How Does Investing in Cheap Labour Countries Affect Performance at Home? France and Italy

Abstract

Transferring low tech manufacturing jobs to cheap labour countries is often seen by part of the general public and policy makers as a step into the de-industrialisation of the European economies. However, recent contributions have shown that the effects on home economies are rarely negative and often positive. Our paper contributes to this literature by examining how outward investments to cheap labour countries affect home activities of French and Italian firms that turn multinational in the period analysed. The effects of these investments are also compared to the effects of investments to developed economies. The analysis is carried out by using propensity score matching. We find no evidence of a negative effect of outward investments to cheap labour countries. In Italy they enhance the efficiency of home activities, with positive long term effect on output and employment. For France we find a positive effect on the size of domestic activity.

Keywords: multinational firms, productivity, propensity score matching, multiple treatment.
JEL Classification: F23, D21, C14

1. Introduction

Transferring low tech manufacturing jobs to cheap labour countries is often seen as a step into the de-industrialisation of European economies. Consequently, policy makers have increasingly been proposing measures aimed at limiting these types of international activities. In France, the 2005 budget offers subsidies to firms that transfer to France activities previously located outside of the European Union. Firms located in French regions highly specialized in one industrial activity and suffering from a high level of unemployment could also receive subsidies. Similarly, in Italy a new law, passed in 2005, prevents firms that transfer a substantial part of their activities abroad from acceding subsidised public funds to support exports or foreign investments. In May 2005, the European Parliament's Regional Development Committee has expressed a strong support for the European Commission proposal to impose financial penalties on firms which have received EU funding but then decide to relocate. The Committee also asked for legal measures to ensure that firms receiving European subsidies do not relocate abroad for a *"long and predetermined"* period.

The central message of this paper is that the presumed negative effects of transferring part of production to cheap labour countries is not supported by theory - which is ambiguous - neither by the available empirical evidence - which does not find negative effects. Rather, very often the effects of this investment are found to be positive, particularly when compared to the base-line scenario of maintaining all production in the home country. Specifically, this paper examines the impact at home of outward investment to developing countries for a sample of French and Italian firms. In particular, it looks at the impact on the size (employment, gross output and value added) and on the efficiency (total factor productivity) of economic activities at home.

Our analysis is nested in a broad model of investment decision, whereby a firm which has never invested abroad before faces a three way choice: staying national, investing in a cheap labour country or investing in an industrialised economy. It is therefore possible to examine the effect of investing in a cheap labour country in comparison to the baseline of staying at home and also assess if the effects are different when a firm invests in an industrialised economy. This distinction according to the destination of the investment is important, as often the motives and consequently the effects of investing in the two areas can be radically different. Whereas investments in cheap labour countries are likely to be aimed at reducing production and specifically labour costs through the geographical fragmentation of the production chain (vertical investments), investments in large and developed economies

normally aim at tapping the local market through a partial duplication of the activities carried out at home (horizontal investments). The effects on the home activities also take place through different channels, a change in factor use for vertical investments and a scale effect for horizontal ones. The empirical strategy we have devised, therefore, also allows some considerations on the role of these different channels.

Our work builds on Barba Navaretti and Castellani (2003). This earlier paper focussed on Italy and looked at the effects of foreign investment independently of its destination. It found that firms investing abroad have higher total factor productivity and output growth, and no significant differences in employment growth than firms not investing abroad. It also showed that in order to isolate the effects of investing abroad on performance, it is important to construct an appropriate counterfactual: what would have happened to firms if they had not invested abroad. This was done by using propensity score matching. This paper has two major differences compared to this earlier work. First, it classifies investments according to their destination. It therefore disentangles the specific effect of investing in cheap labour countries. To do so it extends propensity score matching to the possibility of multiple treatment: investing in a developing country, investing in a developed country or not investing abroad. Second, it extends the analysis to France, therefore providing a broader picture of this process in continental Europe. Note that this paper focuses on FDI, and not on other looser forms of transferring production activities abroad, like for example subcontracting.

The key finding is that, in contrast with the overwhelming public and policy concerns, there is no evidence of negative effects of outward investments to cheap labour countries on home output, employment and productivity. Rather, in Italy they enhance the efficiency of home activities, with also positive long term effect on output and employment growth. This pattern is consistent with the theory of vertical investment. The geographical fragmentation of production is expected to change the factor mix of home activities, with a concentration on skill and technology intensive tasks. This may lead to an increase in productivity and value added in the short term. The consequent gains in efficiency could then enhance the competitiveness of investing firms, leading to a long term expansion of home output and employment. As for France, we find a positive effect on the size of domestic activities, as both output and employment grow after the investment, but no effects on productivity. Investments to developed economies have similar effects for both countries. Scale increases in terms of employment and output and it then trickles down into higher productivity in the longer term. The implication of these results is that policies aimed at limiting investments to

cheap labour countries may deprive firms of an important strategic option with long term positive effects on the domestic economy.

The remainder of this paper is structured as follows: Section 2 presents the literature. In section 3, we present our empirical setting. The data are described in section 4. The results of the empirical application are detailed in section 5. Section 6 concludes.

2. Literature

This section briefly reviews what we can learn from the available literature on the effects of foreign direct investment (FDI) on home activities, and particularly their size (output, value added and employment) and their efficiency (productivity).

2.1. Analytical framework

The theory on outward FDI has ambiguous predictions for what concerns their home effects. Both the models of Horizontal FDI (HFDI) and Vertical FDI (VFDI) show that several channels are at work. These channels are related to three different domains: (i) the product market; (ii) the factor market; (iii) technology transfers. The model of VFDI, which implies product fragmentation according to differences in factor intensities, provides a more fitting representation of North-South investment flows, across countries with different factor endowments. However, many investments to least developed areas are also aimed at entering local markets rather than simply reducing production costs. We therefore also discuss the home implications of HFDI.

Consider first the product market: how does investing abroad affects the competitiveness and consequently output and market share of the investing firm. In a vertical FDI, the short-term effect on home output is supposed to be negative as part of what was initially done at home gets relocated abroad. However, in the longer term, this effect could become positive as firms, by reducing production costs, increase competitiveness, gain market shares and also expand home output. As shown in Barba Navaretti and Venables (2004), an accurate analysis of the effect on home output must take into account an appropriate counterfactual. Thus, simply looking at the dynamic of home output following the investment might not be particularly conclusive. If firms do not transfer part of their activities and if other firms do, as new low cost locations become available to foreign investors, integrated production in the home country could likely become a non viable option and the firm be pushed out of the

market all together. As for HFDI, potential export flows get replaced by local production abroad. Consequently, home output declines. Yet, this effect could be reversed if the affiliate uses inputs or other complementary products from the home plant. Also, demand for headquarter services at home could rise with the expansion of foreign activities.

Regarding factor market effects, the main concern is for the labour market, and more precisely for the effects on overall labour demand, on skill composition and on factor prices. Overall labour demand is derived from output demand. If output increases, this has positive effects on home employment both for VFDI and HFDI. But investments abroad may also change factor composition and particularly the skill mix of the labour force. Vertical FDI could reduce the demand for unskilled labour in the home economy and increase the demand for skilled labour (Helpman, 1984, Helpman and Krugman 1985, Feenstra and Hanson 1996). Factor prices should also be affected by these changes in factor demand. For horizontal FDI, the effects are less clear and the theory does not provide clear predictions on the sign of the changes in home factor demand.

The last issue is the technology sourcing. Both HFDI and VFDI could lead to a technology transfer to home plants, in particular if multinational firms (henceforth MNEs) locate their plants in knowledge intensive areas. The scale effect discussed above may also have effects on efficiency. If output rises we may expect an increase in the extent of exploitation of economies of scale in home plants. In VFDI, parent company productivity could also increase following the overall cost-efficiency improvement of the MNE and the increasing specialisation in high-value added activities at home.

Summing up, the available theory highlights several channels through which outward FDI may have positive or negative effects on performance at home, but no clear prediction can be made on heir net effects and it boils down to an empirical question.

2.2. Available evidence

Several earlier empirical works have examined the effects of outward FDI on output (Head and Ries, 2001; Blonigen, 2001, Desai et al., 2005), home employment (Brainard and Riker, 1997a and 1997b; Braconier and Ekholm, 2002; Becker et al., 2005; Hanson et al., 2003; Konigs and Murphy, 2006; Bruno and Falzoni, 2000; Blomström et al., 1997; Lipsey, 1999; Mariotti et al., 2003; Marin, 2004), productivity (Braconier et al., 2001; van Pottelsberghe de la Potterie and Lichtenberg, 2001). They generally find that the effect of FDI

is positive or that short term costs get offset in the longer term[1]. However, these studies are based on sector/regional evidence or, when addressing the question at the firm-level, only focus on the activities of MNEs and thus fail to take into account the appropriate counterfactual to this problem. This issue pops-up rather clearly from a recent work by Harrison and McMillan (2006) on a large sample of US multinationals for the years 1977 to 1999. Unlike other previous works on US data, they find that employment in affiliates in low-income countries tend to substitute for employment in the US, while employment in high-income affiliates is generally complementary to jobs at home. However, the study also reports that firms investing in low-income countries have a higher probability to survive with respect to other US multinationals not investing abroad. This suggests that it is not only important to correlate the dynamics of employment (and other performance) at home with outward investments, but it is key to assess what would have happened in the case investment had not taken place[2].

