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Ilaria Mariotti

Transport and Logistics in a Globalizing World

A Focus on Italy

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Transport and Logistics in a Globalizing World

A Focus on Italy

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DI MILANO

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ISSN 2282-2577 ISSN 2282-2585 (electronic)
ISBN 978-3-319-00010-7 ISBN 978-3-319-00011-4 (eBook)
DOI 10.1007/978-3-319-00011-4

Library of Congress Control Number: 2014945962

Springer Cham Heidelberg New York Dordrecht London

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

To my husband Davide
and my beloved Andrea and Bianca

Foreword I

The renewed worldwide interest in many fields regarding the contribution of transportation and logistics to the global economy is a very welcome development. In so many ways, these sectors are the lifeblood of the economy, keeping all other sectors (quite literally) moving. The various activities of these sectors are also very diverse, complex, and sophisticated and have evolved dramatically as these sectors have been in the vanguard of modern globalization. Indeed, many of the behavioral aspects, structural features, and workings of these sectors have changed out of all recognition during the last three decades of modern globalization. Understanding the modern role played by these activities therefore calls for renewed efforts at building the research base in these arenas, and any such analysis requires careful and detailed research across a range of different dimensions. In particular, the relationships between economic geography, ownership structure, market competition, and technology are all central to the workings of these sectors. Until recently, in fields such as economic geography, urban economics, and regional science there has been insufficient interest paid to the transport and logistics sectors, even though the movement of goods and people is so central to issues addressed by these fields.

This book by Ilaria Mariotti is therefore both welcome and timely. The book not only discusses the role played by the logistics and transportation sectors in driving globalization but also examines the role which globalization and foreign investment play in the restructuring and redefining these same sectors. The explicit emphasis on the links between these sectors, economic geography, and their global restructuring and evolution, means that the book will appeal to a wide range of researchers and will help us better connect these activities to a wide range of research agendas.

Philip McCann
University of Groningen

Foreword II

The author synthesises in this book her research experience in the fields of industrial economics and regional economics, her purpose being to contribute to the debate on firms' internationalization. In fact neo-globalization requires new observations and analyses of the locational choices of firms, of which manufacturers are still pivotal for the penetration and development of new and old markets.

Numerous studies have been conducted to explain the objectives, modes and dynamics of internationalization by firms, and the locational advantages of their production plants. There are likewise numerous analyses of the consequent urban and territorial effects for both for the host and home systems. Recently, a growing body of literature has also examined services for the spatial movement of goods, and the infrastructures and structures necessary for transport and logistics.

At work in each of these disciplinary areas are business economists (theories of competition and competitive advantage), planners, economists, and geographers (theories of international trade, mobility of the production factors, equilibrium, location, urban rent, the use of land), transport engineers (engineering of transportation and warehousing) and economists of transport and logistics (theories of total transport cost, modal and intermodal efficiency, and regulation). As often happens, however, each of these "experts" has worked independently from the others, thus being liable to instrumentalization for convenient corporative policies, whilst leaving problems of efficiency of mobility and transport networks unresolved.

The research work presented in the book rightly seeks to conduct joint analysis of all the aspects involved in the spatial movements of investments, capital, goods, and people. For that matter, the author has undertaken most of her research work in departments and projects concerned with these issues, not least the laboratory to which she currently belongs, which not by chance is entitled "Laboratory of Economics, Logistics and Territory" (Department of Architecture and Urban Studies—DAStU, Politecnico di Milano).

Hence, besides the specific utility of the author's research, the reader will find in the book a scientific and technical approach intended to assert the key role of transport and logistics in the competitiveness of firms and regional economic systems. The reader will also obtain significant insights for joint consideration of

the transport and logistics complex. This too has been excessively dichotomized in the past, in both the literature and in policy, with disastrous results for Italian logistics firms in face of the large international groups operating in the sector.

The book is therefore praiseworthy from various points of view, and precisely for this reason suggests interesting directions for future research from a multidisciplinary and policy standpoint. It also emphasises the choices that must still be made, by Italian policy-makers in particular, to strike the correct balance between economic efficiency and good use of territorial and environmental resources: that is, the better management of the numerous public goods that, together with the labour factor, are involved in the complex logistical game that inevitably concerns us and often improperly weighs down on us.

Flavio Boscacci
LabELT—DAStU, Politecnico di Milano

Preface

Every book has a short history behind it and this one is no exception. The chapters composing this book refer to the work that I have undertaken, jointly with other colleagues, since 2007, when I started working at the Laboratory of Economics, Logistics and Territory (LabELT) of the Department of Architecture and Urban Studies—DAStU (former DiAP), Politecnico di Milano, directed by Prof. Flavio Boscacci. The idea of referring to these works, most of them published as book chapters and in international journals, and write a book myself came to my mind after organizing a special session at the World Wide conference of the Regional Science Association International (RSAI) in Timisoara (Romania) in 2012.

I first came to study industrial location, and the role of regional policy during the M.Sc. in Regional Science at the University of Reading (UK), and later during the Ph.D. course in Spatial Sciences at the University of Groningen (NL), and the Ph.D. in Transportation Economics at the University of Genoa (IT). I then worked at the Department of Management, Economics and Industrial Engineering of the Politecnico di Milano, where I mainly investigated the effects of multinational corporations' localization strategies on the home and host countries. Since 2007, I have been working at LabELT of the DAStU, Politecnico di Milano, where, among the other topics, I have focused on transport and logistics multinational enterprises in Italy.

I hope this book will strengthen the interest to the transport and logistics sectors, largely neglected in the economic geography, urban economics and regional science debates.

Ilaria Mariotti
DAStU, Politecnico di Milano

Acknowledgments

I owe debt of gratitude to the members of the International, European, and Italian Regional Science Associations (RSAI, ERSA and AISRe), the Italian Association of Transportation and Logistics Economics (SIET), and to the participants in the seminars at which I have been speaker at the URSI-Faculty of Spatial Sciences, University of Groningen, and to the Department of Economics, University Rovira I Virgili (Reus, ES). My especial thanks go to scholars with whom I have exchanged ideas and discussed topics relevant to this book: Flavio Boscacci, Philip McCann, Piet Pellenbarg, Jouke van Dijk, Leo van Wissen, Lanfranco Senn, Josep-Maria Arauzo-Carod, Manjón-Antolín Miguel, Lucia Piscitello, Davide Castellani, Simona Iammarino, Giancarlo Corò, Andrea Caragliu, Corinna Morandi, Roberta Capello, Roberto Camagni, Gianfranco Viesti, Edoardo Marcucci, Marco Mazzarino, Lucio Siviero, Raffaello Bronzini, Andrea Appetecchia, Patrizia Lattarulo, Valeria Battaglia.

I am also grateful to Marco Mutinelli (Università degli Studi di Brescia) and Sergio Mariotti (Department of Management, Economics and Industrial Engineering of the Politecnico di Milano) for providing access to the Reprint database under a confidentiality agreement. At the risk of being unfair in the distribution of my acknowledgments, I would like to make especial mention of the co-authors of the works that inspired this book: Flavio Boscacci, DAStU-Politecnico di Milano; Elena Maggi, Department of Economics, Insubria University; Aleid Brouwer, URSI-Faculty of Spatial Sciences, University of Groningen; Stefano Elia, Department of Management, Economics and Industrial Engineering, Politecnico di Milano; Ila Maltese DAStU-Politecnico di Milano; Adelheid Holl, Institute of Public Goods and Policy, Madrid.

I also thank all managers of transport and logistics firms I have interviewed, and Giorgio Limonta and Ila Maltese for their valuable technical support in writing the book.

Last but not least, I thank my family, my husband Davide, for his constant encouragement, my son Andrea and the new-born daughter Bianca, for their unconditional love.

Contents

1 Transport and Logistics in a Globalizing World: An Appraisal 1
1.1 The Logistics Revolution 1
1.2 Globalization 4
1.2.1 Internationalization Strategies 5
1.3 Aim 6
1.4 The Transport and Logistics Industry 9
1.5 The Structure of the Book 11
References 13

2 Location Determinants of Transport and Logistics FDIs. A Focus on China and Italy 19
2.1 Introduction 19
2.2 Theoretical Framework 20
2.3 The Case of China 23
2.3.1 Empirical Investigation 25
2.4 The Case of Italy 29
2.4.1 Empirical Investigation 32
2.5 Conclusions 34
References 34

3 Integration Strategies and the Related Drivers. A Focus on Inward FDIs in Italy 39
3.1 The Integration Strategies in Transport and Logistics 39
3.2 The Main Drivers 42
3.3 A Focus on the Italian Case 44
3.4 Conclusions 48
References 49

4 Domestic and Foreign Logistics Firms. How Heterogeneity Affects Firm Performance 53
4.1 Introduction 53
4.2 Literature Review Focusing on the Manufacturing Industry 55
4.3 Literature Review Focusing on the Service, and Transport & Logistics Industries 56
4.4 Conclusions 59
References 60

5 The Effects of Manufacturing Internationalization on Transport and Logistics. Empirical Evidence on Italy 65
5.1 Introduction 65
5.2 Theoretical Framework 68
5.3 Empirical Evidence 69
5.3.1 Logistics Labour Demand: The Case of the Italian NUTS2 Regions 71
5.4 Concluding Remarks 74
References 75

6 Conclusions 79
6.1 Review of the Arguments 79
6.2 Policy Implications and Further Research 83
References 85

Appendix: The LogINT Database 89

Index 91

Chapter 1
Transport and Logistics in a Globalizing World: An Appraisal

Abstract The globalization of the economy, together with the consumer-oriented economy, Internet-based information systems, the substantial reductions in trade barriers, tariffs and transportation costs, and the European Traffic Policy, have increased the amount of goods flows to be moved around the globe. This has generated growing demand for transport and logistics activities, which since the 1950s have changed greatly in order to respond to customers' needs. Within this context, the present book investigates the interrelations between "transport and logistics" and "globalization" by analyzing the literature on these topics produced by various disciplines. This introductory chapter draws the boundaries of the book by presenting its aim, providing a definition of the key concepts: "transport and logistics industry" and "globalization", and by briefly reviewing the contents of the chapters.

Keywords Globalization · Transport and logistics industry · Logistics revolution · Internationalization strategies

1.1 The Logistics Revolution

This book is all about transport and logistics[1] and about the way this industry affected and has been affected by the dramatic changes that occurred in the global economic system in the last decades. But why logistics has changed so much? And how logistics has shaped the production patterns?

To answer to these questions it is necessary to recall the "logistics revolution", which started in the 1950s, and can be explained with five interrelated phenomena: (i) the consumer-oriented economy demanding a level of service customization and delivery speed which is only possible if more frequent shipments of goods are made; (ii) Internet-based information systems; (iii) the substantial reductions

[1] As it will be described in Sect. 1.4, the present book adopts a broad definition of the "transport and logistics" industry which refers to all codes included in 2002 NACE industry "I" "Transport, storage and communication", with the exception of telecommunications.

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_1

of trade barriers, tariffs and transportation costs; (iv) the European Traffic Policy; and (v) the processes of vertical disintegration and value-chain decomposition in most industries associated with the ongoing globalization of the economy that has increased the amount of goods flows to be moved around the globe (Maggi and Mariotti 2012). Let's go briefly through each of them.

The consumer-oriented economy, which is geared to mass consumption, mass production, and the mass distribution of consumer goods (Strasser 1998), has heightened the complexity of logistics processes in production and trade. The management of such complexity has been made feasible by the Internet-based information systems developed in the 1990s. These systems have made the exchange of information drastically simpler and cheaper, while Internet-based mail order businesses have boosted parcel services. Moreover, a key role has been played by various technology innovations in freight moving and handling: for instance, the rapid growth in roll-on, roll-off trucking technology, gains in containerization[2] technology and capacity, rapid-turnaround shipping and the increased speed and efficiency of air transport technologies (McCann 2008).

All of these technological developments have contributed to a huge reduction in transport costs (Hummels 1999; Van Veen-Groot and Nijkamp 1999; Glaeser and Kohlhase 2004; Levinson 2006; Notteboom 2007; McCann 1998, 2008; Notteboom and Rodrigue 2009). In particular, during the twentieth century, the costs of moving goods declined by over 90 % in real terms, and this reduction is still continuing. Indeed, the average cost of transporting a ton a mile decreased from 18.5 cents in 1890 (in 2001 dollars) to 2.3 cents in 2004 (Glaeser and Kohlhase 2004).

Moreover, in Europe, the Traffic Policy intended to favor the liberalization of truck traffic has greatly increased the truck fleet and traffic flows in the EU. In around only 10 years, from 1990 to 1999, road traffic within European member states increased by 76 % (Vahrenkamp 2010).

Finally, the globalization of the economy has strongly impacted on transport and logistics. Vertical disintegration is linked to the post-Fordist paradigm, which promoted the switch from the mass production of standardized goods to the market-oriented production favoring so-called flexible specialization. Flexible specialization[3] is based on the flexible use of general purpose machinery by skilled workers able to manufacture a wide range of products for constantly changing markets (Piore and Sabel 1984), and it requires investments in innovation, just in time (JIT), and lean production. JIT[4] is an

[2] For a review of the container revolution see Cudahy (2006) and Levinson (2006).

[3] The key elements of flexible specialization are: (i) multi-purpose equipment and innovation, skilled labour with an innovative mentality, general purpose equipment to produce whatever is in demand; (ii) clusters of enterprises or small firm communities, the seedbeds for an exchange of ideas; (iii) interaction/networking the entire set of subcontracting relations and collaboration efforts among small enterprises and between smaller and larger ones; and (iv) collective efficiency, the result of the physical presence of other innovative producers (Piore and Sabel 1984).

[4] JIT is a management approach which originated in Japan in the 1950s. It was subsequently adopted by Toyota and many Japanese manufacturing establishments with considerable success in improving productivity by eliminating waste (see, Schonberger 1996; McCann and Fingleton 1996; McCann 1998; Fujimoto 1999; Lai and Cheng 2009).

operational management approach to improving performance through waste reduction, concerning inventories, raw materials, and finished products, in order to gain financial savings and reduce business risks (Lai and Cheng 2009). Moreover the disintegration of production increasingly concerns multinational enterprises[5] (henceforth MNEs), and transnational companies[6] (henceforth TNCs), which outsource segments of the production process to subcontractors in different countries increasingly included in those firms' international production networks (Gereffi et al. 2005; Giunta et al. 2012). This phenomenon—also called the "international fragmentation of production" (Arndt and Kierzhowsky 2001)—generates growing shares of international trade flows (intermediate and unfinished goods) shipped from one country to another so as to combine manufacturing or services activities at home with those performed abroad (Baldone et al. 2002, 2006; Helg and Tajoli 2005).

The fragmentation of production processes, and the international dispersion of tasks and activities within them, is well represented by the global value chain (henceforth GVC). The latter, in fact, is a borderless production system which may consist of sequential chains or complex networks, and which may be global, regional, or span only two countries (Gereffi et al. 2005). It is typically coordinated by TNCs, with cross-border trade in production inputs and outputs taking place within their networks of affiliates, contractual partners (in non-equity modes of international production) and arm's-length suppliers (UNCTAD 2011, 2013). Effective GVC governance requires absolute attention to communication, information flows and logistics across the global TNC network.

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 systems which may also extend around the world (Hesse and Rodrigue 2006; Yieming et al. 2002; Brouwer et al. 2013; Maggi and Mariotti 2012). Specifically, the implementation of the JIT approach by manufacturing firms requires transportation services to be integral parts of the manufacturing and distributing production process. This is because the JIT approach entails close attention to the quality of the service, which must guarantee the right delivery times, the integrity of loads, and prompt information on the shipment's condition (Schonberger 1996). This logistics organization privileges road transport as the most flexible mode, and it integrates maritime, rail, and air transportation.

[5] According to the Harvard Multinationals Project, developed during the 1960s under the supervision of Raymond Vernon, a MNE is a firm that engages in economic activity in at least six foreign countries (Ietto-Gillies 2005). In the present book the term MNE is used to denote a multiplant firm that has facilities in more than one country and therefore in more than one location.

[6] According to the United Nations Conference on Trade and Development (UNCTAD 1992), a TNC is a firm that engages in economic activities directly in at least two foreign countries (Ietto-Gillies 2005).

1.2 Globalization

The logistics revolution is at the same time the cause and the effect of globalization.

The term 'globalization' does not denote a single phenomenon or process; rather, it is a catch-all expression used to describe a wide range of forces (Steger 2003; MacGillivray 2006). Globalization has been defined very differently according to the social science within which the notion is applied, and different value-judgments have been passed on it, such as whether a 'global society' is a good or bad thing (see, for a detailed review, Iammarino and McCann 2013). As stated by Van Veen-Groot and Nikamp (1999, pp. 331–332): *globalization is at present a* "*vogue*" *word* that refers to worldwide communications and mobility, the opening of markets and their increasing internationalization, the key positions occupied by multinational enterprises in world markets, the relocation of industrial activities throughout the world, and changing consumption patterns and lifestyles (Mariotti 2005; Maggi and Mariotti 2012).

Specifically, worldwide communications have been fostered by technological changes, such as the Internet and mobile phones (see Tranos and Nijkamp 2012), which, according to some authors, have rendered geographical distance of little or no importance (Gaspar and Glaeser 1998; Warf 1995). In the 1990s several scientists argued that globalization—in particular the revolution in Information and Communication Technologies (ICT)—marked the "end of geography" (O'Brien 1992), the onset of the "death of distance" (Cairncross 1997), the emergence of a "borderless world" (Ohmae 1995), and the "vanishing of distance" (Reich 2001) (see Christopherson et al. 2008). This issue has more recently been discussed by Thomas Friedman (2007) in his best-selling book *The World Is Flat*, which argues that the world is becoming rapidly "flatter" because the transaction costs associated with overcoming space have diminished dramatically, and the fall in spatial transaction costs results from both technological and institutional changes (McCann 2008 in Salvador et al. 2013).[7] By contrast, other authors, state that world is not becoming flatter but instead more curved (McCann 2008), or even more spiky (Rodriguez-Pose and Crescenzi 2008). McCann (2008) argues that spatial transaction costs have not fallen in recent years; rather, they have changed, and in many cases they have actually increased. In particular, the relationships among MNEs, cities, regions, and countries are changing both dramatically and rapidly, and from the economic standpoint these changes are far more profound than any of those brought about by YouTube or Facebook (see Iammarino and McCann 2013). Moreover, there is empirical evidence to suggest that many of these changes are quite the opposite of the "death of distance": numerous economic activities benefit from co-location for reasons of simple logistics, shared inputs, or face-to-face contacts (see Arita and McCann 2000).

[7] The findings of this book have been discussed in a Special Issue (Vol. 1 No. 3, 2008) of the Cambridge Journal of Regions, Economy and Society, which collects several papers stemming from various disciplines.

Apart from worldwide communications and mobility, other key factors in globalization are the TNCs and the MNEs, which fragment the structure of production processes among different plants and different countries, at least as long as the costs of logistics and reorganization do not overwhelm the marginal advantage. The moving of final goods, but also intermediate and unfinished ones worldwide takes the form of: trade, cooperation agreement, and foreign direct investment (FDI)—as will be described in the next section.

1.2.1 Internationalization Strategies

A firm can invest abroad in the following three ways: trade, cooperation agreement, and FDI. International trade, which consists of imports and exports, is the most common form of internationalization. It is the first entry strategy adopted by a firm addressing the global scenario, because it entails low involvement and less risk for the internationalized firm. It consists in the exchange of final and intermediate goods and services across national borders.

A cooperation agreement is a strategy more advanced and risky than international trade. It is mainly adopted by small and medium-sized enterprises (SMEs) because it does not require capital investment and is of short-medium duration. The cooperation agreement is entered into by a firm and a foreign partner operating backwards, forwards or in the same stage of a value chain (Ietto-Gillies 2005). This agreement concerns the development, distribution, and/or manufacture of goods to be sold in the foreign market. It is a non-equity strategy because it is developed through agreements (licensing, franchising, alliances, subcontracting) between a firm and one (or more) of its suppliers or distributors in order to supply, manufacture, or distribute goods and/or services without equity sharing.

Finally, FDI is the most composite and binding strategy with which to enter foreign markets, because it requires a significant capital investment in greenfield investments, or mergers and acquisitions (henceforth M&A), and it imposes a medium-long term obligation. FDI is the main tool adopted by medium and large firms intending to share the capital of a foreign firm, possibly with one or more partners. FDIs have increased dramatically in recent decades, in both relative and absolute terms. They have done so mainly because of a series of technological, economic and political changes ranging among the diffusion of ICT, the globalization of markets, liberalization and privatization (Piscitello and Rabbiosi 2005).

FDI generates not only intra-firm trade but also further exchanges between the host and the home country, since the parent company's affiliates establish economic relationships with home and host country suppliers and distributors.

