Foreign ownership and economic performance in Italy: not all is cherry-picking!

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Abstract

This paper studies the effects of foreign participation on economic performance in Lombardy, a Northern Italian region accounting for more than 40% of Foreign Direct Investment inflows in Italy. We employ a large database consisting of balance sheet and foreign ownership information for more than 13,000 firms and analyze different dimensions of economic performance: capital and knowledge-intensity, productivity, wages, returns to investments and financial structure. We find that foreign multinationals are more knowledge-intensive, more productive, pay higher wages and show a more solid financial structure than national firms; at the same time, foreign multinationals show lower returns to investments. Propensity score estimation results show that this difference implies a true effect from foreign participation in the manufacturing sector; in the services sector, instead, the difference in favour of multinationals is mostly accounted for by a differential pattern of industry location between the two types of firms, by the larger size of multinationals and by the likely tendency of the latter to invest in already high-performing national firms.

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1. Introduction

This paper studies the effects of foreign participation on economic performance in Lombardy, a Northern Italian region accounting for more than 40% of Foreign Direct Investment inflows in Italy. We employ a comprehensive database consisting of balance sheet and ownership structure information on more than 13,000 manufacturing and services firms, to study whether foreign participation is associated with substantial improvements along several dimensions of economic performance: capital and knowledge-intensity, productivity, wages, vertical integration, returns to investments and financial stability.

We first run unconditional comparisons between foreign-owned, multinational, firms (MNEs) and national firms, and show that the former are characterized by more knowledge-intensive techniques, higher labor productivity, higher wages and a more solid financial structure; nevertheless, MNEs exhibit lower returns to investments, according to all of the indicators used in the analysis.

The better performance showed by MNEs in unconditional comparisons does not necessarily imply a premium from foreign participation, but could also depend on the different industry distribution of the two types of firms, on the larger dimension of MNEs and on the tendency of the latter to invest in national firms that are already characterized by better performance. In order to account for these problems, in the second part of the paper we select an appropriate counterfactual sample of national firms, by means of propensity score estimation. We then re-run the previous comparisons on the counterfactual sample. Results show that much of the difference between the two groups of firms disappears in the services sector, thereby suggesting that the unconditional comparisons reflected a different industrial distribution between the two types of firms, the larger size of MNEs and the tendency of the latter to *cherry-pick* already high-performing national enterprises. In the manufacturing sector, instead, MNEs continue to show higher knowledge-intensity, productivity and wages, along with a more equilibrated financial structure. We attribute this difference to a true premium associated with foreign participation.

In the last section of the paper, we repeat our conditional comparison by distinguishing national firms into purely domestic firms and Italian multinationals. Results show that the difference between foreign and Italian MNEs is lower than the difference between

either type of MNE and purely domestic firms, thus confirming existing predictions from theoretical models (Melitz, 2003, Helpman *et al*., 2004).

This paper contributes to a large stream of literature on foreign participation and economic performance (see section 2 for a brief review) in two ways. First, we expand the comparison between MNEs and national firms beyond traditional productivity indicators, to include several other dimensions of economic performance. Second, we apply a non-parametric framework to condition the comparison between the two groups of firms on two important variables that can affect economic performance without being directly linked to foreign participation: size and industry distribution. The estimation strategy also allows us to control for the potential endogeneity of foreign ownership, whereby MNEs choose to participate in already high-performing national enterprises.

The remainder of the paper is structured as follows. Section 2 reviews the existing empirical literature on foreign participation and economic performance; section 3 describes the database and provides results from the unconditional comparison; section 4 introduces the propensity score methodology; section 5 presents the results obtained on the counterfactual sample; section 6, finally, concludes.

2. Previous literature

Existing studies on the effects of inward FDI on the host economy can be distinguished in two groups. The first group has compared MNEs and national firms in search for differences in economic performance: if MNEs were found to significantly outperform national firms, this would motivate active policies to attract FDI, in order to increase the share of foreign-owned firms in the national economy. The second group of studies has instead analyzed whether increasing presence of MNEs contributes to raising the productivity of national firms through spillover effects: if MNEs brought new technologies and managerial practices in the host economy, they would produce positive externalities for national firms and boost their economic performance. Assessing existence and economic importance of spillover effects is an important and debated topic nowadays; however, given the objective of this paper, we will review only the first set of studies in this section; a comprehensive survey of the literature on spillovers can be found in Barba Navaretti, Venables *et al.* (2004, chp. 7).

Studies comparing MNEs and national firms are based on the following research questions: Are foreign and national firms different in terms of economic performance? Does this difference really represent an MNE-premium? As we will see shortly, the answer to the first question is "unambiguously yes": MNEs are more productive than national firms and tend to pay higher wages; moreover, MNEs are more capital and skill-intensive and make more intensive use of intermediate inputs. Answering the second question is instead more complicated, because of at least two relevant methodological issues. First, there is a problem of identification: MNEs may exhibit better performance either because they really benefit from firm-specific advantages (Dunning, 1977; Markusen, 1995; Caves, 1996), or simply because they systematically differ from national firms along other dimensions that may simultaneously affect economic performance: for instance, if MNEs were more likely to concentrate in high-tech industries, or turned out to be larger than domestic firms on average, their superior performance could entirely stem from such factors and have little to do with a true MNE-premium. As a consequence, a meaningful comparison of the two groups of firms has to appropriately take account of the whole set of variables that may be simultaneously correlated with foreign ownership and economic performance, in order to isolate the pure effect of foreign participation. Unfortunately, some of the existing

studies have neglected this problem; others have instead dealt with it by applying standard econometric techniques that allow to condition the effect of foreign ownership on a whole set of controls. While representing a step forward relative to unconditional comparisons, the latter approach is however still unsatisfactory in that it is unable to control for the endogenous nature of the foreign participation decision: foreign firms may *cherry-pick* the best national firms; if this were the case, a positive relationship between foreign ownership and economic performance would not be informative of any causal effect of foreign participation, even after controlling for a large set of additional covariates. This paper tries to move further, by proposing a comparison of foreign and national firms based on propensity score estimation, which simultaneously accounts for both the influence of external factors and the endogeneity of the participation decision.

The second methodological issue relates to the choice of the dimensions of economic performance along which to compare foreign and national firms. Existing studies have almost exclusively focused on productivity and wages[1]. This choice is questionable, in that other dimensions of economic performance may be of interest, especially for policy reasons. The second contribution of this paper will therefore be to expand the set of indicators of economic performance beyond productivity and wages: we will also analyze such dimensions as capital and knowledge intensity, financial structure and returns to investments.

The bulk of the existing literature focused on the UK and the US, where data are available for a sufficiently large set of firms and a sufficiently long time period; in the case of Italy, to the best of our knowledge, the only existing study is Benfratello and Sembenelli (2006). A complementary result can be found in Mariotti-Onida and Piscitello (2005), who compare a sample of Italian firms that have been taken over by some new owner (domestic or foreign) in the period 1993-97 with a counterfactual sample of firms that did not experience any acquisition: they find that foreign acquisition has been accompanied by a faster growth in employment and labor productivity in the four years following the acquisition. The most striking evidence from this literature is that MNEs unambiguously outperform national firms: specifically,

[1] A partial exception is Pfaffermayr and Bellak (2000), who also examine profitability.

they are more productive and pay higher wages[2]. This stark evidence, however, is not enough to suggest the existence of a MNE-premium. MNEs are in fact different along several other dimensions that may independently affect productivity and wages: in particular, MNEs employ more skilled workers (Griffith and Simpson, 2001; Almeida, 2007) and rely on more capital-intensive technologies (Oulton, 1998b), are larger (Criscuolo and Martin, 2003a,b) and tend to concentrate in high-tech industries (Davies and Lyons, 1991). Indeed, once controlling for these differences, the productivity advantage of MNEs either shrinks significantly (Harris, 2001; Harris and Robinson, 2003), or becomes statistically insignificant (Davies and Lyons, 1991; Globerman *et al*., 1994, Griffith, 1999; Pfaffermayr and Bellak, 2000; Criscuolo and Martin, 2003b); there still remain, however, some evidence of a wage premium associated with foreign ownership[3].

As already mentioned, controlling for the effects of external covariates does not suffice to reach a definite conclusion about the direction of causality between foreign participation and economic performance: as long as the decision to participate in foreign firms is endogenous, a positive link between foreign ownership and economic performance may just suggest that foreign firms invest in already high-performing national firms. There are only a limited number of studies accounting for the possible endogeneity of foreign ownership. Benfratello and Sembenelli (2006) focus on Italy and exploits a panel of foreign-owned affiliates and national firms spanning the period 1992-1999. The authors find that, after accounting for endogeneity in an Instrumental Variable set-up, the productivity advantage of foreign firms disappears, with the only exception of U.S.-owned establishments: this implies that foreign firms tend to cherry-pick the best Italian firms, without contributing to raising their economic performance[4].

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[2] See Oulton (1998a), Griffith (1999), Girma *et al*. (2001), Griffith and Simpson (2001), Criscuolo and Martin (2003a), Harrison and Robinson (2002, 2003) for the U.K.; Howenstine and Zeile (1994) and Doms and Jensen (1998) for the U.S.; Globerman *et al.* (1997) for Canada; Pfaffermayr and Bellak (2000) for Austria; and Benfratello and Sembenelli (2006) for Italy.

[3] See Lipsey (1994) and Feliciano and Lipsey (1999) for the U.S.; Oulton (1998a), Girma *et al*. (2001), Griffith and Simpson (2001),Conyon *et al*. (2002) for the U.K..

[4] Similar conclusions have been reached for the U.K by Harris and Robinson (2002), although in a different set-up: instead of looking at the productivity differential between foreign and domestically owned establishments, the authors examine the *change* in productivity arising in formerly national firms after the *acquisition* by foreign multinationals: also in this case, results show robust evidence of cherry-

In the case of wages and wage growth, Almeida (2007) finds that, after accounting for the possible selection bias in foreign ownership, foreign acquisition brings about only small increases in the average wages and in the level of human capital in Portuguese firms. Using propensity score estimation techniques similar to our own, Martins (2004) finds that wages *decrease* after acquisition in Portugal. On the contrary, Girma and Gorg (2007) use propensity score estimation combined with a difference-in-difference estimator and find positive effects of acquisition by U.S. MNEs on wage growth in the U.K.; they also identify some evidence of positive effects from acquisition by MNEs in the rest of the world on unskilled wages.

Summing up, existing evidence suggests a positive link between foreign ownership, productivity and wages. Such a difference, however, mostly depends on differential patterns of industry concentration between foreign and national firms, as well as on other features of MNEs, such as their larger size and higher capital-intensity. After controlling for these factors, differences in economic performance become less startling. In addition, the remaining positive link does not necessarily imply a causal effect from foreign participation to economic performance, but may rather be likely to hide some attitude towards cherry-picking by MNEs.

3. Data description and preliminary analysis

Our database consists of unconsolidated balance sheet information for more than 13,500 manufacturing and service firms operating in Lombardy, a Northern Italian region accounting for over 40% of total inward FDI; the sample covers the period 2000-2005. The data comes from AIDA (Analisi Informatizzata Delle Aziende), a large database administered by Bureau Van Dick. Along with balance sheet information, we retrieved data on the ownership structure of the firms from the REPRINT database, administered by Politecnico of Milan; MNEs are defined as firms with a foreign share equal to, or greater than, 50% over the entire sample period. We included in the sample only firms with sales exceeding €2.5 millions; moreover, we excluded firms in retail and wholesale trade, banking and finance, hotels and restaurant, due to the lack of information on the ownership structure for these industries in the REPRINT database. Finally, we

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picking. Conyon *et al.* (2002) reach instead opposite findings, showing that foreign acquisition is associated with a productivity increase in British firms.

implemented standard data cleaning procedures, eliminating outliers and observations that proved inconsistent with both the past behaviour of each variable and the behaviour of other related balance sheet indicators.

As a result of data cleaning, we were left with 13,096 firms, 67% of which operate in the manufacturing sector. MNEs represent only 8.3% of the total number of firms in the sample, but they account for almost 30% of total sales, total employment and total capital in both manufacturing and services. The probability of finding an MNE in the sample increases monotonically with firms' size, as shown in table 1. The average MNE has sales, production volumes and total costs exceeding those of the average national firm by 5 times; employment and value added in MNEs are on average higher by 3.5 and 4 times respectively (table 2).

Table 1 – Sample distribution by firm type, sales classes and sector (%, 2005)

	Sales classes		
	[2.5 Mln.,5.0 Mln)	**[5.0 Mln.,10.0 Mln)**	**[10.0 Mln)**
MANUFACTURING			
National	97.7	95.5	83.8
MNE	2.3	4.5	16.2
SERVICES			
National	96.3	93.2	84.5
MNE	3.7	6.8	15.5

The distribution of firms by industry and type (table 3) shows that MNEs are especially concentrated in refined petroleum, chemical and high-tech industries, whereas national firms are concentrated in traditional industries; in the tertiary sector, MNEs are mainly located in R&D, telecommunication and consulting, whereas national firms are overwhelmingly concentrated in construction and utilities (gas, water, electricity). Hence, the main conclusions from previous literature are confirmed: MNEs are larger than national firms and tend to concentrate in high-tech industries.

Table 2 – Size indicators (averages 2000-2005)

		MNE	**National**
Sales (€, '000)	**Mean**	**77111**	**15546**
	Std. Dev.	*286953*	*111092*
	# Obs.	*5722*	*60258*
Number of employees	**Mean**	**263**	**74**
	Std. Dev.	*2414*	*615*
	# Obs.	*5361*	*50997*
Value Added (€, '000)	**Mean**	**17905**	**4148**
	Std. Dev.	*57714*	*61534*
	# Obs.	*4923*	*55512*

Value of production (€, '000)	**Mean**	**80055**	**15950**
	Std. Dev.	*300547*	*111678*
	# Obs.	*5762*	*61212*
Production costs (€, '000)	**Mean**	**77228**	**15550**
	Std. Dev.	*294758*	*121187*
	# Obs.	*5761*	*61231*

3.1 Preliminary results

We now move to compare the two groups of firms along several dimensions of economic performance: capital and knowledge intensity; productivity, wages and vertical integration; financial structure; returns to investments. The comparison is *unconditional*, that is, it does not account for differences in size and industry allocation between the two groups of firms. We will tackle this issue in the next section, by means of propensity score estimation.

To preview the results, we find that MNEs are generally more knowledge-intensive than national firms, and also more capital-intensive in manufacturing. MNEs are more productive, less vertically integrated and pay higher wages. Moreover, they show a more equilibrated financial structure, a lower dependence on debt as a source of financing and a composition of liabilities more oriented towards the medium-long term. Nevertheless, MNEs generally show lower returns to investments than national firms.