Only recently researchers have started looking at this issue by comparing investing and non investing firms, so as to isolate the effects of opening up a foreign plant. Barba Navaretti and Castellani (2003) and Egger and Pfaffermayr (2003) are the first papers to use matching estimators to assess the home effects of outward investment. The former is based on Italy and examines the comprehensive effect of new investments on productivity, output and employment. It finds that when firms open up a foreign plant, total factor productivity and output increase at home, with no significant effects on employment. The latter examines the effect on tangible and intangible investments in Austria. It finds that firms investing abroad also raise their investments in R&D and in intangible assets at home. None of these papers, though, control for the destination of the investment. This is done in this work and also in two recent contributions: Debeare et al. (2006) which looks at the employment effects in Korea and Hijzen et al. (2006) which examines the effects on employment, skill intensity and productivity in France. These works show that investments have different home effects according to whether foreign plants are set up in low or high income countries. In particular, they find large positive effects on home employment when firms invest in advanced countries, whereas investments to developing countries have positive effects only in the longer term. In neither cases though, there is evidence that investments in cheap labour countries harm economic activities at home. In the case of Italy, Castellani et al. (2006) estimate a dynamic

[1] See Mankiw and Swagel (2006) for a detailed survey of empirical works on the US.
[2] Similarly, Simpson (2006) finds that UK MNEs are less likely to shut down plants in the UK, than other UK firms, although within UK MNEs plants carrying out low-skill activities are more likely to close.

panel specification of overall employment and of the share of white-collar workers as a function of foreign investor status. They find no evidence of any negative effects on employment and some evidence of skill-upgrading in firms investing toward Central and Eastern European countries. We will see that these results are also in line with our findings.

Our work is nested in the broader debate on the effects of manufacturing and service offshoring, which has grown considerably in the last few years, mostly in the US and in the UK. In most studies offshoring is captured by the share of imported components on total inputs or sales at the firm or at the industry level. This approach is complementary to ours. On the one hand it provides a more comprehensive measure of foreign production, in that offshoring can take place through both FDI or arm length agreements with local firms. On the other hand, though, it does not capture the effect of investments which are not aimed at replacing domestic inputs and therefore do not generate imports of intermediates.

Amiti and Wei (2005), a study based on US and UK data finds that, particularly for the UK, outsourcing has not led to employment losses neither in manufacturing nor in services. Boulhol and Fontagné (2006) analyse how far the observed deindustrialisation in 16 OECD countries can be related to outsourcing. Their estimations suggest that net trade with low wage countries is associated with an average decrease of around 2 points in the manufacturing employment share between 1970 and 2002. However, this contribution represents only a fifth of the deindustrialisation process over the period analysed. Görg et al. (2005) analyse the impact of outsourcing on productivity at the firm level for a sample of Irish firms. They find that the outsourcing of material inputs has a positive effect on the productivity of those firms which are also exporting. In contrast the effect of outsourced services is not significant. Some recent works have focussed on the case of France, one of the two countries analysed in this paper. In a very detailed analysis based on different sources of data, Fontagné and Lorenzi (2005) show that relocations explain only 10% of the deindustrialisation process observed in France. Besides, according to this study, less than 3% of the stock of FDI has been set up with the aim of replacing home production. Also Aubert and Sillard, (2005) find that offshoring accounts for a small amount of job losses in France. Between 1995 and 2001, only 2.4% of total industrial jobs lost can be related to the foreign relocation of activities.

Thus, also the evidence based on broader measures of offshoring than FDI finds that the effects on home activities, including employment, are generally not particularly large and not necessarily negative. Rather, the available inquiries often find positive long term gains.

3. Empirical setting

The empirical implementation implies comparing the performance of a given firm which has transferred one or more stages of production to a foreign country, with the performance it would have had if it had kept integrated production at home. Of course the hypothetical benchmark of integrated production at home cannot be observed for firms which have fragmented production, and this poses several methodological problems. First, if we observe only MNEs we cannot single out the hypothetical benchmark: performance if the MNEs had not invested abroad. Second, if we observe only MNEs, we do not know if changes in performance are due to unobservable shocks equally affecting all firms, national and multinational alike. It is therefore important to benchmark MNEs to a sample of national firms. However, when comparing the performance of MNEs and national firms, we face a third problem: we do not know if differences are due to other characteristics of the two types of firms rather than to their being multinational or strictly national. In particular, foreign investments and performance are jointly determined. Given that investing abroad entices large costs, with imperfect financial markets only the (*ex ante*) most productive firms will invest abroad. The recent theoretical literature on the decision to export and invest abroad with heterogeneous firms establishes a very clear link between *ex ante* performance and international activities: entering international markets entail fixed costs and only the most profitable firms will be able to invest abroad (Helpman et al., 2004). Thus, if we observe that *ex post* MNEs perform better than national firms, we do not know if this is so because of foreign investments or because these firms performed better anyway, even before the investment.

Figure 1 is derived from Clerides et al.'s (1998) paper on exporting firms' performance. We adapt it to the case of foreign investments. We draw average hypothetical trajectories in home performance for three types of firms: those which are always MNEs, i.e. with at least one foreign subsidiary during all the period observed; those which never have a foreign subsidiary in the period observed (NATIONALs) and those that open their first foreign subsidiary in the period observed and therefore switch from being national into being MNEs (SWs) at time *t*.

Insert Figure 1 here

As mentioned above and according to the recent literature, MNEs perform better than national firms. More can be learned if we now focus on switching firms, those which invest for the

first time at *t*. If the investment has a positive effect on productivity their trajectory becomes steeper at *t* and performance eventually converges to the one of MNEs. Thus, our empirical question can be answered by comparing their trajectory after the investment to the one that they would have followed had they not invested. If the investment does indeed improve performance, this hypothetical trajectory lies below the one of the switching firms after *t*, as represented by the dotted line in figure 1. This comparison is important, as if we just focus on effective performance, even if we observe that it improves, this could be the outcome of other factors which have nothing to do with the investment. Unfortunately, the dotted line cannot be observed and we need to proxy it. National firms are a good candidate for the counterfactual. However, the trajectory of the appropriate counterfactual should indeed differ from the one of switching firms just because of the different investment decision. Due to the fixed costs on entry on international markets, a self-selection process will occur and only firms possessing some intangible capital giving them a competitive edge over national firms will invest abroad (Dunning, 1993; Markusen, 1995). Thus, switching firms are *ex ante* different from national ones and this difference may affect *ex post* performance. If we want to isolate the effect of investing, we need therefore to build a counterfactual made of a subsample of national firms which are as similar as possible to firms which have invested abroad. As firms choose endogenously whether to invest or not, this counterfactual could not be draw randomly. To overcome the problem of self-selection we use the method of propensity score matching, which aims at re-establishing the conditions of a natural experiment with non-experimental data (Heckman et al., 1997; Blundell et al., 2004). This methodology has already been used in international economics to evaluate the effects of exporting and of acquisitions on firms' performance and returns to scale by Arnold and Javorcik (2005), Arnold and Hussinger (2005), Girma et al. (2004), Girma et al. (2003), Wagner (2002) and Girma and Görg (2004). Egger and Pfaffermayr (2003) use matching estimators to analyse the effects of outward investments on the decision to invest at home in tangible assets and in R&D. Here we extend Barba Navaretti and Castellani (2003) work on the effect of outward investments on home activities for a sample of Italian firms. The main idea is to estimate the probability of switching of each firm conditional on a number of observables (the propensity score). Then, for each of the firms which actually invest abroad, one can find one or more firms with a sufficiently close propensity score. The performance trajectory of this control group is the closest approximation to the dotted line.

In this paper we have the additional problem that we want to control if investments to cheap labour countries, presumably of a vertical type, nest into a more general model of

foreign investment, which includes also investments to developed countries, most likely horizontal ones[3]. For simplicity we dub cheap labour countries, which include developing and transition economies, as LDCs and developed economies as DCs. Indeed firms face three options: staying at home, investing in LDC and investing in DC. Consequently, our outcome is not a binary indicator, and we face a multiple treatment problem (Lechner, 2001). We address this issue by estimating a multinomial logit and computing propensity scores for each of the three possible outcomes: not switching (denoted as outcome=0), investing in LDC (outcome=1) and investing in DC (outcome=2). With the propensity scores for choice 1 and 2, we can run the matching algorithm and find the appropriate counterfactual in both cases. Unlike the binary treatment case, when the outcome variable can take multiple values, each choice can be compared to more than one counterfactual. For example, when we evaluate the effect of switching into LDC (DC), we should take into account two possible counterfactual states: remaining national or switching into DC (LDC). Unfortunately, the low number of switching firms leaves very few choices of controls in the latter case and we could not obtain any accurate matching. Therefore, we will use only national firms as a counterfactual to both firms switching in LDC and in DC, and our analysis allows us to tell whether and how switching in LDC or in DC affect performance relative to the hypothetical alternative of remaining national.