During the 1980s and the 1990s, both the gross product of international production and the gross sales of foreign affiliates increased much more rapidly than did either global GDP or exports (Iammarino and McCann 2013). Moreover, around 60 % of global trade—which today amounts to more than $20 trillion—consists of trade in intermediate goods and services incorporated at various stages into the production process of goods and services for final consumption (UNCTAD 2013).

FDI can take the form of either greenfield or brownfield investment. Greenfield investment involves full ownership and consists of establishing a new plant, while brownfield investment—that is M&A—is the purchase of a controlling interest in a local firm. A merger consists of a mutual agreement on management of two or more companies so as to create a new joint legal entity through the exchange of shares or other funds. An acquisition takes place when the management of one company makes a direct offer to the shareholders of another company to acquire the controlling interest in that firm (Wall and Bronwen 2001).

FDI can also be defined according to the locational advantages offered by the host country. Building on the typology proposed by Behrman (1972), the following four main types of investment can be identified[8] (see also Dunning 1993, 1994; Dunning and Lundan 2008; for a recent review see Iammarino and McCann 2013): (i) resource or asset seeking; (ii) market seeking; (iii) efficiency seeking; (iv) strategic asset seeking. In the first case, MNEs invest abroad in order to gain access to tangible or intangible resources and assets, such as raw materials, labour and skills that are either unavailable in the home location or available in the host location at a lower cost than at home. An investment is market-seeking when the MNE wants to access new markets or to expand its existing one. MNEs that invest in order to rationalize and restructure previous investments that are either resource- or market-led make an efficiency-seeking investment.

The last type of investment is the strategic-asset seeking kind. This is undertaken by MNEs engaged in foreign operations, usually by acquiring the assets of foreign firms, and with the principal purpose of advancing their long-term strategic objectives in terms of global capabilities and competitiveness.

Finally, operations by MNEs across national boundaries may vary according to the investment industry. They may thus involve: (i) the production of the same good or service as produced at home (horizontal integration); (ii) the transfer abroad of some stages of the production process, either backward (upstream) or forward (downstream), or both, thus vertically fragmenting the MNE production process across countries (vertical integration); (iii) production that is neither horizontally nor vertically integrated (conglomerate integration) (see Caves 1971).

1.3 Aim

As outlined, the "logistics revolution" has increased the amount of goods to be moved around the globe. Logistics activities and the associated import/export trade accounted for 16 % of global GDP in 2000 and 18 % of European GDP (Leinbach and Capineri 2007). Besides, there has been a notable increase in total road freight transport in EU-15, where road traffic increased from 190 billion

[8] Another classification has been proposed by Markusen et al. (1996), who identify the following four types of investment: (i) resource seeking; (ii) cost saving; (iii) market seeking; (iv) strategic asset seeking (see also Barba Navaretti and Venables 2004).

tons-km in 2000 to almost 300 in 2008 (International Transport Forum 2011). Moreover, international seaborne trade has been steadily growing in recent decades, rising from 3.7 in 1980 to a record 8.4 billion tons in 2010 (UNCTAD 2011 in Alvarez-SanJaime et al. 2013).

Firms facing global competition concentrate more on specific consumers' requests, deliver goods with greater speed, seek ways to reduce costs, and improve quality (Bonacich and Wilson 2008). To achieve these ends, firms formulate intelligent strategies, including the use of international logistics techniques to gain competitive advantage in the management of supply chains (Wood et al. 2002). Indeed, logistics—involving all the move-store activities from the point of raw materials acquisition to the point of final consumption (Ballou 2004)—is becoming increasingly popular as a competitive device for companies to reduce delivery times, increase reliability and flexibility in deliveries, heighten customer responsiveness, and facilitate the successful implementation of JIT manufacturing and distribution systems (Lai and Cheng 2009; Brouwer et al. 2013). Moreover, freight flows are facilitated by the improved transportation and communication technology which makes the physical flow of goods easier, and greatly facilitates the matching of producers and customers worldwide, the provision of services, the writing of contracts, and the building of trust (Bröcker et al. 2011). It can be argued that these changes have created a win/win situation for all parties in the supply chain. Companies have reduced their costs and improved their levels of profitability, and this enables them to become more competitive by offering consumers the products that they want when they want them, and often at a lower price (Bonacich and Wilson 2008).

The growing demand for transport and logistics operations can be met by national firms or foreign investors. In the former case, transport and logistics can be managed in-house by the manufacturing company (internalization) or externalized to national suppliers (see Chap. 5). In the latter case, it can be outsourced to foreign transport and logistics TNCs specialized in offering such services. The German DHL company, for example, is a logistics TNC of this kind. It supports major TNCs in various global locations by furnishing logistical and supply chain solutions (UNCTAD 2013, p. 169). This is mainly what happens in Italy, where demand has been largely satisfied by foreign global players which, through FDIs, have acquired large market shares in those logistics activities most involved in globalization: forwarding, couriers, and services managed by Third Party Logistics (3PL[9])

[9] 3PL activities are defined as "activities carried out by an external company on behalf of a shipper (or client) and (they) consists of at least the provision of management of multiple logistics services. These activities are offered in an integrated way, not on a stand-alone basis. The co-operation between the shipper and the external company is an intended continuous relationship (lasting for at least 1 year)" (European Commission 2000). Third-Party logistics providers (3PLs) undertake management, analytical and design activities associated with transport and warehousing, such as inventory management, information related activities, including tracking and tracing, as well as the value added activities of secondary assembly of products and supply chain management (Laarhoven et al. 2000).

and Fourth Party Logistics (4PL).[10] The choice between internalization and externalization is typically determined by the relative costs and benefits, the associated risks, and the feasibility of each option.

Besides, as stressed by the literature, there is a bidirectional link between economic development and logistics performance[11] (see Arvis et al. 2007; Ferrari et al. 2011). Therefore, a country should improve the quality of logistics services, develop and enhance the logistics infrastructure, promote cooperation and coordination among logistics services providers, invest in ICT, reduce logistics costs, and increase training on all aspects of supply chain management. Within this context, inward FDIs in the higher value added activities of the transport and logistics industry may foster the recipient country's economic growth and welfare (Erdal and Tatoglu 2002; Arvis et al. 2007; see Chap. 2).

Although transport and logistics are factors in a country's competitiveness, and the movement of goods and people is so central to issues addressed by economic geography, urban economics and regional science, research into this topic is generally underrepresented. For example, even though one of the core questions regarding MNEs is precisely that of where their different operations take place, the locations of MNEs have to date been largely neglected (Iammarino and McCann 2013), and even more so the locations of transport and logistics MNEs. However, knowing the location determinants of this industry is crucial, for freight transport volumes are expected to grow, reaching in the EU about 82 % by 2050 (European Commission 2011), and the logistics floor space is expected to grow as well (Van Den Heuvel et al. 2013). Moreover, knowing the location decisions of transport and logistics firms is important for policymakers since it has a huge impact on the demand for freight transport, and the choice of freight transport modes (Bowen 2008).

Against this background, the present book examines the interrelation between the "transport and logistics industry" and "globalization", topics that have attracted the attention of scholars working in a number of disciplines but that are usually studied separately. By contrast, this book merges insights from different strands in the literature. Hence the reader will find treatment of concepts and tools from transportation economics, economic geography, urban and regional economics, international economics, industrial organization and managerial economics,

[10] When externalization is carried out, transport operators restructure themselves. They become larger and change into 3PLs or 4PLs by modifying their supply from single based services into an increasing number of high value added services (i.e. transport, storage, inventory management, tracking and tracing, packaging, labelling and secondary assembly of products) (Brewer et al. 2001; Elia et al. 2011).

[11] See the Logistics Performance Index (LPI) developed by the World Bank in partnership with academic and international institutions, private companies and individuals engaged in international logistics. The LPI assesses the logistics performance of a country on the following six dimensions: (1) the efficiency of the clearance process, (2) quality of trade and transport-related infrastructure, (3) ease of organizing shipments at competitive prices, (4) quality of logistics services, (5) ability to track and trace shipments, and (6) frequency with which shipments reach the consignee within the time limit (see Arnold et al. 2010).

amongst others. The point of view adopted is that of regional science, which aims to relate the impact of economics on space, and therefore the impact of internationalization on the transport and logistics industry, and its effects on space. Regional science, indeed, is mainly focused on the manufacturing industry, while the tertiary sector and specifically the transportation and logistics industry are, with few exceptions, largely underrepresented.

The book mainly provides empirical evidence on Italy, the country where the author lives and works, which can be considered an interesting case because it is characterized by a fragmented, small sized logistics industry, mainly operating in the low value added sectors. The distinctive characteristics of this industry have attracted foreign logistics MNEs in the integrated and high value added logistics sectors.

The structure of the book reproduces various aspects of the complex relation between transportation and logistics and globalization. It does so by analyzing, first, the location determinants (*where*) of inward transport and logistics FDIs (Chap. 2) and the integration strategies (*how*) (horizontal, vertical and conglomerate)—and related motives—undertaken by foreign MNEs investing in the transport and logistics industry (Chap. 3).

Secondly, the book investigates how and to what extent transport and logistics firms differ according to their ownership (domestic firms vs. foreign MNEs)—thus analyzing the impact of foreign investments in transport and logistics on the host country (Chap. 4)—and examines the effects of manufacturing internationalization (trade, cooperation agreement, FDI), on the transport and logistics employment change (Chap. 5) at home country level (the country whence manufacturing internationalization departs). Conclusions and policy recommendations follow (Chap. 6).

In order to furnish better understanding of the topics treated in the following chapters, a definition of "transport and logistics industry" is provided in the next section.

1.4 The Transport and Logistics Industry

The present book adopts a broad definition of the "transport and "logistics" industry which refers to all codes included in 2002 NACE industry "I" "Transport, storage and communications", with the exception of telecommunications (Boscacci 2003) (Table 1.1). Specifically, these codes are: (i) I 60.10—rail transport; (ii) I 60.24—freight road transport; (iii) I 61.10—sea and coastal transport; (iv) I 61.20—inland water transport; (v) I 62.10—scheduled air transport; (vi) I 63.1—cargo handling and storage; (vii) I 63.21—other supporting transport activities; (viii) I 63.40—activities of other transport agencies (forwarders, intermodal transport and logistics integrators); (ix) I 64.12—courier activities. Transport and logistics concern the ensemble of firms which offer all the services useful for the movement of goods along the supply chain, and of passengers from an origin to a final destination. More precisely, they comprise both Logistics Service Providers

Table 1.1 Transport and logistics sub-industries

Transport sub-industries	NACE codes
Land transport; transport via pipelines	60
Transport via railway	60.1
Other land transport	60.2
Transport via pipelines	60.3
Water transport	61
Sea and costal water transport	61.1
Inland water transport	61.2
Air transport	62
Scheduling air transport	62.1
Non-scheduled air transport	62.2
Supporting and auxiliary transport activities; activities of travel agencies	63
Cargo handling and storage	63.1
Other supporting transport activities	63.2
Activities of travel agencies and tour operators; tourist assistance activities	63.3
Activities of other transport agencies	63.4
Post and telecommunications	64
Post and couriers activities	64.1

(LSPs), offering single services on a stand-alone basis (transportation, warehousing, handling, etc.) and 3PLs or 4PLs or Integrated Logistics Providers, supplying different services in an integrated way, and benefiting from economies of scale and scope by offering integrated solutions to many freight distribution problems.

The concept of logistics was initially applied to military operations,[12] and after the Second World War it developed within the business field in the USA (Boscacci 2003; Maggi 2007). The most significant impact of logistics is exerted on the production, distribution and consumption functions (Rodrigue and Slack 2002). Several definitions of logistics have been put forward. The term "transport" mainly includes the movement of goods by road, rail, sea, and air, while "logistics" and "integrated logistics" concern: warehousing, production planning, procurement, picking and packaging, etc., and innovative activities (tracking and tracing, reverse logistics, etc.).

According to Ballou (1999, p. 6): "Logistics is the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information flow from point-of-origin to point-of-consumption for the purpose of conforming to customer requirements". The American Society of Logistics Engineering synthesized the objectives of the logistics process as the "eight Rs" stated in logistics

[12] As stated by Maggi (2007), one of the first definitions of logistics was provided by Webster in 1963: "Logistics is the acquisition, maintenance and transport of materials, services and military personnel".

handbooks: right materials, right quantity, right quality, right place, right time, right method, right impression, and right cost (see e.g. Ferrozzi et al. 1992; Kobayashi 1998). The first seven "Rs" concern "effectiveness", the last one "efficiency" (Maggi 2007).

As acknowledged by Lowe (2002), 'logistics' denotes the entire process of planning and organizing the supply and circulation of materials and supplies from the original source through the stages of production, assembly, packaging, storage, handling and distribution to the final consumer.

To summarize, the activities involved in logistics are divided between two major functions: physical distribution, and materials management (see Handfield and Nichols 1999; Hesse and Rodrigue 2004). More specifically:

- 'Physical distribution' (PD) is the collective term used to denote the range of activities involved in moving goods from points of production to final points of sale and consumption (McKinnon 1988, 33). It must ensure that the mobility requirements of supply chains are entirely fulfilled. PD comprises all the functions of movement and handling of goods: in particular, transportation services (trucking, rail freight, air freight, inland waterways, marine shipping, and pipelines), transshipment and warehousing services (e.g. consignment, storage, inventory management), trade, wholesale and (in principle) retail. Conventionally, all these activities are assumed to derive from materials management demands.
- 'Materials management' (MM) denotes all the activities involved in the manufacturing of commodities in all their production stages along a supply chain. MM includes production and marketing activities such as production planning, demand forecasting, purchasing and inventory management. It must ensure that the requirements of supply chains are met by handling a wide array of parts for assembly and raw materials, including packaging (for transport and retailing), and ultimately by recycling discarded commodities. All these activities are assumed to be induced by physical distribution demands.
  Past research has shown that logistics influences a manufacturer's ability to satisfy customers and overall performance (Tracey 1998). It is important for firms to develop logistics capabilities in order to attain cost and service advantages (Lai 2004). Similarly, the study by Stank et al. (2003) found that logistics service performance engenders customer satisfaction, which has links with customer loyalty and market share.

1.5 The Structure of the Book

As previously stated, the structure of the book reproduces various aspects of the complex relations between globalization, on the one hand, and the transport and logistics industry on the other, by focusing on *where* and *how* MNEs invest (Chaps. 2 and 3, respectively), and on the effects exerted by internationalization on the transport and logistics industry (Chaps. 4 and 5). Specifically, Chap. 4 focuses

on the effects of inward FDIs in transport and logistics on the recipient country (host country), examining firm heterogeneity between domestic firms and foreign MNEs, while Chap. 5 investigates the effects of manufacturing internationalization on transport and logistics employment in the country whence investments—in this case, manufacturing FDIs—depart (home country). The book merges insights from different strands in the literature. Indeed, each chapter refers to studies written by the author together with other scientists working in the fields of regional economics, economic geography, transport economics and international business and management, and concerning the Italian case.

Chapter 2 begins with a brief review of studies on the location determinants of inward manufacturing FDIs. It introduces the few studies carried out on the location patterns of the transportation and logistics industry. Attention is also paid to the location of inward FDIs in China and Italy, two countries that differ greatly in terms of economic growth and FDI attractiveness. Specifically, China is a developing country which has become an important world manufacturing center and the leading FDI recipient in the developing world (UNCTAD 2013). On the other hand, Italy has poor FDI attractiveness compared with the other developed countries, and inward FDIs in transport and logistics are prompted by its competitive position within the European and Mediterranean markets, and by the small size of its transport and logistics industry—the most fragmented in Europe, apart from Spain, Finland and Sweden (ISTAT 2001, 2007).

Studies on China investigate the location factors of inward FDIs, and can be classified into two groups: those investigating location determinants per se (Oum and Park 2004; Hong and Chin 2007), and those analyzing firm-specific effects (e.g. firm type, country of origin) on location decisions (Hong 2007a, b, 2010). The empirical analysis on Italy refers to the location factors of inward transport and logistics FDIs at year 2001 (Boscacci et al. 2009), and in the period 1997–2002 (Mariotti et al. 2012). Specifically, the study by Mariotti et al. (2012) investigates the role played by transaction costs' reduction due to the presence—in the same NUTS3 province of the inward FDI—of transport and logistics MNEs. Indeed, since foreign investors experience information asymmetries compared with indigenous investors, the spatial distribution of inward FDIs is governed by information costs, rather than by production and transport costs (Radner 1992; Casson 1994; Mariotti and Piscitello 1995).

MNEs choose not only where to locate a new investment but also which operations to transfer abroad. Chapter 3 is therefore devoted to types of integration strategy (horizontal, vertical and conglomerate), and to the motives behind them. To this end, integration strategies worldwide in 2007–2011 are presented, and the several strands of literature (business and administration economics, international economics, and transportation economics) are reviewed in order to investigate the main motives for those strategies. Specifically, three groups of drivers are identified: (i) competitive goals, (ii) efficiency goals, and (iii) other drivers. The focus then moves to the empirical investigation carried out on Italy (Maggi and Mariotti 2010, 2012) in regard to the integration strategies, and related drivers, undertaken by foreign MNEs in the period 2000–2010.

Chapter 4 focuses on heterogeneity and international involvement. It underlines, on the basis of the theoretical and empirical studies, the superior performance of international firms. A brief review of the literature on this topic and referring to the manufacturing industry is presented, and it is followed by a survey of the few studies on services, and specifically on transport and logistics. The focus is mainly on the empirical analysis by Brouwer and Mariotti (2009, 2014), which investigates whether foreign logistics MNEs located in Italy in 2002–2005 outperformed domestic and uni-national firms. This chapter therefore emphasizes the effects of inward FDIs on the host economy.

Chapter 5 investigates the effects of manufacturing internationalization—in the forms of import-export, cooperation agreement, and FDI—on transport and logistics employment growth by reviewing the few studies on this topic. As already stated, manufacturing internationalization induces an increase in flows of goods that must be managed by the firm itself (internalization) or by the transport providers (externalization). In the former case, increased labour demand arises within the investing firm for workers specialized in planning, managing, and controlling transport activities. Internationalization thus impacts on the investing firm (direct effect). In the latter case—that is, when transport is externalized—the impact is on the transport operators (indirect effects), which restructure themselves, grow larger, and change into 3PLs or 4PLs by shifting their supply from individual services to 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; Elia et al. 2011).

Specific attention is paid to a study by Elia et al. (2011), which better disentangles the indirect effects of manufacturing internationalisation—by means of trade, cooperation agreements, and FDI—on transport and logistics employment at regional scale in Italy. This chapter therefore describes the effects on transport and logistics at the level of the home country, from where manufacturing internationalisation departs.

Conclusions and policy implications follow in Chap. 6, where new research questions are put forward.

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Chapter 2
Location Determinants of Transport and Logistics FDIs. A Focus on China and Italy

Abstract One of the core questions regarding MNEs is where their different operations take place. Nevertheless, the locations of MNEs has so far been largely neglected, and even more so the locations of transport and logistics MNEs. The present chapter presents a review of the studies investigating the location determinants of inward transport and logistics FDIs by focusing on two countries: China and Italy. The location determinants are very similar to those of manufacturing, however, a key role is played by transport infrastructures, good transport networks, an efficient bureaucracy as regards administrative and customs procedures, and a high degree of government regulation.

Keywords Location determinants · Inward FDI · MNE · China · Italy

2.1 Introduction

The theoretical literature has mainly focused on where the different operations of MNEs take place, while the location determinants of MNEs has so far been largely neglected (Iammarino and McCann 2013), and even more so the location determinants of transport and logistics MNEs. However, understanding the location decisions of transport and logistics firms is important for society because the demand for "logistics floor space" is expected to grow substantially in advanced economies, while the demand for "industrial floor space" is expected to decline (McKinnon 2009). The expected growth in logistics floor space is correlated with the predicted growth of freight transport volumes, which is estimated in the EU to reach about 82 % in 2050 (European Commission 2011). Moreover, the location of transport and logistics firms shapes the demand for freight transport and deeply influences the feasibility of a shift of freight transport to more sustainable modes of transport (European Commission 2011).

The attraction of logistics functions, which are highly value added in their nature, positively influences the production, employment, income, prices, balance of payment economic growth, and welfare of a recipient country (Erdal and

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_2

Tatoglu 2002). This is the reason why most economically advanced countries want to attract as many distribution centers as possible, and over the past decades, many Asian and foreign analysts, business executives, and policy makers have emphasized the need to build Northeast Asian logistics hubs (Oum and Park 2004; Lee and Ducruet 2009).

It is, therefore, crucial to investigate the location decisions of transport and logistics firms for policy makers intending to attract logistics activities, and for companies like logistics real estate developers, and logistics park developers (Campolongo et al. 2010; Van Den Heuvel et al. 2013).

As in the case of manufacturing industry, the literature on the location determinants of transport and logistics MNEs is meager, and, as stressed by Hesse and Rodrigue (2004), research into freight transport and logistics is generally underrepresented in regional science. Studies find that the following factors play a key role in FDI location: market size and growth potential, labour factors (cost and quality), agglomeration economies, transport infrastructures and facilities, FDI penetration and transaction costs reduction, government incentives, political stability, and cultural and geographical proximity. Studies have been carried out, at least to my knowledge, on the cases of China (Oum and Park 2004; Hong and Chin 2007; Hong 2007a, b, 2010), and Italy (Boscacci et al. 2009b; Mariotti et al. 2012).

