of inward FDI in the service sector and the 6% of the total FDI (Reprint-ICE database).



Source: our elaboration on REPRINT-ICE database (2009).

Figure 4. Total inward FDI in Italy, by investment industry.

The structural patterns of the Italian logistics industry and, specifically, the significant pulverization of the firms, attracted international global players, which mainly supply high value added services (integrated logistics, couriers and international forwarding activities). In Italy, the SME predominate the scenario and this structural pattern does not foster the development of know-how, human and financing resources. Besides, SMEs do not develop the specific necessary innovations to offer a multifaceted range of services, able to satisfy the customers' demand. Moreover, the large foreign investing firms, characterized by a logistics network diffused on the territory, are able to supply the increasing demand of the Italian

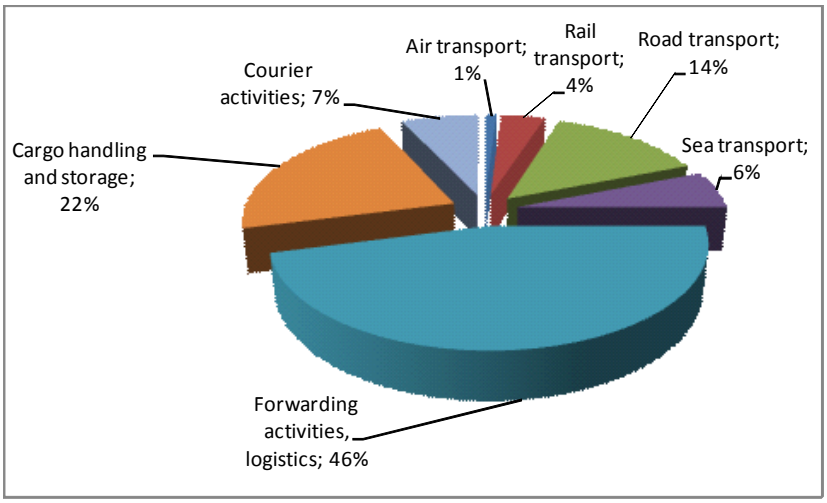
manufacturing firms, which operate in the global market. Foreign MNE, therefore, through an increasing number of Merger and Acquisition and greenfield investments, own significant market shares (see section 3).

The LogINT database accounts, at the beginning of the year 2010, for 372 inward logistics FDI, which have been undertaken by 230 foreign MNE. About 75% of the investments belong to the I63 NACE sub-industry ("supporting and auxiliary transport activities of travel agencies") and I64.12 NACE sector (couriers). In particular, within these FDI, 46% concerns forwarding activities (NACE I63.40.1 code) and integrated logistics and intermodal transport (NACE I63.40.2 code), 22% other supporting activities (NACE I63.2 code, mainly firms managing transport infrastructure), storage (NACE I63.1 code), and, finally, 7% couriers (NACE I64.12 code) (Figure 5). Instead, the investments in transportation gains the remaining 25%: land transport predominates (14%), sea transport (6%), rail transport (4%) and air transport (3%) follow.

As concerns origin and destination areas, the patterns of inward logistics FDI confirm those of the manufacturing industry (Table 2). Italy attracts FDI mainly from western Europe (72.8%), North America (11.3%), Asia (7.3%) and Middle East (3.8%). The MNE investing in Italy mainly belong to industrialized countries like Germany (20%), France (14%), the Netherlands (10%), Switzerland (8%). According to a national trend, the investing foreign MNE originate from the most developed countries.

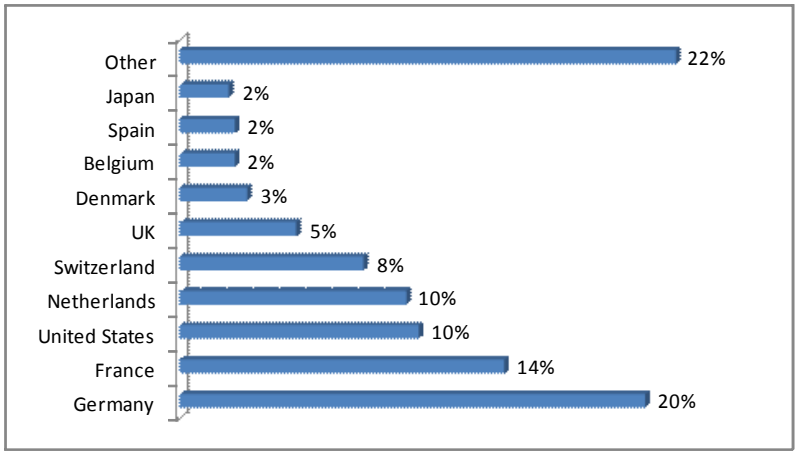
Foreign FDI are mainly located in the North west (61%), "core area" of the Italian logistics; follow the North east (19%) and the Centre (12%).

South and Islands register the 8% of the total. In particular, Lombardy region, in the North West attracts 43% of the investments and it is followed by Liguria (12%), Emilia Romagna (8%) and Veneto (7%). The central regions of Toscana and Lazio together 11%. Among the southern regions, we find Campania (3%) and Calabria (2%). This trend confirms that the logistics industry is strongly demand driver, i.e. it locates where the manufacturing customers have their local units.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 5. Inward Logistics FDI in Italy, by investment sub-industry.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 6. The first ten countries undertaking FDI in Italy (%).

Table 2. Areas of origin and destination of the Italian logistics inward investments

Distribution of FDI by destination (100 = destination areas)

Areas of origin		Areas of destination			
	Centre	North-east	North-west	South and Islands	Total
Other countries	2,3%	2,8%	2,6%	6,9%	3,0%
Asia	9,1%	5,6%	7,0%	10,3%	7,3%
Centre-eastern Europe	2,3%	2,8%	1,3%	3,4%	1,9%
Western Europe	56,8%	79,2%	74,4%	69,0%	72,8%
Middle East	6,8%	2,8%	3,1%	6,9%	3,8%
North America	22,7%	6,9%	11,5%	3,4%	11,3%
Total	100%	100%	100%	100%	

Distribution of FDIby origin (100= origin areas)

Areas of origin		Areas of destination			
	Centre	North-east	North-west	South and Islands	Total
Other countries	9,1%	18,2%	54,5%	18,2%	100
Asia	14,8%	14,8%	59,3%	11,1%	100
Centre-eastern Europe	14,3%	28,6%	42,9%	14,3%	100
Western Europe	9,2%	21,0%	62,4%	7,4%	100
Middle East	21,4%	14,3%	50,0%	14,3%	100
North America	23,8%	11,9%	61,9%	2,4%	100
Total	11,8%	19,4%	61,0%	7,8%	

Source: our elaborations on LogINT database, LabELT, 2010.