Once we obtain adequate control groups for firms switching in LDC and in DC, we can compare their performance trajectory with the one of those actually switching, in order to gather an estimate of the effects of investing abroad. We do so by computing the difference between the switching and the counterfactual firms in the average mean of performance after the year of investment (which yields the average treatment effect on the treated, ATT), as indicated in the following equation:

$$\hat{\alpha}_{ATT} = \bar{y}^{1}_{t+s} - \bar{y}^{0}_{t+s} \qquad (1)$$

where $\bar{y}^{1}_{t+s}$ is the mean performance of investing firms *s* periods after switching and $\bar{y}^{0}_{t+s}$ is a weighted mean of performance of the control group over the same period.

In addition to the standard ATT estimator, we also use the difference-in-difference estimator (DID). Whereas the ATT estimator compares post-investment performance for the two groups of firms, the DID estimator compares the difference between pre- and post-

[3] Admittedly, this model would include other modes of internationalisation, such as export and contractual modes of international production (such as licensing, outsourcing, and joint ventures), which we will not be able to control for in our empirical analysis.

investment performance in both groups. In other words, it measures the difference in the change of the steepness of the performance trajectories for the two groups of firms. Formally, DID is given by:

$$\hat{\alpha}_{DID}=(\bar{y}^{1}_{t+s}-\bar{y}^{1}_{t-1})-(\bar{y}^{0}_{t+s}-\bar{y}^{0}_{t-1}) \qquad (2)$$

where upper bars denote averages in each group performances the year before and *s* years after the investment. DID estimator measures the differential performance in the group of investing firms relative to the non-investing ones, once *ex ante* differences in performance are accounted for[4].

4. Sample and data

The empirical analysis carried out in this paper relies on two samples of French and Italian firms which established their first subsidiary abroad in the period 1993-2000. While we recognize that subsequent investments may have important effects on home plants, we believe that focussing on first time investors (which we call firms switching into multinationals) has some advantages. First, the discrete change of a firm becoming a multinational is qualitatively different from further expansions abroad of established multinationals, and is likely to capture most of the change in the organization of production induced by foreign investment. Second, by focussing on first time investors, we avoid picking up a spurious relation stemming from the lagged effect of previous investments. Third, introducing established multinationals in our analysis would complicate the definition of control groups, since we would need to introduce MNEs not investing abroad over a given time period as a possible counterfactual. Therefore, at this stage of our research we prefer to keep a narrower (but probably sharper) scope to our analysis by focussing on switching firms only.

To construct the French sample we used the 2002 version of the database "Enquêtes filiales" maintened by the Direction of Foreign Economic Relations (DREE) of the French Ministry of Economic and Finances, which provides the list of all affiliates of French firms and reports for each of them the year of investment and the chosen country. The panel used in this paper includes French firms with more than 20 employees investing abroad for the first time between 1995 and 2000. The Italian sample is drawn from the Reprint-dataset. Reprint is a directory, maintained by the Polytechnic of Milan and the Italian Institute for External

[4] Like a first-difference estimator in linear panel data, the DID aims at eliminating unobserved heterogeneity which might not be captured by matching and can affect post investment performance.

Trade (ICE), which reports information on the identity and location of foreign affiliates of Italian multinationals. We were able to identify a sample of firms which made their first investment abroad in the years 1993, 1995, 1997, 1999, 2000 or 2001. Tables 1, 2 and 3 provide an overview of our sample of firms by year of their first investment abroad, the area of destination of their first investment abroad and the sector of activity of the investing parent. First, one may notice that the Italian sample is slightly larger than the French one, with a total 269 firms, out of which 174 make their first investment in cheap labour countries and 95 switching towards DCs, while in the French case we have 171 foreign investors, out of which 80 make their first investment in LDCs.

Insert Table 1 here

The larger number of switching firms in the Italian sample does not reflect the relative size of the two countries, but it might rather pick up the fact that France has a longer history of internationalization of production, while the share of Italian firms becoming multinationals in recent years has been growing quite rapidly. Interesting differences emerge in the geographical distribution of investments in the two countries. In particular, Italy reveals a much higher propensity towards investments in LDCs, while French firms are equally split between those investing in DCs and in LDCs. Furthermore, table 2 highlights that also within the two big areas there are differences among the firms from the two countries: within LDCs Italian firms exhibit a very high propensity to invest in Eastern Europe, while French firms have a relatively higher propensity to invest in other LDCs (mostly former French colonies or French speaking countries).

Insert Table 2 here

As far as the distribution by sector of the switching firms is concerned, table 3 suggests another important difference between France and Italy. While in the Italian case, there is remarkable difference in the distribution of firms switching towards LDCs and those switching in DCs (the former are relatively more concentrated in textiles and the latter in machinery, metalworking and chemicals), in the French case the distribution by sector does not seem to differ much. As we will argue later, this might reflect the fact that most Italian investment towards LDCs are indeed VFDI in sectors (such as textiles) where the process can be vertically fragmented and cheap labour is a key factor of production, while in the French

case investments in LDCs may be more likely to mix up some HFDI and VFDI. Investments classified as 'others' are manufacturing investments carried out by wholesale companies.

Insert Table 3 here

Information on foreign affiliates drawn from Reprint and "Enquêtes filiales" has been complemented with balance sheet data on parent companies gathered from AMADEUS database constructed by Bureau Van Dick. From the same source we extracted balance sheet information for Italian and French-owned firms which had no foreign affiliates, nor invested abroad, in the period considered, which will be used to construct our counterfactual.[5]

5. Results

5.1. Construction of the counterfactual

As discussed earlier, the first step of our empirical analysis is the construction of an appropriate counterfactual. In fact, the plain comparison of national and switching firms might yield very misleading outcomes due to the self-selection of investing firms. In other words, switching firms are likely to be very different from the average national firm. Table 4 provides a simple illustration of the *ex-ante* differences between those groups of firms. In particular, one may notice that switching firms are (on average) much larger (in terms of employment and sales) than firms remaining national. Remarkable differences emerge also in terms of TFP and labour productivity.

Insert Table 4 here

The counterfactual will be derived from the sub-sample of national firms using the propensity score matching technique. We run a multinomial logit regression of the probability of either remaining national, switching into LDC and switching into DC, as function of firms' attributes such as size, age, TFP, return on investments, cost of labour per employee, the ratio

[5] We first utilized the whole set of national (and non investing) firms with more than 20 employees available in AMADEUS for the two countries, but we realized that with this criteria the control group would be too large, and we would get a very poor prediction of the probability of investing abroad, which would result in a very poor matching. We worked this problem around by randomly drawing 25% of firms in the original sample, for both France and Italy, and ended up with 28,645 and 17,219 firm-year control observations for France and Italy, respectively.

of current assets to current liabilities, and an vector of sector, regional[6] and year dummies. Explanatory variables are lagged one year. We run separate regressions for the French and Italian samples pooling all observations from the various years. The results of the estimations are reported in table 5 and support the key role of TFP, which affects the probability of switching both in LDC and DC in both countries. In the case of France we also find that larger firms have a higher probability to invest both in LDC and DC, while higher wages (possibly capturing a skill premium) seem to affect the probability of switching towards DC. In the case of Italy, we find that size plays a role in investing in DC, while firms investing in LDC are not necessarily the larger ones. Furthermore, switching in LDC seems more likely in less profitable firms, suggesting that switching towards LDC may be a defensive strategy. Unlike France, Italian firms investing abroad seem to be the ones paying lower average wages.

Insert Table 5 here

The multinomial logit estimation allowed us to compute, for each firm, the probability of remaining national and the probability of switching into DC and LDC. With these propensity scores we were able to run our matching algorithm. We choose to run a nearest neighbour matching, which for each switching, finds the control firm with the closest propensity score. In addition, we perform our matching year-by-year and sector-by-sector. This ensures that each firm from sector *j* switching at time *t* is matched with an observation at time *t* from a firm within the same sector *j*. As discussed in section 3, we rely only on national firms as a counterfactual. We first run our matching algorithm on firms switching in DC, using national firms as a control group, then we matched firms switching in LDC, using again the sample of national firms as a control group.

Matching techniques assume conditional independence that is we need to rule out that the choice of investing abroad is significantly affected by unobservable variables which also determine post-investment performance. This is not easy to ensure and test in empirical work, mainly due to data limitation. Here, we tried to control for as many observable firms' characteristics as possible (including a large set of sector and regional dummies) given our data constraint. We reached a satisfactory result in terms of explained variance, as indicated by a pseudo-R^2 of 0.257 for the multinomial logit for France, and 0.192 for Italy, which is in

[6] A dummy is included for each French department and for each Italian province.

line with most existing works using matching techniques. A good matching should also result in characteristics of the counterfactual as close as possible to those of the investing firms. In formal terms, the matched sample should satisfy the balancing property, that is, the distribution of the vector of observables should be balanced across switching and control firms. We ran various tests to verify that the balancing property holds. First, we checked that no significant differences in means remain in none of the characteristics used to compute the propensity scores between switching firms and the matched control. In table 6 we report the mean and standard deviation of these characteristics in the matched sample.