Table 3 – Sample distribution by industry and firm type

Ateco 2002		Total	National		MNE		Concentration Index*	
			#	% of total	#	% of total	National	MNE
MANUFACTURING		**8741**	**8028**	**91.8**	**713**	**8.2**	**1**	**1**
15	Food	515	485	94.2	30	5.8	1.03	0.71
17	Textile	805	790	98.1	15	1.9	1.07	0.23
18	Apparel	224	219	97.8	5	2.2	1.06	0.27
19	Leather	89	86	96.6	3	3.4	1.05	0.41
20	Wood	123	122	99.2	1	0.8	1.08	0.10
21	Paper	197	181	91.9	16	8.1	1.00	1.00
22	Print, publish.	400	369	92.3	31	7.8	1.00	0.95
23	Ref. Petrol.	30	23	76.7	7	23.3	0.83	2.86
24	Chemical	657	502	76.4	155	23.6	0.83	2.89
25	Rubber	593	552	93.1	41	6.9	1.01	0.85
26	Non Metall. Min. Prod.	302	279	92.4	23	7.6	1.01	0.93
27	Metal	432	405	93.8	27	6.3	1.02	0.77
28	Fabbr. Metal. Prod.	1444	1387	96.1	57	3.9	1.05	0.48
29	Machinery	1421	1289	90.7	132	9.3	0.99	1.14
30	Office Machinery	42	35	83.3	7	16.7	0.91	2.04
31	Electrical Machinery	471	414	87.9	57	12.1	0.96	1.48
32	Telecom. Machinery	153	122	79.7	31	20.3	0.87	2.48
33	Precision Equipment	232	188	81.0	44	19.0	0.88	2.33
34	Automobile	105	96	91.4	9	8.6	1.00	1.05
35	Other Transp. Equipm.	77	73	94.8	4	5.2	1.03	0.64
36	Furniture	384	366	95.3	18	4.7	1.04	0.57
37	Recycling	45	45	100.0	0	0.0	1.09	0.00
SERVICES		**4355**	**3979**	**91.4**	**376**	**8.6**	**1**	**1**
40	Energy	153	150	98.0	3	2.0	1.07	0.23
41	Water	31	31	100.0	0	0.0	1.09	0.00
45	Costruction	1527	1502	98.4	25	1.6	1.08	0.19
60	Ground Transp.	350	335	95.7	15	4.3	1.05	0.50
61	Water Transp.	11	11	100.0	0	0.0	1.09	0.00
62	Air Transp.	17	16	94.1	1	5.9	1.03	0.68
63	Auxiliary Activities Transp.	478	444	92.9	34	7.1	1.02	0.82
64	Telecom.	46	34	73.9	12	26.1	0.81	3.02
71	Rental	67	61	91.0	6	9.0	1.00	1.04
72	Consul. Install.	382	291	76.2	91	23.8	0.83	2.76
73	R&D	39	29	74.4	10	25.6	0.81	2.97
74	Enterprises Services	1254	1075	85.7	179	14.3	0.94	1.65
TOTAL		**13096**	**12007**	**91.7**	**1089**	**8.3**	**-**	**-**

* Ratio between the share of national firms (MNE) in the 2-digit industry and the corresponding share in either manufacturing or services.

3.1.1 Capital and knowledge intensity

In this section we study whether and how MNEs and national firms differ in terms of capital and knowledge intensity of their technologies. We will use the *ratio between total investments and sales* and the *ratio between total investments and employment* as our first indicators of capital intensity; we will then distinguish investments in physical

capital from those in immaterial assets (e.g., brands, trademarks and patents), in order to gather more precise information on the intensity of production in, respectively, physical capital and knowledge capital. Finally, we will look at the composition of the capital stock to assess whether, consistently with theory (Dunning, 1977; Markusen, 1995; Caves, 1996), knowledge capital is relatively more important in MNEs.

Table 4 shows that, on average, MNEs have higher capital intensity than national firms. Nevertheless, if we consider investments in physical capital only, national firms outperform MNEs according to both indicators. The most likely explanation for this (apparently atypical) result is that it hides important specificities at the sector level. In fact, when we analyze the manufacturing and the services sectors separately (table 5), we find that MNEs are more intensive in physical capital in the former sector; national firms continue, instead, to outperform MNEs in the latter, mainly because of the pattern of industry allocation highlighted before: in services, national firms are strongly concentrated in very high capital intensive industries, like construction and utilities.

Table 4– Total investment and investment in physical capital (averages 2000-2005)

		MNE	National
Total investment, per-capita (€, '000)	**Mean**	**12.8**	**10.7**
	Std. Dev.	*36.6*	*30.1*
	# Obs.	*5259*	*48523*
Total investment / Sales (%)	**Mean**	**4.5**	**4.2**
	Std. Dev.	*7.0*	*33.2*
	# Obs.	*5604*	*56988*
Investment in physical capital, per-capita (€, '000)	**Mean**	**7.0**	**7.6**
	Std. Dev.	*25.5*	*20.7*
	# Obs.	*5259*	*48523*
Investment in physical capital / Sales (%)	**Mean**	**2.6**	**3.0**
	Std. Dev.	*4.5*	*4.2*
	# Obs.	*5605*	*56989*

Turning to investments in immaterial assets, we find clear and robust evidence that MNEs show more knowledge-intensive technologies: in both sectors, MNEs are in fact characterized by higher value of both indicators (tables 6). Moreover, MNEs show a significantly higher proportion of the capital stock accounted for by immaterial assets, again both in manufacturing and in services (figure 1).

Tabella 5 - Total investment and investment in physical capital by sector (averages 2000-2005)

Sector		Total investment, per-capita (€, '000)	Inv./Sales. (%)	Investment in physical capital, per-capita (€, '000)	Investment in physical capital / Sales (%)
MANUFACTURING					
	Mean	**9.9**	**4.2**	**7.4**	**3.2**
National	*Std. Dev.*	*19.5*	*4.1*	*13.8*	*3.3*
	# Obs.	*35399*	*40572*	*35399*	*40573*
	Mean	**12.8**	**4.7**	**7.5**	**2.9**
MNE	*Std. Dev.*	*27.9*	*6.2*	*16.0*	*4.5*
	# Obs.	*3538*	*3736*	*3538*	*3737*
SERVICES	**Mean**				
	Std. Dev.	**12.9**	**4.3**	**8.0**	**2.5**
National	*# Obs.*	*48.1*	*61.4*	*32.6*	*5.9*
	Mean	*13124*	*16416*	*13124*	*16416*
	Std. Dev.	**12.8**	**4.1**	**6.1**	**1.9**
MNE	*# Obs.*	*49.9*	*8.3*	*38.2*	*4.3*
	Mean	*1721*	*1868*	*1721*	*1868*

Tabella 6 – Investment in immaterial assets by sector (averages 2000-2005)

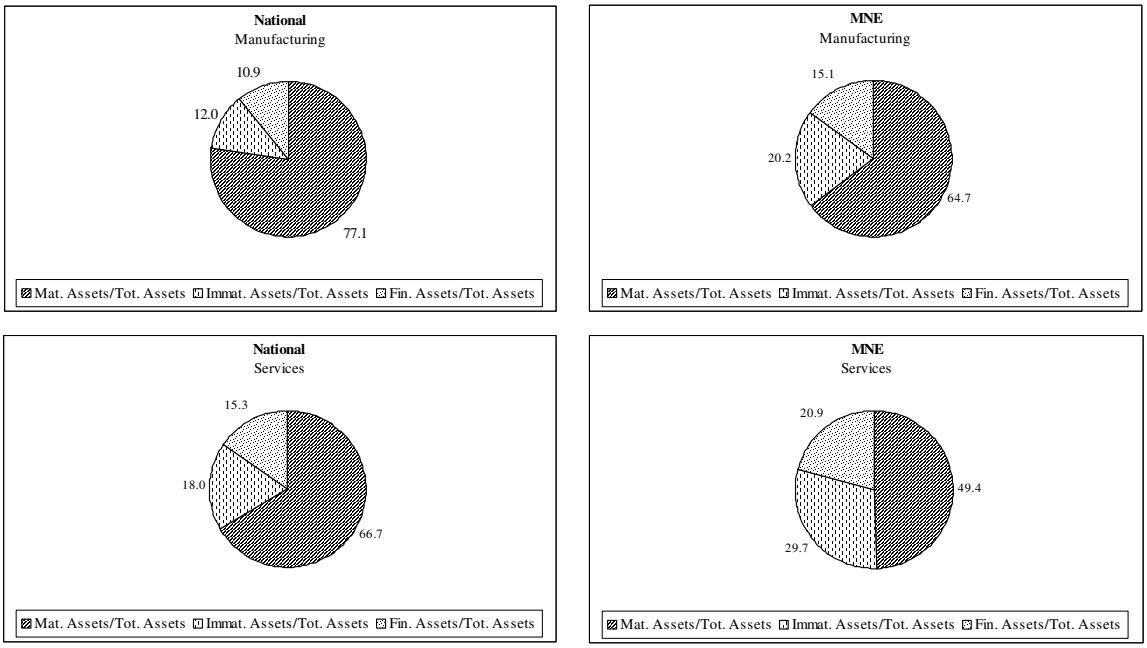
Sector		Investment in immat. assets, per-capita (€, '000)	Investment in immat. assets / Sales (%)	R&D expend., per capita (€, '000)	R&D expend./Sales (%)
MANUFACTURING					
	Mean	**1.9**	**0.7**	**0.5**	**0.2**
National	*Std. Dev.*	*11.6*	*1.6*	*4.2*	*1.8*
	# Obs.	*35401*	*40573*	*36720*	*42274*
	Mean	**3.6**	**1.2**	**0.4**	**0.2**
MNE	*Std. Dev.*	*17.5*	*2.8*	*2.7*	*1.2*
	# Obs.	*3540*	*3737*	*3598*	*3806*
SERVICES					
	Mean	**3.9**	**1.0**	**0.5**	**0.2**
National	*Std. Dev.*	*34.0*	*4.9*	*7.1*	*2.2*
	# Obs.	*13124*	*16415*	*14261*	*17966*
	Mean	**3.7**	**1.4**	**0.8**	**0.1**
MNE	*Std. Dev.*	*14.5*	*2.6*	*10.0*	*1.3*
	# Obs.	*1720*	*1867*	*1762*	*1915*

3.1.2 Productivity, wages and vertical integration

A clear message from previous studies is that MNEs are usually more productive, and tend to pay higher wages, relative to national firms. While a significant part of the productivity advantage is explained by differences in size and industry distribution, the

wage gap usually persists even after controlling for differences in size, industry allocation and productivity[5].

Figure 1 – Assets composition by sector and type of firm (percentages, 2000-2005)



In table 7 we report our indicators of productivity and wages. We measure productivity as value added per worker; this indicator is a proxy for *labor* productivity, but fails to account for other inputs usage. Our wage variable is obtained by dividing total labor costs by the number of employees; also in this case, this indicator provides only a rough proxy, because it includes payments for social security along with salaries and wages. Despite these measurement issues, we find clear evidence of higher productivity and wages in MNEs; this difference persists in both the manufacturing and the services sector (table 8).

Table 7– Per capita value added and labor costs (averages 2000-2005)

		MNE	National
Per capita value added (€, '000)	**Mean**	**73.6**	**63.0**
	Std. Dev.	*87.5*	*88.7*
	# Obs.	*4593*	*46508*
Per capita labor costs (€, '000)	**Mean**	**40.4**	**31.8**
	Std. Dev.	*21.8*	*15.2*
	# Obs.	*5265*	*50184*

[5] See Barba Navaretti and Venables *et al.* (2004, chp. 7) for a discussion of the reasons why MNEs tend to pay higher wages even after controlling for productivity, size and industry distribution.

Table 8 – Per capita value added and labor costs by sectors (averages 2000- 2005)

Settore		Per capita value added (€, '000)	Per capita labor costs (€, '000)
MANUFACTURING			
	Mean	**60.8**	**30.8**
National	*Std. Dev.*	*66.1*	*11.7*
	# Obs.	*35987*	*36379*
	Mean	**70.2**	**39.5**
MNE	*Std. Dev.*	*73.4*	*20.5*
	# Obs.	*3479*	*3558*
SERVICES			
	Mean	**70.5**	**34.5**
National	*Std. Dev.*	*140.6*	*21.6*
	# Obs.	*10521*	*13805*
	Mean	**84.4**	**42.2**
MNE	*Std. Dev.*	*120.9*	*24.3*
	# Obs.	*1114*	*1707*

Another interesting dimension along which to compare MNEs with national firms is the degree of vertical integration. Vertical integration measures the number of stages of the production process performed within the boundaries of the firm, relative to those carried out externally. As such, vertical integration and *outsourcing* often represent two sides of the same coin: the higher the use of outsourcing, the lower the degree of vertical integration. Nevertheless, there may be cases in which the link between vertical integration and outsourcing is less clear-cut: some industries are in fact characterized by a lower (higher) degree of vertical integration because of structural features of the technology, and not because firms resort more (less) intensively to outsourcing.

There is no a priori expectation as to the sign of the difference in vertical integration between MNEs and national firms. MNEs could in fact be less vertically integrated, if it were easier for them to find affiliated or unaffiliated parties to conduct some stages of their production process; but MNEs could also be more vertically integrated, if they concentrated in foreign affiliates a large number of production stages in order to exploit economies of scale or due to difficulties in finding local suppliers. Hence, assessing magnitude and sign of the difference is an empirical issue. To this purpose, we use the *ratio between value added and total sales* as a measure of vertical integration: the higher the ratio, the higher the degree of integration. Table 9 shows only moderately higher values of the indicator for national firms: hence, MNEs appear only moderately

less vertically integrated. This result also holds in the manufacturing sector; on the contrary, MNEs appear more vertically integrated in the services sector.

Table 9 – Vertical integration (averages 2000-2005)

		WHOLE SAMPLE		MANUFACTURIMNG		SERVICES	
		MNE	**National**	**MNE**	**National**	**MNE**	**National**
VA/Sales	**Mean**	**28.5**	**29.7**	**27.0**	**29.2**	**33.2**	**31.3**
(%)	*Std. Dev.*	*16.2*	*15.9*	*13.7*	*13.9*	*21.6*	*20.9*
	# Obs.	*4758*	*53693*	*3572*	*40952*	*1186*	*12741*

3.1.3 Returns to investments

We saw that MNEs exhibit higher productivity than national firms. Does this translate into higher ability of rewarding shareholders? That is, are MNEs able to generate higher returns to investments than national firms? Also in this case, there is no solid theoretical expectation. MNEs could exploit their higher productivity to generate higher returns to investments; but MNEs could also generate lower returns, for a number of reasons. First, since MNEs operate globally, they may be more exposed to competition by other large foreign firms, and thereby forced to reduce price-cost margins and the associated rewards to capital. Second, MNEs may exploit their global network of affiliates to transfer some of their profits in more fiscally convenient locations, thereby reducing the observed profits in Lombardy. Once again, assessing magnitude and sign of the difference in returns to investments is an empirical issue.

We use several indicators of returns to investment. The first two indicators measure the ability of the core business of the firm to generate value for the shareholders. The *EBITDA margin* is constructed by subtracting labor costs from value added and dividing the resulting quantity (EBITDA) by total sales; the *EBIT per capita* is constructed by subtracting total investments from the EBITDA and dividing the resulting quantity by the number of employees[6]. Our second set of indicators consists of the *pre-tax profit-sales ratio* and of the *after-tax profit-sales ratio*. These measures provide information on the ability of total sales to generate gross and net profits. Finally, we use conventional measures of *returns on investment* (ROI), *returns on assets* (ROA) and *return on equity* (ROE).

[6] A more detailed description of how these indicators have been constructed from balance sheet data can be found in the Appendix.