The cross table (2), showing the origin and destination areas, confirms that the 62.4% of the logistics providers from West Europe invest in the North West macro-area. About the

60% of the Asian FDI are located in the North West, which also attract FDI from the Middle East (50%) and the Central Eastern Europe (43%). However, FDI from Central Eastern Europe are also directed towards the North-East macro area, which is geographically closer. This are also exchanges with Central Eastern Europe flows of raw materials, semi-finished products and final goods. The manufacturing SME belonging to the north eastern industrial districts since the beginning of the 1980s have, indeed, undertaken a delocalisation process towards the cheap labour cost countries in the Centre and South of Europe (Mariotti, 2005).

3. STRATEGIES AND MOTIVATIONS OF INWARD FDI IN ITALY

3.1. A Literature Review on the FDI Integration Strategies

In literature it is possible to find the following three different strands investigating strategies and motivations driving inward investments[8] (greenfield and merger and acquisition): the business and administration economic literature[9] (Ojala, 1993; Capron, 1999; Chang and Rosenzwei, 2001; Hakkinen *et al.*, 2004), the international economic literature (Buckley and Casson, 1976; Dunning, 1988; Agarwal and Ramaswami, 1992; Barba Navaretti and Venables, 2004; Hjizen *et al.*, 2008) and the transportation economic literature (Shepperd and Seidman, 2001; Fan *et al.*, 2001; Oum *et al.*, 2002; Dörrenbächer, 2003; Carbone and Stone, 2005; Federtrasporto-Nomisma, 2006, 2007, 2008, 2009, 2010; Cruijssen *et al.*, 2007; Van de Voorde and Vanelslander, 2009; Maggi and Mariotti, 2010).

According to this literature, three different strategies can be distinguished. Horizontal integration, when the investment is carried out in the same industry of the parent multinational enterprise (e.g., integration between two shipping companies). Vertical integration when the MNE invests in backward or forward stages of the same industry or in a company offering different services than the MNE (e.g., the integration between a shipping company and a sea terminal operator or a sea transport agency or between a transport and a storage firm). Conglomerate integration when the investment in a logistics activity is carried out by a non-logistics MNE (e.g., a manufacturing or finance MNE). The vertical integration allows the investing firms to diversify their product; in the case of logistics, this business diversification concerns three different aims (Maggi and Mariotti, 2010): (a) the completion of the transport chain, in order to offer door-to-door links to the clients; (b) the integration of different logistics services along the supply chain and the extension of the range of supplied services towards integrated solutions; (c) the supply of auxiliary and complementary activities with respect to the core service. The business diversification is motived by the necessity to satisfy the evolving customer needs and by the search of higher margins by the logistics firms. In particular, the second type of business diversification (b) is typically the strategy adopted by the MNE which aim at becoming integrated logistics service providers (3PLs or 4PLs[10]), by acquiring specialist capabilities.

[8] For a detailed and more extensive description of this issues see Maggi and Mariotti (2010).

[9] The studies belonging to the strategic management literature focus on the acquisition "relatedness", which refers to the degree of correspondence between an acquirer and its target (Haleblian and Finkelstein, 1999).

[10] The Third-Party Logistics (3PLs) and the Fourth-Party Logistics (4PLs) Providers supply process-based than function-based services aimed at the integration and control of a part or even the whole logistics process of their clients (Carbone and Stone, 2005). In particular, the 4PLs are usually non-asset based providers, because

Moreover, these three strategies are promoted by different and often multiple specific drivers, which can be classified as follows in Table 3 (Ojala, 1993; Veugelers, 2002; Hakkinen *et al.*, 2004; Barba Navaretti and Venables, 2004; Hjizen *et al.*, 2006; Cruijssen *et al.*, 2007; Maggi and Mariotti, 2010).

In the last decades, the globalization of the market and the simultaneous liberalization process of different transport services, such as road transport or the postal distribution, have increased the competition in the logistics industry. Thus, new actors coming from the developing countries have been attracted in Europe. The logistics firms have concentrated their efforts in increasing or in defending their market power and in reaching a sufficient size to cope with the high investment in transport and ICT infrastructure efficiently (Carbone and Stone, 2005). More precisely, some companies, often following the process of production delocalization or other forms of internationalization of their clients, have entered in new markets or extended their presence in the traditional markets; other firms have opted for a defensive strategy. The main motivations of this last strategy are: (i) preventing being taken-over; (ii) preventing the target from being taken over by others; (iii) avoiding other merged entities in the industry from becoming too strong (Gorton *et al.*, 1998).

The competitive considerations can drive both the horizontal and the vertical integration; in the first case, the aim is to penetrate new geographical markets and, in the case of logistics, to efficiently extend the transport chain, controlling major traffic flows (Carbone and Stone, 2005). In the second case, the purpose is to penetrate new markets in terms of services and in order to acquire new competencies. According to Heaver (1996), the first type of investments is moved by geographical diversification, while the second one by business diversification.

Table 3. The main drivers and motivations of FDI integration strategies

1) Competitive goals	1a) Increasing market or political power
	1b) Defending market share
2) Efficiency improvement	2a) Research of scale economies
	2b) Research of scope economies
	2c) Reduction of transaction costs
3) Other drivers	3a) Regulation
	3b) Access to technologies and specific capabilities
	3c) High capital return

As concerns efficiency improvement, an acquisition can be motivated by the research of economy of scale and scope or by the transaction costs reduction. The scale and scope economies are very important in all the industries characterized by an high rate of fixed costs, which in the logistics sector mainly concern the structures or infrastructures or the vehicles for transport or warehousing operations. Specifically, reaching scale economies over larger transport or storage volumes, a company can first of all improve the productivity for core activities, for example by optimizing the vehicle capacity utilization, reducing the empty mileage or better using the space in the warehouses. Secondly, it reduces the costs of non-core activities, by organizing safety trainings or using joint fuel facilities. Thirdly, it cuts

they design, plan, co-ordinate and control the supply networks, subcontracting the activities to 3PLs or other specialised transport and logistics providers.

purchasing, marketing and research and development costs (e.g. vehicles, onboard computers, fuel, etc.) (Cruijssen *et al.*, 2007; Van de Voorde and Vanelslander, 2009). Instead, economies of scope arise whenever the total cost of producing two different goods or services jointly is lower than producing each of the goods separately. The business diversification, granted mainly by vertical integration, gives the opportunity to combine complementary skills and often to offer better quality of service at lower costs (e.g. in terms of speed, frequency of deliveries, geographical coverage, reliability of delivery times etc.) (Carbone and Stone, 2005; Cruijssen *et al.*, 2007). Moreover, the economies of scope contribute to improve the operating margins through business process re-engineering and commercial entry into new market segments (Carbone and Stone, 2005). Efficiency improvements can derive also from cutting the transaction costs[11] with the suppliers or distributors along the supply chain, by acquiring them. The transaction costs' reduction results from small number bargaining, enhancing the competitive position or market power of the partners, and meeting the partner's request for organizational knowledge and learning (Kogut, 1988; Goldman and Gorton, 2000).

