LOGISTICS MULTINATIONALS AND FIRM HETEROGENEITY: A MATCHING ESTIMATOR APPROACH

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ABSTRACT

It is by now accepted that foreign multinational enterprises (MNE) perform better than domestic firms for a number of performance indicators. In particular, recent analyses of micro level data found that, especially in manufacturing, MNE are larger, more productive, pay higher wages than domestic firms. The majority of studies on firm heterogeneity, refer to the manufacturing sector, while little evidence is provided for services and specifically for the logistics sector. The present paper contributes to this literature by examining how logistics firms located in Italy in the period 2002-2005 differ in terms of size (number of employees, turnover and value added), labour productivity and fixed assets, according to their ownership structure (foreign MNE versus domestic firms). Specifically, it is investigated whether foreign MNE cherry-pick the high performing domestic firms.

The analysis is carried out by using a propensity score estimation to construct an appropriate counterfactual of domestic firms for the beginning of the period (year 2002) and uses discrete logit models to compare the performance-indicators of the two types of firms in 2002-2005. The results of the propensity score estimation and the logit analyses show that the differences among the two groups persist, mainly as concerns turnover and productivity, suggesting that this could be explained by a true effect arising from the foreign participation.

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1 Introduction

Firms significantly differ (within industries) in terms of behaviour and performance. The studies comparing the activities of national firms, foreign subsidiaries and headquarters of multinationals (MNE) based in the same country, find that national firms generally perform worse than both domestic and foreign owned MNE (Doms, Jensen, 1998 and Criscuolo, Martin, 2004 provide evidence on the US; Griffith, Simpson, 2001 and Girma, Gorg, 2007 on the UK; De Becker, Sleuwaegen, 2002 on Belgian firms; Castellani, Zanfei, 2006, Barba Navaretti, Castellani, 2004, Grasseni, 2007 and Crinò and Onida, 2007 on Italy; Barba Navaretti et al., 2006 for France and Italy). A stream of this literature has, therefore, investigated whether foreign MNE show a best performance because they cherry pick the high performing domestic firms. In other words, it is analysed the direction of causality between foreign participation and economic performance (Crinò, Onida, 2007).

In the majority of studies, the focus is on the manufacturing sector, while little evidence has been provided about the service sector with the studies on Italy by Crinò, Onida (2007) and Maggi, Mariotti (2009). Specifically, Crinò, Onida (2007) focus on both manufacturing and services located in Lombardy region in the north west of the country in 2000-2005 and develop an econometric analysis; Maggi, Mariotti (2009) focus on the logistics sector in the year 2004 by means of a descriptive analysis.

The present paper extends the literature by focusing on the logistics service sector in Italy and accounting for the direction of causality between foreign participation and economic performance. The interest on logistics derives from its recent and significant internationalisation openness: in the last decade, it has registered an increasing number of inward and outward foreign direct investments (FDI). Specifically, the growth rate of utilities (energy, air, water) and transport, logistics and communications in Italy has tripled in the last years (UNCTAD, 2006) and outward FDI in the logistics sector equals to 26% of the service total. Besides, large foreign logistics suppliers dominate the Italian market, i.e. TPG-TNT and Deutsche Post, which own about the 8% of the market share; Saima Avandero, Geodis-Zust Ambrosetti and Shenker which own 1.5-3.5% of the market share (Federtrasporto-Nomisma, 2006).

The aim of the paper is to investigate how logistics firms, located in Italy, differ according to their international involvement in the period 2002-2005. We distinguish domestic firms (DOM) and affiliates of foreign MNE (FMNE) and analyse the following firms’ characteristics: (i) turnover, (ii) number of employees, (iii) value added, (iv) fixed assets, (v) labour productivity, (vi) sector and (vii) location. The dataset we used combines two different databases: the LogINT (Logistics and Internationalisation) database and Amadeus database, and consists of unconsolidated balance sheet information for 11,338 logistics DOM and 273
foreign logistics MNE located in Italy in the period 2002-2005. In order to account for direction of causality between foreign participation and economic performance, the analysis is carried out by using a propensity score (from now on pscore) estimation to construct an appropriate counterfactual of domestic firms (Rosenbaum, Rubin, 1983) at the year 2002. The propensity score estimation suggests the use of the probability of receiving treatment (foreign ownership in the present context) conditional on firms’ characteristics (size, sector, location, etc.), to reduce the dimensionality problem. This technique, therefore, allows to investigate the difference existing between foreign MNE and DOM at the year 2002. Besides, discrete choice (logit) models are employed to compare the characteristics of the two sets of firms (DOM counterfactual group and MNE group) in the period 2002-2005.