Table 10 – Returns to investments (averages 2000-2005)

		MNE	National
Ebit per capita (€, '000)	**Mean**	**17.3**	**18.8**
	Std. Dev.	91.2	80.3
	# Obs.	*4495*	*44177*
Ebitda margin (%)	**Mean**	**8.4**	**10.2**
	Std. Dev.	18.3	19.0
	# Obs.	*4641*	*50017*
Pre-tax profit / Sales (%)	**Mean**	**3.8**	**4.0**
	Std. Dev.	37.3	21.2
	# Obs.	*5716*	*60099*
After-tax profit / Sales (%)	**Mean**	**2.4**	**5.2**
	Std. Dev.	12.5	16.7
	# Obs.	*5222*	*47315*
ROS (%)	**Mean**	**3.6**	**4.6**
	Std. Dev.	9.4	6.7
	# Obs.	*5637*	*60202*
ROI (%)	**Mean**	**5.5**	**6.5**
	Std. Dev.	9.8	7.4
	# Obs.	*5165*	*57673*
ROE (%)	**Mean**	**9.4**	**9.0**
	Std. Dev.	34.5	26.3
	# Obs.	*5257*	*59107*

With the only exception of ROE, national firms show higher returns to investments (table 10). This result is consistent with the explanations presented before: either MNEs resort to transfer pricing, or they are forced to limit their profit margins because of tougher competition, or both. There does not seem to exist any sectoral specificity behind this finding: national firms appear more able to generate higher returns to investments in both manufacturing and services (table 11); once again, the only relevant exception comes from ROE, MNEs showing a significantly higher value of the indicator in the services sector and almost the same value as national firms in manufacturing.

3.1.4 Financial structure

How do MNEs and national firms differ in their financial structures? This section tries to answer this question. In particular, we will focus on three related issues: 1) are MNEs more or less dependent on debt as a source of financing than national firms? 2) Do MNEs and national firms show different compositions of their liabilities? 3) Are MNEs more or less able to deal with their liabilities given current level and composition of their financial assets?

We present below several indicators of the degree to which the two types of firms depend on debt as a source of financing. First, we will use the *ratio between total debts and total capital*. Second, we will show the value of the *debt-equity ratio*, constructed by dividing net financial debts by the profits of the firms. Finally, as our third indicator, we will use the *ratio between profits and total capital*.

We expect MNEs to show lower dependence of debt than national firms: being larger than national firms, MNEs may in fact dispose of higher amounts of own funds to finance their activities, a feature that makes them less in need to resort to foreign financers. This expectation is strongly confirmed by results in table 12. MNEs are in fact characterized by lower values of the first two indicators and by higher values of the third. This result also holds after repeating the analysis separately for manufacturing and services; nevertheless, in the latter sector, the difference between the two groups of firms appears much deeper (table 13).

Table 11 – Returns to investments by sector (averages 2000-2005)

Sector		Ebit per capita (€, '000)	Ebitda margin (%)	Pre-tax profit / Sales (%)	After-tax profit / Sales (%)	ROS (%)	ROI (%)	ROE (%)
MANUFACTURING								
	Mean	**18.5**	**11.0**	**4.0**	**5.1**	**4.8**	**6.5**	**7.6**
National	*Std. Dev.*	*52.0*	*12.4*	*12.9*	*16.3*	*6.6*	*7.3*	*24.2*
	# Obs.	*34510*	*38075*	*42222*	*34071*	*42244*	*40709*	*41479*
	Mean	**17.8**	**8.7**	**4.4**	**2.5**	**3.8**	**5.4**	**6.9**
MNE	*Std. Dev.*	*59.3*	*15.9*	*38.0*	*11.3*	*8.7*	*9.5*	*32.0*
	# Obs.	*3415*	*3499*	*3804*	*3509*	*3757*	*3524*	*3575*
SERVICES								
	Mean	**19.8**	**7.8**	**4.0**	**5.6**	**4.3**	**6.4**	**12.5**
National	*Std. Dev.*	*140.6*	*31.8*	*33.5*	*17.6*	*7.0*	*7.5*	*30.2*
	# Obs.	*9667*	*11942*	*17877*	*13244*	*17958*	*16964*	*17628*
	Mean	**15.7**	**7.7**	**2.6**	**2.3**	**3.1**	**5.6**	**14.7**
MNE	*Std. Dev.*	*153.3*	*24.0*	*36.0*	*14.7*	*10.6*	*10.5*	*38.8*
	# Obs.	*1080*	*1142*	*1912*	*1713*	*1880*	*1641*	*1682*

Table 12 – Structure of financing (averages 2000-2005)

		MNE	National
Total debts / total capital (%)	**Mean**	**0.6**	**0.7**
	Std. Dev.	*0.2*	*0.2*
	# Obs.	*5705*	*59436*
Debt-equity ratio	**Mean**	**6.9**	**12.0**
	Std. Dev.	*36.9*	*45.9*
	# Obs.	*5750*	*61043*
Profits / total capital (%)	**Mean**	**25.8**	**22.9**
	Std. Dev.	*21.0*	*19.5*
	# Obs.	*5776*	*61343*

Table 13 – Structure of financing by sector (averages 2000-2005)

Settore		**Total debts / total capital**	**Debt-equity ratio**	**Profits / total capital** (%)
MANUFACTURING				
National	**Mean**	**0.7**	**8.3**	**25.2**
	Std. Dev.	*0.2*	*30.3*	*19.3*
	# Obs.	*41375*	*42552*	*42718*
MNE	**Mean**	**0.6**	**5.3**	**28.6**
	Std. Dev.	*0.2*	*31.3*	*20.7*
	# Obs.	*3798*	*3824*	*3840*
SERVICES	**Mean**			
National	*Std. Dev.*	**0.7**	**20.4**	**17.5**
	# Obs.	*0.2*	*69.0*	*18.8*
	Mean	*18061*	*18491*	*18625*
MNE	*Std. Dev.*	**0.7**	**9.9**	**20.3**
	# Obs.	*0.2*	*45.8*	*20.5*
	Mean	*1907*	*1926*	*1936*

Having assessed the lower exposure of MNEs to third parties' financing, we now move to study whether MNEs are characterized by a significantly different structure of liabilities. We will specifically look at three issues. First, we will try to figure out whether MNEs are more (less) dependent on short-term debts than national firms. A priori, one can expect MNEs to be more dependent on short-run debts, the reason being that these firms may prefer to exploit the larger availability of own funds to finance long-term (more risky) investments. We will use two indicators of liabilities composition to this purpose: the *ratio between short-term debts and total debts* and the *average length of debts*. Second, we will study whether MNEs and national firms differ in their use of banking loans relative to other forms of liabilities, like bond issue. Our a priori expectation is that the relative weight of these alternative forms be higher for MNEs, these firms being more attractive for investors than relatively smaller and less

sound national firms. To this purpose, we will show the values of two indicators: *banking debts over total debts* and *banking debts over sales*. Third, we will turn to quantify the financial burden imposed by external debts on the two types of firms, by means of the ratio between *cost of debts and total debts*.

As expected, Table 14 clearly shows that MNEs are characterized by a lower weight of short-term debts over total debts and by a lower length of their liabilities. The table also shows that MNEs resort less intensively to third-parties funds, and prefer instead other types of liabilities, like bonds. Finally, our indicators of the costs of financing suggest that the debt burden is lower for MNEs. These findings unambiguously apply to both the manufacturing and the services sector (table 15).

Table 14 – Structure and cost of liabilities (averages 2000-2005)

		MNE	National
S-T Debts/Total Debts	**Mean**	**92.0**	**89.0**
(%)	*Std. Dev.*	*17.2*	*16.1*
	# Obs.	*5726*	*59584*
	Mean	**141**	**190**
Average length of debts (Days)	*Std. Dev.*	*96*	*97*
	# Obs.	*3875*	*35679*
Banking debts/Total Debts	**Mean**	**10.6**	**17.6**
(%)	*Std. Dev.*	*18.2*	*22.6*
	# Obs.	*5775*	*61296*
Banking debts/Sales	**Mean**	**5.5**	**10.5**
(%)	*Std. Dev.*	*11.0*	*15.9*
	# Obs.	*5744*	*60718*
Costs of Debts / Total Debts	**Mean**	**2.3**	**2.7**
(%)	*Std. Dev.*	*4.0*	*9.0*
	# Obs.	*5770*	*61279*

Table 15 – Structure and cost of liabilities by sector (averages 2000-2005)

Sector		S-T Debts/Total Debts (%)	Average length of debts (Days)	Banking debts/Total Debts (%)	Banking debts/Sales (%)	Costs of Debts / Total Debts (%)
MANUFACTURING						
National	**Mean**	**88.3**	**186**	**20.0**	**11.8**	**2.8**
	Std. Dev.	*15.6*	*89*	*23.2*	*16.3*	*3.6*
	# Obs.	*41462*	*29716*	*42653*	*42491*	*42649*
MNE	**Mean**	**90.4**	**136**	**12.6**	**6.5**	**2.7**
	Std. Dev.	*18.2*	*89*	*19.4*	*11.8*	*4.6*
	# Obs.	*3809*	*3282*	*3838*	*3812*	*3834*
SERVICES						
National	**Mean**	**90.8**	**210**	**12.0**	**7.6**	**2.4**
	Std. Dev.	*17.2*	*129*	*20.0*	*14.7*	*15.4*
	# Obs.	*18122*	*5963*	*18643*	*18227*	*18630*
MNE	**Mean**	**95.1**	**167**	**6.7**	**3.4**	**1.6**
	Std. Dev.	*14.7*	*123*	*14.7*	*8.9*	*2.4*
	# Obs.	*1917*	*593*	*1937*	*1932*	*1936*

We finally turn to study whether the available financial assets make MNEs more likely than national firms to cope with the obligations arising from their liabilities. To this purpose, we will use four indicators: 1) the *current ratio*, obtained by dividing short-term assets (liquidity plus credits) by short-term liabilities; 2) the *ratio between short-term credits and short-term debts*; 3) the *liquidity index*, measured by the ratio between short-term assets (liquidity plus credits) and total liabilities; and 4) the *ratio between liquidity and sales*. Notice that indexes 2) and 3) are more conservative than 1), and thus provide a better indication of the financial stability of a firm.

Table 16 shows that MNEs are characterized by a more solid and equilibrated financial structure: MNEs appear in fact superior to national firms according to each and every indicator; this implies that MNEs show a higher potential to deal with their financial obligations using available funds and short-term credits. By and large, this finding applies to both manufacturing and services (table 17). It is however worth noticing that national firms do not exhibit serious pitfalls in their financial structure: although generally inferior to MNEs', the performance of national firms is not suggestive of any serious disequilibrium; rather, in specific cases – e.g. current ratio in the service sector - national firms even outperform MNEs.

Table 16 – Liquidity indicators (averages 2000-2005)

		MNE	National
Current Ratio	**Mean**	**1.60**	**1.52**
	Std. Dev.	*1.30*	*7.25*
	# Obs.	*4277*	*47136*
S-T Credits / S-T Debts	**Mean**	**1.27**	**0.89**
	Std. Dev.	*9.15*	*1.23*
	# Obs.	*5568*	*57666*
Liquidity index	**Mean**	**1.23**	**0.99**
	Std. Dev.	*0.93*	*0.73*
	# Obs.	*5775*	*61339*
Liquidity/Sales (%)	**Mean**	**6.51**	**6.72**
	Std. Dev.	*10.86*	*10.56*
	# Obs.	*5348*	*54446*

Table 17 – Liquidity indicators by sector (averages 2000-2005)

Sector		Current Ratio	S-T Credits / S-T Debts	Liquidity index	Liquidity/Sales (%)
MANUFACTURING					
	Mean	**1.51**	**0.87**	**0.98**	**6.78**
National	*Std. Dev.*	*5.39*	*0.95*	*0.72*	*10.38*
	# Obs.	*35641*	*40113*	*42712*	*38178*
	Mean	**1.64**	**1.34**	**1.18**	**5.42**
MNE	*Std. Dev.*	*1.21*	*11.20*	*0.93*	*9.14*
	# Obs.	*3267*	*3703*	*3837*	*3521*
SERVICES					
	Mean	**1.56**	**0.92**	**1.00**	**6.56**
National	*Std. Dev.*	*11.21*	*1.71*	*0.74*	*10.97*
	# Obs.	*11495*	*17553*	*18627*	*16268*
	Mean	**1.48**	**1.14**	**1.32**	**8.63**
MNE	*Std. Dev.*	*1.53*	*1.04*	*0.92*	*13.33*
	# Obs.	*1010*	*1865*	*1938*	*1827*

4. Propensity score estimation

In section 2 we discussed the major problems of unconditional comparisons between MNEs and national firms: differences in performance may not be entirely driven by an MNE-premium, but result instead from the effects of other concomitant factors, like differences in size and in industry distribution; even after accounting for such factors, the association between foreign ownership and economic performance may not be indicative of any causal relationship, but rather be evidence of cherry-picking behaviour by MNEs.

One possibility for dealing with both problems is using IV techniques as in Benfratello and Sembenelli (2006). That approach, however, may be unsatisfactory in our case, due to the very large set of economic performance indicators we will examine. Benfratello and Sembenelli (2006) focus in fact only on productivity (TFP), and this allows them to exploit structural functional forms in the analysis. When the focus is extended to other measures of performance, there is much less a priori theoretical ground for the derivation of estimable functional forms. Hence, the adoption of IV techniques would require making restrictive assumptions on the form of the estimating equations for a large number of economic indicators; as long as those assumptions are violated, estimation of the effects of foreign ownership on economic performance will be subject to bias.

An appealing alternative is to resort to the treatment effects literature and exploit propensity score estimation techniques to build up a counterfactual of national firms to be compared with MNEs. Propensity score estimation allows to compare the sample of treated units (MNEs) with the sample of untreated (national) firms without imposing restrictions on the estimating functional forms. Under the assumptions presented below, 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 participation. A positive difference in favour of MNEs will then reveal that foreign participation is associated with higher performance; the opposite case will instead provide evidence of cherry-picking, whereby MNEs participate already highly-performing national firms.

We will now briefly sketch the methodology; a more technical discussion can be found, among others, in Rosembaum (1984), Rosembaum and Rubin (1983, 1985), Imbens and

Angrist (1994), Heckman (1992, 1997) and Wooldridge (2002). Let us define with y a generic economic performance indicator, and let us call it *outcome* for simplicity. Let us also define with D_i an indicator variable taking on value 1 if the i-th firm is an MNE and 0 otherwise. Finally, let us call y_{i1} and y_{i0} the outcomes with and without treatment. The effect of treatment is then defined as:

$$E[y_{i1}| D_i=1]-E[y_{i0}| D_i=1]$$

Estimating this quantity entails two problems. First, either y_{i1} or y_{i0} is observed for each firm in the sample, because firms are either MNEs or purely national. Second, in empirical applications, treatment is usually not random: firms generally self-select into treatment according to their observed outcome (e.g., more productive firms become MNEs). Under this circumstance, sample averages of treated and non-treated firms yield biased estimates of the treatment effects. Hence, it is necessary to construct a counterfactual sample of non-treated units, which makes treatment random and provides an estimate for $yi_{0.}$ To this purpose, we will assume that a set of observable covariates exists that exclusively determines the selection of firms into treatment; therefore, conditional on this set of covariates, selection into treatment can be considered as random. Let us define with $\boldsymbol{x}$ the set of observables[7]. Rosembaum and Rubin (1983) show that if treatment is random within cells of $\boldsymbol{x}$, it is also random within cells of the *propensity score*, which is defined as follows:

$$Pr(D_i=1| \boldsymbol{x}_i)=F(h(\boldsymbol{x}_i))$$

where $F(.)$ is the normal c.d.f. and $h(.)$ is a function of the observable covariates[8].

With the estimated propensity score at hand, we then select the counterfactual sample of firms based on the *nearest-neighbor* method: for each treated unit i, the algorithm identifies a control unit j by solving the following minimization problem[9]:

$$min_j ||p_i-p_i||$$

The matched sample so identified contains 1086 untreated firms; this means that only 3 MNEs out of 1089 did not get matched, because their estimated propensity score fell outside the common support.