Finally, the literature identifies other three types of motivations driving the choice of the investment industry: changes of the industry regulation, access to technologies or specific capabilities and capital return from the investment. A change in the regulatory rules of an industry in a country, such as the liberalization of a market previous regulated by a public monopoly, can attract MNE from other countries. Tax savings could result when a loss-making firm merges with a profitable one. Furthermore, the regulated firms might want to diversify into an unregulated market in order to shift profits from the regulated market into the unregulated one (Veugelers, 2002). An acquisition can gives the opportunity to have a quick and cheaper access to new technologies and know-how, rather than to set up 'ex-novo' new activities (greenfield) or do own research and development. As concerns the logistics industry, it is well known that the vast majority of logistics firms are SME, which, by definition, tend to lag behind in implementation of information and communication technology (ICT) systems (Gunasekaran and Ngai, 2004). Cruijssen *et al.* (2007) show that ICT is mainly an issue for horizontal integrations of a medium or high intensity, able to generate sufficient revenues to pay back the ICT investments. Moreover, the acquisition allows the company to have quickly access to specialist capabilities, concerning especially higher value-added services. An increasing number of third-party logistics providers (3PL), in order to answer to the evolving demand of their client, include in their supply activities like contract maintenance and repair, post-manufacturing and reverse logistics, which require a high level of specialization (Plehwe and Bohle, 1998).

The high capital return from the investment is a crucial drivers for conglomerate integrations, especially when they are made by financial and real estate intermediaries, which have the need to invest their money in profitable industries.

Maggi and Mariotti (2010), who focused on both freight and passenger transport, have demonstrated that the competitive drivers are very important both in horizontal and vertical integrations. With concern to the efficiency gains, the scale economies strongly drive the horizontal strategies, while in the vertical ones economies of scope and reductions of transaction costs are more fundamental (Table 4).

[11] There is an extensive literature on transaction costs' reduction due to FDI (see, among the others, Hennart, 1982; Anderson and Gatignon, 1986).

Moreover, referring to other motivations, regulation is an important driver of the investments in the same industry and an high capital return mainly moves the investments of the non-logistics MNE (in particular, financial and real estate intermediaries). Other relevant drivers of the conglomerate strategies made by manufacturing or energy firms, are also the scale economies and the savings in transaction costs.

Table 4. The main drivers of the integration strategies in the logistics industry

Drivers	Integration strategies		
	Horizontal	*Vertical*	*Conglomerate*
Competitive considerations			
1a) Increasing market or political power	***	***	*
1b) Defending market share	***	***	n.t.
Efficiency considerations			
2a) Economies of scale	***	**	**
2b) Economies of scope	*	***	*
2c) Reduction of transaction costs	*	***	**
Other considerations			
3a) Regulation	***	n.t.	n.t.
3b) Access to technologies and specific capabilities	n.t.	n.t.	n.t.
3c) High capital return	*	*	***

Notes: * not relevant; ** relevant; *** extremely relevant; n.t.: not tested.
Source: Maggi and Mariotti (2010).

3.2. The Integration Strategies of the Logistics Foreign Multinational Enterprises in Italy

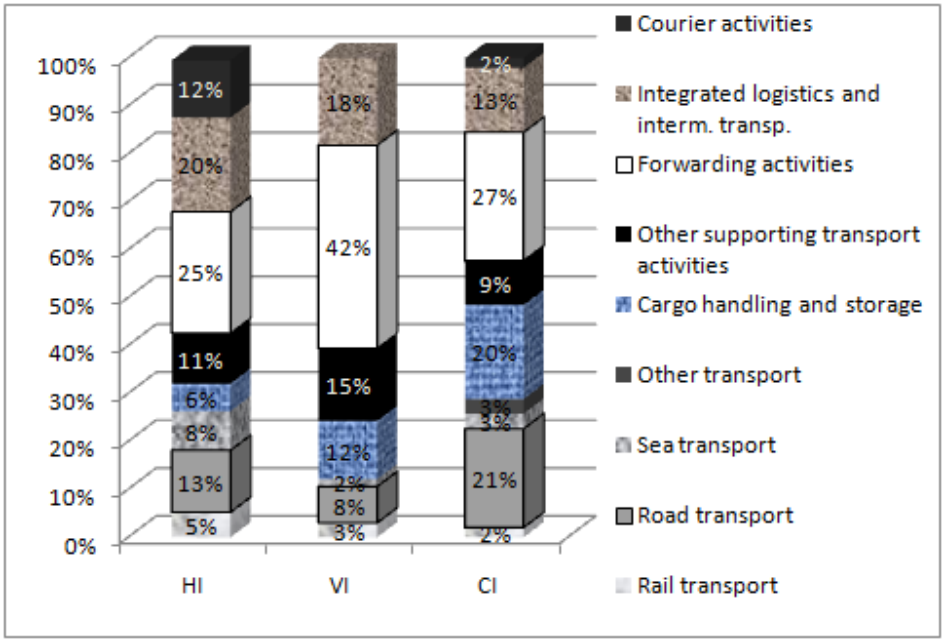
According to LogINT database, in the period 2000-2010, in Italy the majority of inward FDI, concerning freight transport, is horizontal. This phenomenon reflects a global trend: in 2009 the 70,3% of global logistics investments was made in the same industry of the investing MNE (Federtrasporto-Nomisma, 2009; 2010). In fact, the increment of the market share in the core business allows the companies to easily face the competition and the present global recession period, and simultaneously to improve efficiency, by scale economies.