Insert Table 6 here

T-tests, reported in the Appendix (Table A.1) confirm that differences between switching and matched control firms are not statistically significant. Second, we tested for the equality of the distribution for all those variables in the switching and control groups. Results from a Kolmogorov-Smirnov test of equality of distributions among treated and control groups (see Table A.1) do not reject the null hypothesis for any of the variable considered. Third, we ran separate binary logit on the samples of firms switching in LDC and in DC and relative controls. As shown in the appendix (Table A.2), we found that pseudo-R^2 drop significantly and regressors are jointly non-significant, confirming that no differences remain in the observable characteristics between investing firms and those remaining national after matching.

5.2. The effect of investing abroad

Once defined the appropriate counterfactual, we are ready to test for the effects of investing abroad on performance at home in our samples of French and Italian firms. As we discussed above, we compute both the average treatment effect on firms switching towards LDC and to those switching to DC (ATT), but we also control for pre-switching dynamics of performance abroad by computing a difference-in-difference estimator (DID). Our outcome variables are four indicators of firms' economic performances: value added, output (measured by total sales), employment, and TFP obtained as the residual of a Cobb-Douglas net output production function estimated for each 2-digit industry using the semi-parametric technique proposed by Levinshon and Petrin (2003). There are obvious relations among these indicators, such as for example the effect of an expansion in output on employment and on productive

efficiency (through economies of scale), or the impact of an increase in TFP on output (through an increase of international competitiveness or employment *via* a factor mix reallocation). Here we just concentrate on a robust estimation of the partial effect of investing abroad on these indicators, without discussing their inter-linkages and the channels through which these effects occur.

Figures 2 and 3 provide a visual representation of the effect of investing abroad. In each graph we depict the average performance of (French and Italian) firms switching in LDC and in DC, compared to their corresponding control group derived from the propensity score matching. As one would expect when matching is accurate, at *t-1* (the year the matching exercise refers to) performance of switching and control groups are very close.[7] After the year of investment (*t=0*) the trajectories of switching firms lie always above the corresponding pattern for the control group, and in most cases this gap widens over time.

Insert Figures 2 and 3 here

While suggestive of some positive effects of switching on performance abroad, this visual evidence needs to be complemented with some econometrics on the magnitude and statistical significance of this gap. Results are presented in table 7. For our four indicators, we report the average difference in performance between the switching and the matched controls in the first year following the investment (i.e. in *t+1*), as well as over a two and three years horizon. DID is computed by comparing post-investment performance at the various time horizons with the corresponding value two-years prior to switching (i.e. the year before our matching exercise). The number of cases available for the estimation varies for each variable and time frame, due to missing values. Standard errors for these means are computed by bootstrapping (100 repetitions).

The main result from our empirical analysis is that we do not find any convincing evidence of negative effects of investing abroad on firms' performance[8]. On the contrary, we have some evidence that firms investing abroad for the first time increase productivity, output and employment at home, as opposed to their counterfactual, and this gap seems to widen over time.

[7] T-tests confirm that these differences are not different from zero.
[8] This result is robust to many alternative specifications of the selection equation and different matching strategies.

Insert Table 7 here

As for FDI to LDCs we observe a relatively different pattern for the two countries. In Italy we find that firms that create their first foreign plant in a LDC experience a significant increase in TFP: three years after their investment, TFP is on average 8.8% higher than the one of the control group. This is consistent with the idea that vertical investment implies the transfer of the (low-skill) labour-intensive activities to cheap labour countries, while the high-value added activities are kept in the home country. The dynamics of value added of the Italian firms switching towards LDC would confirm this prediction. In fact, our result suggest that value added grows faster in the latter group of firms than in the control group. Finally, we have some evidence that employment drops just after investment (however the effect is not statistically significant), but it rapidly recovers, and three years later it is 8.1% higher than in the control group. This is likely to follow from the dynamics of output, which after controlling for pre-investment values (DID), remains rather stable in the aftermath of the investment, while three years later output is on average 8.8% percent higher in the switching firms than in the control group (but still with a relatively large standard error). These results are anyway consistent with the prediction of the VFDI model that fragmentation may lead to a medium term increase in home efficiency as labour intensive activities are transferred abroad and then to long term gains in competitiveness, output and employment. The results for France are not as clear cut. DID estimates suggest that firms investing in LDCs have higher output and employment than their counterfactual, but the effects on value added and TFP are not significant[9]. One way to interpret these different findings for Italy and France is, as argued earlier, that in the former country investment to LDCs is indeed a good proxy of vertical FDI, while in the latter, there might be more of a mix of horizontal and vertical FDI. This hypothesis finds some support in the distribution of investing firms according to the geographical area of destination (of the affiliates) and sector of origin (of the parent) in both countries. As shown in table 2, within LDC, Italian firms are more likely to invest in Eastern European countries, which are mostly characterized by small (although growing) markets and low cost of labour, while French FDI are relatively more concentrated in other LDC countries (which include some former French colonies). Similar considerations can be drawn from the distribution of FDI by sector. Table 3 shows rather clearly that a large proportion of Italian firms switching towards LDC are indeed concentrated in textile industries (where vertical

[9] Hijzen et al. (2006), who use a different sample of French firms, find similar results in the longer run, but the short term effects on home employment of investing in low income locations is not significant.

fragmentation of production is possible and convenient) while firms switching in DC are disproportionately concentrated in Machinery and Chemicals (where market access FDI are more likely). On the contrary, in the French case, the sector distribution of firms switching in LDC and DC is not so remarkably different.

As for investments to DCs, here we find a consistent evidence both for France and Italy. Firms investing in DC experience a higher turnover after investment relative to the control group and especially in the case of France this is associated with significantly higher employment. Furthermore, this growth gap widens over time: the year after switching, output in the treated group is about 14.6% higher than in the control group in France (and 13.6% in Italy), while this difference reaches 25.5% (18.9%) three years after investment. This is consistent with the idea that investments in developed countries allow for a better access to foreign markets, thus fostering the need for headquarter services and export of intermediates from the parent company to the subsidiaries, as well as with a bandwagon effect on other products of the investing firms, still produced in the home country. It is also worth mentioning that we observe significant positive effects on employment at home for firms switching towards DC, both in France and Italy. These results are consistent with the HFDI model, whereby most of the gains expected from FDI should arise through scale effects[10].

6. Conclusion

This paper studies the effects of foreign investments on home economies. We compare the home performance of a sample of French and Italian firms which have invested abroad for the first time in the period observed to the one of a counterfactual of firms which have not invested abroad. We distinguish between investments in cheap labour countries and in advanced countries. This distinction is important for two reasons. The first one is that the former are of greater policy concern, as there is a generalised fear in continental Europe that investments to cheap labour countries are used to displace production and accelerate the on-going process of de-industrialisation, especially in manufacturing. The second one is that the distinction between the areas of destination reflects different investment motives. Investments towards cheap labour countries generally reflect the aim of saving on labour costs and they are of a vertical type, which also implies a geographical fragmentation of production.

[10] In the appendix we also report some robustness checks. In particular, we report the results of estimations carried out excluding the 'other' sector, which might include non manufacturing investments, and we also focus on a subsample of switching-control pairs for which we have data from t-2 to t+3.

Investments towards developed countries are normally market seeking, they are therefore of a horizontal type, implying a partial or complete duplication of production stages at home and abroad. These different types of investments are also expected to have different effects on the home activities. Vertical investment essentially causes a change in the factor mix of production at home and a shift towards skill intensive activities. Horizontal investment affects home productivity, output and employment through scale effects.

The problem of this type of analysis is of course defining the right counterfactual. For the welfare of the home country what matters is what would have happened to investing firms if they had not invested. By using propensity score matching, we can construct a counterfactual of national firms that never invest abroad which replicates this hypothetical performance. A note of caution is required. Given this framework our results do not measure the sign of the absolute performance of the firms analysed, in other words whether their absolute performance has improved or worsened. They merely say whether, whatever the sign of the absolute performance, the relative performance is different for investing and non investing firms.

The main finding is that there is no evidence of a negative effect of outward investments to cheap labour countries. In Italy, they enhance the efficiency of home activities, with also positive long term effect on output and employment growth. This pattern is consistent with the theory of vertical investment. The geographical fragmentation of production is expected to change the factor mix of home activities, with a concentration on skill and technology intensive tasks. This may lead to an increase in productivity and value added in the short term. The consequent gains in efficiency could then enhance the competitiveness of investing firms leading to a long term expansion of home output and employment. For France we find a positive effect on the size of domestic activity, but no significant effects on productivity. This may have to do with the fact that French FDI towards LDC seem to be less frequently of the vertical type. Investments to developed economies from both countries have instead essentially scale effects but which do not trickle down on productivity at home. These findings imply that foreign investment is often a strategic moves undertaken to strengthen home activities. In this perspective, actions aimed at discouraging foreign investments and the creation of foreign employments seem short sighted and they risk at weakening the domestic economy rather than strengthening it.