The present chapter aims to present the location determinants of inward logistics FDIs by reviewing the theoretical framework on firm location choices (Sect. 2.2), and presenting empirical studies on the cases of China and Italy, two countries that have greatly differed in terms of inward FDIs attractiveness since the 1990s, and achieved substantially different GDP growths in the last decade (Sects. 2.3, 2.4).

Among all developing and transition economies, indeed, China underwent the most remarkable transformation. Between 1980 and 2000, it increased its involvement in international trade: its share of global exports grew from 1.1 to 4.1 %, and its share of global imports from 2.9 to 3.4 % (Fujita 2007). Among the developing countries, indeed, China was responsible, in the last decade, for the export shares' reduction of countries like Italy, USA and Japan (ICE 2013). This had an impact on China's GDP per capita, which increased tenfold between the 1980s and 2000 (World Bank 2005), while Italian GDP per capita increased by 2.4 % in the same period.

2.2 Theoretical Framework

The literature on FDI determinants indicates that MNEs allocate their investments among countries to maximize their risk-adjusted profits (Caves 1996). The risk-adjusted profit of FDI made by a MNE in a particular country may depend on three groups of factors that are well summarized in the eclectic OLI paradigm[1]

[1] The eclectic OLI paradigm has been able to accommodate and compare different major economic, business, and managerial theories (Iammarino and McCann 2013).

developed by Dunning (1979–1981, 1988, 1993, 2003, 2009). This paradigm includes: (i) "ownership advantages", that is, firm-specific factors enabling the firm to grow more successfully than competitors in the home or host countries (i.e. proprietary technology and management expertise); (ii) "Location advantages", that is, location-specific factors in the host country that make it the best location for the firm to do business (i.e. cheap labour cost, growing market size, and good infrastructures); and (iii) "Internalization advantages", that is, factors associated with the firm's trade-off between FDI and exporting or licensing (i.e. trade barriers, and difficulties in finding a trustworthy licensee).

Research on the "L" advantages has been mainly addressed to manufacturing investments' location, and identifies the following as important location determinants for inward FDIs: (i) "traditional location factors", identified by the location theory[2]; (ii) infrastructures, services and intangible assets; (iii) environmental and social context; (iv) policy framework; (v) information costs (Table 2.1).

However, both theoretical and empirical studies affirm that the same factors may be relevant for the service sector (Boddewyn et al. 1986; Li and Guisinger 1992; Gerlowski et al. 1994; Markusen et al. 2005; Nachum and Wymbs 2002; Oum and Park 2004; Ozdemir 2002; Ozdemir and Darby 2009), and for transport and logistics (Button et al. 1995; Oum and Park 2004; Hong and Chin 2007; Hong 2007a, b, 2010; Boscacci et al. 2009b; Mariotti et al. 2012).

The location determinants of the transport and logistics industry are closely bound up with the features of the services that it furnishes (Hong and Chin 2007). First, logistics activities are intermediate inputs, so that the demand for logistics services derives from the demand for final goods or services. Moreover, customers' preferences significantly impact on the behavior of logistics providers. Second, business services are non-traded, or they are furnished at much higher costs from a distance (Daniels 1985; Markusen et al. 2005). Consequently, the use of logistics services provided from another region has significant disadvantages. Third, business services are normally produced with internal economies of scale (Groot 2001) probably due to high set-up costs. Finally, logistics services are to a large extent customized because customers normally have particular requirements and need differentiated logistics services.

Studies investigating the location determinants of transport and logistics FDIs suggest that FDIs are driven by: market size and growth potential, labour factors (cost and quality), agglomeration economies, transport infrastructures and facilities, FDI penetration and transaction costs reduction, government incentives, political stability, and cultural and geographical proximity (Oum and Park 2004; Hong 2007a, b, 2010; Hong and Chin 2007; Boscacci et al. 2009b; Mariotti et al. 2012).

Transport and logistics FDIs tend to be responsive to market size and market demand. They therefore prefer areas with strong industrial bases, and tend to

[2] These factors have been extensively investigated in firm location theory (see, Lloyd and Dicken 1992; Hayter 1997; Krugman 1995; Fujita et al. 1999; McCann 2002; Brouwer et al. 2004; Holl 2004a, b; Capello 2007; Arauzo-Carod 2005; Arauzo-Carod and Manjòn-Antolìn 2007; Arauzo-Carod et al. 2010).

Table 2.1 Location factors of manufacturing industry

Categories	Factors
Traditional location factors	*Labour* Labour costs and availability Labour skills and labour unionization *Market* Market size and market potential Competitiveness level and density *Land* Land costs and availability *Agglomeration economies* Localisation economies Urbanisation economies *Transport costs* Other costs Taxes and financing
Infrastructures, services and intangible assets	Presence of and accessibility to infrastructures Utilities' quality Business services (banking and financial services) Scientific and technological assets
Environmental and social context	Social cohesion and sense of legality Economic, political and social stability Legal system Intellectual property right protection Bureaucratic efficiency
Policy framework	Competition policy Trade policy Tax policy Environmental policy
Information costs	Geographical distance from the core (of city, region, nation) Geographical proximity to the home country Cultural proximity between the home and the host countries FDI penetration

Source Author's elaboration on Mariotti et al. (2012)

locate where the customers are willing to outsource logistics services to external providers. The availability of skilled labour is an important location determinant, especially when inward FDIs are in the more value added activities. Also labour cost can play a key role in inward FDIs location, reflecting foreign investors' efforts to reduce operational costs. The number of existing logistics service providers may influence the location choice of foreign logistics firms, thus confirming the existence of agglomeration economies in logistics (Hong 2007a; Mariotti et al. 2012; Van Den Heuvel et al. 2013). Foreign investors, indeed, suffer from adverse asymmetry in information costs compared with insiders (Radner 1992; Casson 1994; Mariotti and Piscitello 1995). Therefore, the opportunity to reduce information costs as well as to share spillovers from foreign agglomeration will be greater in areas affected by FDI penetration for a longer period (Guimaraes et al. 2000; Hong 2007a; Mariotti et al. 2012).

Infrastructures are important factors since they drive the internationalization of many service companies. Especially in activities that require close relationships between customers and suppliers, and/or their geographical proximity (Bowen 2008; O'Connor 2010; Mariotti et al. 2012). Government policy can be successful in attracting FDIs (Van Den Heuvel et al. 2013) by fostering, for example, the development of Special Economic Zones and Open Costal Cities, as in the case of China (Head and Ries 1996; Hong and Chin 2007).

Finally, the country of origin may influence the location of foreign investments (Zhao and Zhu 2000; He 2003) because of the cultural and geographical distance between the home and the host countries (Hofstede 1980).

These studies have been mainly carried out on China (Oum and Park 2004; Chin and Hong 2005; Hong 2007a, b, 2010[3]), where the logistics market is still in its infancy and creates increasing opportunities for investors, and on Italy (Boscacci et al. 2009b; Mariotti et al. 2012), where the fragmentation of the domestic logistics industry attracts foreign investors. These will be described in the following two sections.

2.3 The Case of China

Since the 1990s, China has become an important world manufacturing center, and has increased its geopolitical importance (McGregor 2006). Hence the need to manage international and regional flows of inputs and outputs has increased dramatically. This has been augmented by China's entry into the World Trade Organization (WTO) in December 2001, which opened the logistics market to foreign MNEs (UNCTAD 2005).

China's main export destinations are the EU, the USA, and Japan, which together represent 59 % of exports by value. Almost 43 % of total imports come from Japan, the EU, South Korea and Taiwan. China, as the first world exporter in 2012, accounted for about 30–40 % of world exports concerning textiles, clothing, footwear and leather goods, furniture, and eyewear (ICE 2013). In other industries (i.e. chemical products, steel, machinery and appliances) China occupies lower positions but often achieves a rapid penetration of markets. Moreover, in the past decade this country has tripled its share of world exports.

China is the leading FDI recipient in the developing world (Wei et al. 1999; Wei and Liu 2001); being ranked among the top twenty investors by UNCTAD (2013), China moved up from sixth position in 2000 to third in 2012, after the United States and Japan. Indeed, flows from the BRICS countries (Brazil, the

[3] There is a body of literature on the location factors of foreign logistics firms in China (see e.g. Bolton and Wei 2003; Wang 2006, 2008), which is not presented in this subsection because it is written in Chinese. For a review of these studies see Mahpula et al. (2013).

Russian Federation, India, China and South Africa) rose from $7 billion in 2000 to $145 billion in 2012, accounting for 10 % of the world total. Chinese companies invest in a wide range of industries and countries in pursuit of diversified objectives, including market-, efficiency-, natural resources- and strategic assets-seeking goals (UNCTAD 2013). Moreover, China occupied second position among the top 20 host economies in 2012 (UNCTAD 2013).

Within this context, China's logistics industry has developed rapidly, benefiting from the country's economic development, continuous improvement of logistics technology, and constant expansion of the e-commerce market. This has been made possible by the economic reform of the late 1970s, which opened the country to FDIs and transformed the logistics industry from one dominated by a few large state-owned firms to the present-day industry consisting of numerous privately and foreign-owned logistics providers (Hong 2007a). Moreover, since China's accession to the WTO in 2001, most restrictions on providing logistics services by foreign firms have been removed.

As stated by Mahpula et al. (2013), in the year 2010, the total value of China's logistics sector was USD 19.38 trillion, increasing by 15 % year-on-year. China's export logistics is mainly managed by large foreign logistics MNEs like TNT, UPS, DHL, and FedEx, which are located in the Pearl River Delta Economic Region (Shenzhen and Guangzhou), the Yangtze River Delta Economic Region (Shanghai), and the Bohai Bay Economic Rim (Beijing-Tianjin and Dalian). Specifically, Shanghai and Hong Kong are the two most important logistics hubs, followed by the ports of Shenzhen and Guangzhou in the Pearl River Delta region, the most important logistics center of China. These areas became extremely important for the socio-economic development of the country after 2001 when China's six ministries jointly issued the Document for Accelerating the Development of Modern Logistics, with the consequence that nearly 30 provinces and cities formulated modern logistics planning.

In 2001,[4] China hosted 1,775 foreign logistics firms,[5] as recorded by The Second Census on All Basic Units in China conducted by the Chinese government at the end of 2001 (Hong and Chin 2007; Hong 2007a, b, 2010). About 51 % of these firms originated from nearby countries (Hong Kong, Macao, and Taiwan), and 49 % from the rest of the world (Table 2.2). The number of foreign logistics entrants into China increased after 1997: indeed, 40 % of the firms are at least three years old. Foreign investors enter the Chinese market mainly through joint ventures (65 %), and as said, invest mostly in the Yangtze River Delta Economic

[4] No recent data, disaggregated by industry, countries of origin and areas of destination are available in the literature, at least to my knowledge. This information refers to the period 1992–2001 and is taken from Hong and Chin (2007) and Hong (2007a, b, 2010).

[5] Foreign logistics firms are defined as all types of foreign-funded firms that provide single or integrated logistics services for other companies and have their own independent accounting system (Hong 2010). They are then classified as: headquarter, independent firm, branch company or office, so that this analysis does not only consider inward FDIs.

Table 2.2 Foreign logistics firms in China

Disaggregated category	Subgroups	Number	%
Number of employees	0–30	1,237	70
	31–50	183	10
	51–100	205	12
	>100	150	8
Annual revenue (US$1000a)	≤62	354	20
	62 < revenue ≤ 124	88	5
	124 < revenue ≤ 620	579	33
	620 < revenue ≤ 1,240	254	14
	>1,240	500	28
Organization structure	Headquarter or independent	1,230	69
	Branch company or office	545	31
Entry mode	Wholly owned	612	35
	Joint ventures	1,163	65
Source of region	Foreign countries	863	49
	Hong Kong, Macao and Taiwan (HMT)	912	51
Main business	Various modes of transport	750	42
	Public warehousing	101	6
	Transport arrangement	127	7
	Logistics	326	18
	Others	471	27

Source Hong (2010, p. 676)

Region with Shanghai registering 36 %, the Pearl River Delta Economic Region accounting for 17 %, and the Bohai Bay Economic Rim for 20 % (Table 2.3).

The sectors attracting foreign investors are transport (42 %)—in all its modes—followed by logistics (18 %). As regards size, foreign logistics firms tend to be small (70 %), employing no more than 30 workers; and only 8 % of the sample are firms with more than 100 employees (Table 2.1). About 58 % of foreign firms' annual revenues are less than USD 620,000, and about 69 % are headquarters of foreign firms or independent firms.

2.3.1 Empirical Investigation

Studies on the location determinants of foreign logistics activities in China can be classified into two groups: those investigating location determinants per se, (Oum and Park 2004; Hong and Chin 2007), and those analyzing firm-specific effects on location decisions (Hong 2007a, 2010).

Oum and Park (2004) carried out a structured questionnaire-based survey addressed to foreign MNEs operating in various industries (apparel, IT, cosmetics, electronics, logistics, machinery, office supplies, pharmaceuticals) that

Table 2.3 Geographical distribution of foreign logistics firms in China

Province or equivalent	City	Number	Province or equivalent	City	Number
Beijing	Beijing	77	Guangdong	Guangzhou	135
Tianjin	Tianjin	220		Shenzhen	168
Liaoning	Shenyang	11		Zhuhai	29
	Dalian	58		Shantou	5
	Yingkou	9		Foshan	12
Shangdong	Jinan	14		Jiangmen	7
	Qingdao	61		Zhangjiang	5
	Yantai	7		Heyuan	6
	Rizhao	5		Qingyuan	5
Shanghai	Shanghai	637		Dongguan	14
Jiangsu	Nanjing	40		Zhongshan	6
	Wuxi	6		Shaoguan	13
	Suzhou	44		Chaozhou	7
	Nantong	14	Hainan	Haikou	18
	Zhenjiang	8	Hubei	Wuhan	12
	Lianyungang	5	Chongqing	Chongqing	12
Zhejiang	Ningbo	9	Sichuan	Chengdu	7
	Hangzhou	6	Yunnan	Kunming	6
Anhui	Hefei	5	Xinjiang	Wulumuqi	5
Fujian	Fuzhou	20			
	Xiamen	47			

Source Hong (2010, p. 677)

established their distribution centers in Northeast Asia (NEA) in the year 2002, in order to understand the main location determinants driving these investments. The NEA region, indeed, had constructed, or was planning to construct, new airports and seaports, and to expand the capacity of the existing air and maritime transport infrastructure. The authors found that the following location factors were most important: market size and growth potential, geographic location and market accessibility, transport facilities, political stability, skilled labour, flexible government, and logistics service providers. Among these determinants, market size was a major location factor inducing MNEs to establish their consolidated regional distribution centers in the NEA region. Specifically, they concluded that China is most likely to be a logistics hub in this region owing to its advantage in market size, and Shanghai the most preferred place to locate a MNE's distribution center among the NEA cities because of its prospective market size and government support.

The studies by Hong and Chin (2007) and Hong (2007a, b, 2010), investigating the location determinants of foreign investments in China, refer to the 1,175 foreign investments in 1992–2001 (The Second Census on All Basic Units in China conducted by the Chinese government) that were described in the previous section.

Hong and Chin (2007) carried out an econometric analysis (nested logit regression[6]) at the level of 40 Chinese cities that attracted 1,775 foreign logistics firms in a ten-year period (1992–2001). They found that the location choices of foreign logistics firms are influenced by market size, and therefore by the existing industrial base, and by market demand, measured by the incidence of outsourcing by logistics customers. High labour costs deter foreign investments, while a skilled labour force is advocated. The transportation network's capacity in terms of seaway, roadway and railway also plays a major role in attracting foreign logistics investments. Agglomeration economies are important: indeed, foreign investors prefer cities with existing concentrations of logistics firms. Finally, special economic zones and open coastal cities lost their attractiveness. This might be explained by the fact that about 90 % of foreign logistics establishments entered the market after 1992 when a large number of Chinese cities opened up to FDIs and adopted various preferential policies for foreign investments. Before 1992, in fact, only special economic zones and open coastal cities had been affected by preferential policies to attract FDIs.[7]

The studies by Hong (2007a, 2010) extended the previous analysis (Hong and Chin 2007) by focusing on whether the location choices of foreign investments are determined by the interaction of site- and firm-specific characteristics. As Dunning (1988) stated, since MNEs with different capabilities and characteristics may have different preferences, their view on opportunities offered by a particular location is likely to differ to some degree. For instance, headquarters may have a behavior different from that of affiliate establishments; and the country of origin may influence the location of foreign investments (Zhao and Zhu 2000; He 2003) because of the cultural and geographical distance between the home and the host countries (Hofstede 1980; Mariotti et al. 2010). Therefore, identifying firm-specific effects on location decisions has important implications for MNEs, which may evaluate location advantages with reference to their own characteristics, and for policy makers seeking to attract specific FDIs (Hong 2010).

The first study (Hong 2007a), based on conditional logit models[8] found that some location factors differ significantly according to the characteristics of foreign investments (i.e. firm type—branch firm or independent firm; country of origin—Hong Kong, Macao, Taiwan or foreign countries; age). Specifically, foreign logistics branches are less likely to be influenced by provincial roadway transport than their counterparts because they can rely for service provision on the headquarters and other affiliated establishments, and therefore depend less heavily on local technology provision. Moreover, foreign logistics branches are more likely than

[6] The dependent variable was a dummy variable, which is equal to one when a city is chosen and zero otherwise (Hong and Chin 2007).

[7] The Chinese government has adopted a series of preferential policies to attract FDIs since 1978. Prior to 1984, FDIs were limited to four Special Economic Zones, and after 1984 also to fourteen Open Coastal Cities (Hong and Chin 2007).

[8] The dependent variable was a dummy variable equal to one when a city was chosen and zero otherwise (Hong 2007a).

their independent counterparts to be distributed among provincial capitals, probably because they are more interested in local market penetration.

Firms from Hong Kong, Macao, and Taiwan (HMT) are more likely to locate in Southern China due to cultural and geographical proximity (Qu and Green 1997; He 2002, 2003; Hofstede 1980). As regards market size, while non-HMT investors tend to locate in provincial capital cities with large market sizes, HMT firms do not.

Younger foreign investments, that is, those undertaken after 1997, are more sensitive to roadway transport infrastructure, suggesting that the importance of roadway transport conditions in attracting foreign logistics firms has increased over time. Indeed, since the mid-1990s the Chinese government has gradually removed regulations restricting the provision of roadway transport services by foreign firms. Hence, more foreign firms now engage in roadway transport activities.

Finally, Free Trade Areas (FTAs) attract mature foreign investments, while they have no significant impact on young firms. This may be explained by the fact that FTAs were initially a successful policy to attract foreign investors, but their impact has decreased since the mid-1990s, when China's policies spread to more cities. Moreover, young logistics firms are more attracted by provincial capital cities because they are interested in exploring local markets.

The second study (Hong 2010), based on a conditional logit model,[9] added to the findings of the previous analyses because it considered additional explanatory variables (i.e. labour cost) and foreign investments' characteristics (i.e. size, sector, annual revenue). The study found that investments from outside HMT are more driven by lower labour cost and convenient air transport, reflecting foreign investors' efforts to reduce operational costs and their reliance on air transport. Moreover, overseas Chinese investors prefer cities with larger market sizes and that have FTAs.

The sector of investment also makes a difference in location decisions: transport firms are more likely than others to locate in cities with an airport and in free trade areas, while firms in other sectors are more likely to choose open coastal cities and special economic zones. The preference of transport companies for free trade areas is explained by the special treatment offered to firms of this type.

Small firms are more sensitive to site attributes like labour cost than are large companies, and they are attracted by FTAs in the large cities in the interior provinces, more than by coastal cities. This may be explained by their interest in exploring the inland markets or by the fact that free trade areas are less congested than coastal cities, and therefore less competitive. Moreover, financially strong firms are more sensitive to market size because they can benefit from scale advantages, whilst weak firms may cater to the specific needs of only small groups of customers. Finally, mature foreign investments (made before 1997) give more priority to labour factors.

[9] The dependent variable is a dummy variable, which is equal to one when a city is chosen and zero otherwise (Hong 2010).

2.4 The Case of Italy

Italy is specialized in the Made in Italy sectors (textiles-clothing, leather, footwear, machinery and appliances, furniture, food, other manufacturing activities), which constitute the principal export products. Specifically, in 2012 Italy was the second world exporter for clothing and eyewear, footwear and leather, third for glass, ceramics non-metallic construction materials, and furniture, fourth for textiles, fifth for machinery and industrial appliances (ICE 2013).

In 2012, Italy's main export destinations were the EU (53.7 %), with Germany and France accounting for 23.6 %, the USA for 6.9 %), and East Asia for 7.8 %) by value. About 53 % of total imports were from the EU, with Germany and France accounting for 23 %, followed by extra-EU countries with 11.3 %—Russia recording 4.9 %—and East Asia 10.3 %, of which China accounted for 6.5 % (ICE 2013).