It results that foreign logistics MNE tend to outperform DOM in the period 2002-2005, in terms of turnover and productivity. On the other hand, MNE tend to be characterised by lower fixed assets than DOM and this is linked to the multinational corporations’ strategy. Logistics MNE favour locations in the north west, which is in the Italian core area and have a preference to be active in the higher values added sub-sectors. The growth of jobs in 2002-2005 is negative and significant for MNE. This suggests that, although on average they are larger, their worth is less strong when compared to DOM. This result is well explained by the sub-sectors the MNE operate, which tend to be technologically advanced, innovative and less labour-intensive.

The paper is organized into five sections. The introduction is followed by a literature review on firms’ heterogeneity. Data and pscore estimation are described in section three. The results of the discrete choice models are presented and discussed in section four. Conclusions and further research follow.

2 Literature review and hypotheses

The existence of firm heterogeneity has been largely debated in the empirical literature (for a review see, among the others, Castellani, Zanfei, 2006). A strand of the literature has specifically examined the differences between domestic and foreign owned firms. Doms and Jensen (1998), using US data, show that there are substantial differences between domestic and foreign MNE; more specifically they find that foreign MNE 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) show in their study for the UK that foreign MNE exhibit higher labour productivity than domestic firms. Comparing foreign MNE and domestic firms in UK, Criscuolo and Martin (2004) find that US MNE are the productivity leaders in the market and this leadership seems due to the selection of better plants (cherry picking argument). The UK MNE are as productive as any non-US MNE. De Backer and Sleuwaegen (2002) analysing
Belgian firms, show that foreign firms are more productive than domestic. However the Belgian MNE are very similar to foreign MNE in terms of efficiency and returns to scale. As far as the case of Italy is concerned, Castellani and Zanfei (2006), find that belonging to multinational groups is related to higher productivity, while the innovation activity is more evident in Italian MNE than in foreign MNE. The study on Italy by Grasseni (2007) indicates a higher level of labour productivity and a higher average wage for foreign MNE in respect to domestic MNE, which dominate in terms of return on sales and leverage.

Within this literature, there is only a limited number of studies specifically analysing whether foreign MNE cherry pick the high performing domestic firms. These studies investigate the direction of causality between foreign participation and economic performance: as long as the decision to participate in foreign firm is endogenous, a positive link between foreign ownership and economic performance may just suggest that foreign firms invest in the already high-performing national firms (see Crinò, Onida, 2007 for a detailed review).

Girma and Gorg (2007), for instance, find positive effects of acquisition by US MNE on wage growth in the UK. Benfratello and Sembenelli (2006) focus on Italy in the period 1992-1999 and find that, after accounting for endogeneity in an instrumental variable set-up, the productivity advantage of foreign firms disappears, implying that foreign firms tend to cherry pick the best Italian firms, without contributing to raising their economic performance. About the Italian case, Crinò and Onida (2007) find that foreign MNE are more knowledge-intensive, more productive, pay higher wages and show a more solid financial structure than domestic firms; at the same time, foreign MNE show lower returns to investments.

The studies presented refer to the manufacturing sector, while little evidence is provided for services and specifically for the logistics sector, which is the object of the present paper. A focus on services has been done by Crinò and Onida (2007) in the before mentioned study. The authors find that in the services sector the difference in favour of foreign MNE is mostly accounted for by a differential pattern of industry location between the two types of firms, by the larger size of MNE and by the likely tendency of the latter to invest in already high-performing national firms (so called “cherry picking”).