---

[7] In the following analysis, $\boldsymbol{x}$ will contain log sales (an indicator of size) and a full set of 3-digit industry dummy variables.

[8] We will use a simple linear function of the covariates.

[9] We used the *Stata* routine *psmatch2* (Leuven and Sianesi, 2003). Estimation of the counterfactual sample has been performed without replacement, under the common support restriction.

The matched sample has to satisfy two properties. First, observable variables in $\boldsymbol{x}$ have to be *balanced*, given the propensity score. This implies that observations with the same propensity score share the same distribution of observables, independently of their treatment status. This property can be checked by means of several tests. As standard in the treatment evaluation literature, we looked at whether the difference in average log sales between matched units was insignificantly different from zero by means of a T-test: we could not reject the null hypothesis of equal means, as the T-statistics was equal to 0.32. The median biases before and after matching (Rosembaum and Rubin, 1985) were 87.9 and 1.6% respectively, implying a reduction of 98.2%. The Psuedo-R^2 was virtually equal to zero after matching, against a value of 0.11 before matching. Finally, table 18 reports five indicators of size for the treated and untreated groups, showing that the original differential in favour of MNEs has been almost completely wiped out by our matching procedure; moreover, the dynamic of the size indicators is similar for the two groups of firms, as shown in figure 2, which reports the trends in total sales and employment by firm type and sector[10]. Based on these results, we can therefore be confident that our matched sample satisfies the balance property. The second property that the matched sample has to satisfy is that the assignment of treated units into treatment be *unconfounded*, conditional on the observables. We will maintain this assumption throughout, as it is not possible to formally test for it.

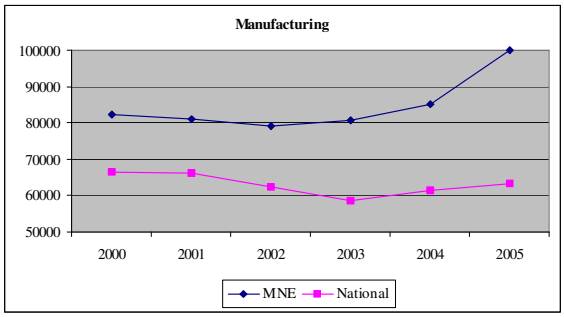
Table 18 – Size indicators, counterfactual sample (averages 2000-2005)

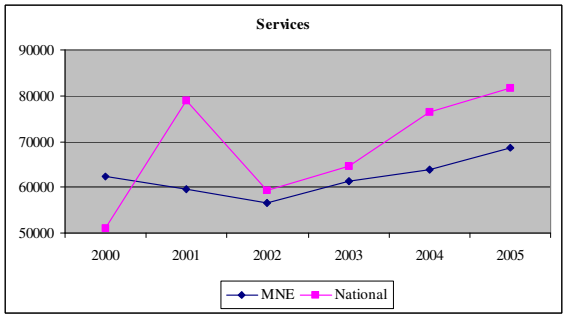
		MNE	National
Sales	**Mean**	**77111**	**65133**
(€, '000)	*Std. Dev.*	*286953*	*250503*
	# Obs.	*5722*	*5524*
	Mean	**263**	**222**
Number of employees	*Std. Dev.*	*2414*	*781*
	# Obs.	*5361*	*5025*
Value Added	**Mean**	**17905**	**15924**
(€, '000)	*Std. Dev.*	*57714*	*106236*
	# Obs.	*4923*	*4994*
Value of production	**Mean**	**80055**	**67301**
(€, '000)	*Std. Dev.*	*300547*	*247171*
	# Obs.	*5762*	*5581*
Production costs	**Mean**	**77228**	**64223**
(€, '000)	*Std. Dev.*	*294758*	*239671*
	# Obs.	*5761*	*5583*

[10] We report in the Appendix the distribution of treated and untreated firms by 2-digit industry: also in this case, there is robust evidence in favour of the balance property.

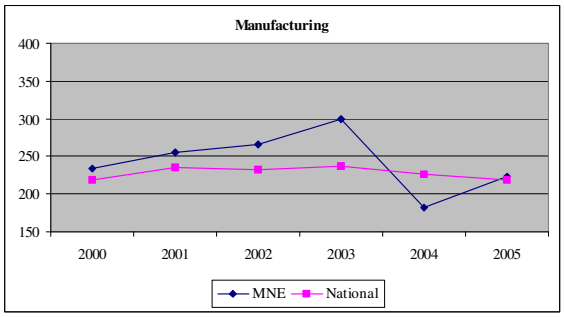
Figure 2 – Trends in sales and number of employees by sector and firm type, counterfactual sample

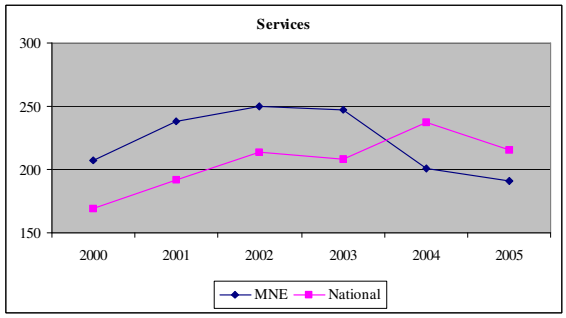
Sales





Number of Employees





With the matched sample at hand, we will now proceed to evaluate the effects of foreign participation along the same dimensions of economic performance discussed in section 3. The persistence of a positive differential in favour of MNEs will then be taken as evidence that foreign participation is associated to greater economic performance; if instead the differential disappears, we will take that as evidence in favour of *cherry-picking*.

5. Results

In this section, we discuss results obtained from the comparison of treated and untreated firms. Our main findings can be summarized as follows. In manufacturing, there is robust evidence in favour of an MNE-premium: increasing presence of foreign multinationals is associated with better performance of national firms, in terms of higher knowledge-intensity of production, higher productivity, lower vertical integration and more sound financial structure. In the services sector, instead, we find more convincing evidence of cherry-picking, whereby MNEs participate in the already best performing national firms; this latter result applies to all of the performance indicators but those

related to the financial structure: in this case, MNEs continue to outperform national firms.

In the second part of this section, we will distinguish the set of untreated firms according to whether they are part of an Italian MNEs or purely domestic firms. Criscuolo and Martin (2003a) have in fact shown that a significant fraction of the MNE-premium may result not from foreign ownership per sé, but rather form being part of a multinational firm. Hence, we expect both foreign and Italian MNEs to outperform purely domestic firms. Our expectation is broadly confirmed: foreign and Italian MNEs exhibit better performance than national firms; this evidence is particularly overwhelming in manufacturing. Interestingly, national firms perform better than both types of MNEs in terms of returns to investments.

5.1 MNEs and national firms

5.1.1 Capital and knowledge intensity

Tables 19 and 20 report average indicators of capital ad knowledge-intensity for the two groups of firms. Results are interesting in that they show a marked reduction in the difference between MNEs and national firms, relative to the unconditional comparison carried out in section 3.1.1. Indeed, national firms show higher values of all the indicators. This might suggest that foreign MNEs choose to participate in those firms that are already characterized by more capital and knowledge-intensity of production.

Table 19 – Total investment and investment in physical capital, counterfactual sample (averages 2000-2005)

		MNE	National
Total investment, per-capita (€, '000)	**Mean**	**12.8**	**13.6**
	Std. Dev.	*36.6*	*31.7*
	# Obs.	*5259*	*4865*
Total investment / Sales (%)	**Mean**	**4.5**	**4.7**
	Std. Dev.	*7.0*	*7.4*
	# Obs.	*5604*	*5331*
Investment in physical capital, per-capita (€, '000)	**Mean**	**7.0**	**8.5**
	Std. Dev.	*25.5*	*16.7*
	# Obs.	*5259*	*4865*
Investment in physical capital / Sales (%)	**Mean**	**2.6**	**3.2**
	Std. Dev.	*4.5*	*6.7*
	# Obs.	*5605*	*5333*

Table 20 - Investment in immaterial assets, counterfactual sample (averages 2000-2005)

		MNE	National
Investment in immat. assests per capita (€, '000)	**Media**	**3.7**	**4.1**
	Dev. Std.	*16.6*	*34.4*
	Osservazioni	*5260*	*4867*
Investment in immat. assets / Sales (%)	**Media**	**1.3**	**1.3**
	Dev. Std.	*2.7*	*4.4*
	Osservazioni	*5604*	*5333*
R&D Expenditure per capita (€, '000)	**Media**	**0.5**	**1.0**
	Dev. Std.	*6.2*	*12.1*
	Osservazioni	*5360*	*5018*
R&D Expenditure / Sales (%)	**Media**	**0.2**	**0.3**
	Dev. Std.	*1.3*	*2.5*
	Osservazioni	*5721*	*5517*

Before drawing such a conclusion, however, it is necessary to deepen the analysis by looking at manufacturing and services sector separately. The average result reported above may in fact hide significant differences between the two sectors. Table 21 shows that this is indeed the case. In particular, we continue to find striking evidence of cherry-picking in the services, but not in manufacturing. Rather, in the latter case, MNEs show a significantly higher knowledge-intensity of production, which suggests that foreign participation brings about the adoption of more knowledge-intensive practices. Unreported estimates at the 2-digit level show that this result is especially evident in chemicals, rubber and plastic, manufacturing of precision instruments, apparel and leather. Moreover, MNEs show higher knowledge-intensity of production also in some of the services industries, like construction, telecommunications and road transportation.

5.1.2 Productivity, wages and vertical integration

Existing studies have pointed out that part of the higher productivity of MNEs may be explained by the fact that they are larger than national firms and tend to locate in high-tech industries. Controlling for differences in size and industry location through propensity score estimation should therefore result in a significant reduction in the productivity premium. Table 22 confirms this expectation, by showing that, on average, MNEs are indeed characterized by *lower* value added per worker than national firms.

MNEs now also show a *higher* degree of vertical integration, although they continue to pay higher average wages.

Table 21 – Investment in physical capital and immaterial assets by sector, counterfactual sample (averages 2000-2005)

Sector		Investment in physical capital, per-capita (€, '000)	Investment in physical capital / Sales (%)	Investment in immat. assets, per-capita (€, '000)	Investment in immat. Assets / Sales (%)
MANUFACTURING					
	Mean	**9.0**	**3.5**	**2.8**	**0.9**
National	*Std. Dev.*	*11.02*	*3.72*	*9.41*	*1.94*
	# Obs.	*3347*	*3589*	*3348*	*3589*
	Mean	**7.5**	**2.9**	**3.6**	**1.2**
MNE	*Std. Dev.*	*15.98*	*4.53*	*17.50*	*2.8*
	# Obs.	*3438*	*3737*	*3540*	*3737*
SERVICES					
	Mean	**7.5**	**2.6**	**7.0**	**2.0**
National	*Std. Dev.*	*24.91*	*10.36*	*59.97*	*7.19*
	# Obs.	*1518*	*1744*	*1519*	*1744*
	Mean	**6.1**	**1.9**	**3.7**	**1.4**
MNE	*Std. Dev.*	*38.15*	*4.25*	*14.47*	*2.61*
	# Obs.	*1721*	*1868*	*1720*	*1867*

Table 22 – Vertical integration productivity and wages, counterfactual sample (averages 2000-2005)

		MNE	National
Value Added/Sales	**Mean**	**28.5**	**28.3**
(%)	*Std. Dev.*	*16.2*	*16.0*
	# Obs.	*4758*	*4860*
Per capita value added	**Mean**	**73.6**	**75.1**
(€, '000)	*Std. Dev.*	*87.5*	*98.3*
	# Obs.	*4593*	*4523*
Per capita labor costs	**Mean**	**40.4**	**35.8**
(€, '000)	*Std. Dev.*	*21.8*	*23.1*
	# Obs.	*5265*	*4955*

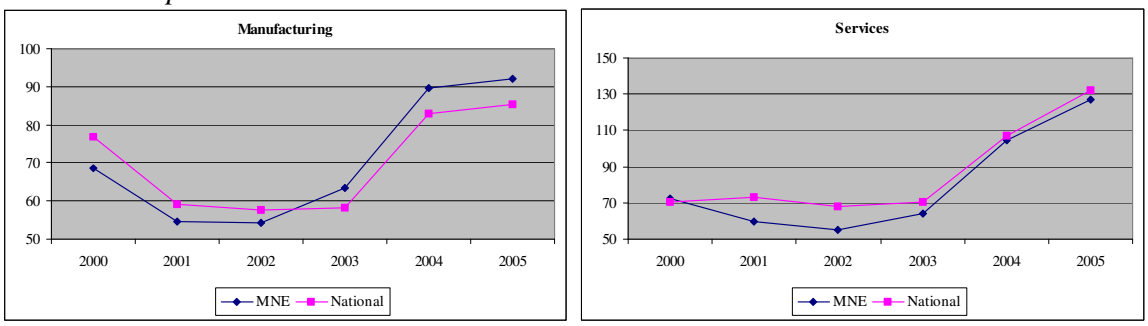
At a first glance, these results might be taken as providing evidence in favour of cherry-picking. As before, however, there may be differences between manufacturing and services that drive these findings. For instance, since MNEs make use of more knowledge-intensive techniques in manufacturing, they may end up showing higher productivity than national firms in that sector; this pattern would be hid in previous results, because they are based on averages over the whole sample.

Table 23 – Vertical integration, productivity and wages by sector, counterfactual sample (averages 2000- 2005)

Settore		Per capita value added (€, '000)	Per capita labor costs (€, '000)	Value Added/Sales (%)
MANUFACTURING				
	Mean	**69.9**	**34.4**	**27.4**
National	*Std. Dev.*	*71.97*	*12.84*	*17.00*
	# Obs.	*3388*	*3415*	*3660*
	Mean	**70.2**	**39.5**	**27.0**
MNE	*Std. Dev.*	*73.42*	*20.50*	*24.00*
	# Obs.	*3479*	*3558*	*3685*
SERVICES				
	Mean	**90.5**	**39.1**	**30.6**
National	*Std. Dev.*	*150.72*	*36.50*	*52.60*
	# Obs.	*1135*	*1540*	*1334*
	Mean	**84.4**	**42.2**	**33.2**
MNE	*Std. Dev.*	*120.86*	*24.27*	*12.40*
	# Obs.	*1114*	*1707*	*1238*

Figure 3 - Trends in per capita value added and average wage by sector and firm type, counterfactual sample

Value added per worker



Average wage

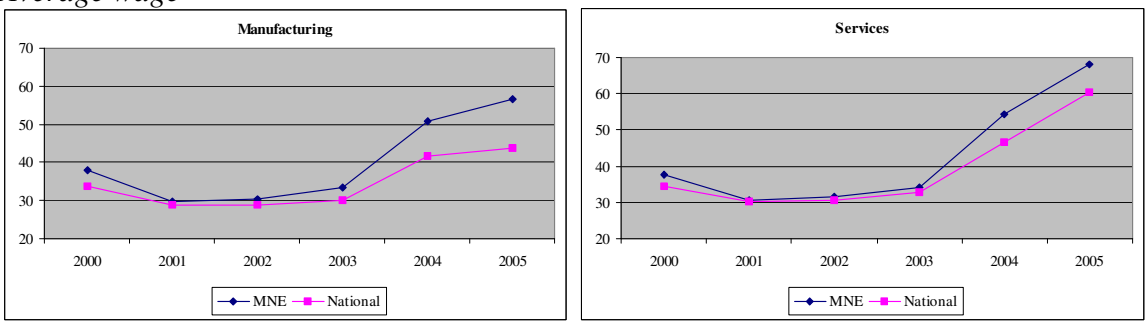


Table 23 shows indeed that value added per worker is *higher* in MNEs in manufacturing, suggesting that foreign participation brings about improvements in average productivity; by contrast, we still find evidence of cherry-picking in the services sector, where average productivity is lower in MNEs. We also find that MNEs

are characterized by a *lower* degree of vertical integration in manufacturing, which suggests that foreign participation may be associated with a reorganization of production in favour of more outsourcing-oriented techniques; also in this case, results are different in the services sector, where MNEs show a higher degree of vertical integration. Finally, in both sectors, MNEs appear characterized by higher average wages relative to national firms.