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Figure 1 – Performance trajectories in home plants

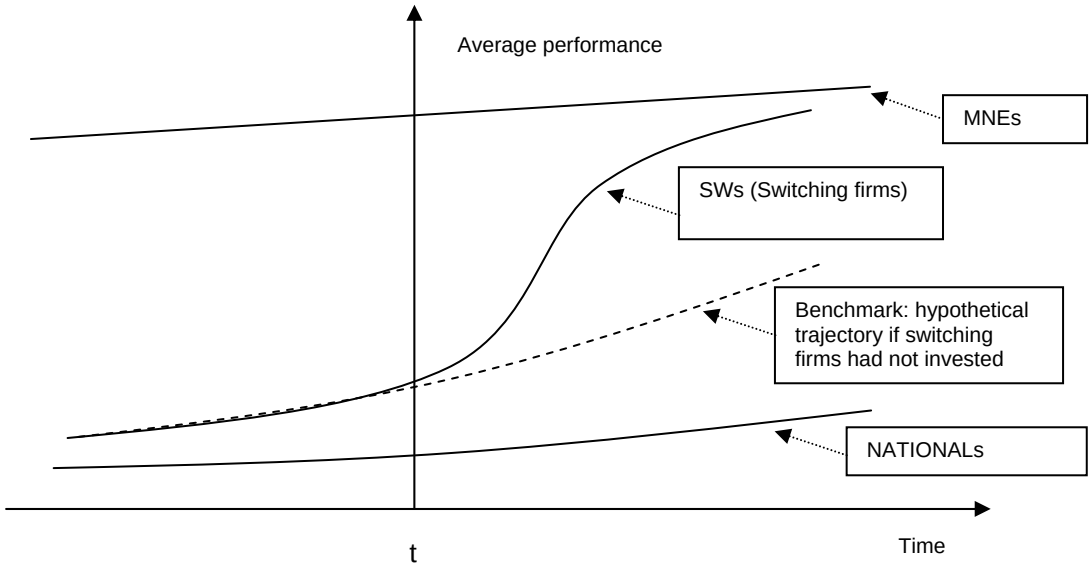
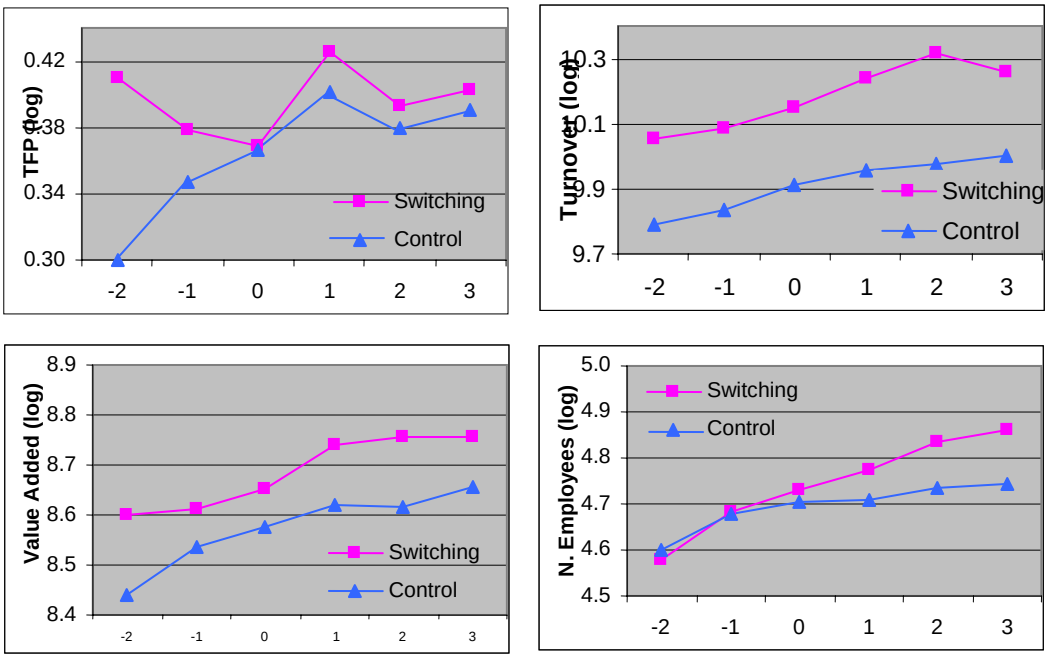
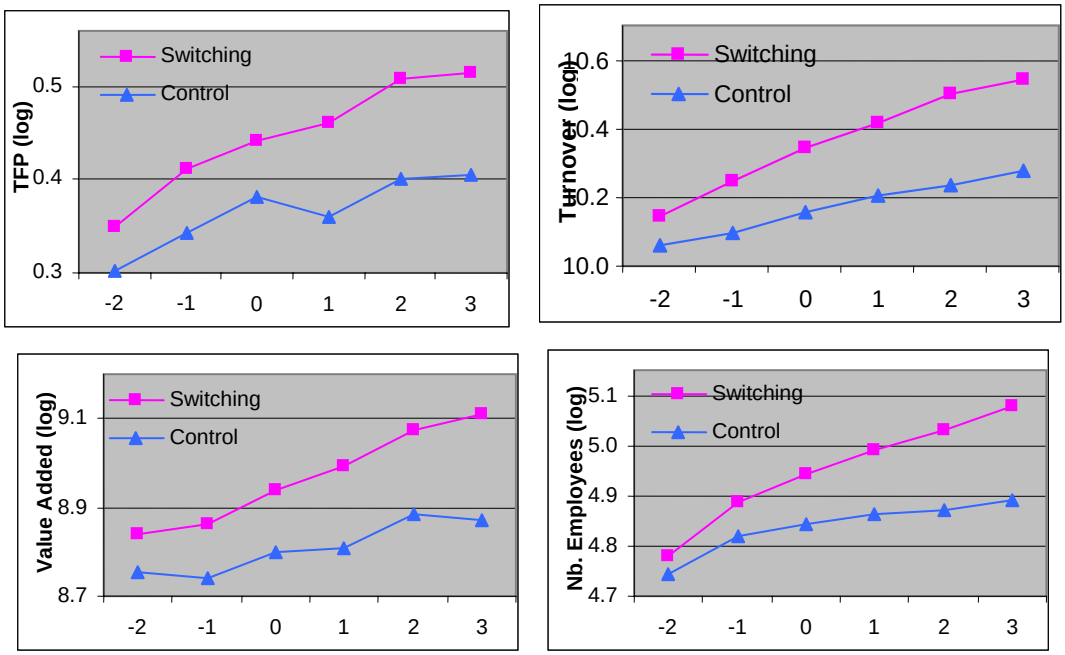


Figure 2a – Performance trajectories of firms switching towards LDC and matched controls: France



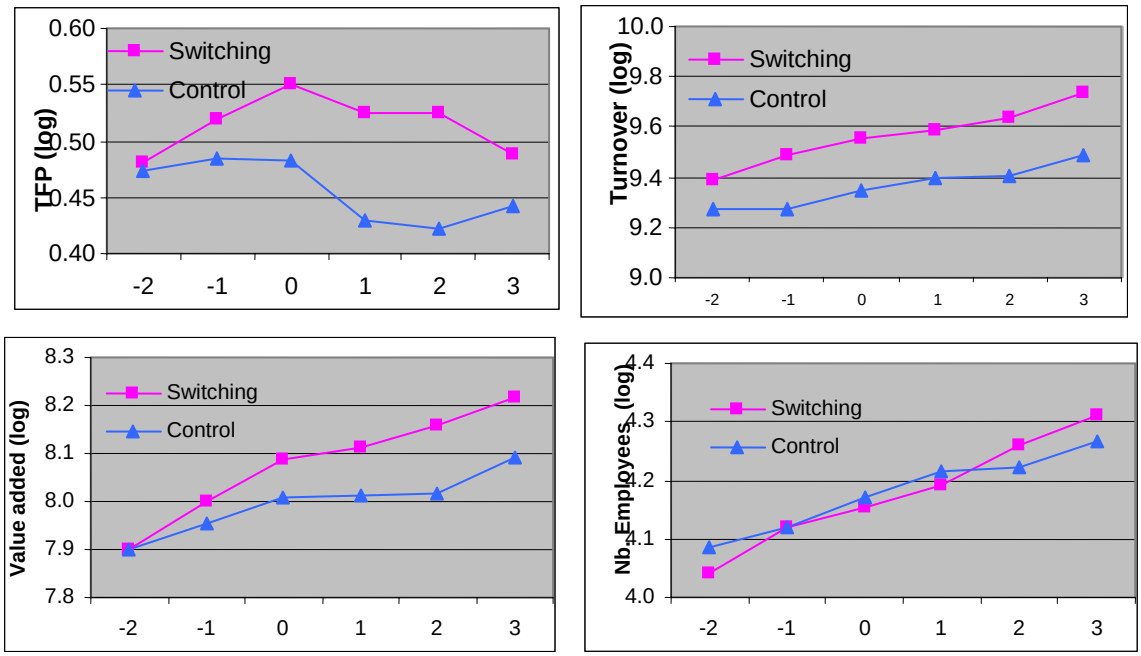
Note: *t=0* is the year of investment. Matching is based on characteristics of firms at *t-1*.