The only work to our knowledge, comparing the performance of foreign logistics MNE and domestic firms, by means of a descriptive analysis, has been done by Maggi and Mariotti (2009). The authors refer to the Italian case for the year 2004 and find that foreign MNE show a productivity, measured as value added per worker, that is higher than the Italian firms’ average. Higher performance is related to MNE’s larger size (measured both in numbers of employees and turnover), which allows firms to gather, more easily, economies of scale and scope and to acquire and develop advanced technological tools and human resources. Italian logistics firms are, on the other hand, smaller in size, especially if they work in the transport by road sub-
sector. According to the Italian Statistical Institute (ISTAT), 60% of the logistics firms are single-person companies and 16.2% has two employees (ISTAT, 2007). The small and very small size, therefore, limits their ability to invest and become competitive.

The heterogeneity of domestic (small and very small) firms and foreign MNEs (larger and in general more innovative) in size – both measured in numbers of employees and turnover, the poor supply of integrated logistics and the related increasing demand of value added logistics services in the country, lead foreign investors to privilege the most value added sectors, such as “multimodal transport operators”, “freight integrators” and “couriers” (Maggi and Mariotti, 2009). Within a global scenario, where products and services flow internationally every day and commercial borders have overtaken national borders, there is an increasing need of integrated logistics able to support the international supply chain (Vastag et al., 1994).

Besides, foreign MNE prefer to be located in the core area of the country because, as underlined by Vastag et al. (1994) and Rhim et al.(2003), they adopt the so-called “follow the customer” strategy. Both Cantwell and Iammarino (2003) and Castellani and Zanfei (2007) find that that the relationship between local and global dimensions within a firms is a crucial issue and influences on performance of firms. Meaning that international firms (global dimension) can benefit from being located in certain agglomerations. As argued by Balcet and Evangelista (2005), localization in a territory and a particular district has an influence on performance and hence on the difference between firms within sectors. Thus, this is linked to the expectation that foreign MNE are located in the most developed/competitive areas, for Italy they are the northeast and northwest.

On the basis of the literature review on firms’ heterogeneity, the present paper aims to test the following hypotheses:

H1: FMNE are larger (in terms of turnover and number of employees) than DOM firms within the Italian logistics sector.

H2 : FMNE have higher labour productivity than DOM firms within the Italian logistic sector.

H3: Logistic MNE are mainly located in the core area of Italy.

H4: Within the logistics sector, MNE are most likely to be in the higher value added sub-sectors.

Investigating firm heterogeneity, and particularly the difference between national and international operations, is important to analyse the impact of FMNE on the host economies. As the literature suggests (Lipsey, 2002; Barba Navaretti and Venables, 2004; Castellani and
Zanfei, 2006), in addition to extra output and employment, the typical foreign MNE is larger, employs more skilled labour, pays higher wages, is an important provider of training activities, has a greater technological knowledge and higher productivity than a domestic plant. Besides, inward investors bring new management practices and higher standards which domestic firms may observe and imitate. The presence in a host country of foreign affiliates may foster the involuntary technology transfer towards indigenous firms through imitation and demonstration (Blomström, Kokko, 1998), human capital mobility, demand for local inputs and the creation of spin-offs. The linkages with the local firms (Rodriguez-Clare, 1996) and the knowledge spillovers (Krugman, 1991) within the local context have been considered among the main ways in which the benefits from inward foreign direct investment (FDI) develop.

Furthermore, the location of foreign affiliates in a host economy may also have negative effects for the domestic firms when both groups compete either in product or in factor markets. Foreign firms may, for instance, push local firms out of the market by take over their market share (market stealing effect) (Aitken and Harrison, 1999) and determine a labour hoarding effect because they tend to pay more for labour of a given quality product that local firms (Lipsey and Sjholm, 2005).

Nevertheless, the empirical evidence of the actual impact of MNE on host economies is still mixed and there seems to be a growing consensus among scholars that substantial diversities exist in the extent to which different MNE contribute to the global generation and transfer of innovation (Castellani and Zanfei, 2006).

3. Data, descriptive statistics and propensity score estimation

The dataset we used to carry out the analyses at the firm level combines two different databases: (i) the LogINT database, developed by the Laboratory of Economics, Logistics and Territory (LabELT), DiAP – Politechnic of Milan, which is updated every year, and registers inward and outward logistics FDI which have taken place in Italy since the 2000; (ii) Amadeus database, developed by Bureau Van Dijk, which registers the top MNEs in Europe. Amadeus is a Pan-European financial database (7 million companies), which contains financial information on the European companies and is updated very frequently. Amadeus comprises information on the Italian logistics firms, too.