The dynamics of value added per worker and average wages are remarkably similar across the two types of firms in the two sectors. However, especially in manufacturing, the growth rates of the two indicators seem to have increased faster in foreign firms, suggesting that the MNE-advantage may have been deepening in recent years (figure 3).

5.1.3 Returns to investments

Unconditional comparisons reported in section 3.1.3 have shown that MNEs are characterized by lower returns to investments compared to national firms. Possible explanations are the use of transfer pricing, or the greater exposure to competition by other large firms, that forces MNEs to contain their mark-ups relative to national firms.

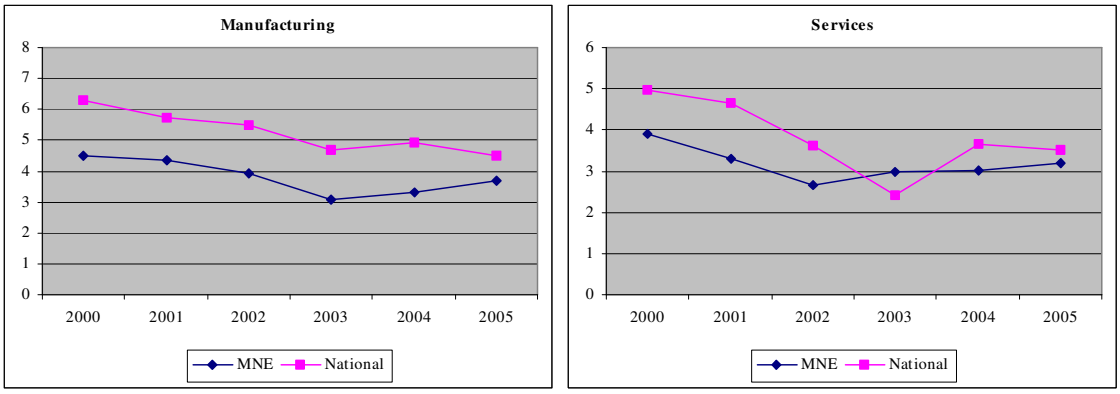
Results based on propensity score estimation corroborate these findings: MNEs exhibit lower returns to investments (table 24). Nevertheless, the dynamics of ROS, ROI and ROE show that the gap between the two types of firms has been progressively narrowing, at least in manufacturing (figure 4). Moreover, unreported results at the 2-digit industry level show that in some specific industries MNEs exhibit *higher* returns to investments relative to national firms: this is particularly true for apparel and transportation equipment in manufacturing and for R&D in the services sector.

Table 24 – Returns to investments, counterfactual sample (averages 2000-2005)

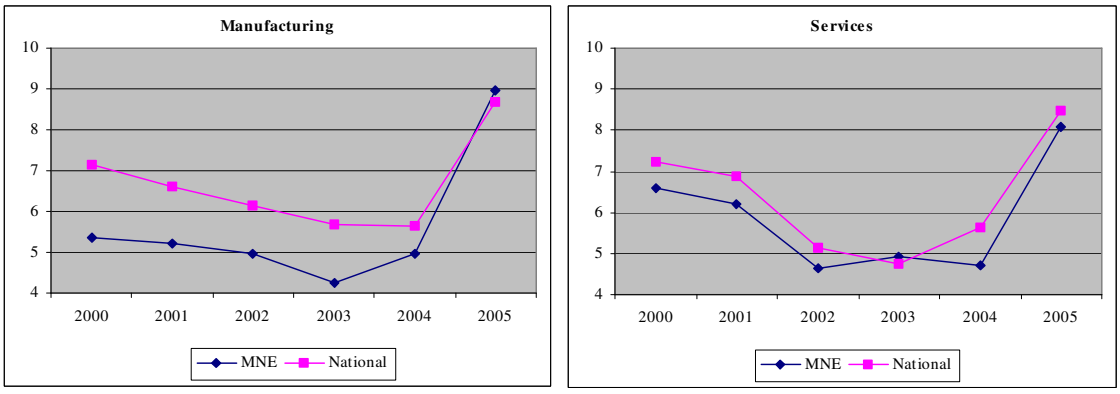
		MNE	National
Ebit per capita (€, '000)	**Mean**	**17.3**	**23.8**
	Std. Dev.	*91.2*	*99.8*
	# Obs.	*4495*	*4368*
Ebitda margin (%)	**Mean**	**8.4**	**10.2**
	Std. Dev.	*18.3*	*21.8*
	# Obs.	*4641*	*4649*
Pre-tax profit / Sales (%)	**Mean**	**3.8**	**4.0**
	Std. Dev.	*37.3*	*32.6*
	# Obs.	*5716*	*5513*
After-tax profit / Sales (%)	**Mean**	**2.4**	**5.3**
	Std. Dev.	*12.5*	*16.1*
	# Obs.	*5222*	*4387*
ROS (%)	**Mean**	**3.6**	**4.8**
	Std. Dev.	*9.4*	*7.3*
	# Obs.	*5637*	*5443*
ROI (%)	**Mean**	**5.5**	**6.5**
	Std. Dev.	*9.8*	*7.6*
	# Obs.	*5165*	*5283*
ROE (%)	**Mean**	**9.4**	**9.0**
	Std. Dev.	*34.5*	*25.5*
	# Obs.	*5257*	*5415*

Figure 4 – Trends in ROS, ROI, ROE by sector and firm type, counterfactual sample

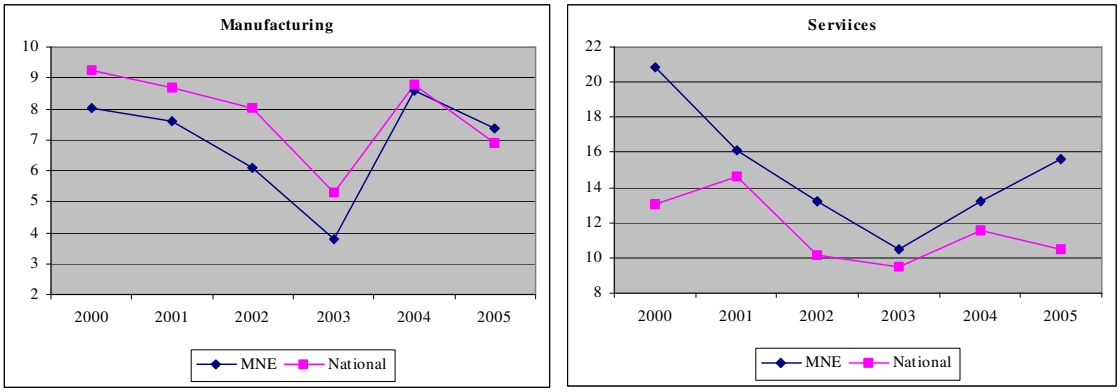
ROS



ROI



ROE



5.1.4 Financial structure

We saw in section 3.1.4 that MNEs are characterized by a more solid financial structure compared to national firms: MNEs exhibit a lower weight of debt relative to own funds, a higher use of short-term debts and a larger availability of liquidity and short-term financial assets. We now ask whether such differences imply a true MNE-advantage or depend instead on the fact that MNEs tend to invest in already financially sound national firms.

Let us start from the weight of debt relative to own funds. As table 25 shows, MNEs exhibit a lower use of third parties funds even when compared to the matched national firms. This result holds true in both sectors, although it is more striking in some services industries like construction and road transportation[11].

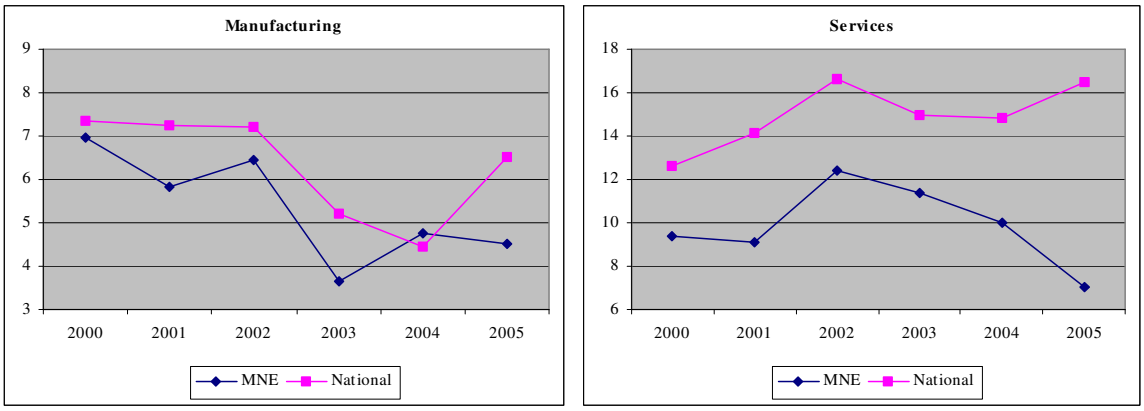
Table 25 – Structure of financing, counterfactual sample (averages 2000-2005)

		MNE	Domestiche
Total debts / total capital (%)	**Mean**	**0.6**	**0.7**
	Std. Dev.	*0.2*	*0.2*
	# Obs.	*5705*	*5497*
Debt-equity ratio	**Mean**	**6.9**	**9.2**
	Std. Dev.	*36.9*	*44.1*
	# Obs.	*5750*	*5566*
Profits / total capital (%)	**Mean**	**25.8**	**26.1**
	Std. Dev.	*21.0*	*20.5*
	# Obs.	*5776*	*5603*

Looking at the dynamics of the debt-equity ratio, we find a significant reduction in the indicator in manufacturing for both types of firms. In the services, the difference between the two types of firms has instead widened since 2003, MNEs progressively becoming even less dependent on debt than national firms (figure 5).

[11] Unreported results available from the authors upon request.

Figure 5 – Trends in debt-equity ratio by sector and firm type, counterfactual sample



Turning to composition and costs of debt, the comparison between MNEs and national firms on the matched sample shows once again that foreign participation is associated with improvements in the financial structure of domestic enterprises. MNEs continue in fact to show higher levels of short-term debts, lower dependency on bank loans and lower costs of debts (table 26). Unreported results show however significant heterogeneity at the 2-digit level: MNEs significantly outperform national firms in such industries as apparel, rubber and plastic, chemicals, communication equipments, constructions and road transportation.

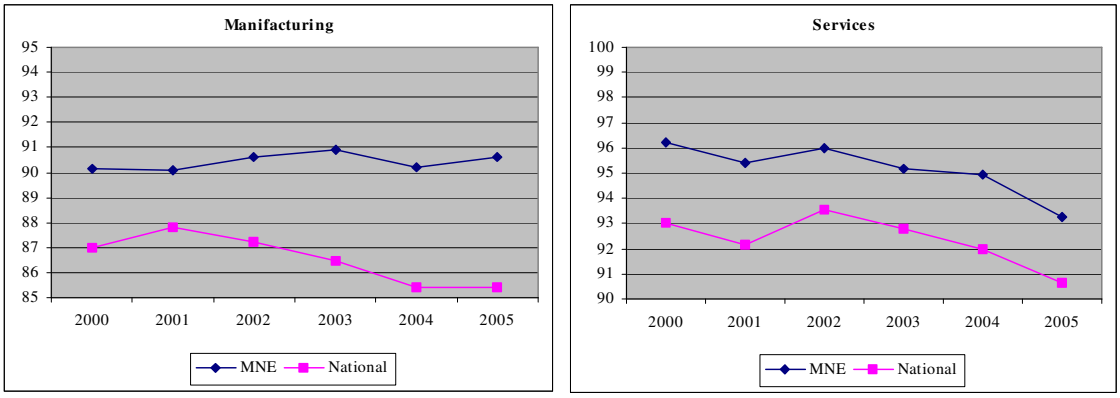
Between 2000 and 2005, MNEs have become less dependent on debts relative to national firms in manufacturing; this is especially true for banking debt. In the services sector, both types of firms have shown similar trends in all the indicators of composition and cost of debts, without any significant tendency to diverge (figure 6).

Table 26 – Structure and cost of debts (averages 2000-2005)

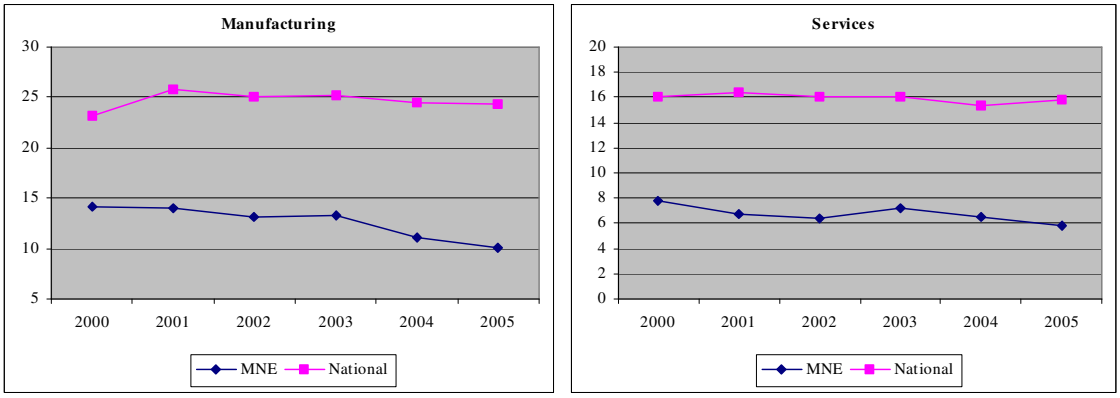
		MNE	National
S-T Debt/Total Debt (%)	**Mean**	**92.0**	**88.4**
	Std. Dev.	*17.2*	*16.0*
	# Obs.	*5726*	*5518*
Average length of debts	**Mean**	**141**	**174**
	Std. Dev.	*96*	*90*
	# Obs.	*3875*	*3738*
Banking debt/Total Debt (%)	**Mean**	**10.6**	**21.7**
	Std. Dev.	*18.2*	*23.2*
	# Obs.	*5775*	*5592*
Banking debt/Sales (%)	**Mean**	**5.5**	**11.5**
	Std. Dev.	*11.0*	*15.7*
	# Obs.	*5744*	*5536*
Costs of Debt / Total Debt (%)	**Mean**	**2.3**	**3.1**
	Std. Dev.	*4.0*	*26.5*
	# Obs.	*5770*	*5586*

Figure 6 – Trends in indicators of composition and cost of debts, by sector and firm type, counterfactual sample

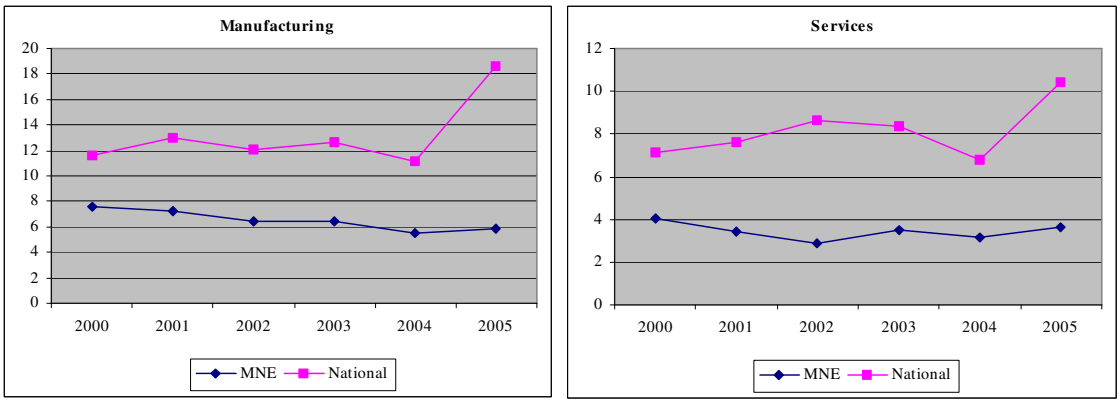
S-T Debt / Total Debt



Banking Debt / Total Debt



Banking Debt / Sales



Finally, MNEs also exhibit higher values of all the indicators of liquidity and financial stability (table 27)[12]. This is generally true in both manufacturing and services, although, once again, some heterogeneity does exist across industries: in particular, MNEs significantly outperform national firms in apparel, chemicals, electrical

[12] The only exception is the ratio between liquidity and total sales, which is slightly higher for national firms.