Figure 2b – Performance trajectories of firms switching towards DC and matched controls: France



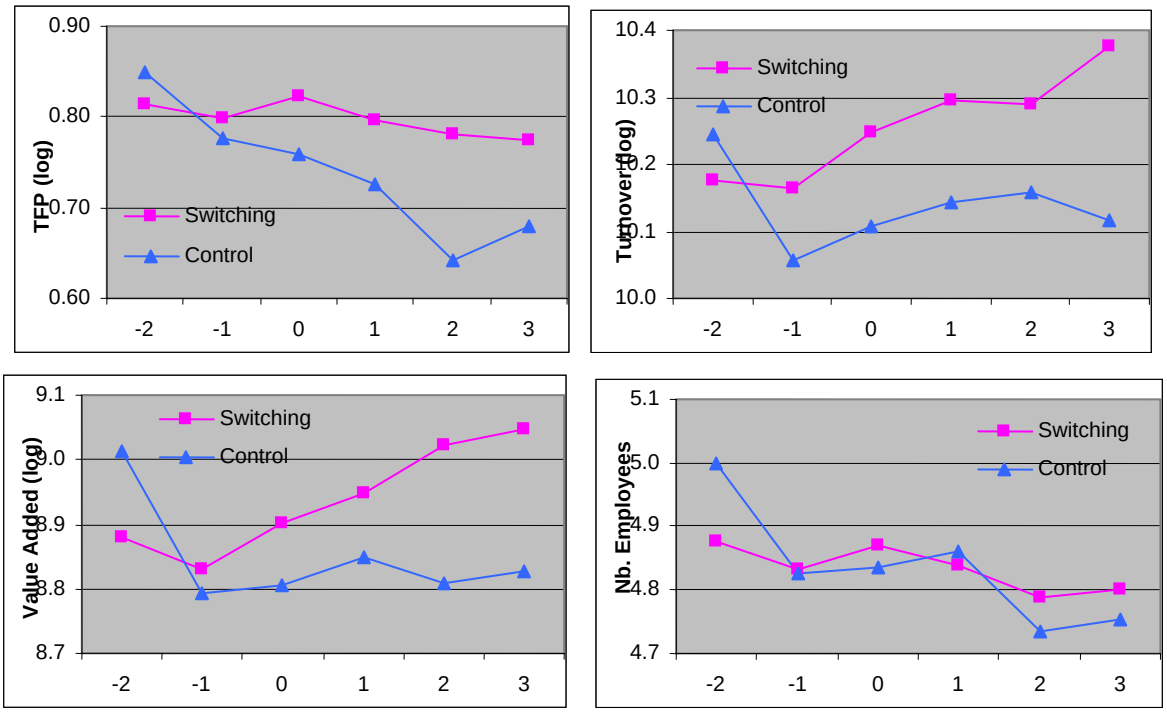
Note: *t=0* is the year of investment. Matching is based on characteristics of firms at *t-1*.

Figure 3a – Performance trajectories of firms switching towards LDC and matched controls: Italy



Note: *t=0* is the year of investment. Matching is based on characteristics of firms at *t-1*.

Figure 3b – Performance trajectories of firms switching towards DC and matched controls: Italy



Note: *t=0* is the year of investment. Matching is based on characteristics of firms at *t-1*.

Table 1 - Distribution of French and Italian switching firms, by year

	France		Italy	
	Switching to LDC	Switching to DC	Switching to LDC	Switching to DC
1993			10	11
1995	9	7	35	16
1996	10	29		
1997	17	16	54	30
1998	21	14		
1999	14	12	53	24
2000	9	13	22	14
Total	80	91	174	95

Table 2 - Distribution of French and Italian switching firms, by geographical area of destination (%)

Country / Area of destination	France	Italy
Asia	17.5	16.9
Eastern Europe	46.3	60.5
Latin America	11.3	7.9
Other LDC	25.0	14.7
Total LDC	100	100
EU	61.5	71.7
North America	14.3	13.1
Other DC	24.2	15.2
Total DC	100	100

Table 3 - Distribution of French and Italian switching firms, by sector (%)

	France		Italy	
	Firms switching to LDC	Firms switching to DC	Firms switching to LDC	Firms switching to DC
DA: Food, beverages and tobacco	8.8	8.8	5.8	5.3
DB: Textiles	10.0	6.6	24.1	10.5
DC: Leather	0.0	0.0	8.6	4.2
DD: Wood	1.3	2.2	2.9	2.1
DE: Pulp, paper and publishing	3.8	3.3	1.7	5.3
DG: Chemicals	7.5	12.1	4.0	10.5
DH: Rubber and plastic	6.3	3.3	2.9	3.2
DI: Other non-metallic mineral products	2.5	0.0	5.2	4.2
DJ: Basic metals and fabricated metal	12.5	8.8	6.9	14.7
DK: Machinery and equipment n.e.c.	12.5	13.2	14.4	19.0
DL: Electrical and optical equipment	11.3	16.5	2.9	10.5
DM: Transport equipment	1.3	4.4	2.9	4.2
DN: Manufacturing n.e.c.	3.8	2.2	7.5	2.1
GA: Others (*)	18.8	18.7	10.3	4.2
Total	100	100	100	100

(*) Manufacturing investment of wholesales

Table 4 – Descriptive statistics on national and switching firms

	National firms		Firms switching to LDC		Firms switching to DC	
			France			
Nb. obs.	28'645		80		91	
	mean	std.dev	mean	std.dev	mean	std.dev
Nb. of employees	89	*(242)*	241	*(334)*	326	*(513)*
Turnover	21'411	*(77'498)*	80'125	*(157'318)*	94'614	*(165'283)*
TFP	1.2	*(1.2)*	1.9	*(1.4)*	2.0	*(1.6)*
Value added per employee	44.4	*(38.5)*	58.9	*(29.3)*	69.4	*(59.6)*
Cost of labour per employee	32.0	*(11.2)*	37.7	*(10.1)*	41.4	*(17.4)*
Age	24.9	*(20.2)*	31.8	*(23.4)*	25.6	*(22.0)*
ROI	6.7	*(11.0)*	7.1	*(7.2)*	8.0	*(8.4)*
Current ratio	1.5	*(0.8)*	1.6	*(1.1)*	1.7	*(1.1)*
			Italy			
Nb. obs.	17'219		174		95	
	mean	std.dev	mean	std.dev	mean	std.dev
Nb. of employees	71	*(207)*	142	*(188)*	304	*(484)*
Turnover	15'831	*(57'242)*	30'468	*(37'160)*	69'754	*(105'413)*
TFP	1.6	*(1.0)*	2.2	*(1.7)*	3	*(2.7)*
Value added per employee	50.1	*(29.2)*	61.8	*(66.2)*	70.9	*(75.3)*
Cost of labour per employee	29.8	*(10.2)*	29.4	*(9.0)*	33.6	*(10.0)*
Age	22.1	*(14.5)*	24.2	*(15.7)*	27.4	*(15.2)*
ROI	6.5	*(8.4)*	6.1	*(5.9)*	7.5	*(7.4)*
Current ratio	1.3	*(0.7)*	1.3	*(0.5)*	1.3	*(0.5)*

Table 5 – Probability of switching for French and Italian firms

	Multinomial Logit					
	France			Italy		
	Coef.	Std. Err.		Coef.	Std. Err.	
Switching in LDC						
Log $TFP_{i, t-1}$	1.577	(0.421)	***	2.001	(0.264)	***
Log Nb. Employees $_{i, t-1}$	0.524	(0.138)	***	0.078	(0.106)	
Log Cost of labour per $employee_{i, t-1}$	0.949	(0.644)		-1.299	(0.417)	***
Log $Age_{i, t-1}$	0.326	(0.140)	**	0.256	(0.117)	**
Return on investments $_{i, t-1}$	0.013	(1.312)		-3.841	(1.033)	***
Current ratio $_{i, t-1}$	-0.050	(0.146)		-0.319	(0.160)	**
Switching in DC						
Log $TFP_{i, t-1}$	1.336	(0.396)	***	2.170	(0.401)	***
Log Nb. Employees $_{i, t-1}$	0.520	(0.117)	***	0.495	(0.141)	***
Log Cost of labour per $employee_{i, t-1}$	1.176	(0.565)	**	-1.703	(0.635)	***
Log $Age_{i, t-1}$	-0.090	(0.118)		0.323	(0.152)	**
Return on investments $_{i, t-1}$	-0.443	(1.196)		-2.056	(1.543)	
Current ratio $_{i, t-1}$	-0.010	(0.119)		-0.186	(0.191)	
Sector dummies	yes			yes		
Regional dummies	yes			yes		
Year dummies	yes			yes		
Number of obs	28816			17488		
LR chi2(238)	598.34			601.59		
Pseudo R2	0.2567			0.1923		
Log likelihood	-866.217			-1263.77		

Asterisks denote significance at 1% (***), 5% (**) and 10% (*).
Intercept and sector, regional and year dummies not reported.