The dataset consists of unconsolidated balance sheet information for 11,338 logistics domestic firm and 273 foreign logistics MNE located in Italy in the period 2002-2005. As a result of data cleaning we were left just over 9,000 DOM and 242 MNE.

Both MNE and DOM tend to be located in the northwest, which is the most industrialized area of Italy with the 20.9% of the total Italian GDP. In this respect, 55.8% of the MNE and 32.2% of the DOM locate in this macroarea, against 6.9% of the MNE and 20.9% of the
logistics DOM locate in the South and Italian Islands. The northwest is the macroarea hosting the majority of the national and international flows and where the main logistics nodes are settled. More specific, in 2005 Lombardy region attracted 41.3% of the foreign logistics MNE and 34.9% of the foreign manufacturing MNE (Mariotti, Mutinelli, 2007).

The concentration in the “core area” of the country, mainly in the northwest, can be explained by the fact that this area hosts more manufactures and other service related businesses than any other macro-area in Italy, therefore the demand for logistics services is higher. By contrast, the limited number of manufacturing and service firms in the south of Italy does not represent a pull factor for both domestic and foreign logistics MNE. This is consistent with the findings from Rhim et al., (2003) in a Nash Equilibrium and location games, Vastag et al. (1994) for North Carolina, United States of America, and Jayaraman et al. (1999) for North America.

When investigating the data, with DOM and MNE as separate groups, we find that the firms are divided over the logistics sub-sectors as follows from Figures 1a and 1b below. MNE are concentrated in sub-sectors characterized by higher value added than pure transport, such as ‘logistics’ (including: integrated logistics, courier, international forwarding) and air transport, while DOM are mostly working in ‘transport by road’, which has a lower value added per firm. This is consistent with our expectations and the literature. The predominance of the transport by road is due to the transport-intensive model which predominates in Italy where the majority of firms are small and medium sized, and not keen to develop know-how, train human resources and apply innovations to offer integrated logistics services.

We now move to compare the two groups of firms along the following dimensions: turnover, number of employees, value added, labor productivity, and fixed assets. Below we show in 5 graphs the averages for MNE and DOM in the 2002-2005 period.

Figure 1: Logistics sub-sectors of the DOM and MNE in Italy in percentages in 2005

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>DOM</th>
<th>MNE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>29%</td>
<td>2%</td>
</tr>
<tr>
<td>Sea</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Logistic</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>51%</td>
<td>48%</td>
</tr>
<tr>
<td>Rail</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Air</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Tour Operator</td>
<td>0%</td>
<td>8%</td>
</tr>
</tbody>
</table>
It is clear from all figures that on average MNE perform better in terms of turnover, jobs, value added, except for the starting year 2002, fixed assets and productivity than DOM. The outcomes of the descriptive statistics seem, therefore, to stress the heterogeneity between MNE and DOM firms at this level of aggregation and provide evidence in favour of the four hypotheses, framed in section 2. MNE are larger in size (measured in turnover and numbers of employees) than DOM, are more productive, with the exception of the year 2002 and undertake larger investments in fixed assets, as advocated by the literature. Besides, MNE tend to be located in the core area and are more present in the higher value added segment of the Italian logistics sector.

Even though the results so far look promising, the comparison is unconditional, that is, it does not account for differences between the two groups of firms. Differences in performance may
not be entirely driven by a MNE-premium, but result instead from the effects of the other concomitant factors, like, for instance, differences in size and sector. Even after controlling for such factors, the association between foreign ownership and economic performance may not be indicative of any casual relationship, but rather be evidence of cherry picking behavior by foreign MNE (Benfratello, Sambenelli, 2006; Crinò, Onida, 2007).