As far as internationalization in terms of outward FDIs is concerned, Italy has been defined a "multinational follower" (Mariotti and Mutinelli 2009) because of its lower rate of outward FDIs compared with the other industrialized countries, mainly due to the small size of Italian firms, which induces them to prefer non-equity internationalization strategies (see Chap. 1). In 2006, Italy's percentage ratio between outward FDIs and the GDP was about 20 % (UNCTAD 2007), half of the European Union average and well below the main ratios of its closest partners (i.e. Germany with a ratio of 34.5 % and France with 48.3 %). In the classification of the top 20 investor economies in 2012 by UNCTAD (2013), Italy occupied 14th position.

The Italian MNEs[10] in 2012 accounted for 27,539 FDIs, employing 1,585,623 people[11] (ICE 2013). The FDIs were mainly located in EU27 (56.9 % of FDIs; 47 % employees), US (9.9 %; 12.4 %), other European countries (9.4 %; 8.9 %), and East Asia (8.7 %; 8.9 %), thus reflecting the preference for investing in geographically closer countries. The Italian macro-areas where FDIs originated were: North West (46 %), North East (32 %), Center (18 %) and, South and Islands (4 %).[12] In 2009, the industries investing abroad were: wholesale (49 %), followed by manufacturing industry (28 %), services (13 %) and construction (5 %) (Mariotti and Mutinelli 2009). The transport and logistics industry accounted for a small percentage (6 %) of total Italian outward FDIs, which, however, corresponded to 23 % of outward FDIs in the service sector. In recent decades, in fact, investments by Italian logistics firms have grown very quickly: in 2000–2006 the number of employees in the foreign affiliates of the Italian logistics MNEs

[10] Data are taken from the REPRINT-ICE database. For more details see www.ice.gov.it, ICE Reports on Foreign Trade (various years), and Mariotti and Mutinelli (2009).

[11] If compared with the year 2011, the employment increase must be related to the FDIs by Fiat-Chrysler in North America (15,000 employees), and by ENI (5,000 employees) (ICE 2013).

[12] These data by the Reprint-ICE database, refer to the year 2008.

increased by 64.3 %, while in the same period the investments undertaken by the Italian manufacturing MNEs decreased (Mariotti and Mutinelli 2009).

Moreover, Italy also shows poor attractiveness to inward FDIs in comparison with the other developed countries. Indeed, it was not included in the classification of the top 20 host economies in 2012 (UNCTAD 2013), which ranked the UK in the 10th position, France in the 13th, and Spain in the 16th. The poor attractiveness of Italy seems to be associated with some national institutional characteristics such as the low level of bureaucracy efficiency, and the legal system's inability to enforce property rights adequately (see e.g. Mariotti and Piscitello 1995; Basile et al. 2005; Bianchi et al. 2005; Mariotti and Mutinelli 2009). Moreover, the strong presence of SMEs with a family capitalism with low market contestability, high barriers to entry by foreign competitors, and a structural inability to respect and enforce rules of law deter the location of foreign investments.

In 2008, inward FDIs mainly originated from West Europe (65 %), followed by North America (25.2 %) and Asia (6.4 %), and they were made in the north-western macro-area (63 %), North-East (20 %), Center (13 %) and South and Islands (4 %) (Mariotti and Mutinelli 2009). Inward FDIs were mainly concentrated in: wholesale (39 %), manufacturing (33 %), and services (25 %). Logistics and transport accounted for 23 % of inward FDIs in the service sector and 6 % of total FDIs. Specifically, services recorded a higher growth rate than the other sectors in terms of number of firms, employees, turnover and value added (Maggi and Mariotti 2012).

As stressed in Chap. 1, the recent increase of inward FDIs in logistics is due to new infrastructures, globalization of the economy, and the increasing outsourcing of transport and logistics activities by manufacturing firms. The global economy, in fact, is characterized by global value chains in which intermediate goods and services are traded in fragmented and internationally dispersed production processes (UNCTAD 2013).

Italy attracts transport and logistics investments because of its competitive position within the European and Mediterranean markets, and the very small size of the national transport and logistics firms, which is the most fragmented in Europe, apart from Spain, Finland and Sweden (ISTAT 2001). In 2003, the industry as a whole recorded, on average, 6.2 employees, but analysis of the sub-sectors shows that transport (60–62), accounting for 88.6 %, recorded an average of 4.7 employees, while auxiliary transport activities (63, 64), accounting for 11.4 %, recorded an average of 17.8 employees (ISTAT 2007). Specifically, freight road transport recorded 3.2 employees per firm, and 60 % of the workers were self-employed. Moreover, the large firms with more than 100 employees operating in freight transport by road numbered 123, and they employed 8 % of total workers (ISTAT 2007).

This structural pattern does not foster the development of know-how, human and financing resources. Hence, SMEs do not develop the specific innovations necessary to offer a multifaceted range of services able to satisfy customers' demand. This makes Italy less competitive in the global scenario but attractive for the global players, which enter the market through M&A of Italian firms

(brownfield investments), and new companies (greenfield investments) (Maggi and Mariotti 2010, 2012).

Since the end of the 1990s, in fact, several international global players have massively invested in high value added services (integrated logistics, couriers and international forwarding activities) (Federtrasporto-Nomisma 2008–2012; Maggi and Mariotti 2010, 2012; Mariotti et al. 2012). These large foreign firms, characterized by logistics networks extending throughout the country, are able to satisfy the increasing demand of the Italian manufacturing firms which operate in the global market. Moreover, as will be described in detail in Chap. 4, they tend to outperform domestic firms in terms of turnover and productivity, favor locations in the core area of the country, and have a preference for the higher value added sub-sectors (Brouwer and Mariotti 2009a, b).

According to the LogINT database,[13] at the beginning of 2010 Italy registered 372 inward logistics FDIs undertaken by 230 foreign MNEs, which invested in the more value added sub-sectors—75 % (supporting and auxiliary transport activities of travel agencies"—I63 NACE, and couriers—I64.12 NACE); followed by land transport (14 %), sea transport (6 %), rail transport (4 %), and air transport (3 %) (Maggi and Mariotti 2012).

Foreign MNEs mainly come from Western Europe (72.8 %), followed by North America (11.3 %), Asia (7.3 %) and the Middle East (3.8 %), thus confirming the pattern of inward manufacturing FDIs in Italy. Among Western Europe countries, Germany totals 20 %, France 14 %, the Netherlands 10 %, and Switzerland 8 %. About 25 % of inward FDI is undertaken by eleven global players, of which nine are European and the rest are from the USA and Kuwait, respectively. Specifically, the financial company Apollo Global Management acquired the logistics unit from the Dutch TNT, naming it Ceva Logistics. The second biggest foreign group is Eurokai, leader firm in the maritime and port terminals sub-sectors. To follow, the courier TNT, the German financial 3I Group, Deutsche Bahn, the courier Deutsche Post, which owns the German DHL, and BLG Logistic, which mainly operates in the automotive industry. The next Chap. 3 will describe in detail the integration strategies undertaken by foreign MNEs in Italy. Inward FDIs are mainly located in the North of the country, with the North-West—the "core area" of the Italian logistics industry—hosting 61 %, followed by the North–East (19 %) and the Center (12 %). The South and Islands, on the other hand, are less attractive (8 %), thus confirming the Italian North-South divide (Iammarino et al. 2009). Specifically, the Lombardy and Liguria regions in the North-West attract 43 % and 12 % of the investments respectively, and are followed by the north-eastern regions, while Emilia Romagna (8 %) and Veneto (7 %). Tuscany and Lazio in the Center together total 11 %. Among the southern regions, Campania (3 %) and Calabria (2 %) are slightly more attractive than the others. This trend confirms that the logistics industry is strongly demand-driven in that it locates near the manufacturing customers. Analysis of the origin and destination areas shows that the northern

[13] See Appendix for a description of the database. See also the following research reports: Boscacci et al. (2006, 2008, 2009a).

areas attract FDIs from West Europe, Asia, Middle East, and Central Eastern Europe. The attractiveness towards FDIs from Central Eastern Europe is related to the "delocalization" process which the Italian industrial district firms[14] in the Made in Italy sectors have undergone since the second half of the 1980s. These firms transferred labour intensive activities to lower wages countries in order to exploit cost advantages (Baldone et al. 2002; Tattara et al. 2006; Mariotti et al. 2008; Mariotti and Montagnana 2008). This delocalization of activities generates flows of raw materials, semi-finished products, and final goods between Central-Eastern Europe and Italy that must be handled by transport and logistics firms both Italian and foreign (Elia et al. 2011).

2.4.1 Empirical Investigation

The only empirical studies, at least to my knowledge, on the location determinants of inward FDIs in Italy are those by Boscacci et al. (2009b), and Mariotti et al. (2012). The former refers to inward FDIs in the year 2001, and the latter to FDI variation in the period 1997–2001. The data are taken from the LogINT database, which registered 130 FDIs in 1997, and 258 in 2001. In those two years, the sectors attracting the majority of FDIs were the more value added ones ("supporting and auxiliary transport activities"), and the main regions of location were in the North-West (58.5 % in 1997, and 59.4 % in 2002). Moreover, foreign MNEs investing in the Italian logistics sector mostly came from Western Europe, as in the case of manufacturing and services.

The study by Boscacci et al. (2009b) investigated the location determinants of inward transport and logistics FDIs in the 103 NUTS3 provinces, and the four subsectors (60–63) in 2001. The econometric analysis (OLS estimation) showed that market size, labour quality, agglomeration economies, and transport infrastructure play a key role in attracting foreign FDIs. Specifically, market size is one of the key drivers for the global logistics players that invest in Italy in order to increase their markets and/or maintain their market shares. The preferred provinces, in fact, are those with a higher manufacturing value added, a stronger tendency of manufacturing firms to outsource transport and logistics, and a larger propensity to trade and undertake outward FDIs. As will be described in Chap. 3, foreign MNEs investing in Italy tend to undertake horizontal integration strategies: that is, they invest (by means of greenfield or M&A) in the same industry in which they are specialized (e.g. integration between two shipping companies). The main aim of such integration is to achieve optimal size and profit from scale and scope economies derived from bigger size (Alvarez-SanJaime et al. 2013).

Foreign MNEs prefer areas with high agglomeration economies because of the related advantages in terms of knowledge spillovers, skilled labour force

[14] For a definition of the industrial district see Becattini (1987, 2002) and Garofoli (1983). See also Chap. 5.

availability, infrastructures, services and information. In particular, localization economies, proxied by the location of Italian transport and logistics MNEs within a province, offer to foreign investors qualified suppliers, labour force availability, and knowledge spillovers access. Inward FDIs are more likely to be located in the north-west, and mainly in the region of Lombardy, which is the business core of the country, and where the majority of national and international traffic flows are concentrated. Moreover, Lombardy hosts a significant number of the logistics industry's customers and the large-scale retail trade. Its skilled labour force, in fact, is demanded by foreign MNEs which mainly undertake investments in the more value added activities. Finally, given that logistics firms manage the flows of materials, accessibility to transport infrastructures is an important location factor.

The study by Mariotti et al. (2012) built on the previous work by investigating the determinants of inward FDI change in the period 1997–2002, paying specific attention of the role of transaction costs' reduction. The variation of the number of inward logistics FDIs in 1997–2002—in the four logistics sub-industries, and in the NUTS3 provinces—was studied with reference to a number of location factors. The logit estimation[15] showed that FDI increase is strictly related to: market size, agglomeration economies, transaction costs reduction, and infrastructure provision.

Indeed, inward logistics FDIs are market driven. Hence they tend to be undertaken in areas with strong urbanization and agglomeration economies in order to benefit from them. These areas are more receptive to manufacturing MNEs, which need logistics providers to transport their goods to and from foreign markets. Other key factors are the age of the first investment, and the presence of Italian logistics MNEs—which bears out the hypothesis that reducing information costs is a significant determinant of the location choices made by foreign investors. Indeed, since foreign investors experience substantial information asymmetries compared with indigenous investors, the spatial distribution of inward FDIs is governed by information costs, rather than by production and transport costs (Radner 1992; Casson 1994; Mariotti and Piscitello 1995). Moreover, provinces with higher infrastructure indexes for roads, railways and airports are more attractive to logistics FDIs. This is consistent with the findings in the literature on location determinants that for MNEs the local availability of infrastructures and services has played a major role in their expansion abroad. This applies in particular to the logistics industry. Moreover, inward FDIs are more likely to be undertaken in the core area of Italy, specifically in the north-west, and in the preference is for the higher value added sub-sectors. This is due to the poor supply of integrated logistics and the related increasing demand for value added logistics services in Italy. These factors induce foreign investors to prefer the most value added sectors, such as "multimodal transport operators" and "freight integrators". Indeed, in the global scenario, where products and services flow internationally and commercial borders have superseded national ones, there is a growing need for integrated logistics able to support the international supply chain (Vastag et al. 1994).

[15] The dependent variable took 1 value if the province had experienced FDI growth in 1997–2001, and 0 otherwise.

2.5 Conclusions

In the globalized world, where the demand for "logistics floor space" is expected to grow substantially, understanding the location decisions of transport and logistics firms is important for society.

As stressed in the literature, the location determinants of transport and logistics are very similar to those of manufacturing, and the studies on the cases of China and Italy corroborate this evidence. However, some distinctive characteristics of the logistics industry should be noted, such as the importance of transport infrastructures, good transport networks, an efficient bureaucracy as regards administrative and customs procedures, and a high degree of government regulation. This last, in fact, in the case of China, made roadway infrastructure an unimportant consideration before the mid-1990s. But when the Chinese government reduced the restrictions about the provision of roadway transport services by foreign firms, transport conditions became a key consideration for inward FDIs (Hong 2010).

However, analysis of inward FDIs' location factors cannot neglect the key role played by the interaction of site- and firm-specific characteristics. Indeed, while agglomeration economies are remarkably consistent on FDI location, the influence of other factors (i.e. market demand, labour quality, government policies, the availability of supporting services) may differ among various groups of firms (Hong 2007a, 2010). For instance, according to the sector, foreign providers consider not only hardware facilities but also software factors (i.e. the availability of supporting services), and labour quality. Therefore, in order to attract FDIs in high value added activities, factors of this type cannot be neglected. Moreover, branch companies, headquarters and independent companies behave differently from each other. The same holds for young and mature investments, and large and small firms. Differences in location choices also depend on the country of origin of the investing firms, and this is mainly explained by cultural and geographical proximity between the home and the host countries.

Therefore, as it will be more extensively stated in Chap. 6, further research on location dynamics taking into account both firm-specific characteristics and the country of origin might assists government policy makers in predicting future location patterns and devising appropriate public policies designed to influence the future location decisions of foreign logistics firms. For instance, in order to attract more value added firms, a specific policy might focus on fostering education, training, and upgrading programs in logistics to enhance labour skills.

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Chapter 3
Integration Strategies and the Related Drivers. A Focus on Inward FDIs in Italy

Abstract MNEs operations abroad—by means of green field or brown field investments—can take the form of horizontal (H), vertical (V) and conglomerate (C) integrations (Is). These are driven by several motives that can vary from increasing market power to high capital returns. After a review of the literature on this topic, the present chapter focuses on integration strategies undertaken by foreign MNEs in the transport and logistics industry in Italy in the period 2000–2010. It results that horizontal integrations prevail, and are driven by increasing or defending market shares, and economies of scale' achievement. The main purpose of vertical integrations is the extension of the range of supplied services, which makes that it is possible to achieve competitive advantages, economies of scale and scope, and to cut transaction costs. Finally, there are various factors at the basis of the reasons for conglomerate integrations, above all, achieve economies of scale, and reduce transaction costs.

Keywords Horizontal integration · Vertical integration · Conglomerate integration · MNEs · Drivers

3.1 The Integration Strategies in Transport and Logistics

Global competition is increasing the need for enterprises to internationalize by using the production-sharing strategy to locate operations in countries that offer comparative advantages. Trade allows countries to allocate natural, labour and capital resources more efficiently, resulting in productivity increases and economic gains that improve income and living standards (Wilhelm et al. 2005).

Within this context, there has been an increase in the traffic flows around the world mainly managed by freight transport and maritime shipping. In addition to the globalization of the market, there has been the liberalization of various transport services, such as road transport or postal distribution. Both these phenomena have increased competition among logistics firms (see also Chap. 2), which have concentrated their efforts on increasing or defending their market power, and on

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_3

Table 3.1 Types of integration strategies

Integration strategies	Description
Horizontal	The investing MNE and the foreign affiliate[a] operate in the same industry
Vertical	The investing MNE and the foreign affiliate[a] operate at different stages of the same industry
Conglomerate	The investing MNE and the foreign affiliate[a] operate in different industries

[a]The foreign affiliate can be either a green field investment or a brownfield one (M&A)
Source Elaboration on Caves' work (1971)

reaching a sufficient size to cope efficiently with the high investment in transport and ICT infrastructure (Carbone and Stone 2005).

To this end, MNEs have undertaken the following integration strategies: horizontal, vertical, and conglomerate (Caves 1971)[1] (Table 3.1).[2] The main strategy adopted worldwide is horizontal integration (hereinafter HI), and it is pursued when the investment (greenfield or M&A)[3] is carried out in the same industry as that of the parent multinational enterprise (e.g. integration between two shipping companies). The main aim of such integration is to achieve optimal size and profit from scale and scope economies derived from bigger size (Alvarez-SanJaime et al. 2013b), as will be described in the next section. According to Federtrasporto-Nomisma (2012),[4] in 2009 70.3 % of global logistics M&A was made in the same industry as the investing MNE, and in 2011 this share accounted for 63 % (Table 3.2).

As stated by Frémont (2009), the industry which has experienced gradual HIs is maritime shipping: in 1980 the top twenty shipping lines accounted for 45 % of world container traffic capacity; in 2000 the percentage increased to 52 %, reaching a record 82 % in 2007. Moreover, Federtrasporto-Nomisma (2012) registers a growth of HIs, in the form of M&A, in the logistics sub-sector, which accounted for 47.6 % in 2011.

Vertical integration (hereinafter VI), on the other hand, occurs when the MNE invests in backward or forward stages of the same industry or in a company offering services different from those of the MNE (e.g. integration between a shipping company and a sea terminal operator or a sea transport agency, or between a transport and a storage firm). VI allows the investing firms to diversify their product. In

[1] Richard Caves's work (1971) was the first to introduce the ground-breaking distinction between horizontal and vertical integration of MNE operations across national boundaries.

[2] In this chapter the terms "integration strategies" and "investments" are used synonymously.

[3] For an overview of internationalization investments see Chap. 1.

[4] The study published yearly since 2008 by Federtrasporto-Nomisma concerns inward FDI in the form of M&A, thus neglecting greenfield investments. This study is based on the M&A Trasporti database, developed by Nomisma in 2001, which registers the principal operations worldwide since 1999.

Table 3.2 The integration strategies (M&A) in transport and logistics worldwide (2008–2011)

Integration typology	2007	2008	2009	2010	2011
		Absolute values			
Vertical	38	38	16	21	19
Horizontal	154	129	78	67	63
Conglomerate[a]	57	21	17	19	18
Total	249	188	111	107	100
		Percentage			
Vertical	15.3	20.2	14.4	19.6	19.0
Horizontal	61.8	68.6	70.3	62.6	63.0
Conglomerate[a]	22.9	11.2	15.3	17.8	18.0
Total	100.0	100.0	100.0	100.0	100.0

[a]Conglomerate integrations were undertaken by investors operating in the following sectors: banking, investment funds (private equity or dedicated to infrastructures), manufacturing, and, mainly in the emerging countries, by state-owned firms

Source Author's elaboration on Nomisma, banca dati M&A Trasporti, 2012 in Federtrasporto-Nomisma (2009, 2012)

the case of logistics, this business diversification serves three different purposes (Maggi and Mariotti 2010, 2012): (a) completion of the transport chain in order to offer door-to-door links to clients; (b) integration of different logistics services along the supply chain and extension of the range of services supplied to include integrated solutions; (c) the supply of activities auxiliary and complementary with respect to the core service. Business diversification is motivated by the need to satisfy evolving customer needs and by the search for higher margins by the logistics firms. In particular, the second type of business diversification (b) is typically the strategy adopted by MNEs aiming to become integrated logistics service providers (3PLs or 4PLs) by acquiring specialist capabilities.

VI in the form of M&A accounted for 15.3 % in 2007 and 19 % in 2011 (Table 3.2). The subsectors mainly involved in VI are port (42.1 % in 2011) and rail goods (15.8 % in 2011).