Specifically, the horizontal integrations (HI) move the 56% of the investments, while conglomerate and vertical integrations (respectively, CI and VI) move the 26% and the 18% of the investments[12], respectively.

Figure 7 shows that the first type of investments (horizontal) is very diversified in different logistics sub-industries, but mainly concerns the NACE I.63 and I.64 codes (73% of the total), specifically, forwarding activities (25%), integrated logistics and intermodal transport (20%), and couriers (12%). The horizontal integration in transport sector mainly regards road (13%), followed by sea (8%) and rail (5%).

As concerns the vertical integrations, the percentage of the NACE I.63 industry is higher than in the other typologies (88%); more precisely, the MNE have mainly invested in forwarders (42%), followed, with a relevant lead, by integrators and intermodal operators (18%), and firms operating in other supporting transport activities (15%).

The conglomerate investments, such as the horizontal ones, are more diversified: the forwarding activities are again the first industry of investment (27%), but in this case the second one is road transport (21%), and the third cargo handling and storage (20%).



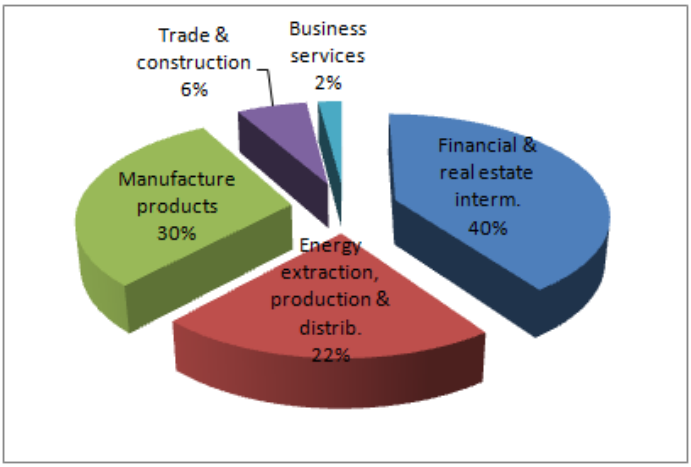
Source: our elaborations on LogINT database, LabELT, 2010.

Figure 7. The integration strategies by investment sub-industry.

The main part (40%) of the conglomerate integration is made by banks or other financial and real estate intermediaries, while the 30% comes from the manufacturing firms (food, metal, machinery and electric goods, transport equipment, chemical and pharmaceutical

[12] The vertical investments have been distinguished by the horizontal ones, using the 6-digit 2002 NACE classification of the economic activities. According to Hijzen *et al.* (2008), the investments which take place within the 4-digit industry have been classified as horizontal FDI, while the investments across 4-digit industries have been classified as vertical. Nevertheless, the investments of the bigger 3PLs or 4PLs providers have been considered as horizontal, because these firms are multiproduct, i.e. they offer a large number of different services both in their country of origin and in the countries of FDI destination.

products) and the 22% has been undertaken by the extraction, production and distribution of energy (mainly petroleum) MNE (Figure 8). Trade and construction and other business services follow with the 6% and 2%, respectively.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 8. The distribution of the conglomerate integrations by MNEs' industries.

More than half of the financial operators FDI concerns the higher value added activities of NACE I63.4 (forwarding, integrated logistics and intermodal suppliers), clearly motivated by the search of a high capital return rate. The financial foreign MNE, which have settled in Italy the higher number of investments, are the American Apollo Global Management and the English 3I Group. The first one has acquired the logistics branch of TNT, calling it Ceva Logistics, reaching the 20% of the Italian market in the publishing distribution (Federtrasporto-Nomisma, 2009). The second one has made almost all the investments in Lombardy, acquiring different firms supplying storage, transport and other logistics services.

The investments of the manufacturing MNE are more distributed among the different logistics sub-industries, but again the NACE I63.4 code prevails. These investments are often the result of a spin-off of the industrial firms' internal logistics division and are generally motivated by the search of scale economies, while maintaining the direct control over the logistics function. For example, the Swedish Electrolux controls Electrolux Logistics Italy SpA and other firms, which offer forwarding and handling and storage activities. Two German MNE's in foods (Dr. August Oetker Kg and Theobald Mueller Ag) and the Switzerland Nestlè have made several investments mainly in the NACE 63 industry but also in maritime and freight road transport.

Instead, the FDI of the energy extraction, production and distribution firms are concentrated on road transport and cargo handling and storage. They are driven by the necessity to better control the right management of its products' flows (especially, in terms of security), to reach scale benefits and to reduce transaction costs. The bigger MNE operating in the Italian logistics industry is the Kuwait Petroleum.

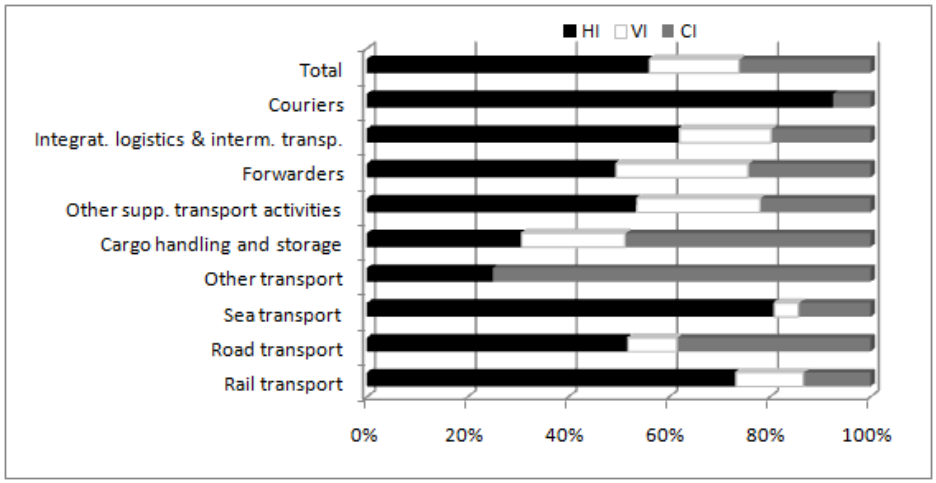
The conglomerate integration in the last years is spreading both in Italy and in the global scenario. According to Federtrasporto-Nomisma (2008), the FDI undertaken by financial

investors or firms belonging to other industries have grown 12.6% in 2005, 20.6% in 2006, and 23% in 2007.