We tackle this issue by means of propensity score estimation to build up a counterfactual of domestic firms to be compared with MNE. Propensity score estimation allows to compare the sample of treated units (MNE) with the sample of untreated (DOM) firms without imposing restrictions on the estimating functional forms (Girma, Gorg, 2007). Under the assumptions, the comparison yields the pure effect of foreign participation, that is, the observed differences in economic performance can be associated only to the effects of ownership. A positive difference in favor of MNE will then reveal that foreign ownership is associated with higher performance; the opposite case will instead provide evidence of cherry-picking, whereby MNE participate already highly-performing DOM firms (Becker and Ichino, 2002; Cai et al., 2008).

A good matching results in characteristics of the counterfactual as close as possible to those of the MNE. In formal terms, the matched sample should satisfy the balancing property, that is, the distribution of the vector of observable should be balanced across DOM and MNE (Becker and Ichino, 2002). The first step of the pscore is to estimate the firms’ propensity scores based on their basic characteristics (in our case: turnover, jobs, value added, fixed assets) for the year 2002. The propensity score measures for each firm, based on the 2002 value, the tendency to be either a MNE or a DOM firm. The magnitude of a propensity score is between 0 and 1, the larger the score, the more likely the firm is a MNE (Becker and Ichino, 2002).

After the firm’s propensity score are estimated, the second step is to divide the firms into two groups. Firms in each group have similar propensity score. In order to control for the robustness of the matching we run T-tests, which confirm that differences between MNE and DOM control firms are not statistically significant. Now that we have two balanced groups we can compare the different types of firms in each group.

When we compare the descriptive for the new sample, after pscore estimation, we have 187 MNEs and 160 DOM, (N=347 in total). To statistically confirm that difference still persists between the counterfactual group and the group of selected MNE in the three year period (2002-2005), we run an econometric analysis in the next section.

4. Econometric analysis

In this section we provide more robust evidence on firms’ heterogeneity, by means of econometric analyses, which investigates whether the differences in performance between
DOM (counterfactual group) and MNE persist in the three years period (2002-2005).

The differences in firm characteristics are modeled by means of a logit estimation relating the probability to be either a MNE or DOM in the period 2002-2005 to a set of explanatory variables \( x_i \). The probability of a specific ownership / transnationality of a firm is:

\[
F(x' \beta) \text{ where } F(.) = \frac{\exp(.)}{[1+\exp(.)]},
\]

(1)

and \( \beta \) is the vector of coefficients, for the discrete choice we measure 0 is DOM and 1 is MNE and random utility components are assumed to be independent identically Gumbel (extreme value) distributed (Greene, 2003). The explanatory variables are the following, in natural logarithm: \( \Delta \text{Turnover}, \Delta \text{Jobs}, \Delta \text{Value added}, \Delta \text{Productivity} \) (labour productivity), \( \Delta \text{Fixed Assets}, \text{Subsector (dummy)} \) and \( \text{Macroarea (dummy)} \), trying to capture the difference in characteristics between MNE and DOM, in a set of three discrete choice models. We computed a logit as described in formula (1), to see whether the difference between MNE and DOM are significantly different from zero. The results can be found in table 1. We ran two sets of three models in sequence, including dummy variables in the second and the third, and one can see that the fit of the model improves by the small increase of the pseudo R2. Logits are in general known for their in on average very low R2, and the literature is unclear about the meaning of this low value (Norušis, 2005, Lammers et al, 2007).

In model 1a we specifically regress \( \Delta \text{Turnover}, \Delta \text{Fixed Assets} \) and \( \Delta \text{Productivity} \), followed by adding sector (1b) and Macroacrea (1c). In model 2a we regress \( \Delta \text{Turnover}, \Delta \text{Fixed Assets}, \Delta \text{Value Added} \) and \( \Delta \text{Jobs} \), followed by adding sector (2b) and macroacrea (2c). We apply two sets of models, since \( \Delta \text{ productivity} \) and \( \Delta \text{value added} \) and \( \Delta \text{ jobs} \) cannot be ran together due to issues of endogeneity.