Table 6 – Descriptive statistics on matched controls and switching firms

	CFT to Firms Switching to LDC		Firms switching to LDC		CFT to Firms Switching to DC		Firms switching to DC	
	France							
Nb. obs.	71				82			
	mean	std.dev	mean	std.dev	mean	std.dev	mean	std.dev
Nb. of employees	226.9	*(311.6)*	207.8	*(283.5)*	386.4	*(749.8)*	274.5	*(420.9)*
Turnover	68'760.7	*(120'004.2)*	70'435.6	*(150'456.2)*	106'859.9	*(230'825.4)*	84'030.4	*(155'490.9)*
TFP	1.7	*(1.2)*	1.7	*(1.0)*	1.9	*(1.6)*	2.0	*(1.6)*
Labour prod.	54.9	*(31.8)*	55.8	*(26.0)*	63.7	*(39.2)*	69.7	*(62.7)*
Labour cost	37.9	*(12.3)*	37.6	*(10.3)*	41.2	*(14.2)*	41.1	*(18.1)*
Age	33.0	*(32.0)*	31.6	*(23.5)*	32.5	*(27.2)*	26.2	*(22.7)*
ROI	8.1	*(8.6)*	6.9	*(7.1)*	7.9	*(9.5)*	8.0	*(8.8)*
Current ratio	1.6	*(0.8)*	1.6	*(1.1)*	1.7	*(0.8)*	1.7	*(1.1)*
	Italy							
Nb. obs.	161				87			
	mean	std.dev	mean	std.dev	mean	std.dev	mean	std.dev
Nb. of employees	89	*(93)*	115	*(127)*	298.6	*(811)*	278.1	*(473)*
Turnover	19'838	*(28'294)*	26'702	*(33'957)*	59703	*(117'327)*	63080	*(103'799)*
TFP	1.8	*(1.0)*	2.1	*(1.7)*	2.4	*(1.4)*	2.6	*(1.5)*
Labour prod.	52.2	*(25.1)*	62.2	*(68.5)*	58.5	*(25.7)*	63.5	*(32.6)*
Labour cost	28.5	*(8.3)*	29.3	*(9.1)*	32.6	*(6.5)*	33.1	*(8.8)*
Age	22	*(14.4)*	23.8	*(15.5)*	33.4	*(24.9)*	26.4	*(14.5)*
ROI	6.7	*(6.6)*	6	*(6.1)*	7.4	*(10.3)*	7.7	*(7.6)*
Current ratio	1.3	*(0.6)*	1.3	*(0.5)*	1.3	*(0.6)*	1.4	*(0.5)*

Table 7 - The effect of investing abroad on performance at home: France vs. Italy

	France						Italy					
	The effect of switching in LDC			The effect of switching in DC			The effect of switching in LDC			The effect of switching in DC		
	Nb.	Coef.	Std. Err.	Nb.	Coef.	Std. Err.	Nb.	Coef.	Std. Err.	Nb.	Coef.	Std. Err.
TFP												
ATT 1-year	67	0.010	(0.056)	77	0.102	(0.054) *	143	0.075	(0.044) *	81	0.066	(0.057)
ATT 2-years	61	0.015	(0.057)	70	0.121	(0.061) **	131	0.083	(0.046) *	72	0.099	(0.061) *
ATT 3-years	51	0.001	(0.060)	56	0.131	(0.085)	98	0.088	(0.050) *	60	0.083	(0.057)
DID 1-year	51	-0.010	(0.055)	56	0.002	(0.035)	118	0.061	(0.030) **	69	0.102	(0.034) ***
DID 2-years	45	0.014	(0.055)	50	0.058	(0.047)	106	0.063	(0.037) *	60	0.130	(0.053) **
DID 3-years	35	-0.025	(0.066)	37	0.080	(0.072)	75	0.062	(0.041)	48	0.091	(0.035) ***
Value Added												
ATT 1-year	70	0.134	(0.157)	81	0.185	(0.147)	155	0.066	(0.090)	84	0.088	(0.091)
ATT 2-years	69	0.157	(0.148)	79	0.214	(0.172)	149	0.115	(0.114)	80	0.199	(0.095) **
ATT 3-years	56	0.107	(0.186)	66	0.288	(0.157) *	122	0.115	(0.120)	71	0.125	(0.089)
DID 1-year	60	0.059	(0.050)	72	0.087	(0.051) *	133	0.069	(0.037) *	73	0.146	(0.046) ***
DID 2-years	59	0.060	(0.050)	70	0.139	(0.060) **	127	0.113	(0.048) **	69	0.264	(0.063) ***
DID 3-years	46	0.058	(0.081)	57	0.202	(0.075) ***	101	0.118	(0.049) **	60	0.211	(0.069) ***
Turnover												
ATT 1-year	70	0.254	(0.210)	82	0.211	(0.187)	159	0.192	(0.104) *	83	0.135	(0.086)
ATT 2-years	70	0.306	(0.211)	78	0.247	(0.207)	150	0.204	(0.103) **	82	0.129	(0.097)
ATT 3-years	61	0.264	(0.209)	66	0.305	(0.174) *	121	0.255	(0.101) **	73	0.198	(0.105) *
DID 1-year	59	0.080	(0.036) **	72	0.146	(0.040) ***	138	0.017	(0.031)	73	0.136	(0.046) ***
DID 2-years	59	0.117	(0.045) ***	68	0.203	(0.051) ***	129	0.018	(0.037)	72	0.135	(0.062) **
DID 3-years	50	0.050	(0.073)	56	0.255	(0.063) ***	101	0.088	(0.040) **	63	0.189	(0.058) ***
Employment												
ATT 1-year	71	0.066	(0.181)	82	0.126	(0.177)	156	-0.030	(0.117)	85	0.011	(0.086)
ATT 2-years	69	0.101	(0.143)	79	0.153	(0.194)	146	-0.005	(0.099)	83	0.083	(0.086)
ATT 3-years	58	0.105	(0.181)	67	0.224	(0.183)	118	0.061	(0.105)	73	0.035	(0.097)
DID 1-year	54	0.072	(0.035) **	62	0.127	(0.039) ***	134	-0.024	(0.034)	73	0.047	(0.044)
DID 2-years	52	0.087	(0.045) *	60	0.158	(0.040) ***	124	0.020	(0.035)	71	0.158	(0.049) ***
DID 3-years	41	0.096	(0.056) *	48	0.203	(0.054) ***	97	0.081	(0.046) *	61	0.148	(0.053) ***

Notes: Standard errors are bootstrapped (100 rep.). Asterisks denote significance levels at 1% (***), 5% (**) and 10% (*)

Appendix

Table A.1 – Testing for the balancing property: test for difference in means and distribution between switching and controls in the matched samples

	Nb. Obs.	Diff. in mean*	Std. Error	Combined K-S**	Corrected p-value	Nb. Obs.	Diff. in mean*	Std. Error	Combined K-S**	corrected p-value
Sample of firms switching towards LDC and matched controls										
Log $TFP_{i, t-1}$	142	0.032	(0.095)	0.127	[0.55]	322	0.034	(0.058)	0.094	[0.51]
Log Nb. $Employees_{I, t-1}$	142	0.005	(0.192)	0.113	[0.70]	322	0.000	(0.110)	0.198	[0.01]
Log Cost of labour per $employee_{i, t-1}$	142	0.010	(0.049)	0.085	[0.94]	322	0.028	(0.033)	0.106	[0.36]
Log $Age_{i, t-1}$	142	0.095	(0.144)	0.141	[0.41]	322	0.085	(0.076)	0.124	[0.19]
Return on $investments_{I, t-1}$	142	0.008	(0.015)	0.113	[0.70]	322	-0.005	(0.009)	0.127	[0.17]
Current $ratio_{i, t-1}$	142	0.001	(0.155)	0.141	[0.41]	322	0.020	(0.060)	0.099	[0.44]
Sample of firms switching towards DC and matched controls										
Log $TFP_{i, t-1}$	164	0.067	(0.093)	0.139	[0.35]	174	0.023	(0.076)	0.104	[0.72]
Log Nb. $Employees_{I, t-1}$	164	0.066	(0.203)	0.151	[0.25]	174	0.008	(0.182)	0.107	[0.69]
Log Cost of labour per $employee_{i, t-1}$	164	0.002	(0.005)	0.127	[0.46]	174	-0.012	(0.034)	0.080	[0.94]
Log $Age_{i, t-1}$	164	-0.247	(0.139)	0.191	[0.07]	174	-0.163	(0.116)	0.182	[0.10]
Return on $investments_{I, t-1}$	164	-0.001	(0.015)	0.155	[0.23]	174	0.011	(0.012)	0.164	[0.18]
Current $ratio_{i, t-1}$	164	-0.009	(0.120)	0.143	[0.31]	174	0.066	(0.086)	0.139	[0.35]

Notes:

* Difference-in-mean test is the estimated coefficient of a regression of each variable on a dummy taking value 1 for switching firms and 0 for the matched control.

** Kolmogorov-Smirnov test for the equality of distribution of each variable in the groups of switching firms and matching controls.