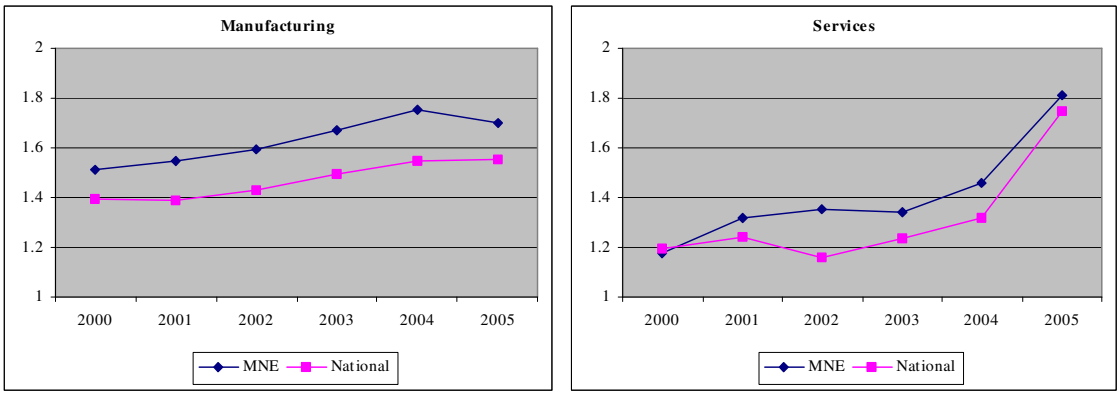
equipments, energy and air transportation. There is no clear evidence of divergence between the two types of firms in the time behaviour of these indicators: in particular, the current ratio and the liquidity index have increased in both sectors and for every type of firm (figure 7).

Table 27 – Liquidity indicators, counterfactual sample (averages 2000-2005)

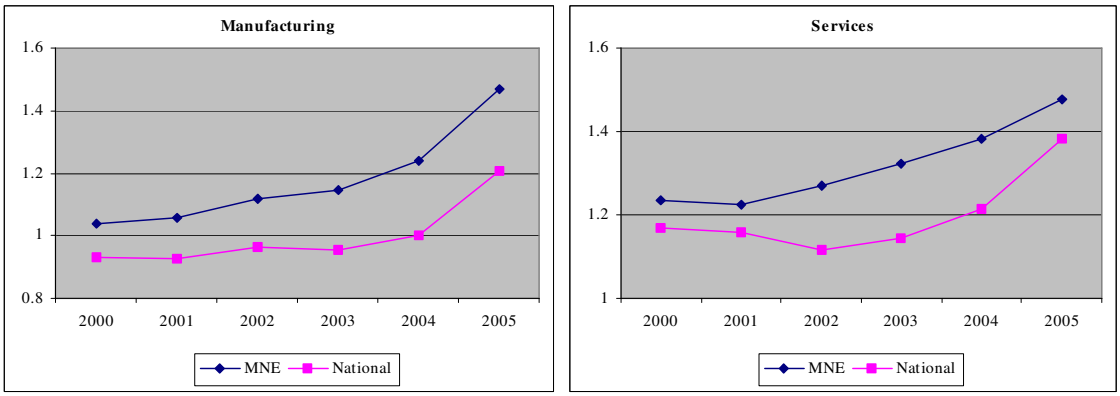
		MNE	National
Current Ratio	**Mean**	**1.6**	**1.5**
	Std. Dev.	*1.3*	*1.6*
	# Obs.	*4277*	*4363*
S-T Credits / S-T Debts	**Mean**	**1.3**	**0.9**
	Std. Dev.	*9.2*	*0.7*
	# Obs.	*5568*	*5338*
Liquidity index	**Mean**	**1.2**	**1.1**
	Std. Dev.	*0.9*	*0.8*
	# Obs.	*5775*	*5601*
Liquidity/Sales (%)	**Mean**	**6.5**	**6.8**
	Std. Dev.	*10.9*	*11.1*
	# Obs.	*5348*	*5153*

Figure 7 – Trends in indicators of liquidity and financial stability, by sector and firm type, counterfactual sample

Current Ratio



Liquidity Index



Overall, these results confirm our previous findings for the manufacturing sector, by showing that foreign participation is associated with significant improvements in the financial structure of national firms: in particular, foreign participation reduces the weight of debts as a source of financing, lowers the importance of bank loans and the costs of debt, and raises the ability of firms to cope with their obligations by exploiting currently available funds. Unlike previous performance indicators, we showed that the same conclusions apply also to the services sector. This latter finding is particularly interesting, because it partially mitigates the tendency for MNEs to cherry-pick national firms.

5.2 Foreign MNEs, Italian MNEs and purely national firms

Up to now, we have compared the performance of foreign MNEs with that of domestically-owned Italian firms. In doing so, we have neglected an important issue: some of the national firms in our counterfactual sample are themselves MNEs, in the sense that they participate in other firms located abroad. Existing literature on firms heterogeneity has shown that firms that choose to internationalize are different from those that keep their activities confined to the domestic market: in particular, these firms are larger and more productive (Melitz, 2003; Helpman *et al.*, 2004; Helpman, 2006; Melitz and Ottaviano, 2006); moreover, Criscuolo and Martin (2003a) have shown that the MNE-premium may not be related to foreign ownership, but depend instead on the participation of the firm in a multinational network. In this section, we will therefore distinguish Italian MNEs from purely domestic firms, and repeat the previous analysis in search for significant differences between the two groups of firms relative to foreign MNEs. Clearly, a similar exercise comes with a cost: in particular, the number of Italian MNEs in the matched sample is low, amounting to 215 in manufacturing and only 52 in services. For this reason, the following results should be interpreted with care; nonetheless, we believe that they add up significant insights to the previous discussion.

In line with the existing literature, Italian MNEs are larger than purely domestic firms. In table 28 we show that, although less numerous, Italian MNEs account for larger shares of total sales and employment than domestic firms, with the only exception of the services sector; notice, however, that also in this case is the share of MNEs higher in

total sales and employment than in the total number of firms, confirming that Italian MNEs are larger than purely domestic enterprises.

Table 28 – Distribution of firms, sales and employment by sector and type of firm, counterfactual sample (averages, 2005)

NUMBER	Whole Sample	Manufacturing	Services
TOTAL	**100**	**100**	**100**
Foreign MNE	50.1	50.5	49.3
National firms	49.9	49.5	50.7
of which:			
Domestic	37.7	34.3	43.9
MNE	12.3	15.2	6.8

SALES	Whole Sample	Manufacturing	Services
TOTAL	**100**	**100**	**100**
Foreign MNE	54.9	60.1	44.2
National firms	45.1	39.9	55.8
of which:			
Domestic	18.6	10.9	34.3
MNE	26.5	29	21.5

EMPLOYMENT	Whole Sample	Manufacturing	Services
TOTAL	**100**	**100**	**100**
Foreign MNE	50	50.8	48
National firms	50	49.2	52
of which:			
Domestic	18.5	11.9	33.6
MNE	31.5	37.3	18.4

Table 29 provides further evidence in this direction, by showing that Italian MNEs are larger than national firms in terms of all of the five size indicators used in previous sections, and in both sectors; the table also shows that Italian MNEs are larger than foreign MNEs, again in both sectors. The dynamics of average sales and number of employees shows that the gap between MNEs (foreign and Italian) and domestic firms has widened in manufacturing; in services, domestic firms have instead grown more rapidly than both types of MNEs (figure 8).

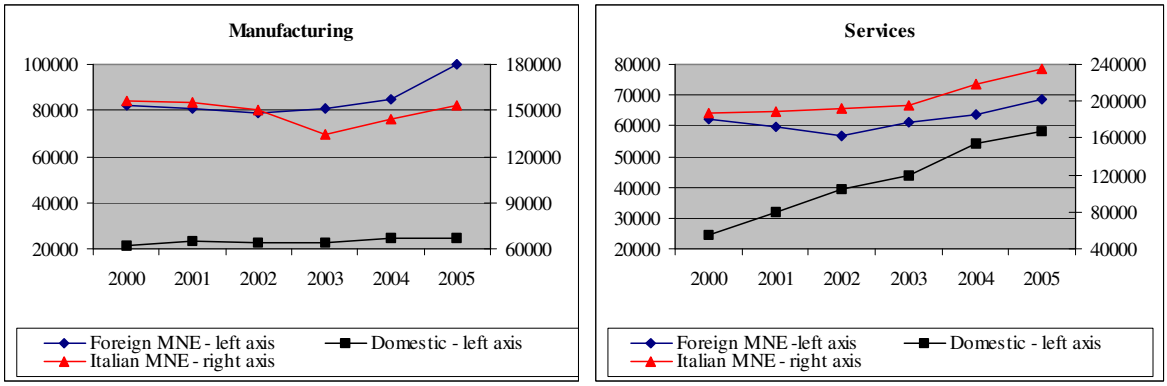
We turn now to compare the three groups of firms along the same performance indicators analyzed before. We will follow the same order as in previous sections.

Table 29 – Size indicators by sector and type of firm, counterfactual sample (averages, 2000-2005)

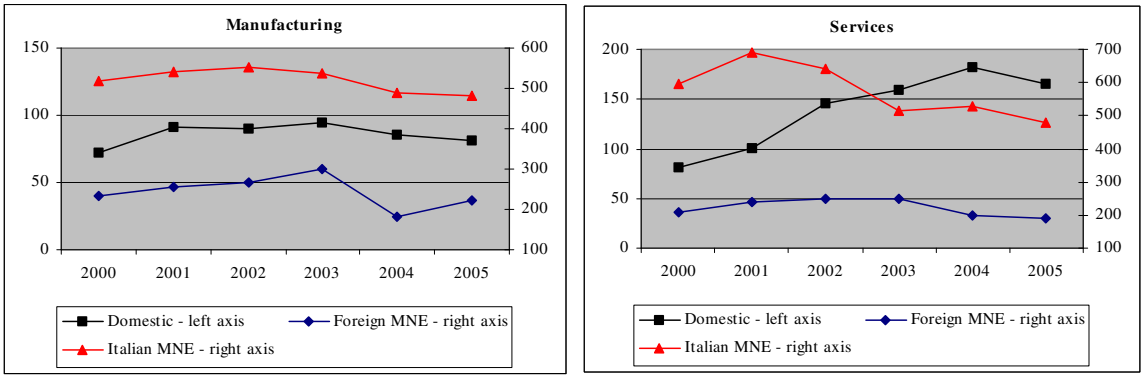
		Sales (€, '000)	Number of employess	Value Added (€, '000)	Value of Production (€, '000)	Costs of Production (€, '000)
WHOLE SAMPLE						
	Mean	**77111**	**263**	**17905**	**80055**	**77228**
Foreign MNE	*Std. Dev.*	*286953*	*2414*	*57714*	*300547*	*294758*
	# Obs.	*5722*	*5361*	*4923*	*5762*	*5761*
	Mean	**65133**	**222**	**15924**	**67301**	**64223**
National firms	*Std. Dev.*	*250503*	*781*	*106236*	*247171*	*239671*
	# Obs.	*5524*	*5025*	*4994*	*5581*	*5583*
of which:	**Mean**					
Domestic	*Std. Dev.*	**31266**	**106**	**8554**	**32087**	**30463**
	# Obs.	*93774*	*346*	*52379*	*99104*	*88446*
	Mean	*4102*	*3654*	*3602*	*4152*	*4155*
	Std. Dev.	**162827**	**529**	**34996**	**169617**	**162452**
MNE	*# Obs.*	*453494*	*1336*	*181395*	*442827*	*434684*
	Mean	*1422*	*1371*	*1392*	*1429*	*1428*
MANUFACTURING						
	Mean	**84682**	**283**	**18295**	**86797**	**83272**
Foreign MNE	*Std. Dev.*	*294108*	*2887*	*53682*	*300661*	*294924*
	# Obs.	*3807*	*3599*	*3685*	*3831*	*3832*
	Mean	**62830**	**228**	**13471**	**64484**	**61997**
National firms	*Std. Dev.*	*248937*	*835*	*52531*	*255964*	*252833*
	# Obs.	*3696*	*3443*	*3660*	*3728*	*3727*
of which:	**Mean**					
Domestic	*Std. Dev.*	**23367**	**86**	**5140**	**23538**	**22582**
	# Obs.	*56107*	*157*	*10081*	*56670*	*56088*
	Mean	*2530*	*2312*	*2495*	*2558*	*2558*
	Std. Dev.	**148459**	**519**	**31313**	**154006**	**148245**
MNE	*# Obs.*	*423076*	*1396*	*89383*	*436083*	*431496*
	Mean	*1166*	*1131*	*1165*	*1170*	*1169*
SERVICES						
	Mean	**62059**	**224**	**16742**	**66681**	**65220**
Foreign MNE	*Std. Dev.*	*271620*	*843*	*68332*	*299950*	*294136*
	# Obs.	*1915*	*1762*	*1238*	*1931*	*1929*
	Mean	**69788**	**207**	**22656**	**72970**	**68692**
National firms	*Std. Dev.*	*253643*	*647*	*186111*	*228419*	*210767*
	# Obs.	*1828*	*1582*	*1334*	*1853*	*1856*
of which:	**Mean**					
Domestic	*Std. Dev.*	**43979**	**141**	**16250**	**45808**	**43087**
	# Obs.	*132761*	*532*	*92833*	*141888*	*122726*
	Mean	*1572*	*1342*	*1107*	*1594*	*1597*
	Std. Dev.	**228271**	**575**	**53896**	**240135**	**226573**
MNE	*# Obs.*	*568358*	*1010*	*401177*	*466492*	*444007*
	Mean	*256*	*240*	*227*	*259*	*259*

Figure 8 – Trends in sales and number of employees by sector and firm type

Sales



Number of employees



5.1 Capital and knowledge intensity

Table 30 shows our indicators of capital and knowledge-intensity of production. Results confirm our previous findings: on average, foreign MNEs are less knowledge and capital-intensive than Italian firms, both domestic and MNEs. This result is extremely surprising, especially because now foreign MNEs appear less knowledge-intensive than even purely domestic firms.