The columns shows the \( \beta \) coefficients estimated by running two sets of three binominal logits with the inclusion of control variables. A positive sign of the \( \beta \) coefficient indicates the presence of a positive difference in the average values between DOM and MNE. The \( \beta \) value, indicates how much the difference is each specific indicator and the assigned reference group, the stars indicate whether the difference is significant.
When comparing the counterfactual DOM and MNE on a set of growth variables that we use as performance indicators and two sets of dummies (sector and macroarea), it is found that these two sets of firms differ significantly on several accounts. In all models, we see that MNE differ significantly from DOM in the growth in turnover and in fixed assets. MNE have a significant higher probability to have a larger growth on turnover than DOM over the 2002-2005 period and a significant lower probability to invest in fixed assets than DOM. Foreign MNE are, indeed, less willing to invest in premises because they may be footlose, while DOM tend to be more embedded, therefore, are prone to make investments in the long run.

For ∆Jobs, we see in models 2a, b and c that MNE have a significant negative probability to have positive growth than DOM, this can be explained by the fact that MNE are generally in higher value added subsectors of logistics, that is they are more technologically advanced and innovative, therefore, from one hand, they are less labour-intensive, from the other hand, they are more likely to outsource activities. From these results we can partly accept H1: MNE are larger in terms of turnover than DOM in the Italian logistics sector.

The growth in labour productivity is positive for MNE in the three models (1a, 1b, 1c) but significant at the ten percent level only in model 1c. This result, although slightly less convincing, allows us to accept H2.

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3 This is the case, for instance, of the third-party logistics provider (3PL), which is a firm that provides outsourced or "third party" logistics services to companies for part, or sometimes all of their supply chain management function.
As concerns the sub-sectors, the results indicate, as expected, that MNE have a positive and significant higher chance to be in higher values added sub-sectors, such as logistics. Thus, the outcomes of the logit do allow us to accept the third hypothesis. The results, furthermore, confirm that MNE tend to be located in the core area of the country, the northwest, which we used as a reference group. MNE have less chance to be settled in any other area than the northeast (core), even a significant lower chance to be located in the South & Islands than being located in the northeast. Interesting is, when we specifically model jobs and value added instead of productivity, we find that MNE have a significant negative chance, so much lower probability to locate in the South & Islands that is the less developed region of the country, where the demand for logistics is much lower than in the north. This result tends to accept hypothesis 4, that is MNE are more likely to be located in the northwest core area than DOM.

5. Conclusions

The results from the propensity score estimation and the logit analyses show that firm heterogeneity within the Italian logistics sector according to the international involvement is found. Foreign logistics MNE tend to outperform DOM in the period 2002-2005, in terms of turnover and productivity. Logistics MNE favour locations in the north west core area (“follow the customer” approach), and have a preference to be active in the higher values added sub-sectors. Besides, MNE tend to be characterised by lower fixed assets than DOM and this is linked to the multinational corporations’ strategy. The growth of jobs in 2002-2005 is negative and significant for MNE, suggesting that, although on average they are larger they grow less if compared to DOM. This result is connected to the sub-sectors MNE operate, which tend to be technologically advanced, innovative and less labour-intensive. Besides, foreign MNE, being larger and more innovative, are more likely to outsource activities. It can be, therefore, concluded that the two groups of firms differ and this difference could be explained by a true effect arising from the foreign participation. In other words, foreign logistics MNE do not seem to cherry pick the best domestic firms but their higher performance results from their foreign participation.

Knowing firms heterogeneity offers some insights on the feasible impact of foreign logistics MNE on the host economy, which can be of interest for the policy makers. The literature stresses that foreign MNE bring resources, such as advanced technologies, innovations, and managerial capabilities that might not be present in the host country. Working at global scale, requires, indeed, significant investments in innovation in order to stay competitive. Thus, the location in Italy of foreign logistics MNE might have a positive impact on the industry itself and the local context because these firms may: (i) increase the number of employees, which
can be directly employed by the MNE and by its local suppliers; (ii) promote a more efficient and effective logistics system as a whole; (iii) foster knowledge spillover towards domestic suppliers and competitors, which can give birth to spin-off firms; (iv) develop backward and forward linkages.

A region hosting logistics MNE can therefore, become also attractive for manufacturing firms, which need an efficient and effective logistics system to compete successfully in the global scenario where the production is fragmented in very distant locations (Vastag et al., 1994; Maggi et al., 2008).