Finally, conglomerate integration (hereinafter CI) happens when the investment in a logistics activity is carried out by a non-logistics MNE (e.g., a manufacturing or finance firm) (Table 3.1). CIs are increasing worldwide: according to Federtrasporto-Nomisma (2012), M&A undertaken by non-logistics investors grew from 12.6 % in 2005 to 18 % in 2011 (Table 3.2). This can be explained by the increasing interest of international investors in transport and logistics as a strategic industry within a globalized economy. Moreover, these investors are characterised by their larger size and availability of capital to invest compared with transport and logistics firms, and they need to diversify their investments. About 27.8 % of the CIs (18 % of the total M&A) concerned the port sub-sector, and 22.2 % the logistics one (Federtrasporto-Nomisma 2012). Analysis of the period 2008–2011 confirms the impact of the global crisis on M&A processes. Indeed, after the boom in 2007 with 154 HIs, the year 2011 accounted for 63 HIs (Table 3.2).

The various integration strategies have been investigated by the business and administration economic literature[5] (Ojala 1993; Capron 1999; Chang and Rosenzweig 2001; Häkkinen et al. 2004), the international economic literature (Caves 1971; Buckley and Casson 1976; Dunning 1988; Agarwal and Ramaswami 1992; Barba Navaretti and Venables 2004; Hijzen 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 2005, 2009, 2012; Cruijssen et al. 2007; Van de Voorde and Vanelslander 2009; Maggi and Mariotti 2010, 2012; Alvarez-SanJaime et al. 2013a, b).

The following sections draw on these studies to focus on the specific motives driving the integration strategies (Sect. 3.2), and on the types of integration strategies, and related drivers, undertaken by foreign MNEs investing in Italy (Sect. 3.3). Discussion and conclusions follow.

3.2 The Main Drivers

As described by Maggi and Mariotti (2010, 2012), the above-mentioned integration strategies are prompted by different and often multiple specific drivers (see Ojala 1993; Veugelers 2002; Häkkinen et al. 2004; Barba Navaretti and Venables 2004; Hjizen et al. 2006; Cruijssen et al. 2007; Alvarez-SanJaime et al. 2013a, b), which can be classified into three main groups: (i) competitive goals; (ii) efficiency goals; (iii) other drivers (Table 3.3).

The competitive goals are to: (i) increase the market share or political power, and/or (ii) defend the market share. More precisely, some MNEs, often following their clients abroad, have entered new markets or strengthened their position in the traditional ones although they are already in a dominant position. Other MNEs have opted for a defensive strategy in order to: (i) prevent themselves from being taken over; (ii) prevent the target from being taken over by others; (iii) prevent other merged entities in the industry from becoming too strong (Gorton et al. 1998).

Both HI and VI can be driven by competitive goals. The aim of HI is to penetrate new geographical markets or expand in existing ones, and to control major traffic flows through the creation of efficient transport chains (Carbone and Stone 2005). The purpose of VI is to penetrate new markets in terms of services, and to acquire new capabilities. Therefore, as stated by Heaver (1996), HI is motivated by geographical diversification, and VI by business diversification.

In order to gain efficiency, inward FDIs can be motivated by the search for economies of scale and scope, and by an endesavour to reduce transaction costs. Scale and scope economies are crucial for all industries with a high rate of fixed

[5] Specifically, the strategic management literature refers to the "relatedness" that is the degree of correspondence between an acquirer and its target (Haleblian and Finkelstein 1999).

Table 3.3 The main drivers by integration strategy

Drivers	Integration strategies		
	Horizontal	Vertical	Conglomerate
Competitive goals			
(1a) Increasing market or political power	***	***	*
(1b) Defending market share	***	***	n.t.
Efficiency goals			
(2a) Economies of scale	***	**	**
(2b) Economies of scope	*	***	*
(2c) Reduction of transaction costs	*	***	**
Other drivers			
(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)

costs. In the logistics sector, this mainly concerns structures or infrastructures, or the vehicles used for transport or warehousing operations. Specifically, if a company achieves scale economies with larger transport or storage volumes, it can firstly enhance the productivity of core activities, for example by optimizing vehicle capacity utilization, reducing empty mileage or making better use of the space in its warehouses. Secondly, the company can reduce the costs of non-core activities by organizing safety training or creating joint fuel facilities. Thirdly, it can cut the costs of purchasing, marketing, and research and development (e.g. by reducing vehicles, onboard computers, fuel, etc.) (Cruijssen et al. 2007; Van de Voorde and Vanelslander 2009).

Economies of scope arise when the total cost of producing two different goods or services jointly is less than producing each of those goods separately. The business diversification consequent mainly on VI makes it possible to combine complementary skills. Moreover it often enables a company to offer a better-quality 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, economies of scope help improve operating margins through business process re-engineering and commercial entry into new market segments (Carbone and Stone 2005). Improved efficiency can also be achieved if a company cuts transaction costs with suppliers or distributors along the supply chain by acquiring them. The reduction of transaction costs results from small-numbers of bargaining, which enhances the partners' competitive position or market power, and gives them the organizational knowledge and learning that they require (Kogut 1988; Goldman and Gorton 2000). As concerns efficiency gains, scale economies forcefully drive HIs, while in the case of VIs economies of scope and reductions of transaction costs are more important (Table 3.2).

The literature identifies three further types of motivation ("other drivers") driving the investment industry's choice: changes in the industry's regulation, access to technologies or specific capabilities, and capital return from the investment. A change in the rules regulating an industry in a particular country, such as the liberalization of a market previous regulated by a public monopoly, may attract MNE from other countries. Tax savings may ensue when a loss-making firm merges with a profitable one. Furthermore, the regulated firms may want to diversify into an unregulated market in order to shift profits from the regulated market to the unregulated one (Veugelers 2002). An acquisition may enable a firm to access to new technologies and know-how more rapidly and cheaply, rather than having to set up new activities 'ex-novo' or doing its own research and development. As regards the logistics industry, the vast majority of logistics firms are SMEs, so that, by definition, they lag behind in implementing information and ICT systems (Gunasekaran and Ngai 2004). Cruijssen et al. (2007) show that ICT mainly concerns horizontal integrations of a medium or high intensity and able to generate revenues sufficient to repay the ICT investments. Moreover, the acquisition gives the company rapid access to specialist capabilities, especially those concerning higher value added services. A growing number of third-party logistics providers (3PL) respond to the evolving demand of their clients by expanding their supply to include activities such as contract maintenance and repair, post-manufacturing and reverse logistics, which require a high level of specialization (Plehwe and Bohle 1998).

Moreover, in regard to "other drivers", regulation is an important driver of investments in the same industry (HIs), and high capital returns mainly motivate investments by non-logistics MNEs, especially when they are made by financial and real estate intermediaries which need to invest in profitable industries. Other major drivers of the conglomerate integrations pursued by manufacturing or energy firms are scale economies and savings on transaction costs (Maggi and Mariotti 2010).

3.3 A Focus on the Italian Case

This section focuses on the integration strategies—in the form of greenfield and M&A—undertaken by foreign MNEs investing in Italy in the period 2000–2010 as presented by Maggi and Mariotti (2012). Data are from the LogINT database.[6] Inward FDIs concern freight transport, while passenger transport is excluded. As described in Chap. 2, Italy has scant capacity to attract inward FDI compared with other European countries (for a review see Mariotti and Mutinelli 2007, 2009, 2010; for inward FDI—M&A—in transport and logistics see Federtrasporto-Nomisma 2008, 2009, 2010, 2011, 2012; Maggi and Mariotti 2010, 2012) for the following reasons: (i) lower quality of location factors and external economies supply; (ii) the presence of a family capitalism with low market contestability; (iii)

[6] For a review of the data see Appendix.

high barriers to the entrance of foreign competitors. Specifically, the scant attractiveness of Italy is mainly due to: poor infrastructural endowment, and an inefficient bureaucracy as regards administrative and customs fulfillments. Nevertheless, the competitive position of central and northern regions within the European and Mediterranean markets has contributed to the growth of trade flows, and increased the attractiveness of inward FDIs, mainly from other European countries and specialized in integrated logistics, forwarding and courier activities.

In the 2000s, inward transport and logistics FDI in Italy grew by 25 %, and the majority of foreign investors originated from Western Europe. According to LogINT, in 2011 about 23 % of inward FDI was undertaken by eleven global players (i.e. Apollo Global Management, Eurokai, TNT, SNCF, and Deutsche Bahn) with headquarters located in EU-15. Inward FDIs in Italy privileged large metropolitan areas, and mainly the region of Lombardy, which is the business core of the country and where the majority of national and international traffic flows are concentrated. Moreover, Lombardy hosts a significant number of the logistics industry's customers and the large-scale retail trade.

Foreign MNEs invested in Italy in the period 2000–2010 by undertaking horizontal, vertical and conglomerate integration strategies, with a predominance of the first, thus confirming the global trend. As described by Maggi and Mariotti (2012), about 56 % of inward freight transport FDI is horizontal, while CIs and VIs account for 26 and 18 %, respectively. About 73 % of HIs concern logistics (NACE I.63 and I.64),[7] with forwarding activities accounting for 25 %, integrated logistics and intermodal transport for 20 %, and couriers for 12 % (Fig. 3.1). HIs in the transport sector concerned road (13 %), sea (8 %), and rail (5 %).

Specifically, the courier sub-sector has been massively affected by HIs (Fig. 3.2) mainly because of liberalization of postal activities, which has fostered an increasing concentration of couriers into a small number of operators. These players have been pushed by: (i) competitive issues—i.e. defending the market share from the American couriers such as UPS and Federal Express; (ii) efficiency considerations; (iii) the need to develop IT systems and achieve high brand awareness. Two large European operators: the Dutch TNT Post Group (TPG) and the German Deutsche Post, have penetrated the Italian market, achieving, respectively, 14 and 6 % of the total inward FDIs undertaken by the first ten global players[8] (Maggi and Mariotti 2009, 2010).

Moreover, the share of HIs is very high in both maritime and rail transport (Fig. 3.2), thus reflecting the growing concentration of the global market, and it allows the participating firms to reap benefits of scale, competitive

[7] See Chap. 1, for definition of the transport and logistics sectors.

[8] The first ten global players which invested in Italy at the year 2008 were: Arriva International, Apollo Global Management, Eurokai, TNT, 3I Group, Deutsche Bahn, Deutsche Post, Interprogramme Holding, A.P. Moller–Maersk, Kuwait Petroleum (for a review, see Maggi and Mariotti 2009).

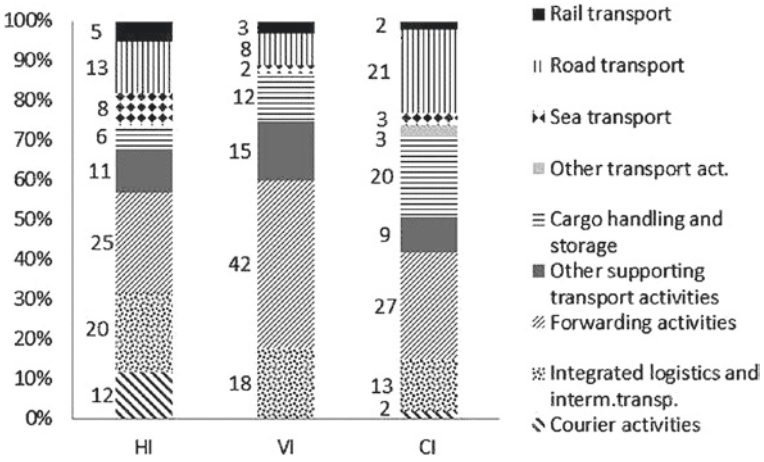

Fig. 3.1 Integration strategies by inward FDI sub-sector. *Source* Maggi and Mariotti (2012), data from the LogINT database, LabELT, 2010

advantages (Shepperd and Seidman 2001; Fan et al. 2001; Oum et al. 2002), and efficiency gains by sharing the high fixed costs among big transport volumes. The percentage of HIs is instead lower in the other transport modes: in road transport, and especially in inland water and pipeline transport, CIs are substantial.

Similarly to couriers, HIs predominate in the NACE I.63 sub-industries[9] (Fig. 3.2). The majority of VIs have been undertaken in the NACE I.63 sub-sector, with forwarders accounting for 42 %, integrators and intermodal operators for 18 %, and firms operating in other supporting transport activities for 15 % (Fig. 3.1). Moreover, also the road and rail transport sub-sectors register VIs. This is the case of the intermodal operator Eurokai Group, which acquired Sogemar and Hannibal,[10] two companies offering intermodal (rail-road) transport. It thus undertook a VI to complete the transport chain in order to offer door-to-door links to clients. As shown in Fig. 3.3, CIs are undertaken primarily by financial and real estate intermediaries (40 %), followed by the manufacturing industry (food, metal, machinery and electric goods, transport equipment, chemical and pharmaceutical products) (30 %), energy, extraction, production and distribution (22 %), trade and construction (6 %), business services (2 %). These have mainly invested in activities different from pure transport and offering higher value added services:

[9] It includes: I 63.1—cargo handling and storage; I 63.21—other supporting transport activities; I 63.40—activities of other transport agencies (forwarders, intermodal transport and logistics integrators) (see Chap. 1).

[10] To be more precise, Eurokai controls the Italian Contship Group Spa, to which Sogemar and Hannibal belong (Maggi and Mariotti 2010).

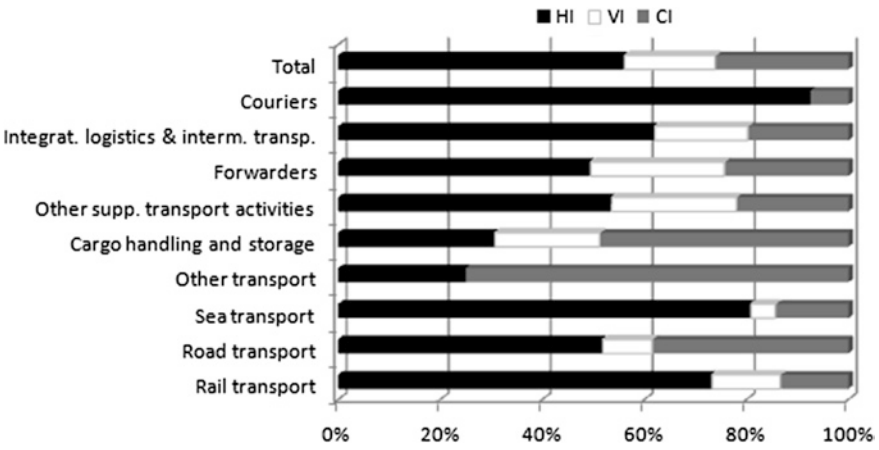

Fig. 3.2 The sub-sectors of inward FDIs and the distribution of integration strategies (percentages). *Source* Maggi and Mariotti (2012), data from the LogINT database, LabELT, 2010

forwarding activities (27 %), road transport (21 %), and cargo handling and storage (20 %) (Fig. 3.1).

Financial operators have invested in Italy by undertaking FDIs in the higher value added activities of NACE I 63.4 (forwarders, intermodal transport and logistics integrators). They have been clearly motivated by the search for a high capital return rate. Among them, the American Apollo Global Management has acquired the logistics branch of TNT. This became Ceva Logistics, which accounts for 20 % of the Italian market in publishing distribution (Federtrasporto-Nomisma 2009). Moreover, the British 3I Group has acquired several firms, mainly based in Lombardy, supplying storage, transport and other logistics services.

Manufacturing MNEs have invested in several logistics sub-industries, but the NACE I 63.4 code predominates. These investments often result from a spin-off of the industrial firm's internal logistics division, and they are generally motivated by proximity to customers and by the search for scale economies. For example, the British GKN Driveline, the world's leading manufacturer of automotive driveline components, has externalised its logistics activities by creating GKN Freight Services, a 3PL. In 1996, GKN Driveline opened its Italian affiliate in the province of Florence, through the acquisition of a FIAT branch. It has also opened the Italian affiliate of GKN Freight Services in the province of Florence. This integration strategy has been driven by geographical proximity to the customer: GKN Driveline is the principal customer of GKN Freight Services, accounting for 85 % of GKN Freight Services's turnover.

Another CI has been undertaken by the Swedish Electrolux company, which controls Electrolux Logistics Italy SpA and other firms providing forwarding, handling and storage services. Two German MNEs in the food industry (Dr. August Oetker Kg and Theobald Mueller Ag), and the Swiss Nestlè

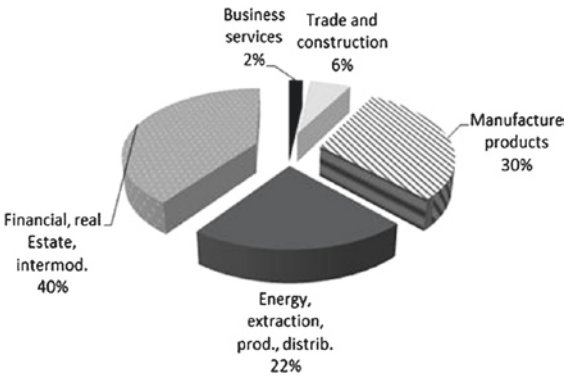

Fig. 3.3 Conglomerate integrations by MNEs' industry. *Source* Maggi and Mariotti (2012), data from the LogINT database, LabELT, 2010

have invested in the NACE 63 industry and in maritime and road freight transport. Moreover, in 1999–2000, the French Railway company SNCF acquired in Italy Zust Ambrosetti, and Ambrosetti Stracciari.[11] According to LogINT, in 2011 SNCF group was the fourth foreign global player in Italy in terms of FDIs.

Instead, inward FDIs undertaken by MNEs specialised in energy extraction, production and distribution, are concentrated on road transport and cargo handling and storage. They are driven by the need to improve control over products flow management (especially, in terms of security), to achieve scale benefits, and to reduce transaction costs. The biggest MNE operating in the Italian logistics industry is Kuwait Petroleum.

3.4 Conclusions

The "logistics revolution" has generated growing demand for logistics activities. Such demand can be met by national firms or foreign investors (see Chap. 1). In Italy, it has been largely satisfied by foreign global players which, through FDIs, have acquired large market shares in those logistics activities most involved in globalization: forwarding, couriers, and services managed by the 3PL and 4PL.

The analysis of integration strategies, and their related motivations, has shown that inward investments in Italy are mostly concentrated in the same logistics sub-industry in which the investing MNE operates (horizontal integration), although CIs have increased rapidly in recent years.

HIs mainly concern those sectors that have been affected in the past decade by changes to regulatory rules (liberalization of road passenger transport, courier and

[11] SNCF made these acquisitions via the Geodis Group, the worldwide logistics leader that it owns.

postal activities), and which have high rates of fixed costs (e.g. maritime and air transport). The main purposes of horizontal strategies are to increase and defend market shares, and to achieve economies of scale and regulation.

Various factors drive VIs: above all, however, extension of the range of services supplied makes it possible to achieve competitive advantages, economies of scale and scope, and to cut transaction costs.

As regards CIs, financial and real estate investors consider logistics, and especially the higher value added services, to yield profitable capital returns Nevertheless, the logistics industry also attracts manufacturing and energy firms seeking to make the handling of their products more efficient while maintaining control over logistics operations. The purposes of CIs are to achieve economies of scale and to reduce transaction costs. This is especially the case when integrations result from the outsourcing of logistics activities previously carried out within the firm.

The empirical analysis has shown that the motivations behind investment decisions are often multiple, and that they differ according to the distinctive features of the sub-industry concerned. Indeed, factors of extreme importance in some sub-sectors may be irrelevant in others. There is consequently a need for more detailed investigation based on direct interviews, together with quantitative analysis.

Specifically, further research would be very useful for the purpose of (i) evaluating the impact of the various integration strategies both on the Italian logistics industry and, more generally, on Italian economic competitiveness; (ii) predicting future scenarios with reference to predictable developments of logistics providers and their customers' needs; and (iii) framing appropriate policies.

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Chapter 4
Domestic and Foreign Logistics Firms. How Heterogeneity Affects Firm Performance

Abstract Foreign multinational enterprises (FMNEs) perform better than domestic uni-national (DOM) firms for a number of performance indicators and international firms tend to be larger, more likely to adopt new technologies, achieve higher productivity, and pay higher wages than domestic firms. Studies on firm heterogeneity by ownership mainly refer to the manufacturing sector, while little evidence is provided for other sectors, and specifically transport and logistics. After a literature review on the studies on manufacturing, the present chapter focuses on the transport and logistics industry, investigating whether and to what extent firm heterogeneity by ownership affects firm performance in Italy in 2002–2005. The results show that FMNEs are larger-sized, show a higher returns on capital, are more efficient, and, therefore, are more profitable than their domestic (DOM) counterparts. Besides, they are less willing to invest in premises than DOM firms because they may be 'footloose', thus investing in the short run.

Keywords Foreign MNE · Domestic uni-national firm · Firm heterogeneity · Ownership · Firm performance

4.1 Introduction

Firms are heterogeneous in terms of efficiency and competitive capabilities, and this reflects on their competitive performance[1] (Barbosa and Louri 2005). The existence of firm heterogeneity has been much debated in the empirical literature (Nelson 1991; Aitken and Harrison 1999; Ruigrok and Wagner 2003; Castellani and Zanfei 2006, 2007; Greenaway and Kneller 2007; Bernard et al. 2007; Mayer and Ottaviano 2007; ISGEP 2007), and a strand of literature has focused on heterogeneity linked to ownership. The observation of heterogeneity is all the more important when analyzing MNEs organization and behavior because, as underlined

[1] Broadly, one can measure corporate performance by variables relating to productivity, profitability, growth or, even, customers' satisfaction (Barbosa and Louri 2005).