As before, however, we may expect such a result to hide significant differences at the sector level. Indeed, after repeating the analysis separately for manufacturing and services, we find more consistent evidence with existing literature, at least in manufacturing: foreign MNEs are characterized by more knowledge-intensive production techniques than purely domestic firms; even more striking, foreign MNEs outperform also other Italian MNEs. The picture is significantly different in the services sector, where foreign MNEs are less knowledge-intensive than both types of Italian firms. This corroborates the evidence of cherry-picking we found in the previous section.

Turning to capital-intensity, we find that foreign MNEs are less capital-intensive than both types of Italian firms in manufacturing. These results show that foreign MNEs tend to participate in already capital-intensive national manufacturing firm. This is the only evidence of cherry-picking we find for the manufacturing sector. In the services sector, results are less clear-cut, as different indicators yield different rankings of firms.

Table 30 – Capital and knowledge intensity of production by sector and type of firm, counterfactual sample (averages, 2000-2005)

		Per capita Inv. (€, '000)	Inv./ Sales (%)	Phys. Inv per capita (€, '000)	Phys. Inv./ Sales (%)	Immat. Inv. per capita (€, '000)	Immat. Inv ./ Sales (%)
WHOLE SAMPLE							
	Mean	**12.8**	**4.5**	**7.0**	**2.6**	**3.7**	**1.3**
Foreign MNE	*Std. Dev.*	*36.6*	*7.0*	*25.5*	*4.5*	*16.6*	*2.7*
	# Obs.	*5259*	*5604*	*5259*	*5605*	*5260*	*5604*
	Mean	**13.6**	**4.7**	**8.5**	**3.2**	**4.1**	**1.3**
National firms	*Std. Dev.*	*31.7*	*7.4*	*16.7*	*6.7*	*34.4*	*4.4*
	# Obs.	*4865*	*5331*	*4865*	*5333*	*4867*	*5333*
of which:							
Domestic	**Mean**	**13.6**	**4.4**	**8.3**	**3.0**	**4.3**	**1.2**
	Std. Dev.	*36.1*	*8.0*	*18.7*	*7.5*	*40.1*	*4.8*
	# Obs.	*3508*	*3925*	*3508*	*3926*	*3509*	*3926*
	Mean	**13.6**	**5.4**	**9.1**	**3.6**	**3.5**	**1.4**
MNE	*Std. Dev.*	*15.4*	*5.2*	*9.4*	*3.4*	*10.3*	*3.2*
	# Obs.	*1357*	*1406*	*1357*	*1407*	*1358*	*1407*
MANUFACTURING							
	Mean	**12.8**	**4.7**	**7.5**	**2.9**	**3.6**	**1.2**
Foreign MNE	*Std. Dev.*	*27.9*	*6.2*	*16.0*	*4.5*	*17.5*	*2.8*
	# Obs.	*3538*	*3736*	*3538*	*3737*	*3540*	*3737*
	Mean	**12.6**	**4.7**	**9.0**	**3.5**	**2.8**	**0.9**
National firms	*Std. Dev.*	*16.1*	*5.2*	*11.0*	*3.7*	*9.4*	*1.9*
	# Obs.	*3347*	*3588*	*3347*	*3589*	*3348*	*3589*
of which:							
Domestic	**Mean**	**11.9**	**4.4**	**8.5**	**3.2**	**2.6**	**0.8**
	Std. Dev.	*16.9*	*5.5*	*11.6*	*3.8*	*10.2*	*2.0*
	# Obs.	*2227*	*2434*	*2227*	*2434*	*2227*	*2434*
	Mean	**13.8**	**5.4**	**9.9**	**4.0**	**3.0**	**1.0**
MNE	*Std. Dev.*	*14.3*	*4.6*	*9.8*	*3.4*	*7.7*	*1.7*
	# Obs.	*1120*	*1154*	*1120*	*1155*	*1121*	*1155*
SERVICES							
	Mean	**12.8**	**4.1**	**6.1**	**1.9**	**3.7**	**1.4**
Foreign MNE	*Std. Dev.*	*49.9*	*8.3*	*38.2*	*4.3*	*14.5*	*2.6*
	# Obs.	*1721*	*1868*	*1721*	*1868*	*1720*	*1867*
	Mean	**16.0**	**4.7**	**7.5**	**2.6**	**7.0**	**2.0**
National firms	*Std. Dev.*	*51.4*	*10.6*	*24.9*	*10.4*	*60.0*	*7.2*
	# Obs.	*1518*	*1743*	*1518*	*1744*	*1519*	*1744*
of which:							
Domestic	**Mean**	**16.6**	**4.6**	**8.0**	**2.6**	**7.2**	**1.9**
	Std. Dev.	*55.2*	*11.0*	*27.0*	*11.1*	*64.8*	*7.3*
	# Obs.	*1281*	*1491*	*1281*	*1492*	*1282*	*1492*
	Mean	**12.6**	**5.4**	**5.0**	**2.1**	**6.1**	**2.8**
MNE	*Std. Dev.*	*19.7*	*7.5*	*5.4*	*2.6*	*18.1*	*6.5*
	# Obs.	*237*	*252*	*237*	*252*	*237*	*252*

5.2 Productivity, wages and vertical integration

We saw in section 4.2 that, on average, MNEs show lower productivity than national firms and are characterized by a slightly higher level of vertical integration; we also saw that, despite the lower productivity, MNEs tend to pay higher wages. This result hid significant differences at the sector level: in particular, MNEs were found to behave consistently with theory in manufacturing, where they exhibited higher productivity, lower vertical integration and higher wages relative to national firms; in the services sector, instead, our evidence provided support in favour of cherry-picking.

These results get even more corroborated after distinguishing the sample of national firms between MNEs and domestic enterprises. To begin with, table 31 shows that, on average, foreign MNEs are less productive than Italian firms, regardless of the ownership structure of the latter. Moreover, foreign MNEs are more integrated than domestic firms, although slightly less so than Italian MNEs. Nonetheless, foreign MNEs continue to be characterized by higher wages, relative to both categories of national firms; notice also, that, in line with theoretical predictions, Italian MNEs pay higher wages than purely domestic firms.

Table 31 – Vertical integration, productivity and labor costs by sector and type of firm, counterfactual sample (averages 2000-2005)

		VA/Sales (%)	Per capita value added (€, '000)	Per capita labor costs (€, '000)
WHOLE SAMPLE				
	Mean	**28.5**	**73.6**	**40.4**
Foreign MNE	*Std. Dev.*	*16.2*	*87.5*	*21.8*
	# Obs.	*4758*	*4593*	*5265*
	Mean	**28.3**	**75.1**	**35.8**
National firms	*Std. Dev.*	*16.0*	*98.3*	*23.1*
	# Obs.	*4860*	*4523*	*4955*
of which:				
	Mean	**27.9**	**75.2**	**34.8**
Domestic	*Std. Dev.*	*16.5*	*91.6*	*24.2*
	# Obs.	*3512*	*3187*	*3597*
	Mean	**29.2**	**74.7**	**38.7**
MNE	*Std. Dev.*	*14.5*	*112.6*	*19.4*
	# Obs.	*1348*	*1336*	*1358*
MANUFACTURING				
	Mean	**27.0**	**70.2**	**39.5**
Foreign MNE	*Std. Dev.*	*13.7*	*73.4*	*20.5*
	# Obs.	*3572*	*3479*	*3558*
	Mean	**27.4**	**69.9**	**34.4**
National firms	*Std. Dev.*	*12.9*	*72.0*	*12.8*
	# Obs.	*3600*	*3388*	*3415*
of which:				
	Mean	**27.0**	**69.3**	**33.0**
Domestic	*Std. Dev.*	*13.3*	*67.6*	*11.1*
	# Obs.	*2460*	*2261*	*2292*
	Mean	**28.3**	**71.1**	**37.2**
MNE	*Std. Dev.*	*12.1*	*80.0*	*15.4*
	# Obs.	*1140*	*1127*	*1123*
SERVICES				
	Mean	**33.2**	**84.4**	**42.2**
Foreign MNE	*Std. Dev.*	*21.6*	*120.9*	*24.3*
	# Obs.	*1186*	*1114*	*1707*
	Mean	**30.6**	**90.5**	**39.1**
National firms	*Std. Dev.*	*22.3*	*150.7*	*36.5*
	# Obs.	*1260*	*1135*	*1540*
of which:				
	Mean	**30.0**	**89.6**	**37.9**
Domestic	*Std. Dev.*	*22.0*	*132.1*	*37.2*
	# Obs.	*1052*	*926*	*1305*
	Mean	**33.8**	**94.3**	**45.6**
MNE	*Std. Dev.*	*23.2*	*215.1*	*31.5*
	# Obs.	*208*	*209*	*235*

As before, however, significant heterogeneity exists however between manufacturing and services. Starting from manufacturing, foreign MNEs are more productive than

domestic firms, but less productive than Italian MNEs. At the same time, foreign MNEs pay higher wage than both types of Italian firms; Italian MNEs, in turn, pay higher wages than purely domestic enterprises. Finally, there is no significant difference in the level of vertical integration between foreign MNEs and domestic firms; foreign MNEs are instead less vertically integrated than Italian MNEs.

Turning to services, our results confirm the previous evidence of cherry-picking. Foreign MNEs show lower productivity than both types of national firms. Moreover, while keeping an advantage in terms of average wages relative to domestic firms, foreign MNEs are characterized by lower wages compared to Italian MNEs. Finally, foreign MNEs are much more vertically integrated than domestic firms.

5.3 Returns to investments

Both unconditional and conditional comparisons reported above have shown that foreign MNEs are characterized by lower returns to investments compared to national firms.

Table 32 shows the same set of indicators used previously and confirms our main conclusions: with the only exception of ROE, foreign MNEs show lower returns to investments relative to both types of national firms. The upper part of the table also shows that purely domestic firms are characterized by higher returns to investments than Italian MNEs. This latter finding suggests that low returns to investments are probably a specific feature of MNEs, regardless of their nationality; as already mentioned, one possible explanation hinges on the ability of MNEs to adopt transfer pricing strategies.

The same findings apply to the manufacturing sector, where foreign MNEs show lower returns to investments compared to both types of national firms. Moreover, also in this case are domestic firms characterized by higher returns to investments relative to Italian MNEs.

In the services sector, both foreign and Italian MNEs show lower returns to investments relative to domestic firms. The comparison between the two groups of MNEs yields instead less clear-cut results, as different indicators suggest different rankings of the two groups of firms.

Table 32 – Returns to investments by sector and type of firm, counterfactual sample (averages 2000-2005)

		Ebit per capita (€, '000)	Ebitda margin (%)	Pre-tax profit / Sales (%)	After-tax profit / Sales (%)	ROS (%)	ROI (%)	ROE (%)
WHOLE SAMPLE								
	Mean	**17.3**	**8.4**	**3.8**	**2.4**	**3.6**	**5.5**	**9.4**
Foreign MNE	*Std. Dev.*	*91.2*	*18.3*	*37.3*	*12.5*	*9.4*	*9.8*	*34.5*
	# Obs.	*4495*	*4641*	*5716*	*5222*	*5637*	*5165*	*5257*
	Mean	**23.8**	**10.2**	**4.0**	**5.3**	**4.8**	**6.5**	**9.0**
National firms	*Std. Dev.*	*99.8*	*21.8*	*32.6*	*16.1*	*7.3*	*7.6*	*25.5*
	# Obs.	*4368*	*4649*	*5513*	*4387*	*5443*	*5283*	*5415*
of which:								
Domestic	**Mean**	**25.7**	**10.6**	**3.8**	**5.3**	**4.6**	**6.7**	**9.7**
	Std. Dev.	*106.7*	*19.7*	*34.2*	*15.7*	*7.0*	*7.7*	*27.2*
	# Obs.	*3054*	*3320*	*4091*	*3236*	*4048*	*3898*	*4017*
	Mean	**19.4**	**9.2**	**4.9**	**5.2**	**5.3**	**5.9**	**6.8**
MNE	*Std. Dev.*	*81.3*	*26.4*	*27.2*	*16.9*	*8.2*	*7.1*	*19.9*
	# Obs.	*1314*	*1329*	*1422*	*1151*	*1395*	*1385*	*1398*
MANUFACTURING								
	Mean	**17.8**	**8.7**	**4.4**	**2.5**	**3.8**	**5.4**	**6.9**
Foreign MNE	*Std. Dev.*	*59.3*	*15.9*	*38.0*	*11.3*	*8.7*	*9.5*	*32.0*
	# Obs.	*3415*	*3499*	*3804*	*3509*	*3757*	*3524*	*3575*
	Mean	**21.6**	**10.6**	**4.9**	**5.2**	**5.2**	**6.6**	**7.8**
National firms	*Std. Dev.*	*56.0*	*14.7*	*15.0*	*15.3*	*7.1*	*7.2*	*21.7*
	# Obs.	*3277*	*3459*	*3696*	*3026*	*3688*	*3590*	*3642*
of which:								
Domestic	**Mean**	**23.2**	**10.8**	**4.5**	**5.1**	**5.1**	**6.8**	**8.3**
	Std. Dev.	*53.1*	*11.3*	*10.5*	*15.3*	*6.7*	*7.3*	*22.9*
	# Obs.	*2167*	*2337*	*2530*	*2066*	*2528*	*2447*	*2494*
	Mean	**18.3**	**10.2**	**5.7**	**5.4**	**5.5**	**6.0**	**6.7**
MNE	*Std. Dev.*	*61.2*	*20.0*	*21.8*	*15.3*	*7.8*	*7.1*	*18.6*
	# Obs.	*1110*	*1122*	*1166*	*960*	*1160*	*1143*	*1148*
SERVICES								
	Mean	**15.7**	**7.7**	**2.6**	**2.3**	**3.1**	**5.6**	**14.7**
Foreign MNE	*Std. Dev.*	*153.3*	*24.0*	*36.0*	*14.7*	*10.6*	*10.5*	*38.8*
	# Obs.	*1080*	*1142*	*1912*	*1713*	*1880*	*1641*	*1682*
	Mean	**30.5**	**9.1**	**2.4**	**5.5**	**3.7**	**6.2**	**11.4**
National firms	*Std. Dev.*	*174.3*	*35.1*	*52.5*	*17.7*	*7.8*	*8.2*	*32.0*
	# Obs.	*1091*	*1190*	*1817*	*1361*	*1755*	*1693*	*1773*
of which:								
Domestic	**Mean**	**31.8**	**10.1**	**2.6**	**5.7**	**3.6**	**6.4**	**12.1**
	Std. Dev.	*179.6*	*31.7*	*53.8*	*16.5*	*7.5*	*8.4*	*32.9*
	# Obs.	*887*	*983*	*1561*	*1170*	*1520*	*1451*	*1523*
	Mean	**24.9**	**4.1**	**1.1**	**4.1**	**4.3**	**5.1**	**7.1**
MNE	*Std. Dev.*	*149.3*	*47.9*	*43.9*	*23.7*	*9.6*	*7.3*	*24.8*
	# Obs.	*204*	*207*	*256*	*191*	*235*	*242*	*250*

5.4 Financial structure

One of the most robust results found in previous sections is that foreign MNEs are characterized by a more solid financial structure than national firms; this result held both in conditional and unconditional comparisons and generally applied to both the manufacturing and the services sector. We now ask whether the advantage of foreign MNEs relative to national firms emerges even after distinguishing the latter according to their domestic or multinational nature.