Nevertheless, MNE may also exhibit a negative impact on the host country such as, for instance, the market-stealing effect for domestic logistics firms, which are generally smaller and less competitive and innovative. This effect induces a reduction in the domestic firms’ market share, which, as stated by Federtrasporto-Nomisma (2005), has occurred in Italy in the period 1995-2005. Specifically, the market share of the Italian logistics firms’ has decreased from 50% to 35% for transport by road and from 61% to 24% for air transport.

The empirical evidence on the impact of foreign manufacturing MNE on the host country underlines, nevertheless, that in the medium and long run the presence of foreign MNE fosters the host country’s endogenous development. Therefore, further research on empirical evidence about the role played by foreign logistics MNE on the host country economy is strongly advocated.
6. References


Crinò R., Onida F. (2007) *Foreign Ownership and Economic Performance in Italy: Not all is Cherry-Picking!*, CESPRI WP 207, November, Bocconi University, Milan, Italy.


Appendix

Table A: Italian NUTS 2 regions, macro-areas and logistics sub-sectors

<table>
<thead>
<tr>
<th>Italian NUTS 2 regions</th>
<th>Macro-area</th>
<th>Logistics sub-sectors</th>
<th>NACE Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abruzzo</td>
<td>South and Islands</td>
<td>Land transport; transport via pipelines</td>
<td>60</td>
</tr>
<tr>
<td>Basilicata</td>
<td>South and Islands</td>
<td>Transport via railways</td>
<td>60.1</td>
</tr>
<tr>
<td>Calabria</td>
<td>South and Islands</td>
<td>Other land transport</td>
<td>60.2</td>
</tr>
<tr>
<td>Campania</td>
<td>South and Islands</td>
<td>Transport via pipelines</td>
<td>60.3</td>
</tr>
<tr>
<td>Emilia Romagna</td>
<td>Northeast</td>
<td>Water transport</td>
<td>61</td>
</tr>
<tr>
<td>Friuli Venezia Giulia</td>
<td></td>
<td>Sea and coastal water transport</td>
<td>61.1</td>
</tr>
<tr>
<td>Lazio</td>
<td>Centre</td>
<td>Inland water transport</td>
<td>61.2</td>
</tr>
<tr>
<td>Liguria</td>
<td>Northwest</td>
<td>Air Transport</td>
<td>62</td>
</tr>
<tr>
<td>Lombardia</td>
<td>Northwest</td>
<td>Scheduled air transport</td>
<td>62.1</td>
</tr>
<tr>
<td>Marche</td>
<td>Centre</td>
<td>Non-scheduled air transport</td>
<td>62.2</td>
</tr>
<tr>
<td>Molise</td>
<td>South and Islands</td>
<td>Supporting and auxiliary transport activities;</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>activities of travel agencies</td>
<td></td>
</tr>
<tr>
<td>Piemonte</td>
<td>Northwest</td>
<td>Cargo handling and storage</td>
<td>63.1</td>
</tr>
<tr>
<td>Puglia</td>
<td>South and Islands</td>
<td>Other supporting transport activities</td>
<td>63.2</td>
</tr>
<tr>
<td>Sardegna</td>
<td>South and Islands</td>
<td>Activities of travel agencies and tour</td>
<td>63.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>operators; tourist assistance activities</td>
<td></td>
</tr>
<tr>
<td>Sicilia</td>
<td>South and Islands</td>
<td>Activities of other transport agencies</td>
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SOMMARIO

La letteratura ha evidenziato come le imprese multinazionali (IMN) is caratterizzino per una migliore performance rispetto alle imprese uninazionali: sono più grandi, più produttive, pagano salari più alti. La quasi totalità degli studi sull’eterogeneità delle imprese riguarda il comparto manifatturiero, limitata evidenza empirica è, invece, rivolta al terziario. Il presente contributo estende la letteratura concentrandosi sul settore logistico e si pone l’obiettivo di investigare se le imprese logistiche multinazionali e uninazionali, localizzate in Italia nel periodo 2002-2005, differiscono per dimensione (numero di occupati, fatturato e valore aggiunto), produttività del lavoro e assetti fissi. L’analisi empirica si è avvalsa di una stima propensity score e del modello a scelta discreta logit.