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_4

by Alchian (1950), the size of large MNEs means that their behavior often has some bearing on overall industry structures as well (Iammarino and McCann 2013).

It is firmly established in the international business literature that one reason why firms invest abroad is that they possess firm-specific advantages not available to domestic firms in the host country. The advantages of MNEs may consist in financial advantages, product differentiation and marketing advantages, advantages deriving from more efficient governance, or the ability to exploit economies of scale (Dunning 1993). Moreover, MNEs are more likely to adopt new technologies and achieve higher productivity than purely domestic firms (hereafter DOM) (Bernard and Jensen 1999; Helpman et al. 2004; Schmitz 2005; Castellani and Zanfei 2006; Benfratello and Sembenelli 2006; Greenaway and Kneller 2007; Mayer and Ottaviano 2007; Tomiura 2007; Yeaple 2009). Such advantages may compensate for the costs of doing business abroad relative to domestically-owned firms (liability of foreignness), and hence assist MNEs in achieving superior performance (see, among the others, Dunning 1993; Markusen 1995; Caves 1996; Rodriguez-Clare 1996).

The issue of heterogeneity and internationalization—that is, the relationship between firm diversity and international involvement—has been studied by two different strands of literature, as described in detail by Castellani and Zanfei (2006). The first has focused on how the degree of international involvement (export, import, FDI, non-equity modes) differs according to the characteristics of countries and industries, underplaying the role of intra-industry heterogeneity (product-life cycle literature by Vernon 1966, 1974, and Knickerbocker 1973; transaction cost literature by Buckley and Casson 1976, 1981; international trade literature by Horst 1972, Hirsch 1976, Barba Navaretti and Venables 2004, Markusen 2002). The second strand has paid attention to the issue of intra-industry heterogeneity and internationalization, showing that more productive firms tend to self-select into the export and import markets[2] (for exporters: Bernard et al. 2003; Melitz 2003; for both exporters and importers: Bernard et al. 2005 for the US; Muuls and Pisu 2009 for Belgium; Altomonte and Bekes 2009 for Hungary; Vogel and Wagner 2010 for Germany; Castellani et al. 2010 for Italy), and that foreign multinationals (hereafter FMNEs) tend to outperform domestically owned firms, though with some exceptions. The results of this last group of studies are somewhat ambiguous. Some studies find that internationally oriented firms show a performance superior to that of their domestically oriented peers (Doms and Jensen 1998 for the US; Griffith and Simpson 2001, Criscuolo and Martin 2004 for the UK; De Backer and Sleuwaegen 2002 for Belgium; Arnold and Hussinger 2010 for Germany; Castellani and Zanfei 2006, 2007, Grasseni 2007, Castellani and Giovannetti 2010 for Italy). Some others (Kim and Lyn 1990 for the US; Globerman et al. 1994 for Canada; Barbosa and Louri 2005 for Portugal and Greece) find that ownership does not make any significant difference for firms.

The above-mentioned literature focuses on manufacturing industry, while little evidence is provided for services. The only studies, at least to my knowledge,

[2] Around 20 % of total exports are due to intermediate inputs being used for further processing (Hummels et al. 2001).

devoted to services, and accounting for the relationship between international involvement (in terms of FDI) and economic performance, have been carried out by Crinò and Onida (2007), and Brouwer and Mariotti (2009a, b, 2014), and they refer to the Italian case. Specifically, Crinò and Onida (2007) focus on both manufacturing and services located in the Lombardy region, in the north of Italy, in 2000–2005, and analyze the performance of FMNEs and domestic uni-national firms; Brouwer and Mariotti (2009a, b, 2014) show how logistics firms located in Italy differed in performance during the period 2002–2005 according to their international involvement.

By reviewing the studies on firm heterogeneity and international involvement—in terms of FDIs—the present chapter focuses on the transport and logistics industry in Italy, and investigates whether and to what extent firm heterogeneity (FMNEs vs. domestic uni-national—DOM—firms) affects economic performance. Section 4.2 is devoted to the literature review on firms' heterogeneity and internationalization within the manufacturing industry. Section 4.3 presents the studies carried out in Italy on the service industry and specifically transport and logistics. Conclusions and suggestions for future research are set out in Sect. 4.4.

4.2 Literature Review Focusing on the Manufacturing Industry

As previously underlined, recent theoretical and empirical studies have documented the superior performance of international manufacturing firms: MNEs are more productive than exporters, which in turn outperform purely domestic firms. Nonetheless, some empirical evidence on MNEs' performance compared with domestically owned firms is somewhat ambiguous, although it tends to suggest on balance that foreign ownership impacts positively on firms' performance (Barbosa and Louri 2005).

Doms and Jensen (1998), in their study on the US, find that domestic firms and FMNEs differ: FMNEs have higher labour productivity, pay higher wages, and are more capital intensive than US domestic non-multinational plants, while the US domestic multinationals are the productivity leaders. Griffith and Simpson (2001), using UK data, show that FMNEs exhibit higher labour productivity than domestic firms. Comparing FMNEs and domestic firms in the UK, Criscuolo and Martin (2004) find that US MNEs are the productivity leaders in the market, and this leadership seems due to the selection of better plants ('cherry picking' argument). Besides, UK MNEs are as productive as any non-UK MNEs. De Backer and Sleuwaegen (2002) find in their study on Belgian firms that foreign firms are more productive than domestic ones; however, the Belgian MNEs are very similar to FMNEs in terms of efficiency and returns to scale. Arnold and Hussinger (2010), in their study on Germany, document that MNEs are generally more productive than other firms, and that exporters were generally more productive than non-exporting firms in Germany for the years 1996–2002. As regards the case of

Italy, Castellani and Zanfei (2006) find that belonging to multinational groups is related to higher productivity, while innovation activity is more evident in Italian MNEs than in FMNEs (Cantwell and Iammarino 2003, 2010). Meanwhile, the study by Grasseni (2007) shows a higher level of labour productivity and a higher average wage for FMNEs with respect to domestic MNEs, which dominate in terms of return on sales and leverage. Even though FMNEs in Italy mainly seek market expansion, they may still benefit from a managerial structure which differs from their home. Finally, Castellani and Giovannetti (2010) find that exporters achieve higher total factor productivity (TFP) than non-international firms, and FMEs perform better than exporters. This is explained by the greater use of knowledge workers (such as R&D workers, as well as workers in managerial and clerical occupations). Moreover, they find that managers and capital are complements in the productivity of FMNEs, and this is consistent with the idea that multinational firms have superior organizational capabilities and managerial practices.

Among the studies casting doubt on the hypothesis that MNEs perform better than domestic firms, Kim and Lyn (1990) find that MNEs operating in the US market are less profitable than randomly selected domestically-owned firms. Similarly, Globerman et al. (1994) report that once the effects of capital intensity and size are controlled for, MNEs operating in the Canadian market are not significantly more productive than Canadian-owned firms, emphasizing that the superior performance of MNEs is primarily due to the high capital intensity and large size that generally characterize them. In the case of Portugal, Barbosa and Louri (2005), after controlling for firm- and industry-specific characteristics that are likely to impact on performance, find that ownership ties do not make a significant difference for firms. As regards Greece, the authors find that FMNEs are significantly more profitable than Greek-owned firms only if a specific measure of profitability (gross return on assets) is taken into account, and only when firms in the upper quantiles are compared. Conversely, when net profitability is used, ownership ties do not matter.

4.3 Literature Review Focusing on the Service, and Transport & Logistics Industries

As already stressed, the majority of existing studies refer to manufacturing industry, while little evidence has been provided on services, and specifically on transport and logistics. For Italy, one of the few investigations of the foreign-domestic difference in the performance of services has been undertaken by Crinò and Onida (2007).[3] Moreover, the only study, at least to my knowledge, on the transport and logistics industry has been produced by Brouwer and Mariotti (2009a, b, 2014).

[3] Crinò and Onida (2007) analyze the effects of foreign participation on the economic performance in Lombardy of both manufacturing and service industries.

Crinò and Onida (2007) focused on the Lombardy region in north-west Italy, and they drew on a large database containing balance sheet and foreign ownership information for more than 13,000 firms in the period 2000–2005. They analyzed the following dimensions of the economic performance of FMEs and domestically-owned firms: capital and knowledge-intensity, productivity, wages, returns to investments, and financial structure.[4]

When comparing the two groups of firms (FMNEs and DOM firms), the authors found that, in the services industry, FMNEs are generally characterized by more knowledge-intensive production techniques, higher productivity, higher wages, and a more solid financial structure compared with national firms. At the same time, however, FMNEs show lower returns to investments (see Federtrasporto-Nomisma 2005, 2006).

In a second step, Crinò and Onida addressed the issue of unconditional comparisons between FMNEs and DOM firms by adopting propensity score estimation techniques to build a counterfactual sample of DOM firms with size and industry distribution similar to those of the FMNEs, which were then compared with the FMNEs sample. Indeed, differences in performance between the two groups may not be entirely due to an FMNE-premium. Instead, they may result from the effects of other concomitant factors: for instance, differences in size and in industry distribution. Moreover, even after such factors are taken into account, the association between foreign ownership and economic performance may not be indicative of any causal relationship, but instead evidence of 'cherry-picking' by FMNEs (Harris and Robinson 2002; Girma and Gorg 2007; Almeida 2007), that is FMNEs tend to invest in DOM firms that are already characterized by better performance. Specifically, the propensity score estimation technique makes it possible to compare the sample of treated units (FMNEs) with the sample of untreated ones (DOM firms) without imposing restrictions on the estimating functional forms. Under the assumptions, the comparison show the pure effect of foreign participation: that is, the differences observed among economic performances can be associated only with the effects of participation. A positive difference in favor of FMNEs will show that foreign participation is associated with higher performance; a negative one will instead furnish evidence of cherry-picking behavior whereby MNEs participate in already high-performing national firms (for a review of the methodology see, among others, Becker and Ichino 2002; Rubin 1974; Rosembaum 1984; Rosembaum and Rubin 1983; Heckman 1992, 1997; Wooldridge 2002).

The results of the propensity score matching technique show that the difference in favor of FMNEs is mostly explained by a differential pattern of industry location between the two types of firms, by the larger size of FMNEs, and by the likely tendency of foreign firms to cherrypick the already high-performing national firms.

Brouwer and Mariotti (2009a, b, 2014), in their empirical analysis investigating whether logistics FMNEs located in Italy in 2002–2005 outperformed DOM firms,

[4] The data come from AIDA (Analisi Informatizzata Delle Aziende), a large database administered by Bureau Van Dick, and REPRINT database, administered by Politecnico di Milano.

adopted the same methodology used by Crinò and Onida (2007). The data consisted of unconsolidated balance sheet information for 9,000 logistics DOM firms, and 242 logistics FMNEs. The data sources were the LogINT database (LabELT—DAStU—Politecnico di Milano), which registers inward and outward logistics FDIs which have taken place in Italy since the 2000s,[5] and the Amadeus database, developed by Bureau Van Dijk, which registers the top MNEs in Europe.[6]

Brouwer and Mariotti's comparison between FMNEs and the total sample of DOM firms showed that the two groups differed significantly on several counts. Over the three years period studied, turnover increased within FMNEs and fixed assets decreased. This implies that FMNEs became more efficient, and therefore that the rate on return on capital was higher. Besides, FMNEs recorded higher value added, and were therefore more efficient than DOM firms, and required fewer employees. This was confirmed by analysis of the sub-sectors: FMNEs engaged mostly in high value added activities (i.e. integrated logistics, courier services, international forwarding), while DOM firms were mainly concentrated in the 'transport by road' sub-sector, which displayed a lower value added per firm (ISTAT 2007; Boscacci et al. 2009; Maggi and Mariotti 2009, 2012; Federtrasporto-Nomisma 2005, 2006). The predominance of road transport was due to the transport-intensive model predominant in Italy, where the majority of firms are of small and medium size, and restricted in their ability to develop know-how, upgrade human resources, and apply innovations to supply integrated logistics services (see Chap. 2). Moreover, FMNEs were more willing to be located in the north-west, which is the most industrialized area of Italy, accounting for 20.9 % of total Italian GDP, hosting the majority of the national and international flows, and where the main logistics nodes are situated. More specifically, in the year 2005 the Lombardy region in the north-west of the country attracted 41.3 % of foreign logistics MNEs and 34.9 % of foreign manufacturing MNEs (Mariotti and Mutinelli 2007).

In order to control for the issue of unconditional comparisons between FMNEs and DOM firms, Brouwer and Mariotti developed a counterfactual group of DOM firms selected by p-score matching.[7] Matching FMNEs with this sample of domestic firms similar in all their characteristics to FMNEs at the beginning of the period (year 2002), and then comparing them over the years 2002–2005, made it possible to ascribe a significant difference, which was indeed linked to ownership.

Comparison of FMNEs with the counterfactual group of DOM firms showed that FMNEs were significantly more likely to achieve greater growth of turnover than DOM firms in the 2002–2005 period, and that they were significantly less likely to invest in fixed assets than DOM firms. FMNEs, in fact, are less willing to

[5] See Appendix for a detailed description of the database.

[6] Amadeus is a pan-European financial database (7 million companies), which contains financial information on European companies and is updated very frequently. Amadeus comprises information on Italian logistics firms as well.

[7] For a detailed description of the method see Brouwer and Mariotti (2009a, 2014).

invest in premises because they may be footloose, while DOM firms tend to be more embedded, so that they are prone to making investments in the long run. Again, these results indicated that FMNEs were more efficient than the comparison group. Moreover, FMNEs tend to experience less employment growth than DOM firms. This can be explained by the fact that FMNEs generally operate in higher value added subsectors of logistics. They are more technologically advanced and innovative, so that, on the one hand, they are less labour-intensive, and on the other, they are more likely to outsource activities.[8]

4.4 Conclusions

The recent theoretical and empirical literature has widely documented the superior performance of international firms (exporters, MNEs and their subsidiaries). Firms in more competitive environments, such as the international market (as opposed to smaller domestic markets) are more likely to adopt new technologies and achieve higher productivity than are firms with only a monopoly power (Schmitz 2005; Balcet and Evangelista 2005; Castellani and Zanfei 2006). Specifically, FMNEs tend to be more productive than exporters, which in turn outperform domestically owned firms. The theoretical and empirical evidence has mainly focused on manufacturing firms, while the literature on services is rather scant.

As far as the transport and logistics industry is concerned, the study by Brouwer and Mariotti (2009a, b, 2014) on Italy finds firm heterogeneity according to international involvement but does not allow any conclusive statement to be made about the direction of causality between internationalization and performances. FMNEs prove to be larger sized, which allows them more easily to exploit economies of scale and scope, and to acquire and develop advanced technological tools and human resources. Besides, they show a higher return on capital, are more efficient, and, therefore, are more profitable than their domestic counterparts. They tend to be characterized by lower fixed assets than those of DOM firms, and this is linked with the strategy of multinational corporations. The relative growth of jobs in 2002–2005 was negative and significant for FMNEs, which suggests that, although they are larger on average, their workforces grow to a lesser extent than do those of DOM firms. This finding is connected with the sub-sectors in which FMNEs operate, which tend to be technologically advanced, innovative, and less labour-intensive. Indeed, the smaller size of domestically-owned firms, the poor supply of integrated logistics, and the related increase in demand for value added logistics services induce foreign multinationals to invest in the most value added sectors ("multimodal transport operators", "freight

[8] This is the case of the third-party logistics provider (3PL), a firm which provides outsourced ("third party") logistics services to companies for part, or sometimes all of their supply chain management function.

integrators", and "couriers") (see Chap. 2) able to support the international supply chain (Vastag et al. 1994). Moreover, because foreign MNEs are larger and more innovative, they are more likely to outsource activities, and, as expected, they favor locations in the north-western core area of Italy.

These results may have important policy implications, as it will be presented in Chap. 6. Indeed, knowing firms heterogeneity offers insights into the feasible impact of logistics FMNEs on the host economy.

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Chapter 5
The Effects of Manufacturing Internationalization on Transport and Logistics. Empirical Evidence on Italy

Abstract The internationalization of production, in all its forms, exhibits direct and indirect effects on the transport and logistics operations at the level of the home country: that is, from where the manufacturing investment departs. The present chapter disentangles these effects, and presents the results of the few studies on this topic. It results that the internationalization of production increases the demand for employees in the transport and logistics industry, thus showing a rise to the strong outsourcing of such activities to logistics providers located at least in the same region.

Keyword Outward FDI · Direct and indirect effects · Home country · Transport and logistics labour demand

5.1 Introduction

As extensively described in Chap. 1, the globalization of the economy has changed the structure of production processes from concentration in one plant to fragmentation among different plants and different countries. The increasing extent of firms' internationalization has been held responsible, on the one hand, for a drop in employment levels in advanced countries (mainly in the manufacturing sector), and specifically a decrease in low-skilled workers' real wages, in both absolute and relative terms (Kletzer 2002; Helg and Tajoli 2005; Castellani et al. 2008), and on the other hand, for an increase in the labour demand for transport and logistics activities which manage the high increase in goods' flows (final and intermediate goods) to be moved (Brouwer et al. 2013). Indeed, as stated by McCann (2008), high value added goods are only produced in a limited number of locations and then sold all over the world, while low value added goods can be produced all over the world.

Within this context, it becomes crucial to investigate the impact of the internationalization of production, in all its forms (export, cooperation agreements, FDIs see Chap. 1), on the home country—the country from where internationalization, i.e. FDI, departs—and the host country—the country receiving the

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_5

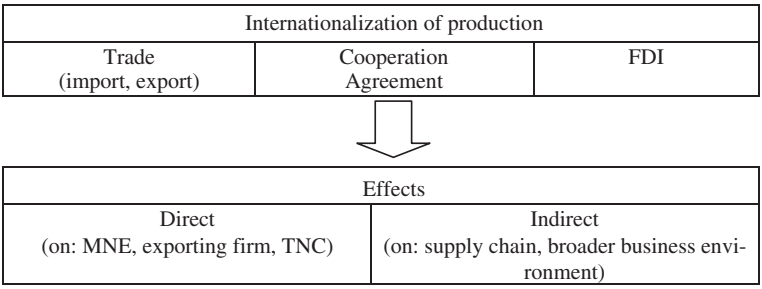


Fig. 5.1 Internationalisation and its effects

internationalization, i.e. FDI. The literature at host country level is more extensive (Blomström 1991; Globerman et al. 1994; Kokko 1994, 1996; Blomström and Kokko 1998; Aitken and Harrison 1999; Lipsey 2001a, b, 2002; Piscitello and Rabbiosi 2005; Dunning and Lundan 2008; Ietto-Gillies 2005; Iammarino and McCann 2013), but attention to the home country effects has strongly increased in the past two decades because of their social and economic consequences, i.e. the fear of losing jobs, as previously stated.

The effects of production internationalization on the home country can be classified into: (i) direct effects (i.e. on the company undertaking internationalization); (ii) indirect effects (i.e. on the company's supply chain and on the broader business environment in which it operates) (Fig. 5.1).

The direct effects include an increase in the competitiveness of the firm that invests abroad in terms of productivity, output and trade, labour intensity and skills, managerial capabilities, and technology[1] (Blomström et al. 1997; Head and Ries 2002; Barba Navaretti and Venables 2004; Ietto-Gillies 2005; Mariotti and Piscitello 2007; Piscitello and Santangelo 2007; Molnar et al. 2007; Castellani et al. 2008; Barry and Walsh 2008). This holds intuitively when firms that relocate abroad are likely to move their relatively inefficient production phases (vertical investment, see Chaps. 1 and 3) to another country where costs are lower, thus becoming more efficient and expanding production and employment along other stages for which they have comparative advantage (see, among the others, Markusen et al. 1996; Carr et al. 1998; Agarwal 1997; Mariotti et al. 2003). An increase in competitiveness may also occur in the case of a firm's horizontal investment (see Chaps. 1 and 3) into large international markets, since this requires more supervision, coordination and control over the geographically dispersed activities, as well as the extension of activities and functions that are generally centralized at the headquarters level (i.e. R&D, marketing, logistics, etc.) (Blömstrom et al. 1997; Fors and Kokko 1999; Mariotti et al. 2003). The consequence is an increase in the parent company's requirements for highly-skilled workers and white-collar employees (Blömstrom et al. 1997; Fors and Kokko 1999; Mariotti

[1] International firms tend to be more competitive than domestic firms: for a review see Chap. 4 on firm heterogeneity.

et al. 2003; Elia et al. 2009). By contrast, direct effects may be negative when internationalization induces: (i) a reduction of domestic low-skilled labour; (ii) loss of market shares by local suppliers, and loss of opportunities to learn and grow through the relationship with the parent company; and (iii) the write-off of previous subcontracting relations (Mariotti and Piscitello 2007).