As before, we begin by analyzing the weight of debt relative to own funds. Table 33 shows that foreign MNEs exhibit a lower dependence on external funds relative to purely domestic firms. The debt-equity ratio is in fact lower in foreign MNEs, both on average and in each of the two sectors; moreover, foreign MNEs are characterized by higher values of the ratio between profits and total capital. On the contrary, foreign MNEs show a higher dependence on external funds relative to Italian MNEs: both on average and in the two sectors, foreign MNEs exhibit in fact higher values of the debt-equity ratio and lower values of the ratio between profits and total capital. Finally, the comparison between the two groups of national firms shows a significantly lower dependence on external funds for Italian MNEs, as expected in the light of their larger average size.

Turning to composition and length of debts, table 34 shows that foreign MNEs have a more short-term-oriented structure of obligations compared to both types of national firms and in both sectors. Moreover, foreign MNEs are characterized by a lower share of debts towards banks and by lower costs of debt. These results fully confirm those of the previous section, and provide additional evidence in favour of a different attitude of foreign MNEs both towards the types of activities to be financed through debt – e.g., mainly short-run activities – and towards the types of financial instruments to be used more intensively – e.g., bonds issue and other non-bank debts. The comparison between the two groups of national firms suggests that Italian MNEs have a structure of debts more oriented towards medium- and long-term obligations in both sectors. Moreover, Italian MNEs are also more dependent on bank loans relative to domestic firms and are characterized by a higher cost of debt as a consequence.

We finally move to compare the indicators of financial stability across the three types of firms. Consistently with our previous findings, table 35 shows that currently available resources make foreign MNEs more able to cope with their obligations relative to both types of national firms and in both sectors. This result emerges most evidently when comparing the ratio of short-term credits to short-term debits and the liquidity index. We do not find instead any significant differences between the two types of national firms. Moreover, for neither of them do we find any clear indications of strong financial instability: in both sectors, in fact, both types of firms exhibit values of the indicators close to, or above, the equilibrium threshold.

Table 33 – Structure of financing by sector and type of firms, counterfactual sample (averages 2000-2005)

		Total debts / total capital	Debt-equity ratio	Profits / total capital (%)
WHOLE SAMPLE				
	Mean	**0.6**	**6.9**	**25.8**
Foreign MNE	*Std. Dev.*	*0.2*	*36.9*	*21.0*
	# Obs.	*5705*	*5750*	*5776*
	Mean	**0.7**	**9.2**	**26.1**
National firms	*Std. Dev.*	*0.2*	*44.1*	*20.5*
	# Obs.	*5497*	*5566*	*5603*
of which:				
Domestic	**Mean**	**0.7**	**11.0**	**23.9**
	Std. Dev.	*0.2*	*50.6*	*20.5*
	# Obs.	*4080*	*4146*	*4173*
	Mean	**0.6**	**4.1**	**32.4**
MNE	*Std. Dev.*	*0.2*	*11.3*	*19.1*
	# Obs.	*1417*	*1420*	*1430*
MANUFACTURING				
	Mean	**0.6**	**5.3**	**28.6**
Foreign MNE	*Std. Dev.*	*0.2*	*31.3*	*20.7*
	# Obs.	*3798*	*3824*	*3840*
	Mean	**0.6**	**6.3**	**28.4**
National firms	*Std. Dev.*	*0.2*	*30.3*	*19.9*
	# Obs.	*3664*	*3718*	*3732*
of which:				
Domestic	**Mean**	**0.7**	**7.4**	**26.0**
	Std. Dev.	*0.2*	*35.6*	*19.9*
	# Obs.	*2502*	*2555*	*2563*
	Mean	**0.6**	**3.8**	**33.6**
MNE	*Std. Dev.*	*0.2*	*11.8*	*18.9*
	# Obs.	*1162*	*1163*	*1169*
SERVICES				
	Mean	**0.7**	**9.9**	**20.3**
Foreign MNE	*Std. Dev.*	*0.2*	*45.8*	*20.5*
	# Obs.	*1907*	*1926*	*1936*
	Mean	**0.7**	**15.1**	**21.5**
National firms	*Std. Dev.*	*0.2*	*63.1*	*20.9*
	# Obs.	*1833*	*1848*	*1871*
of which:				
Domestic	**Mean**	**0.7**	**16.7**	**20.6**
	Std. Dev.	*0.2*	*67.7*	*21.0*
	# Obs.	*1578*	*1591*	*1610*
	Mean	**0.7**	**5.2**	**26.8**
MNE	*Std. Dev.*	*0.2*	*9.1*	*19.2*
	# Obs.	*255*	*257*	*261*

Table 34 – Structure and cost of liabilities by sector and type of firm, counterfactual sample (averages 2000-2005)

		S-T Debt/ Total Debt (%)	Average length of debts	Banking debt/ Total Debt (%)	Banking debt/ Sales (%)	Costs of Debt / Total Debt (%)
WHOLE SAMPLE						
	Mean	**92.0**	**141**	**10.6**	**5.5**	**2.3**
Foreign MNE	*Std. Dev.*	*17.2*	*96*	*18.2*	*11.0*	*4.0*
	# Obs.	*5726*	*3875*	*5775*	*5744*	*5770*
	Mean	**88.4**	**174**	**21.7**	**11.5**	**3.1**
National firms	*Std. Dev.*	*16.0*	*90*	*23.2*	*15.7*	*26.5*
	# Obs.	*5518*	*3738*	*5592*	*5536*	*5586*
of which:						
Domestic	**Mean**	**89.8**	**177**	**19.1**	**10.4**	**3.1**
	Std. Dev.	*15.8*	*94*	*22.7*	*15.3*	*30.4*
	# Obs.	*4097*	*2509*	*4168*	*4131*	*4164*
	Mean	**84.3**	**168**	**29.6**	**15.0**	**3.3**
MNE	*Std. Dev.*	*16.1*	*82*	*22.9*	*16.4*	*7.2*
	# Obs.	*1421*	*1229*	*1424*	*1405*	*1422*
MANUFACTURING						
	Mean	**90.4**	**136**	**12.6**	**6.5**	**2.7**
Foreign MNE	*Std. Dev.*	*18.2*	*89*	*19.4*	*11.8*	*4.6*
	# Obs.	*3809*	*3282*	*3838*	*3812*	*3834*
	Mean	**86.5**	**174**	**24.7**	**13.2**	**2.9**
National firms	*Std. Dev.*	*16.0*	*83*	*23.4*	*16.0*	*2.9*
	# Obs.	*3673*	*3129*	*3726*	*3712*	*3725*
of which:						
Domestic	**Mean**	**87.8**	**179**	**22.2**	**12.2**	**2.8**
	Std. Dev.	*16.0*	*87*	*23.4*	*15.8*	*2.6*
	# Obs.	*2509*	*2017*	*2560*	*2548*	*2560*
	Mean	**83.6**	**166**	**30.2**	**15.4**	**3.3**
MNE	*Std. Dev.*	*15.5*	*73*	*22.3*	*16.1*	*3.5*
	# Obs.	*1164*	*1112*	*1166*	*1164*	*1165*
SERVICES						
	Mean	**95.1**	**167**	**6.7**	**3.4**	**1.6**
Foreign MNE	*Std. Dev.*	*14.7*	*123*	*14.7*	*8.9*	*2.4*
	# Obs.	*1917*	*593*	*1937*	*1932*	*1936*
	Mean	**92.3**	**175**	**15.9**	**8.2**	**3.6**
National firms	*Std. Dev.*	*15.5*	*122*	*21.8*	*14.6*	*45.7*
	# Obs.	*1845*	*609*	*1866*	*1824*	*1861*
of which:						
Domestic	**Mean**	**93.1**	**170**	**14.1**	**7.4**	**3.6**
	Std. Dev.	*14.9*	*118*	*20.6*	*13.9*	*48.8*
	# Obs.	*1588*	*492*	*1608*	*1583*	*1604*
	Mean	**87.5**	**194**	**27.0**	**13.1**	**3.5**
MNE	*Std. Dev.*	*18.0*	*136*	*25.3*	*17.6*	*15.2*
	# Obs.	*257*	*117*	*258*	*241*	*257*

Table 35 – Liquidity indicators by sector and type of firms, counterfactual sample (averages 2000-2005)

		Current Ratio	S-T Credits / S-T Debts	Liquidity index	Liquidity/Sales (%)
WHOLE SAMPLE					
	Mean	**1.6**	**1.3**	**1.2**	**6.5**
Foreign MNE	*Std. Dev.*	*1.3*	*9.2*	*0.9*	*10.9*
	# Obs.	*4277*	*5568*	*5775*	*5348*
	Mean	**1.5**	**0.9**	**1.1**	**6.8**
National firms	*Std. Dev.*	*1.6*	*0.7*	*0.8*	*11.1*
	# Obs.	*4363*	*5338*	*5601*	*5153*
of which:					
Domestic	**Mean**	**1.5**	**0.9**	**1.1**	**7.0**
	Std. Dev.	*1.8*	*0.8*	*0.9*	*11.3*
	# Obs.	*3077*	*3970*	*4169*	*3775*
	Mean	**1.5**	**0.9**	**1.0**	**6.3**
MNE	*Std. Dev.*	*0.8*	*0.4*	*0.6*	*10.7*
	# Obs.	*1286*	*1368*	*1432*	*1378*
MANUFACTURING	**MANUFACTURING**				
	Foreign MNE	**1.6**	**1.3**	**1.2**	**5.4**
Foreign MNE		*1.2*	*11.2*	*0.9*	*9.1*
		3267	*3703*	*3837*	*3521*
	National firms	**1.5**	**0.9**	**1.0**	**6.9**
National firms		*0.8*	*0.7*	*0.7*	*10.8*
		3280	*3557*	*3737*	*3478*
of which:	of which: Domestic				
Domestic		**1.5**	**0.9**	**1.0**	**7.1**
		0.8	*0.8*	*0.8*	*11.0*
		2194	*2434*	*2566*	*2346*
	MNE	**1.5**	**0.9**	**1.0**	**6.3**
MNE		*0.8*	*0.4*	*0.6*	*10.4*
		1086	*1123*	*1171*	*1132*
SERVICES					
	Mean	**1.5**	**1.1**	**1.3**	**8.6**
Foreign MNE	*Std. Dev.*	*1.5*	*1.0*	*0.9*	*13.3*
	# Obs.	*1010*	*1865*	*1938*	*1827*
	Mean	**1.4**	**1.0**	**1.2**	**6.7**
National firms	*Std. Dev.*	*2.9*	*0.7*	*0.9*	*11.8*
	# Obs.	*1083*	*1781*	*1864*	*1675*
of which:					
Domestic	**Mean**	**1.4**	**1.0**	**1.2**	**6.7**
	Std. Dev.	*3.2*	*0.8*	*1.0*	*11.8*
	# Obs.	*883*	*1536*	*1603*	*1429*
	Mean	**1.2**	**0.9**	**1.0**	**6.4**
MNE	*Std. Dev.*	*0.6*	*0.4*	*0.7*	*11.9*
	# Obs.	*200*	*245*	*261*	*246*

6. Conclusion

This paper has studied the effects of foreign participation on several dimensions of economic performance in Lombardy, a Northern Italian region accounting for 40% of total FDI inflows in the country.

We showed that foreign multinationals are generally characterized by more knowledge-intensive production techniques, higher productivity, higher wages and a more solid financial structure compared to national firms, in both the manufacturing and the

services sector. At the same time, however, foreign multinationals show lower returns to investments.

We then applied propensity score estimation techniques to select a counterfactual sample of national firms with similar size and industry distribution as the multinationals. Conditional comparisons on this counterfactual sample have shown that the difference between the two types of firms disappears in the services sector, thereby suggesting that the unconditional comparisons were affected by both the different industry-distribution, the different size and the tendency of MNEs to cherry-pick high-performing national firms. In the manufacturing sector, instead, the difference between the two groups of firms persists, suggesting that it could be at least partially explained by a true effect arising from foreign participation.

This paper has not studied the presence of spillover effects, because the regional nature of the data would have made such an analysis fairly unreliable. Nevertheless, anecdotal evidence suggests that spillover effects are indeed at work in Lombardy. These spillovers strengthen the positive effects of foreign participation we found in this paper. Overall, therefore, we think foreign participation to be an important factor to foster industrial activities in Lombardy (and Italy).

Appendix

Table A1– Distribution of MNEs and national firms in the counterfactual sample, by industry

Ateco 2002		Total	National		MNE		Concentration Index*	
			#	% of total	#	% of total	National	MNE
MANUFACTURING		**1412**	**699**	**49.5**	**713**	**50.5**	**1**	**1**
15	Food	51	21	41.2	30	58.8	0.83	1.16
17	Textile	35	20	57.1	15	42.9	1.15	0.85
18	Apparel	8	3	37.5	5	62.5	0.76	1.24
19	Leather	12	9	75.0	3	25.0	1.52	0.50
20	Wood	3	2	66.7	1	33.3	1.35	0.66
21	Paper	39	23	59.0	16	41.0	1.19	0.81
22	Print, publish.	77	46	59.7	31	40.3	1.21	0.80
23	Ref. Petrol.	9	2	22.2	7	77.8	0.45	1.54
24	Chemical	284	129	45.4	155	54.6	0.92	1.08
25	rubber	76	35	46.1	41	53.9	0.93	1.07
26	Non Metall. Min. Prod.	38	15	39.5	23	60.5	0.80	1.20
27	Metal	65	38	58.5	27	41.5	1.18	0.82
28	Fabbr. Metal. Prod.	133	76	57.1	57	42.9	1.15	0.85
29	Machinery	257	125	48.6	132	51.4	0.98	1.02
30	Office Machinery	9	2	22.2	7	77.8	0.45	1.54
31	Electrical Machinery	114	57	50.0	57	50.0	1.01	0.99
32	Telecom. Machinery	63	32	50.8	31	49.2	1.03	0.97
33	Precision Equipment	80	36	45.0	44	55.0	0.91	1.09
34	Automobile	20	11	55.0	9	45.0	1.11	0.89
35	Other Transp. Equipm.	6	2	33.3	4	66.7	0.67	1.32
36	Furniture	33	15	45.5	18	54.5	0.92	1.08
SERVIZI		**763**	**387**	**50.7**	**376**	**49.3**	**1**	**1**
40	Energy	9	6	66.7	3	33.3	1.31	0.68
45	Costruction	43	18	41.9	25	58.1	0.83	1.18
60	Ground Transp.	27	12	44.4	15	55.6	0.88	1.13
62	Air Transp.	2	1	50.0	1	50.0	0.99	1.01
63	Auxiliary Activities Transp.	74	40	54.1	34	45.9	1.07	0.93
64	Telecom	27	15	55.6	12	44.4	1.10	0.90
71	Rental	12	6	50.0	6	50.0	0.99	1.01
72	Consul. Install.	182	91	50.0	91	50.0	0.99	1.01
73	R&D	23	13	56.5	10	43.5	1.11	0.88
74	Enterprises Services	364	185	50.8	179	49.2	1.00	1.00
TOTAL		**2175**	**1086**	**49.9**	**1089**	**50.1**	**-**	**-**

* Ratio between the share of national firms (MNE) in the 2-digit industry and the corresponding share in either manufacturing or services.

Table A2 – Performance Indicators

Indicator	Formula
EBITDA	Value added – labor costs
EBITDA margin	EBITDA / sales x 100
Ebit	EBITDA – Total investment
Debt-equity ratio	Total Debt / Total profits
Current ratio	(Liquidity + ST Credits + Stock of final products) / ST Debts
Liquidity Index	(Liquidity + Credits) / Total Debt

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