Table A.2 – Testing for the balancing property: logit on the probability of switching in the matched samples

	France					Italy			
	Binary logit Switching to LDC vs CFT		Binary logit Switching to DC vs CFT			Binary logit Switching to LDC vs CFT		Binary logit Switching to DC vs CFT	
	Coef.	Std. Err.	Coef.	Std. Err.		Coef.	Std. Err.	Coef.	Std. Err.
Log $TFP_{i, t-1}$	0.005	(0.413)	0.171	(0.352)		0.167	(0.337)	0.078	(0.555)
Log Nb. Employees $_{i, t-1}$	-0.022	(0.183)	0.100	(0.137)		-0.081	(0.135)	0.023	(0.186)
Log Cost of labour per $employee_{i, t-1}$	0.162	(0.717)	-0.034	(0.590)		0.135	(0.517)	-0.176	(0.925)
Log $Age_{i, t-1}$	0.146	(0.215)	-0.368	(0.199)	*	0.175	(0.177)	-0.286	(0.212)
Return on investments $_{i, t-1}$	0.997	(2.056)	-0.095	(1.811)		-1.221	(1.653)	0.909	(2.363)
Current ratio $_{i, t-1}$	-0.024	(0.190)	0.055	(0.223)		0.066	(0.220)	0.199	(0.283)
Number of obs	142		164			322		174	
LR chi2(238)	0.82		4.39			2.54		3.16	
Prob > chi2	0.9915		0.624			0.8639		0.788	
Pseudo R2	0.0042		0.019			0.0057		0.013	
Log likelihood	-98.017		-111.5			-221.923		-119	

Table A.3 - The effect of investing abroad on performance at home: France vs Italy (excluding the sector "Others")

	France							Italy						
	The effect of switching in LDC				The effect of switching in DC			The effect of switching in LDC				The effect of switching in DC		
	Nb.	Coef.	Std. Err.		Nb.	Coef.	Std. Err.	Nb.	Coef.	Std. Err.		Nb.	Coef.	Std. Err.	
TFP															
ATT 1-year	56	-0.052	(0.086)		57	0.112	(0.075)	128	0.085	(0.045)	*	77	0.058	(0.059)	
ATT 2-years	53	-0.161	(0.078)	**	55	0.100	(0.077)	117	0.095	(0.039)	**	68	0.082	(0.061)	
ATT 3-years	42	-0.157	(0.073)	**	45	0.097	(0.083)	90	0.122	(0.061)	**	56	0.078	(0.064)	
DID 1-year	41	0.007	(0.066)		41	0.054	(0.041)	104	0.064	(0.032)	**	66	0.089	(0.037)	***
DID 2-years	38	-0.056	(0.070)		39	0.062	(0.042)	93	0.068	(0.042)	*	57	0.103	(0.051)	**
DID 3-years	27	-0.007	(0.055)		31	0.082	(0.066)	68	0.097	(0.045)	**	45	0.077	(0.035)	***
Value Added															
ATT 1-year	57	-0.015	(0.179)		62	0.235	(0.178)	138	0.179	(0.099)	*	80	0.095	(0.097)	
ATT 2-years	55	-0.115	(0.218)		62	0.258	(0.181)	133	0.228	(0.113)	**	76	0.199	(0.091)	**
ATT 3-years	45	-0.221	(0.245)		52	0.183	(0.187)	111	0.218	(0.122)	*	67	0.141	(0.093)	
DID 1-year	46	0.113	(0.075)		55	0.186	(0.047)	***	117	0.085	(0.035)	**	70	0.148	(0.055)	***
DID 2-years	44	0.054	(0.074)		55	0.228	(0.051)	***	112	0.135	(0.042)	***	66	0.254	(0.062)	***
DID 3-years	34	-0.001	(0.074)		45	0.266	(0.067)	***	91	0.145	(0.044)	***	57	0.216	(0.070)	***
Turnover															
ATT 1-year	55	0.180	(0.273)		63	0.172	(0.216)	141	0.276	(0.108)	***	79	0.148	(0.107)	
ATT 2-years	56	0.227	(0.276)		62	0.238	(0.192)	133	0.325	(0.114)	***	78	0.136	(0.100)	
ATT 3-years	49	0.171	(0.255)		53	0.170	(0.186)	108	0.353	(0.114)	***	69	0.230	(0.108)	**
DID 1-year	45	0.104	(0.058)	*	55	0.169	(0.040)	***	121	0.025	(0.039)		70	0.137	(0.044)	***
DID 2-years	45	0.112	(0.067)	*	54	0.262	(0.049)	***	113	0.053	(0.044)		69	0.125	(0.054)	**
DID 3-years	38	0.031	(0.093)		45	0.281	(0.049)	***	89	0.125	(0.055)	**	60	0.200	(0.062)	***
Employment															
ATT 1-year	57	-0.002	(0.187)		62	0.144	(0.211)	139	0.107	(0.102)		81	0.034	(0.087)	
ATT 2-years	55	0.004	(0.225)		61	0.185	(0.180)	130	0.148	(0.111)		79	0.103	(0.115)	
ATT 3-years	47	-0.039	(0.226)		53	0.196	(0.203)	105	0.232	(0.110)	**	69	0.064	(0.098)	
DID 1-year	42	0.102	(0.042)	**	46	0.120	(0.032)	***	118	-0.017	(0.030)		70	0.070	(0.043)	*
DID 2-years	40	0.097	(0.051)	*	45	0.203	(0.055)	***	109	0.025	(0.044)		68	0.175	(0.048)	***
DID 3-years	32	0.047	(0.069)		37	0.249	(0.077)	***	85	0.079	(0.052)		58	0.168	(0.058)	***

Notes: Standard errors are bootstrapped (100 rep.). Asterisks denote significance levels at 1% (***), 5% (**) and 10% (*)

Table A.4 - The effect of investing abroad on performance at home: France vs Italy ("balanced" sample)

	France							Italy						
	The effect of switching in LDC				The effect of switching in DC			The effect of switching in LDC				The effect of switching in DC		
	Nb.	Coef.	Std. Err.		Nb.	Coef.	Std. Err.	Nb.	Coef.	Std. Err.		Nb.	Coef.	Std. Err.	
TFP															
ATT 1-year	35	-0.027	(0.064)		37	0.073	(0.082)	75	0.055	(0.062)		48	0.126	(0.066)	*
ATT 2-years	35	-0.018	(0.070)		37	0.126	(0.099)	75	0.084	(0.063)		48	0.139	(0.083)	*
ATT 3-years	35	-0.034	(0.079)		37	0.161	(0.110)	75	0.081	(0.065)		48	0.089	(0.061)	
DID 1-year	35	-0.019	(0.056)		37	-0.008	(0.047)	75	0.036	(0.030)		48	0.128	(0.034)	***
DID 2-years	35	-0.010	(0.071)		37	0.046	(0.061)	75	0.065	(0.037)	*	48	0.141	(0.058)	**
DID 3-years	35	-0.025	(0.066)		37	0.080	(0.072)	75	0.055	(0.062)		48	0.091	(0.035)	**
Value Added															
ATT 1-year	46	0.109	(0.182)		57	0.166	(0.192)	101	0.050	(0.129)		60	0.068	(0.105)	
ATT 2-years	46	0.078	(0.184)		57	0.210	(0.187)	101	0.096	(0.129)		60	0.131	(0.112)	
ATT 3-years	46	0.083	(0.199)		57	0.278	(0.188)	101	0.094	(0.134)		60	0.097	(0.099)	
DID 1-year	46	0.084	(0.059)		57	0.090	(0.052)	*	101	0.074	(0.037)	**	60	0.182	(0.050)	***
DID 2-years	46	0.053	(0.063)		57	0.134	(0.068)	**	101	0.120	(0.047)	**	60	0.245	(0.070)	***
DID 3-years	46	0.058	(0.081)		57	0.202	(0.075)	***	101	0.118	(0.049)	**	60	0.211	(0.069)	***
Turnover															
ATT 1-year	50	0.348	(0.253)		56	0.179	(0.181)	101	0.181	(0.117)		63	0.226	(0.111)	**
ATT 2-years	50	0.362	(0.260)		56	0.234	(0.179)	101	0.201	(0.119)	*	63	0.236	(0.113)	**
ATT 3-years	50	0.300	(0.254)		56	0.266	(0.180)	101	0.232	(0.121)	*	63	0.243	(0.110)	**
DID 1-year	50	0.097	(0.049)	**	56	0.168	(0.043)	***	101	0.036	(0.035)		63	0.173	(0.039)	***
DID 2-years	50	0.111	(0.058)	*	56	0.224	(0.054)	***	101	0.056	(0.040)		63	0.183	(0.049)	***
DID 3-years	50	0.050	(0.073)		56	0.255	(0.063)	***	101	0.088	(0.040)	**	63	0.189	(0.058)	***
Employment															
ATT 1-year	41	0.100	(0.277)		48	-0.006	(0.236)	97	-0.049	(0.126)		61	-0.065	(0.101)	
ATT 2-years	41	0.101	(0.274)		48	0.022	(0.234)	97	0.003	(0.125)		61	0.023	(0.097)	
ATT 3-years	41	0.103	(0.276)		48	0.070	(0.228)	97	0.042	(0.127)		61	0.015	(0.102)	
DID 1-year	41	0.093	(0.038)	**	48	0.127	(0.038)	***	97	-0.011	(0.035)		61	0.067	(0.044)	
DID 2-years	41	0.095	(0.045)	**	48	0.156	(0.045)	***	97	0.042	(0.039)		61	0.156	(0.046)	***
DID 3-years	41	0.096	(0.056)	*	48	0.203	(0.054)	***	97	0.081	(0.046)	*	61	0.148	(0.053)	***

Notes: Standard errors are bootstrapped (100 rep.). Asterisks denote significance levels at 1% (***), 5% (**) and 10% (*). 'Balanced' sample is defined by all the switching-control pairs with no missing values between t-2 and t+3.