Moreover, the internationalization of an individual firm can have an impact on the local context to which the firm belongs (indirect effects). This impact may give rise to a reorganization of the supply chain and, once again, it may be both positive and negative. On the one hand, the transfer of production abroad may have a positive effect if and when the parent company's suppliers become suppliers of the foreign affiliates. In this case, the market for suppliers may even expand, provided that the costs of logistics and reorganization do not exceed the marginal advantage (Mariotti and Piscitello 2007; Elia et al. 2011). Specifically, the vertical investment may induce an upgrade in the local system and in the supply chain's competitiveness by promoting the differentiation of specializations and competencies between countries, with the consequent development of a correlated quality service sector. Moreover, the effects of the horizontal investments (for instance, greater requirements for highly-skilled workers and white-collar employees) may extend to the entire economic branch in which the parent company operates, because of the externalities generated by the induced demand for specialized inputs and skilled labour (Mariotti et al. 2003; Castellani et al. 2008; Elia et al. 2009).

The empirical literature has so far mainly focused on the direct effects of manufacturing internationalization in the form of FDIs, while little evidence has been provided on the indirect effects. The only study, at least to my knowledge, which devotes attention to the tertiary sector has been written by Mariotti and Piscitello (2007), and investigates the impact of manufacturing FDIs on the labour demand for services in the industrial districts of the Veneto region in Italy in 1996–2003. It finds that the more internationally involved an industrial district is, the higher the employment growth in the service sector. Moreover, only 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 the scale of analysis (Mariotti et al. 2003; Elia et al. 2009; Federico and Minerva 2008).

The present chapter examines the home country effects (direct and indirect) of production internationalization on the transport and logistics industry, which, as described in the previous chapters, may be strongly affected by the manufacturing internationalization that generates a high increase in the goods' flows (final and intermediate goods) to be moved. These flows must be managed within the investing firm (internalization/in-sourcing) or by the transport and logistics providers (externalization/outsourcing). In the former case, production internationalization exhibits a direct impact on the investing firm, increasing the demand for transport and logistics services; in the latter case, it exhibits an indirect impact on the transport and logistics providers.

It is possible to identify only a few papers in the literature dealing with direct and indirect effects on transport and logistics, and which focus on the labour demand. Unioncamere-Mediobanca (2005) considers the direct effects at the level of the

investing firm, while Savona and Schiattarella (2004), Maggi et al. (2008), Elia et al. (2011) and Brouwer et al. (2013) focus on the indirect effects on labour demand by the transport and logistics industry, as will be described in Sect. 5.3 below.

5.2 Theoretical Framework

The internationalization of production impacts strongly on transport and logistics services. Indeed, transport performs a key role in linking the import and export markets and the vertically disaggregated components of the production system which extend around the world (Yieming et al. 2002). Moreover, logistics guarantees a reactive and efficient procurement of segmented and geographically distant production phases, and a JIT distribution, with the goal of gaining cost advantages (Kobayashi 1998).

Specifically, trade (export and import) implies the movement of semi-components or final goods from one country to another. Transport is needed to move semi-components from the mother company to the foreign affiliates, suppliers or distributors, or to make final goods reach the final market. However, firms that internationalize demand not only transport (by road, rail, sea, air) but also integrated logistics: warehousing, production planning, procurement, picking and packaging, etc., and innovative activities (tracking and tracing, reverse logistics, etc.).

The flows of semi-components become even larger when firms enter into cooperation agreements with foreign suppliers. If, for example, the internationalizing firm provides suppliers with raw materials to be processed, it must first export goods (raw materials) that will be re-imported once they have been processed. This semi-components will be then finished at the parent company's plant and exported to the final market. Conversely, it may happen that all the product is contracted out by the firm, to be then imported for quality control and exported to the final market (Baldone et al. 2002, 2006; Rossetti and Schiattarella 2003; Corò and Volpe 2006; Maggi et al. 2008; Mariotti and Montagnana 2008).

As regards FDI, flows of goods (final and semi-components) take place between the MNE and its foreign affiliates. According to UNCTAD (2006), one-third of world international trade is intra-firm, that is, between the MNE and its foreign affiliates (Ietto-Gillies 2005).

These flows of goods must be managed by the investing firm (internalization/insourcing) or by the transport providers (externalization/outsourcing) (Fig. 5.2). In the former case, there is increased labour demand within the investing firm for workers specialized in planning, managing, and controlling the transport activities. Thus internationalization exerts an impact on the investing firm. In the latter case—that is, when transport is outsourced[2]—the transport oper-

[2] In the chapter the terms "internalization" and "insourcing" are considered synonymous. The same holds for "externalization" and "outsourcing".

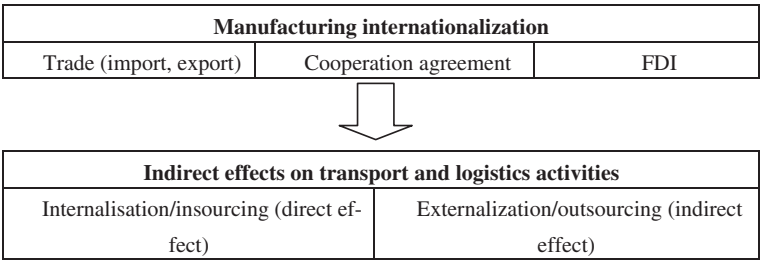


Fig. 5.2 Manufacturing internationalization and logistics services' management

ators restructure themselves. They grow larger and change into 3PLs or 4PLs by shifting their supply from individual services to 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; Elia et al. 2011).

The choice between internalization and externalization is typically based on the relative costs and benefits, the associated risks, and the feasibility of each option (Brouwer et al. 2013).

5.3 Empirical Evidence

As said, only few papers have studied the effects of internationalization on transport and logistics labour demand at the level of the investing firm (in case of inte rnalization/insourcing), and at the level of the transport and logistics suppliers (in the case of externalization/outsourcing). At least to my knowledge, only the study by Unioncamere-Mediobanca (2005) focuses on the investing firm, while some other studies (Savona and Schiattarella 2004; Maggi et al. 2008; Elia et al. 2011; Brouwer et al. 2013) examine the indirect effects on the transport and logistics suppliers.

Unioncamere-Mediobanca (2005) analyzes a significant sample of medium-sized Italian manufacturing firms which invested abroad in the period 1996–2005, finding a positive relationship between the extent of firms' internationalization, measured in terms of the number of employees in the foreign affiliates, and the logistics employment growth which occurred within the firms after the investment.

The study conducted by Savona and Schiattarella (2004) examines the indirect effects of cooperation agreements—measured by a specific index based on trade data—on labour demand by various services within the Italian NUTS3 provinces in 1991–1996. The authors conclude that internationalization towards low wage countries has a significant positive impact on employment in the more traditional services, such as transport.

Similar results have been obtained by Maggi et al. (2008) in their empirical analysis on the indirect effects of outward manufacturing FDIs on the employment

change in the logistics industries that occurred in the industrial districts[3] of Veneto (north-east Italy) in 1996–2003. Although all the internationalized industrial districts exhibited an increase in the logistics labour demand, only in a few of them was an above-average degree of internationalization positively correlated with a logistics employment growth. This can be related to the propensity of industrial district firms to deliver goods ex-works, manage intra-firm higher value added activities (i.e. strategic activities linked to production[4]; post-sale functions; innovative activities like tracking and tracing and reverse logistics), and outsource transport and logistics activities to providers, which may not belong to the same industrial district (Micelli 2001; Mazzarino 2006) but tend to be geographically close to them. Geographical proximity, in fact, performs an important role in the case of outsourcing, and, as some authors (i.e. Cusmano et al. 2009; Illeris 2005) have emphasized, outsourcing has a clear and predominant regional dimension. Geographical proximity strongly influences the selection of transport providers even for non-district manufacturing firms (Isfort 2003; Razzaque and Sheng 1998; Peters et al. 1998), also because it helps reduce logistics costs. Moreover, cooperation between the shipper (manufacturing firm) and the external company (transport provider) is considered of strategic importance (European Commission 2000), and it is easier when the two firms are located close to each other (Elia et al. 2011).

The empirical analysis by Brouwer et al. (2013) focuses on the employment growth in transport and logistics within EU15 over the period 2000–2007, and investigates the relation of this growth to some key drivers: GDP, subcontracting sales, export and import. It finds that employment growth in the logistics sector is more strongly related to changes in subcontracting and trade than to GDP. Specifically, subcontracting, which can be considered a proxy for internationalization, production fragmentation, and flexible specialization, increases goods' flows that need to be managed by the logistics providers.

The last study by Elia et al. (2011), which will be described in detail in the next section, better disentangles the indirect effects because it considers all three internationalization strategies, and tests their specific impacts on logistics employment at the regional scale.

[3] Italian SMEs tend to organize the supply chain on specific local systems (industrial districts) making it possible to exploit agglomerative advantages and capture the efficiency of proximity between suppliers and users (Boix and Galletto 2009; Mariotti et al. 2008). Traditionally, scholars describe Italian industrial districts as closed manufacturing systems of 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 are in charge of managing the relationships with final markets (Becattini 1987, 2002; Garofoli 1983; Viesti 2000).

[4] These are: warehousing, production planning, procurement, picking and packaging.

5.3.1 Logistics Labour Demand: The Case of the Italian NUTS2 Regions

This section describes the study by Elia et al. (2011) investigating the effects of forms of manufacturing internationalization (international trade, cooperation agreements and FDIs) on employment in the logistics transport industry at the regional-industry level in Italy in 1996–2001. This empirical study merits presentation and discussion because it is the first to consider all three of the internationalization strategies, and to determine their specific impacts on transport employment, doing so through an econometric analysis conducted at regional scale. Specifically, the "regional industry" is defined as the ensemble of firms operating in the same logistics transport sector and localized in the same geographical NUTS2 region (8 transport and logistics sub-sectors and 20 regions). The regional scale is relevant when the analysis concerns logistics outsourcing because, as previously stated, it has a clear and predominant regional dimension (Illeris 2005). A recent firm-level study on Lombardy (north-west Italy) by Cusmano et al. (2009) has shown that, on average, more than 40 % of the firms use a regional supplier for some of the functions that they have decided to contract out. Geographical proximity has, indeed, a strong influence on the selection of the logistics suppliers (Hong 2007a, b).

The main hypothesis tested by Elia et al. (2011) is that, because manufacturing internationalization generates a large increase in the goods flows to be moved, it requires reorganization of the supply chain. This induces the manufacturing firm to outsource transport to special operators located close to customers in the same NUTS2 region.

Owing to a lack of data, cooperation agreements have been measured in terms of Processing Trade (PT), which is trade in goods exported (or imported) to be processed abroad and then re-imported (or re-exported) with favorable tariff treatment. PT has four components: (a) temporary exports by a EU country of goods to be processed in a non-EU member; (b) re-imports by the EU of the processed goods; (c) temporary imports of goods to be processed in the EU; and (d) re-exports of those goods to the country of origin outside the EU. The first two flows measure so-called outward processing trade (OPT); the last two measure inward processing trade (IPT) (Baldone et al. 2006).

Data on the four PT components are provided by ISTAT (Coeweb database) as total amounts of kg but not according to transport mode. They have therefore been distributed among the eight transport sub-industries by employing the ratios of trade for each transport mode. Data on transport employment are provided by the Italian Statistical Institute (ISTAT) and refer to the NACE "I—Transport, warehousing, communications" category, at the three-digit level[5] (Table 5.1). Data on

[5] Eight of the eleven transport and logistics sub-sectors have been considered in the analysis: the transport modes (NACE codes: 60, 61, 62), with the exclusion of the air transport sub-sector (62100), which mainly concerns passenger transport, and their supply and support transport activities (NACE code: 63).

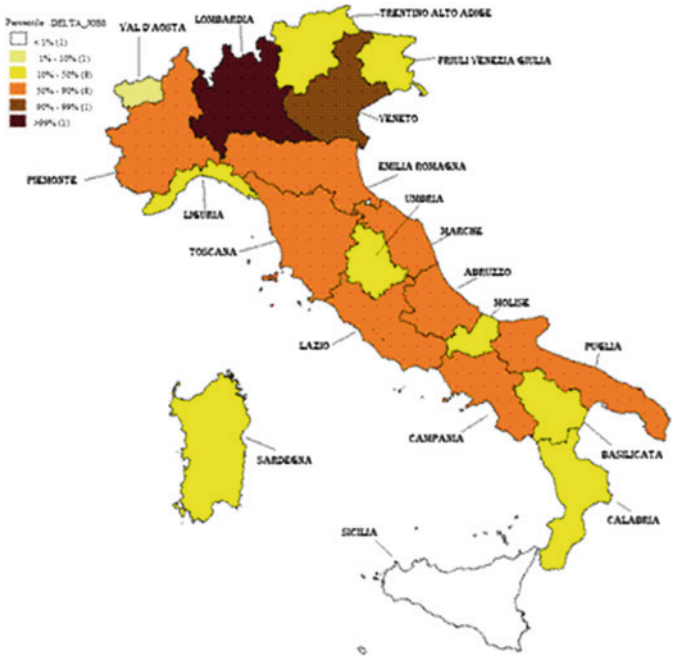
Table 5.1 Italian NUTS2 regions and the NACE REV. 1 transport sub-industries

Regions	Transport sub-industries	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
Lombardy	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
Piedmont	Cargo handling—land transport	63.11.3
Puglia		
Sardinia		
Sicily		
Tuscany		
Trentino Alto Adige		
Umbria		
Valle d'Aosta		
Veneto		

Source Elia et al. (2011)

trade are from the ISTAT Coeweb dataset on Italian trade, and they are expressed in terms of kilograms by transportation mode. The data refer to the years 1996 and 2001 and are expressed in terms of difference. Finally, data on Italian outward FDI are taken from the Reprint dataset.

The descriptive statistics underline that the most internationalized geographical regions (mainly in the North-West) record the highest employment growth (Fig. 5.3), especially as regards transport by road. This can be explained by the fact that 50 % of the destination areas of manufacturing FDIs belong to European countries, so that the majority of the flows are addressed to (or come from) Europe, as stated by Confetra (2004), which in 2002 recorded about 70 % of exports directed towards Europe. Nevertheless, the predominance of road transport in Italy is explained by the fragmentation of the goods' flows, the outsourcing of transport and logistics services, the increasing demand for flexibility, and higher service quality (rapidity of delivery, safety of load, etc.) (ISTAT 2007). On the other hand, when internationalization concerns non-EU destinations, the mode most preferred is maritime transport, which involves sea transport (61110) and cargo handling for water transport (63112).



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

Fig. 5.3 Distribution of total employment variation in the transport sub-industries between 1996 and 2001 in Italian regions. *Source* Elia et al. (2011)

In order to gain more thorough understanding of the relationship between each internationalization form, and employment variation in the logistics industry, Elia et al. (2011) carried out a Weighted Least Square (WLS) estimation where the variation of the demand for transport workers between 2001 and 1996 within a region was related to: (i) the change of the manufacturing industries' value added, (ii) the cumulated sum of the manufacturing FDIs undertaken in 1994–2000, (iii) import and export change, and (iv) change in the components of IPT and OPT.

Elia et al. found that manufacturing production is not significant for the labour demand by the transport industry. This is related to the size of Italian firms, which are mainly small and medium-sized, and tend to produce for local markets. They are consequently more likely to manage transportation inside (insourcing), because they must transfer small-medium volumes of freight across short-medium distances (Confetra 2002). Conversely, firms that internationalize are typically larger than

domestic uni-national firms (see Chap. 4), and they need to cover longer distances and deal with customs and duties. Hence, as the empirical literature stresses, internationalized firms are more likely to outsource transport than integrated logistics (13 % in 1997 and 16 % in 2004—Commission Européene, 2001 on AT Kearney-ELA data). It is for this reason that FDIs and exports prove to be positively and strongly correlated with employment in the transport industry. As said, transport is required to reach both the final market, especially in the case of exports of final goods, and the other affiliates or the suppliers or distributors, especially in the case of FDIs and cooperation agreements. Moreover, there is a negative ratio between imports and employment in the transport industry, and it may be due to the fact that imports of goods to Italy are mainly managed by foreign suppliers (Confetra 2002).

As regards the components of cooperation agreements (IPT and OPT), the econometric analysis finds that IPT (temporary imports and re-exports) has a positive impact on the labour demand, whereas OPT (temporary exports and re-imports) has a negative, though very weak, one. Hence the positive impact of IPT shows that the transport and logistics of intermediate and unfinished goods is mainly undertaken by Italian firms, which temporarily import raw materials and/or semi-components into Italy to be processed and then re-exported abroad as processed goods. The reverse is the case when Italian firms send intermediate goods abroad to be processed, i.e. in the case of OPT. In fact, the negative signs of temporary exports and re-imports suggest that transport is still handled by firms in the country where the intermediate goods are processed. However, the final impact of OPT is not particularly significant, probably because there is no substitution effect. In fact, when firms do not internationalize through OPT, the goods are entirely produced by Italian firms, so that the transport of intermediate goods abroad is not necessary. Conversely, when the OPT process begins, the production is fragmented, which generates a new flow of goods (managed by foreign firms) that previously did not exist. Hence, the final impact on employment in the transport industry is not (or not particularly) significant. The same applies to the strong positive impact of IPT. After IPT begins, a new flow of goods that did not previously exist arises by generating labour demand in the national transport industry (Elia et al. 2011).

5.4 Concluding Remarks

In an period when internationalization has become a strategic challenge that firms must meet if they are to remain competitive, analysis of the effects of this phenomenon is of key importance. It is widely acknowledged that the direct and indirect effects of internationalization vary greatly according to the industry and the geographical setting considered. The results of the (few) studies conducted on the impact of manufacturing internationalization on labour demand in the Italian transport industry have very interesting policy implications. Italian manufacturing firms engaged in internationalization tend to outsource transport activities

to logistics providers, whereas they internalize strategic activities linked to production, post-sale functions, and innovative activities (Micelli 2001; Mazzarino 2006; Commission Européenne 2001). Outsourcing, moreover, has a predominant regional dimension: Italian SMEs, in fact, tend to organise the supply chain on the basis of specific local systems which make it possible to exploit agglomeration advantages and capture the efficiency of proximity between suppliers and users (Marcucci and D'Agostino 2003; Mariotti et al. 2008; Boix and Galletto 2009; Marcucci and Danielis 2009; Cusmano et al. 2009). As regards internationalization strategies, exports, FDIs and IPT increase demand for transport services and therefore expand the potential market for logistics transport providers (Elia et al. 2011).

Consequently, in order to satisfy the growing demand in Italy for transport and logistics, it is necessary to develop policies able to remove the obstacles that hinder development of the transport industry in Italy, as it will be described in Chap. 6.

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Chapter 6
Conclusions

Abstract This concluding chapter briefly reviews the arguments previously presented, and draws policy implications with specific regard to the effects of inward transport and logistics FDIs on the host country. Moreover, further research is advocated with the twofold purpose of fostering more research in regional science on the issues concerning transport and logistics in a globalizing world, and of enhancing an interdisciplinary debate on these issues.

Keywords Inward transport and logistics FDI · Host country · Policy implications · Further research

6.1 Review of the Arguments

As underlined in Chap. 1, "Transport and logistics" and "globalization" are topics that have attracted the attention of scholars working in a number of disciplines but they are usually studied separately. Besides, although the movement of goods and people is so central to issues addressed by economic geography, urban economics and regional science, research into this topic is generally underrepresented. The present book has aimed to combine insights from the different strands of literature, and it has proposed a regional science approach to investigating the relationship between globalization and transport and logistics.

Specifically, the book's chapters have described the various aspects of the complex relations between globalization and the transport and logistics industry. Chapter 2 focused on *where* MNEs invest, Chap. 3 on *how* they do so, while Chaps. 4 and 5 examined the effects of internationalization on the transport and logistics industry. The introductory Chap. 1 framed the aim of the book, and provided a definition of "transport and logistics industry" and "globalization/internationalization", in order to make it easier for the reader to understand the topics covered in the chapters. The chapter began with the description of the "logistics revolution", which started in 1950s, and can be explained with five interrelated phenomena: globalization of the economy, consumer-oriented economy, interned-based information

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4_6

systems, substantial reduction in trade barriers, tariffs and transportation costs and the European Traffic Policy.