A cause of the high level of heterogeneity of the logistics sector, it is interesting to make an analysis of the distribution of the different integration strategies among each sub-industry of the acquired firms (Figure 9). The largest part of the investments in the courier sector is of the horizontal type. In fact the liberalization of the postal activities has fostered an increasing concentration process of the couriers in a small number of operators. These are pushed by competitive issues (in particular, defending the market share from the American couriers such as UPS and Federal Express), efficiency considerations and by the aim to develop IT systems and achieve high brand awareness. The two bigger European operators – the Dutch TNT Post Group (TPG) and the German Deutsche Post – have penetrated the Italian market, achieving, respectively, the 14% and the 6% of the first ten global players' total inward FDI (Maggi and Mariotti, 2010). In the Italian couriers sub-industry in the period of analysis, no vertical integrations have been undertaken.

Figure 9 also shows that the NACE I.63 sub-industries present a similar distribution of the three different types of strategies. The horizontal integration prevails, while the percentage of vertical integration is very similar to the percentage of conglomerate integration. The only exception regards the cargo handling and storage, in which the higher number of investments (49%) comes from non-logistics industries (CI).

Referring to transport sectors, the rate of horizontal investments is very high both in maritime and rail transport. This reflects the growing concentration process which recently has characterized the global market, allowing the participating firms to reap benefits of scale, competitive advantages (Shepperd and Seidman, 2001; Fan *et al.*, 2001; Oum *et al.*, 2002) and efficient gains, sharing the high fixed costs among big transport volumes. The percentage of horizontal integrations is instead lower in the other transport modes: in road transport and especially in inland water and pipeline transport the conglomerate investments are consistent.



Source: our elaborations on LogINT database, LabELT, 2010.

Figure 9. The distribution of the different types of integration by the acquired industries (data in percentage).

4. THE EFFECTS OF MANUFACTURING INTERNATIONALISATION ON LOGISTICS EMPLOYMENT

4.1. Conceptual Framework

The internationalization strategies undertaken by the manufacturing industry highly impact on the logistics activities, as stated in the Introduction. The expansion into large international markets brings about not only more supervision, coordination and control over geographical-dispersed activities, but also the extension of activities and functions that are generally centralized at the headquarters level such as logistics, research and development, marketing, etc. (Blomström *et al.*, 1997). Specifically, the impacts of the different internationalization strategies (trade, cooperation agreements and FDI) on the logistics industry can be summarized as follows (for a detailed review, see Elia *et al.*, 2011).

Firstly (a), an increasing large share of goods and people flows must be managed by transport and other logistics functions. These flows are composed by: (i) the import and export of intermediate and final goods; (ii) the movements of intermediate goods being transferred from one country to another in order to be processed; (iii) the flows of goods and people between the different production and distribution foreign affiliates of the MNEs. Specifically, as concern this last point, when a MNE undertakes a vertical FDI, it tends to transfer to the host country semi-manufactured products, which will be re-imported in the home country. This increaseas the flows of goods. An impact on the logistics services may also be generated by a horizontal FDI because the MNE replace the whole production cycle in a foreign country. They might continue to buy the raw materials or intermediate goods by the same suppliers located in the home countries, thus extending logistics activities. Secondly (b), the need to connect very distant locations and the high number of input and output markets have increased the complexity of the logistics system and have extended the procurement, production and distribution networks leading to a rationalization of the logistics nodes (ECMT, 1996).

These two impacts (a, b) increase the demand for logistics services, causing two additional effects (c, d). The logistics industry is restructuring (c): the logistics firms are becoming larger and are changing their supply, offering an increasing number of "integrated" and high value-added services, able to manage the entire supply chain or a significant part of it (Brewer *et al.*, 2001).

Finally, the labor demand of workers specialized in planning, managing and controlling the logistics activities is increasing (d).

The effects of internationalization on the logistics employment are closely related to the way in which the logistics services are managed. Furthermore, the type of sale and purchase carriage contracts that has been adopted by the manufacturing firms towards foreign customers and suppliers. As well as the relationship of complementarily or substitution among the different internationalization strategies.

As regards the first issue, the effect on employment may occur either within the internationalized manufacturing firm in several ways. When logistics is managed in-sourcing, or within the logistics suppliers, when logistics is outsourced, or both at the manufacturing firm and its logistics suppliers, in case of co-sourcing (joint management of logistics services).

As far as the contracts are concerned, it is expected a higher positive impact on labor demand when a firm adopts the cost, insurance and freight (CIF) sale contract and the free on board (FOB) purchase contract. The CIF sale contract, actually, implies the need to transport the output from the firm's establishment to the customer's production or distributive units, in other words in this case transportation is to the firm's charge. The FOB purchase contract implies that the firm has to manage the handling of the suppliers' raw material, semi-components or manufactured products. In both cases, therefore, it is the manufacturing firm to manage logistics, thus inducing an increase of the logistics services' labor demand. Opposite results can be found when the sale contract is FOB and the purchase contract is CIF.

A final issue that must be taken into account concerns the relationship of complementarily and substitution that might occur among the three internationalization strategies (for a detailed overview see Aitken *et al.*, 1994). Specifically, the literature mainly focuses on the relationship between trade and cooperation agreements or trade and FDIs. Generally, when production segments are moved towards low-wage countries (vertical FDIs or cooperation agreements), an increase of the flows of goods occurs; therefore, the strategies are complementary. When, instead, a FDI is undertaken in an industrialized foreign country (horizontal FDI), in order to reproduce the production cycle of the parent company, it generally substitutes export[13]. In the first case, the effect of internationalization on the logistics' employment is amplified, because of the increasing temporary export and import flows. In the second case, the impact on logistics is negative since the goods that were previously exported are now produced directly in the host country.

4.2. Empirical Evidence

Several theoretical and empirical studies focus on the impact of manufacturing internationalization on the home country (the country from where FDI depart) and on the host country (the country receiving the FDI) (among the others, Dunning and Lundan, 2008; Molnar *et al.*, 2007; Barba Navaretti and Venables, 2004; Castellani *et al.*, 2008). These studies analyze the impact of internationalization on employment, productivity, innovation, etc., and the majority of the works focus on the manufacturing sector. At least to our knowledge, the scanty literature specifically dedicated to the effects of manufacturing internationalization on logistics refers to the home country and analyzes the impact on the logistics labor market. The present section presents the main findings of the literature on the impact on the total labor market at home country level; then a focus is placed to the studies specifically dedicated to the logistics labor market.