Chapter 2 focused on *where* MNEs invest in the transport and logistics industry. It reviewed the few studies on the location determinants of transport and logistics, finding that they are very similar to those for manufacturing. This evidence was corroborated by the analysis on inward FDIs in China in 2001 and in Italy in the period 1997–2001. Nevertheless, some exceptions occur, like the key role of transport infrastructures, good transport networks, an efficient bureaucracy as regards administrative and customs procedures, and a high degree of government regulation. In China, for instance, roadway infrastructure was an unimportant concern before the mid-1990s, but when the government reduced the restrictions on the provision of roadway transport services by foreign MNEs, transport conditions became a key consideration for inward FDIs. The empirical investigation also underlined the relationship between location choices and firm-specific characteristics such as the transport and logistics subsector (low vs. high value added), investment type (headquarters vs. branch plant), and country of origin of the investment. As an example, the availability of supporting services, and labour quality are key drivers of inward FDIs in high value added activities. Differences in location choices are also determined by cultural and geographical proximity between the home and the host countries. Indeed, investors from Hong Kong, Macao, and Taiwan (HMT) are more likely to locate in Southern China due to cultural and geographical proximity (Hofstede 1980; Qu and Green 1997; He 2002, 2003). On the other hand, MNEs from outside HMT are more motivated by lower labour costs and convenient air transport, reflecting foreign investors' efforts to reduce operational costs and their reliance on air transport. Moreover, they prefer cities with larger markets and which have foreign trade areas.

Studies on Italy (Boscacci et al. 2009; Mariotti et al. 2012) have shown that the preferred investing areas are those with a higher manufacturing value added, a stronger tendency of manufacturing firms to outsource transport and logistics, and a larger propensity to trade and undertake outward FDIs. Specifically, market size, agglomeration economies, labour quality, transport infrastructure, and transaction costs reduction play a key role in attracting foreign FDIs. In fact, market size is one of the main factors that induce the global logistics players to invest in Italy so that they can increase their markets and/or maintain their market shares. Moreover, high agglomeration economies attract inward FDIs because of the related advantages in terms of knowledge spillovers, skilled labour force availability, infrastructures, services and information. Specifically, skilled labour is demanded by foreign MNEs which mainly undertake investments in the more value added activities. Indeed, Italy shows a demand for value added logistics services like "multimodal transport operators" and "freight integrators", able to support the international supply chain.

Furthermore, because logistics firms manage flows of materials, the accessibility of transport infrastructures is an important location factor for them. Finally, information costs reduction is a significant determinant of the location choices made by foreign investors. Since foreign investors experience more substantial

information asymmetries than do indigenous investors, the spatial distribution of inward FDIs is governed by information costs, rather than by production and transport costs (Radner 1992; Casson 1994; Mariotti and Piscitello 1995).

Chapter 3 focused on *how* foreign MNEs invest abroad by investigating integration strategies (horizontal, vertical, and conglomerate), and their related drivers. As stressed by the review of several strands of literature, integration strategies are prompted by different and often multiple specific drivers, which can be classified into three main groups: (i) competitive goals; (ii) efficiency goals; (iii) other drivers. The analysis of integration strategies in transport and logistics worldwide, and the empirical investigation on Italy, showed that horizontal investments (HIs)—that is, investments in the same transport and logistics sub-industry in which the investing MNE operates—prevail, although conglomerate investments have increased rapidly in recent years. Specifically, HIs are concentrated in those subsectors affected by the liberalization process (e.g. road passenger transport, courier and postal activities), and with high rates of fixed costs (e.g. maritime and air transport). Moreover, MNEs undertake HIs: to increase or defend their market shares against, for example, American couriers such as UPS and Federal Express, to achieve economies of scale, and for regulation motives. Analysis of the integration strategies pursued by foreign MNEs in the transport and logistics industry in Italy in the period 2000–2010 shows, for example, that the market has been penetrated by the Dutch TNT Post Group (TPG) and the German Deutsche Post, which respectively account for 14 and 6 % of the total inward FDIs undertaken by the first ten global players[1] (Maggi and Mariotti 2012). Moreover, HIs are made in both maritime and rail transport, which aim to gain global market's concentration, enable the participating firms to reap benefits of scale, competitive advantages (Shepperd and Seidman 2001; Fan et al. 2001; Oum et al. 2002), and efficiency gains. The drivers of VIs range from achieving competitive advantages, economies of scale and scope, to transaction costs reductions. Moreover, domestic value-added logistics firms attract foreign financial and real estate investors wanting to obtain profitable capital returns, as well as manufacturing and energy firms seeking to make the handling of their products more efficient while maintaining control over logistics operations. Even the road and rail transport sub-sectors register VIs: in Italy, the Eurokai Group has acquired Sogemar and Hannibal, two companies offering intermodal (rail-road) transport. This strategy has enabled the Eurokai Group to complete its transport chain in order to offer door-to-door links to clients.

Finally, the main purposes of CIs that is, strategies undertaken by non-logistics MNEs—are to achieve economies of scale and to reduce transaction costs. This is especially the case when integrations result from the outsourcing of logistics activities previously carried out within the non-logistics firm. In Italy, CIs have been mainly adopted by financial and real estate intermediaries (40 %), followed by

[1] The first ten global players which invested in Italy in 2008 were: Arriva International, Apollo Global Management, Eurokai, TNT, 3I Group, Deutsche Bahn, Deutsche Post, Interprogramme Holding, A.P. Moller–Maersk, Kuwait Petroleum (for a review, see Maggi and Mariotti 2009).

the manufacturing industry (30 %), energy, extraction, production and distribution (22 %), trade and construction (6 %), business services (2 %). These have mainly invested in activities different from pure transport and offering higher value added services: forwarding activities, cargo handling and storage.

Chapters 4 and 5 investigated the effects of multinational on the transport and logistics industry. Specifically, Chap. 4 focused on the impact of inward FDIs on the host country, while Chap. 5 examined the direct and indirect effects of manufacturing internationalization, in all its forms, on the transport and logistics industry. Chapter 4 reviewed the literature on the higher performance of international manufacturing firms (exporters, MNEs and their subsidiaries) with respect to that of domestic unit-national firms, and it underlined that international firms tend to be larger, more likely to adopt new technologies, achieve higher productivity, and pay higher wages than domestic firms (Schmitz 2005; Castellani and Zanfei 2006). As concerns the heterogeneity-by-ownership of transport and logistics firms, the study by Brouwer and Mariotti (2009a, b, 2014), focusing on Italy in the period 2002–2005, is presented. The authors find that FMNEs are larger sized, which enables them to exploit economies of scale and scope more easily, and to acquire and develop advanced technological tools and human resources. Moreover, they show a higher return on capital, are more efficient, and, therefore, more profitable than their domestic counterparts. They are less willing to invest in premises than DOM firms because they may be footloose, thus investing in the short run. Besides, although FMNEs are larger sized on average, their workforces grow to a lesser extent than do those of DOM firms. This is related to the sub-sectors in which they operate, which tend to be technologically advanced, innovative, and less labour-intensive. Hence on the one hand they are less labour-intensive; on the other, they are more likely to outsource activities.

Finally, Chap. 5 described the direct and indirect effects of manufacturing internationalization on the transport and logistics industry at the level of the home country. The direct effects concern the manufacturing firm undertaking internationalization, and in sourcing transport and logistics activities. They may therefore include an increasing demand for workers specialized in planning, managing, and controlling logistics activities. On the other hand, the indirect effects impact on the transport and logistics suppliers (either domestic or foreign), that manage the activities outsourced by the manufacturing firm. The review of the (few) studies, referring to Italy, underlined that Italian manufacturing firms engaged in internationalization tend to outsource transport activities to logistics providers (Savona and Schiattarella 2004; Maggi et al. 2008; Elia et al. 2011), whereas they internalize strategic activities linked to production, post-sale functions, and innovative activities (Micelli 2001; Mazzarino 2006; Commission Européenne 2001). Geographical proximity performs a key role in the case of outsourcing, which tends to have a regional dimension, in order to gain from agglomeration advantages, and capture the efficiency of proximity between suppliers and users (Boix and Galletto 2009; Mariotti et al. 2008).

When analysis focuses on the effects of internationalisation on the demand for transport and logistics (see Elia et al. 2011), it shows that exports, FDIs and IPT

increase demand for transport services and therefore expand the potential market for logistics transport providers.

6.2 Policy Implications and Further Research

Improvement of the quality of logistics services, the development and enhancement of the logistics infrastructure, the promotion of cooperation and coordination among logistics services providers, investment in ICT, the reduction of logistics costs, and increased training on all aspects of supply chain management: these are all crucial undertakings for a country that wants to become competitive in a global scenario. UNCTAD (2013, p. 174), indeed, indicates among the key locational determinants the availability and quality of transport and logistics infrastructure, the cost of inputs (transport, communications, energy), and the networks of locally based distribution and logistics companies in relevant industries (e.g. wholesaling, storage, distribution, etc.).

Besides, as the literature has emphasized, the undertaking of FDIs in a host country may impact positively on the industry itself and on the local context because it may increase labour demand at the level of the MNE and its local suppliers; generate a more efficient and effective logistics system as a whole; enhance knowledge spillovers to domestic suppliers and competitors which may develop spin-off firms; and develop backward and forward linkages (Fujita et al. 1999; Brouwer and Mariotti 2009a, b, 2014; Mariotti et al. 2012). Indeed, the typical foreign MNE is an important provider of training activities; has greater technological knowledge and higher productivity than a domestic plant; tends to bring new management practices and higher standards which domestic firms can in turn consider and imitate; and may foster involuntary technology transfer towards indigenous firms through imitation and demonstration, human capital mobility, demand for local inputs and the creation of spin-offs (see Lipsey 2002; Piscitello and Rabbiosi 2005; Castellani and Zanfei 2006; Cantwell and Iammarino 2010).

Specifically, inward FDIs in the higher value added activities of the transport and logistics industry enhance the host country's production, employment, income, prices, balance of payments, economic growth, and welfare. Moreover, a region hosting logistics FDIs may also become attractive to manufacturing firms requiring an efficient and effective logistics system if they are to compete successfully in the global system, where production is fragmented among very distant locations (Vastag et al. 1994; Boscacci et al. 2009).

The present book has specifically concentrated on inward transport and logistics FDIs. It has stressed that, in a globalizing world, policy makers should (i) take into account that a country may invest and/or attract high value added transport and logistics activities; (ii) understand where inward transport and logistics FDIs locate; (iii) investigate the determinants driving such investments.

Investigating the location decisions of transport and logistics firms is therefore of crucial importance for policy makers wanting to attract logistics activities, and

for companies like logistics real estate developers, and logistics park developers (Van Den Heuvel et al. 2013). Moreover, the location of transport and logistics firms shapes the demand for freight transport, and largely determines the feasibility of a shift of freight transport towards more sustainable modes of transport (European Commission 2011).

As regards Italy, if the growing demand for transport is to be satisfied, it is necessary to devise policies able to remove the obstacles that hamper the development of the transport and logistics industry (i.e. inefficient and insufficient transport networks, and the lack of a logistics culture in Italian SMEs). Moreover, in order to attract more value added firms, and enhance the competitiveness of the existing ones, a specific policy might focus on fostering education, training, and upgrading programs in logistics to enhance labour skills. Working in this direction is the recent edition of the National Logistics Plan (Ministero delle Infrastrutture e dei Trasporti 2011), which promotes policies intended to increase the rate of transport outsourcing in Italy (Elia et al. 2011).

We have presented one face of the medal: the good one. Nevertheless, it cannot be denied that the increase in freight flows, and the attraction of inward transport and logistics FDIs generate negative effects as well. Freight transport consumes an increasing amount of energy and land, and it contributes to a wide range of negative externalities: air pollution and noise emissions, congestion, traffic fatalities, etc.

There is, therefore, a need for appropriate policies and planning to reduce the social costs, which are higher in road and air freight transport than in rail and waterway freight modes. According to the 2011 White Paper, in fact, by 2050 there will have to be a 60 % cut in transport emissions. This will require achieving the following goals: (i) no more conventionally-fuelled cars in cities; (ii) 40 % use of sustainable low carbon fuels in aviation, and an at least 40 % cut in shipping emissions; (iii) a 50 % shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport.

Moreover, the attraction of inward FDIs always generates fear within the public because foreign incomers push local firms out of the market by taking over their market shares (market stealing effect), and they give rise to labour hoarding because they tend to pay more for labour of a given quality than do local firms. Nevertheless, the empirical evidence has shown that this is not always the case, since foreign MNEs are larger and therefore employ more people, who are mainly "local"; they are more productive and competitive, and therefore need local and qualified suppliers; and they contribute to the global generation and transfer of innovation (Castellani and Zanfei 2006).

To conclude, further research on the relationship between transport and logistics industry and globalization is to be advocated since, as the chapters of this book have shown, there are a number of shortcomings in the study of this topic, especially in the field of regional science.

The study of location choices might include, for instance, analysis of firm-specific characteristics, and the country of origin of the investments, the purpose being to better disentangle the location behaviors of investing firms. This would assist policy makers in predicting future location patterns, and in devising public policies designed to influence the future location decisions of foreign logistics firms.

Moreover, since the empirical analysis has shown that the motivations behind investment decisions are often multiple, and that they differ according to the distinctive features of the sub-industry concerned, there is a consequent need for more detailed investigation based on direct interviews, together with quantitative analysis. Hence further research would be very useful for the purpose of evaluating the impact of the various integration strategies both on the country's transport and logistics industry and, more generally, on its economic competitiveness.

Another issue which is neglected by the academic as well as the public debate concerns the "monetization" of the social costs generated by transport. The social cost is the sum of two components, namely the internal (or private) cost and the external (or collective) cost. The former is the cost sustained by the user or by the subject in charge of the transportation activity (purchase and maintenance of the means of transport, fuel, work time, etc.). The latter cost also comprises the "negative externalities" (soil consumption, air pollution, noise) that typically affect the local community or society as a whole.

As said, the transportation cost (if we consider only the pure economic aspect, regardless of the social ones) for goods fell by as much 95 % during the 20th century (Glaeser and Kholhase 2004). However if we take account of the negative externalities generated by transportation, the cost is still high. This issue—which is at the basis of globalization—warrants further research.

Finally, further research might focus on adoption of a multidisciplinary approach, given its important implications. Indeed, if there exist "Jacobs-style economies" arising from the work of scholars from different academic traditions, we should expect to see closer collaboration between, for example, economic geographers and industrial organization specialists or international economists and transportation economists when these topics are investigated.

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Appendix: The LogINT Database

The LogINT (Logistics and Internationalization) database has been developed since 2006 by Laboratory of Economics, Logistics and Territory (LabELT) at the Department of Architecture and Urban Studies (DAStU, former DiAP) of the Politecnico di Milano, and it is updated yearly (see: http://www.labelt.polimi.it/osservatorio_log-int.htm).

LogINT adopts a broad definition of the "transport and logistics" industry which refers to all codes included in 2002 NACE industry "I" "Transport, storage and communication", with the exception of telecommunications (see Chap. 1). The purpose of LogINT is to register the inward and outward FDIs undertaken in and from Italy since 2001. Specifically, the following information is collected: FDI types (green field and M&A), sector, location, turnover, value added, management structure, etc. Moreover, the integration strategies (horizontal, vertical and conglomerate) undertaken by the Italian transport and logistics MNEs abroad, and by the foreign MNEs investing in Italy, are recorded.

LogINT adopts the following data sources: (i) REPRINT database,[1] developed by the Department of Management, Economics and Industrial Engineering of the Politecnico di Milano, and sponsored by the Italian Foreign Trade Institute (ICE); (ii) the Amadeus database maintained by Bureau Van Dijk; (iii) the Infoimprese database of the Italian Chambers of Commerce; (iv) the websites of transportation and logistics firms; (v) newspapers and magazines articles; (vi) Federtrasporto-Nomisma reports on the internationalization of the transport and logistics industry; (vii) interviews with the managing directors of the transport and logistics MNEs.

[1] I am grateful to Marco Mutinelli and Sergio Mariotti for providing access to the Reprint database under a confidentiality agreement.

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4

Index

A
Accessibility, 22, 26, 33, 80
Acquisition. (*See* Merger and acquisition)
Adverse asymmetry, 22
Agglomeration economies, 21, 22, 27, 32, 33, 80, 82

B
Brazil, the Russian Federation, India, China and South Africa (BRICS), 23
Brownfield investment, 6

C
Capital, 5, 39, 43–44, 49, 55–58, 81–82
Cargo handling, 9, 47–48, 72, 82
Cherry-picking, 55, 57
China, 12, 20, 23–28, 26, 80
Competitive advantages, 7, 46, 48, 81
Competitive goals, 12, 42, 43, 81
Competitiveness, 8, 22, 49, 66, 67, 84, 85
Conglomerate integration (CI), 6, 41, 43–45, 47–48, 81
Consumer-oriented economy, 2
Container, 2, 40
Cooperation agreement, 5, 66, 68, 69, 71, 74
Counterfactual, 57, 58
Courier, 7, 9, 31, 45, 46
Cultural distance, 20–23, 27–28, 80
Cultural proximity. (*See* Cultural distance)

D
Death of distance, 4
Delivery times, 3, 7
Direct effect, 66–69, 74, 82
District firms. (*See* Industrial district)
Domestic uni-national firms (DOM), 55, 57–59, 82
Door-to-door links, 41, 81

E
Eclectic OLI paradigm, 20
Economic development, 8, 24
Economic geography, 8, 79
Economies of scale, 21, 39–44, 48–49, 54, 59
Economies of scope, 32, 39–44, 48, 59, 81
Efficiency, 6, 11–12, 22, 42–43, 46, 53
Export, 5–6, 23–24, 29, 54–55, 65, 68, 74
Externalization, 8, 13, 27, 67–71, 75, 81, 82

F
Foreign direct investment (FDI), 5–7, 26–33, 44–46, 66, 71–75
FDI location determinants. (*See* Location determinants)
Firm heterogeneity (*see* Heterogeneity)
Flexible specialization, 2
Foreign multinational enterprise (FMNE), 53–59, 82

G
Geographical distance, 4, 21–23, 27–28, 70–71, 80–82
Geographical proximity. (*See* Geographical distance)
Global players, 30–32, 46–48, 80–81
Global value chain (GVC), 3

I. Mariotti, *Transport and Logistics in a Globalizing World*, PoliMI SpringerBriefs,
DOI 10.1007/978-3-319-00011-4

Globalization, 2, 4, 7–8
Greenfield investment, 5, 6, 40

H
Heterogeneity, 13, 53–59
Home country, 13, 65–67, 82
Horizontal integration (HI), 6, 40–46, 48, 67, 81
Horizontal investments. (*See* HI)
Host country, 6, 9, 65–67, 82–83

I
ICT, 4, 5, 8, 40, 44, 83
Import, 5–6, 23, 29, 68–71, 74
Indirect effect, 66–69, 74, 82
Industrial district, 32, 67, 70
Infrastructures, 8, 21–23, 28, 32–33, 80
Innovation, 2, 30, 58, 82, 84
Insourcing. (*See* Internalization)
Integrated logistics, 10, 31, 33, 41, 45, 59, 68, 74
Integrated Logistics Providers. (*See* Integrated logistics)
Integration strategies. (*See* CI, HI, VI)
Internalization, 7–8, 13, 21, 54, 67–69, 73
Inward processing trade (IPT), 71–74, 82

J
Just in time (JIT), 2, 3, 7, 68

K
Knowledge spillovers, 32, 33, 80, 83

L
Labour cost, 21, 22, 27, 28, 80
Labour demand, 65–74, 74, 83
Labour productivity, 55, 56
Labour quality, 20–22, 26, 32, 67, 80
Liberalization, 2, 5, 44–46, 81
Localization economies. (*See* Agglomeration economies)
Location determinants, 8, 12, 19–23, 25, 27, 29, 32–33, 80
Location theory, 21
Logistics. (*See* Transport and logistics industry)
Logistics costs, 5, 8, 70, 83
Logistics Performance Index (LPI), 8
Logistics revolution, 1–6, 79

M
Made in Italy, 29, 32
Market, 21, 22, 26, 27, 32, 33, 42, 48, 56
Materials management (MM), 11
Merger and acquisition (M&A), 5–6, 30, 40, 41, 44
Multinational enterprise (MNE), 3–6

O
Outsourcing. (*See* Externalization)
Outward processing trade (OPT), 71, 73, 74

P
Performance, 8, 53–59
Physical distribution (PD), 11
3PL and 4PL, 7, 8, 10, 13, 41, 44, 59, 69
Productivity, 54–57, 59
Profitability, 7, 56, 82

R
R&D, 56, 66
Regional science, 8, 9, 20, 79

S
Scale economies. (*See* economics of scale)
Scope economies. (*See* Economies of scope)
Small and medium-sized enterprises (SMEs), 5, 30, 44, 75, 84
Supply chain, 7, 8, 9, 11, 41, 43, 60, 67, 71, 75

T
Transnational company (TNC), 3, 5, 7
Trade, 5, 6, 68, 69, 71–74, 82
Transaction cost, 4, 20, 21, 42–44, 48, 49, 54, 80, 81
Transport and logistics industry, 1–3, 9–11, 24, 68, 73
Transport cost, 2, 22, 85

U
Urbanization economies. (*See* Agglomeration economies)

V
Value added logistics, 31–34, 44, 47, 58–60, 69–70, 80, 83
Vertical integration (VI), 6, 40–43, 66–67, 81
Vertical investment. (*See* VI)