In contrast with the general public view, the main findings of the works focusing on the effects of internationalization on the OECD countries show that the impact on aggregate labor market is small and the domestic job losses are slight, although particular skill and occupational groups (especially low skill level) have been affected more strongly (Crinò, 2009; Barry and Walsh, 2008).

[13] More precisely, a part of the literature highlights that, even if the international production replaces exports, the investment may increase the export opportunities of correlated products or the same final products from the country of the investment towards other foreign countries (Cantwell, 1994).

It is possible to identify three different strands of literature analyzing separately the impact of trade, cooperation agreements and FDI on labor demand. As concerns the trade literature, many studies focus on the employment and wage impact on a national scale, generally finding changes in the labor composition (high skilled and low skilled workers). Furthermore, in some circumstances, a decline in the relative demand for low skilled employees, especially in the industries facing import competition (Krugman *et al.*, 1995, Addison *et al.*, 2000) has been highlighted. Nevertheless, recent studies stress that while the effect of increased imports on jobs is generally negative and the impact of increased export is positive, the overall effects of increased trade are positive (Kletzer, 2002). In particular, trade has had no significant effect on the overall unemployment rate of the OECD countries (Hill *et al.*, 2008). Conversely, the few studies on the regional scale highlight that the magnitude of trade's impact on the labor markets remains widely contrasting (Richardson, 1995; Kapstein, 2000). Indeed, the effects of export growth on the employment tend to be mixed, either positive or negative, depending on different regional characteristics and dynamics, such as the regional size, the industrial structure and the trade patterns (Baldwin and Brown, 2004; Leichenko and Silva, 2004; Markusen *et al.*, 1991).

The literature on cooperation agreements stresses the impact on the national employment, mainly focusing on its composition and wage level. For example, a study on two European Countries (Italy and Germany) (Helg and Tajoli, 2005) estimates that, during the 1990s, this strategy has increased the high skilled-to-low skilled labor ratio in Italy, while it has not affected the German demand for high skilled labor. Egger and Egger (2001), by focusing on cooperation agreements between manufacturing industries of EU and non EU-countries during the period 1995–1997, find that they reduce the skill-to-low-skill ratio in EU exporting industries, while have more ambiguous effects in import-competing industries.

The literature on FDI has mainly investigated the effects on the employment at firm level (Castellani *et al.*, 2008 on the Italian case; Head and Ries, 2002 on the Japanese MNE) or at domestic industry level (Slaughter, 2000 on the USA; Falzoni and Grasseni, 2003 on Italy). Conversely, few studies have focused on the effects on both the internationalized firm and its economic environment, adopting the NUTS2 region or the NUTS3 province as scale of analysis (Mariotti *et al.*, 2003; Elia *et al.*, 2009; Federico and Minerva, 2008). Specifically, Mariotti *et al.* (2003) find that in the period 1985-1995 the Italian FDI have significantly affected the labor intensity of the domestic production at a "regional- industry" scale. This is defined as the ensemble of firms operating in the same industrial macro-industry – composed of interdependent sectors belonging to the same *filière* – and localized in the same geographical region. In particular, the impact is negative for investments undertaken in less developed countries and positive for market-seeking investments in advanced countries.

Elia *et al.* (2009), by adopting the same unit of analysis (regional-industry), investigate the impact of outward FDI upon the demand for high and low skilled workers in Italy throughout the period 1996-2002. It results that all outward FDI - regardless of the country of destination - have significant negative effects on the demand for low skilled workers. Outward FDI towards OECD countries instead negatively affect the demand for high skilled workers. Federico and Minerva (2008), who assess the impact of Italy's outward FDI on local employment growth in 1996-2001 for 12 manufacturing industries and 103 administrative provinces, find that net effect of FDI on the employment of the whole local area is positive. Employment growth in local areas investing more abroad appears to be stronger than the industry average, especially in some sectors.

To our knowledge, only Mariotti and Piscitello (2007) devote attention to the effects on the tertiary sector, by investigating the impact of the manufacturing FDI on the labor demand for services between 1996 and 2003 in the industrial districts of Veneto region in the North-East of Italy. The finding is that the more internationally involved an industrial district, the higher the employment growth in the service sector.

The literature concerning the specific impact of manufacturing firms internationalization on the logistics industry is even more scarce. The increasing large share of goods flows, fostered by internationalization, must be managed by transport functions at the level of the manufacturing firm and the transport providers. In the first case, when transport is carried out by the manufacturing firm (insourcing), there is a rise of the labor demand for workers specialized in planning, managing and controlling the transport activities. In the second case, that is when transport is outsourced, the transport operators restructure themselves becoming larger and changing into 3PLs or 4PLs, by modifying their supply from single based services into an increasing number of high value-added services (Brewer *et al.*, 2001).

Only in the second case it is possible to observe an increase of labor demand in the transport industry, which is the object of analysis of the present section. In fact, while the rate of outsourcing of integrated logistics as a whole is very low within the Italian boundaries (13% in 1997 and 16% in 2004 - Commission Européene, 2001), the transportation is outsourced by the majority of the Italian manufacturing firms that go international through one of the three forms identified above, i.e. trade, cooperation agreements and FDI (Confetra, 2002).

To our knowledge, in literature there are only three papers providing some evidences on the impact of internationalization on transport services. The first one (Savona and Schiattarella, 2004) investigates the impact of cooperation agreements, measured by a specific index based on trade data, on different services' labor demand within the Italian NUTS3 provinces over the period 1991-1996. The authors conclude that internationalization towards low wage countries shows a positive significant impact on the more traditional services' employment, such as transport.

The second paper (Maggi *et al.*, 2008) provides evidence on the relationship between FDI and the employment change in the logistics industries, in the Veneto industrial districts between 1996 and 2003. Results show that, although all the internationalized industrial districts exhibit an increase in the logistics labor demand, only in a few of them an internationalization degree above the average is positively correlated to a logistics' employment growth.

Finally, the third paper (Elia *et al.*, 2011), written by the authors, deals with the impact of manufacturing internationalization on the transport industry employment, as it will better explained in the following section.

4.2.1. The Effects of Manufacturing Internationalization on the Italian "Regional Industry"

The work by Elia *et al.* (2011) investigates the effects of manufacturing internationalization (international trade, cooperation agreements and FDI) on the transport industry employment at the regional-industry level in the period 1996-2001. The "regional industry" is defined as the ensemble of firms operating in the same transport sector and

localized in the same geographical NUTS2 region (8 transport sub-sectors and 20 regions) (Table 5). This is the first empirical work, to our knowledge, considering all three internationalization strategies, and testing their specific impact on transport employment through an econometric analysis at the regional scale.

Table 5. Italian NUTS2 regions and the NACE transport sub-sectors

Regions	Transport sub-sectors	NACE Codes
Abruzzo	Land transport; transport via pipelines	60
Basilicata	Transport via railway	60.10.1
Calabria	Auxiliary activities to transport via railway	60.10.2
Campania	Transport by road	60.25.0
Emilia Romagna	Water transport	61
Friuli Venezia Giulia	Sea transport	61.11.0
Lazio	Air transport	62
Liguria	Non-scheduled air transport	62.20.0
Lombardia	Supporting and auxiliary transport activities; activities of travel agencies	63
Marche	Cargo handling – Air transport	63.11.1
Molise	Cargo handling – Water transport	63.11.2
Piemonte	Cargo handling – Land transport	63.11.3
Puglia		
Sardegna		
Sicilia		
Toscana		
Trentino Alto Adige		
Umbria		
Valle d'Aosta		
Veneto		

Source: Elia *et al.* (2011).

The main hypothesis tested by Elia *et al.* (2011) is that manufacturing internationalization, inducing a high increase of goods flows to be moved, implies a reorganization of the supply chain. This leads the manufacturing firm to outsource transport service to special operators, which tend to be closely located. The geographical proximity has, indeed, a strong influence on the selection of the transport suppliers (Hong, 2007).

Data on the transport industry employment come from the Italian Statistical Institute (ISTAT) and refer to the NACE "I – Transport, warehousing, communications" category (Table 4). Data on trade and cooperation agreements come from the Italian Trade dataset (Coeweb) provided by ISTAT, and refer to kilograms by transportation modes. Data concerns the years 1996 and 2001 and are expressed in terms of difference. Finally, data on the Italian outward FDI come from the Reprint dataset. Summarizing, the descriptive statistics underlines that the most internationalized geographical areas, i.e. North-West (Piedmont, Valle d'Aosta, Liguria, Lombardy) and North-East (Emilia Romagna, Veneto, Trentino Alto Adige, Friuli Venezia Giulia), report the highest employment growth (Figure 10), especially

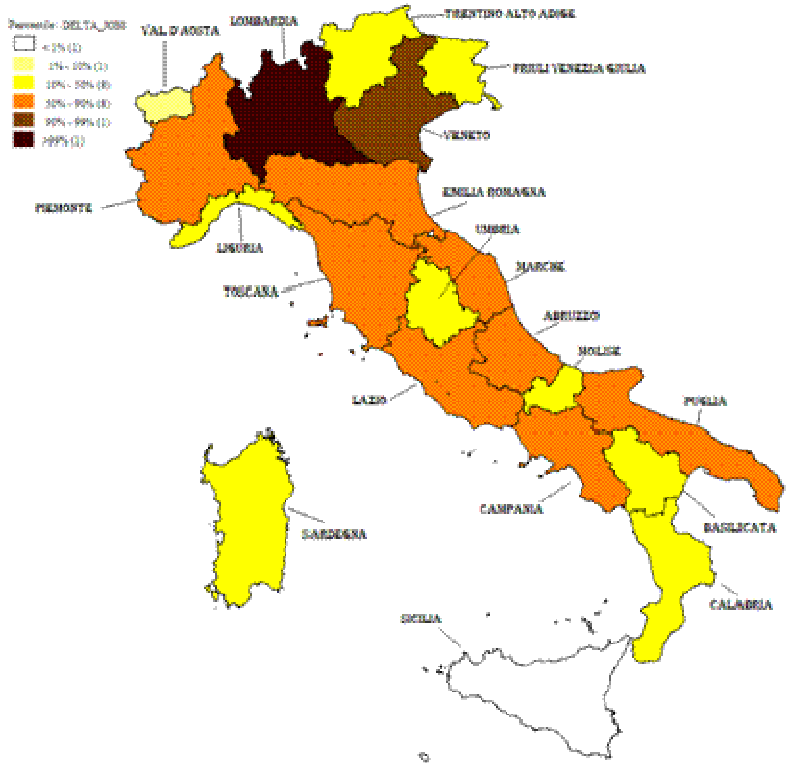
as regards transport by road because the majority of the flows are addressed to (or come from) Europe.

However, in order to understand more punctually the relationship between each form of internationalization and the variation of employment in transport industry, Elia *et al.* (2011) carried out a WLS (weighted least square) estimation. Their estimation suggests that the demand for transport workers between 1996 and 2001 within a region is related to: (i) growth rate of the manufacturing production value added, (ii) export and import growth rate, (iii) IPT and OPT growth rate and (iv) the cumulated sum of the manufacturing FDI undertaken in 1994-2000.

The model shows that manufacturing production is not significant for the transport industries' labour demand . This might be due to the fact that most of Italian firms are SME, which mainly produce for local market. As a consequence they are more likely to manage transportation inside (insourcing), since they have to transfer small-medium volumes of freight and have to cover short-medium distances (Confetra, 2002). Besides, the positive impact of FDI and export on the logistics employment occurs mainly because of the increase of goods and people flows, the logistics system's complexity, and the geographical extension of logistics networks. Moreover, the increase in the transport-logistics employment may be found in the characteristics of the internationalized firms, which are larger than domestic uni-national firms (Barba Navaretti and Venables; Castellani and Zanfei, 2006; Brouwer and Mariotti, 2009).

Besides, a negative relationship between import and employment in transport industry occurs; this may be related to the fact that the imports of goods towards Italy are more likely to be managed by foreign suppliers (Confetra, 2002), thus generating a substitution effect. In other words, the increase of import may be partially related to a substitution of national goods with foreign goods. Considering that national goods are mainly transported by national firms while foreign goods are transported by foreign firms, the substitution of national goods with foreign goods is likely to generate a decrease of labour demand in national transport industry and an increase of labour demand in foreign transport industries.

As regards the IPT and OPT components (proxies of the cooperation agreement strategy), the former has a significant positive effect on the labour demand, and the latter shows a negative impact, even if very weak and often not significant. These results can be explained as follows. For the IPT the positive sign reveals that transportation of intermediate and unfinished goods is mainly undertaken by Italian firms, which temporary import raw material and/or semi-components to be processed in Italy and later re-export the processed goods abroad. The opposite is true when the Italian firms send the intermediate goods abroad to be processed, i.e. in case of OPT. Indeed, the negative signs of temporary export and re-import suggest that transportation is still managed by the firms of the country where the intermediate goods are processed. The final impact of OPT is, however, not very significant probably because there is not a substitution effect. Indeed, when firms do not internationalise through OPT, goods are entirely produced by the Italian firms and, hence, transport of intermediate goods abroad are not required. Conversely, when the OPT process starts, the production is fragmented generating a new flow of goods (managed by foreign firms) that did not exist before. Therefore, the final impact on the transport industry employment is not (or not very much) significant. The same consideration holds for the strong positive impact of IPT: after starting IPT, a new flow of goods that did not exist before takes place by generating a labour demand in national transport industry.



Percentile	Observations	Value of Delta Jobs
<1%	1	N<0
1% - 10%	1	0<=N<200
10% - 50%	8	200<=N<1,600
50 % – 90 %	8	1,600<=N<8,000
90 %- 99 %	1	8,000<=N<15,000
> 99%	1	N>15,000

Source: Elia *et al.* (2011).

Figure 10. Distribution of total employment variation of the transport sub-industries occurred between 1996 and 2001 in Italian regions.

5. CONCLUSION

The globalization of the economy, together with the consumer oriented economy, the internet-based information systems, the fall of transport costs, the European Traffic Policy, have fostered an increasing demand for logistics activities. Within a country, the demand can be either satisfied locally, by national firms, or by foreign firms, which entry into the country by specific internationalization strategies.

In Italy, the logistics demand growth and a very high fragmentation of the logistics industry, which mainly operates in transport and in other low value added services, have attracted an increasing number of global players, mainly coming from western Europe. These

players have acquired high market shares in the logistics activities which are more involved in globalization, i.e. forwarding, couriers and services managed by the 3PL and 4PL. According to the LogINT database, in 2010 the number of inward FDI is 372, which have been undertaken by 230 foreign MNE coming from western Europe (72.8%). The inward FDI result from the horizontal, vertical or conglomerate integration strategies. Specifically, the HI accounts for 56% of the FDI, while VI and CH account for 26% and 18%, respectively. When compared to other industrialized countries, Italy shows a poor attractiveness to inward FDI. This is mainly caused by the lower quality of the supply of localization factors and external economies.

The demand for logistics has also been increased by the internationalization of the Italian manufacturing firms, which have fostered the internationalization of the most innovative Italian logistics operators. These logistics firms started investing in the same foreign areas of their customers choosing the so-called "follow the customer" strategy. In 2010, 165 Italian MNE have undertaken 817 outward FDI mainly towards western Europe (45%) and Central East Europe (16%). Nevertheless, the ratio of Italian outward FDI on GDP is still very low, especially in comparison with other neighboring European countries.

The literature investigating the increasing logistics demand induced by the manufacturing internationalization is rather scanty. The studies mainly focus on the manufacturing industry, while little evidence is provided on logistics. In Italy, only two studies have been carried out on this topic. Specifically, the work by Elia *et al.* (2011) highlights that the transport industry in 1996-200,1 gains jobs in case of export, FDI and IPT while the opposite is true in case of import and OPT.

Since the literature focusing on the issues analyzed in the present chapter (outward and inward FDI in the Italian logistics industry; strategies and motivations driving the location choices of foreign FDI in Italy; the effects of manufacturing internationalization on logistics employment) is rather scanty, the present chapter aims to fill this gap in literature and puts forward the following policy recommendations.

As concerns the low attractiveness of Italy, investments in ICT and transport infrastructural quality and, more in general, investment fostering the localization factors and the external economies supply, are advocated. Moreover, the capitalization system must become more based on the financial organizations and less on the family capitals, falling the entry barriers in the Italian industry.

Referring to the issue: "Italy as a multinational follower" (low rate of outward FDI), policies aiming to encourage the firms to become bigger and to support the Italian companies' internationalization strategies are recommended.

The analysis of the integration strategies, and the related motivations has showed that the investments are more concentrated in the same parent MNE's logistics sub-industry (horizontal integration), even if the conglomerate integrations are quickly growing in the last years. The main motivations behind integration strategies are found in: increasing and defending market, reaching economies of scale and scope and investing the capital in profitable activities. These results allow to highlight that Italy is, thanks to its barycentric position, an interesting market where foreign players may consolidate their market powers, while rising efficiency improvement for their core products. Consequently, Italian manufacturing firms can create an advantage by a more efficient logistics, which is supplied by the foreign logistics providers. This consideration reinforces the positive impact of an high level of attractiveness of inward FDI.

On the other side, the foreign MNE may create a crowding up effect with respect to the Italian small firms, which may be forced to a progressive closing down. As a consequence, policies helping these firms to grow and to innovate can foster the competitiveness and the survival of the Italian logistics industry.

The results of the analysis on the impact of manufacturing internationalization on the transport employment are very interesting in terms of policy implications. Internationalization, at least as concerns export, FDI and IPT, allows an extension of the transport services' demand and, therefore, an increase of the transport providers' potential market. This means that when transport becomes more complex and strategic manufacturing firms tend to outsource the freight movements to specialized suppliers which can reach economies of scale and scope. Therefore, the logistics industry gains in terms of employment and competitiveness. As a consequence, in order to satisfy the growing transport demand, there is a strong need to develop policies able to remove the existing obstacles that limit the development of the transport industry in Italy. We refer to the inefficient and insufficient transport networks and the lack of culture about logistics within the Italian SME.

Investments in transport labor formation, specifically, at the scholar level, may be useful in order to improve the logistics firms competitiveness. Furthermore, policies aiming at increasing the rate of transport outsourcing in Italy, such as the recent edition of the National Plan of Logistics (Ministero delle Infrastrutture e dei Trasporti, 2011) suggests, may be able to better exploit the opportunities offered by the manufacturing internationalization process to the transport labor market.

However, the growth of the road transport produces significant negative externalities affecting the environment. Thus, specific policies aiming, from one side, to reduce those externalities and on the other side, to promote environmentally friendly transport modes and logistics organization, are advocated. For example, in order to gain competitiveness, the reliability of rail and road-rail combined transport should be improved by eliminating the bottlenecks and investing in infrastructure (railways and terminal). Also the maritime transport, which – as shown – is indeed positively affected by internationalization, should be promoted, by improving the efficiency of ports, reducing the duration of the duty controls and the level of bureaucracy.

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