

Is Retaining the same as Attracting Foreign Capitals? Not quite... The case of Italy

Laura Magazzini
Scuola Sant'Anna – Pisa

Chiara Piccardo
Università di Genova

Angelo Zago
Università di Verona

When a foreign firm reduces its engagement in a domestic firm's capital, it usually sparks a lot of news in the mass-media and controversies among workers, unions and politicians. It is indeed common that citizens get to know about foreign capitals invested in their home country firms when these investors in fact leave, since this attracts much attention in the media. But while this phenomenon may be relatively well known at the macro level, it is much less so at the disaggregated or micro (firm) level. In this paper we investigate the determinants of foreign capital disinvestments using data at the firm and regional levels.

What attracts inward FDI (Foreign Direct Investments) has been the subject of a quite large literature. Most of the empirical literature on the topic has focused on macro-level characteristics to identify the determinants of the attractiveness for FDI. According to this literature, different country-level characteristics, such as GDP, population, market openness of host economy, relative factor prices, institutional development, geographical and cultural proximity, among others affect the inward FDI (see, e.g., Kinoshita and Campos, 2003; Disdier and Mayer, 2004; Barrios et al., 2006; Yavan, 2010).

A recent wave of studies has started to analyze the determinants of inward FDI at a more disaggregated level, to account for both regional and firm-level characteristics. These studies look at either the location choices of foreign firms (see, e.g., Basile et al., 2008; Amendolagine et al., 2013; Cieslik, 2013; Ablov, 2015); or at the interaction between firm strategies and characteristics with characteristics of the local economies (e.g., Beugelsdijk, 2007; Van Oort et al., 2012). In this paper we depart from this literature in two dimensions. First, we study how and to what extent *target* firm and local characteristics affect inward FDI in Italy. In addition, we consider both the analysis of domestic firms that become foreign (as defined below) and that of foreign firms that return to being domestic.

The empirical analysis is based on a dataset of Italian companies, AIDA (Analisi Informatizzata delle Aziende), provided by Bureau van Dijk (BvD) and covering the period between 2005 and 2014. The AIDA dataset includes detailed information on more than one million of Italian limited liability companies operating in both the manufacturing and services sectors, which have to register their balance sheet to the Italian Chambers of Commerce. The data provide financial and economic information for Italian firms, as well as a wide set of relevant indicators, including the incorporation year and the sector of activity, among others. AIDA data, due to their nature, cover virtually the universe of Italian limited liability firms independently of their size, thus representing the ideal set of data to study the dynamics of firms and industries.

AIDA data have been integrated with information on firms' yearly ownership structure (covering the period 2005-2014) derived from Historical ORBIS (another BvD source). For each firm and year, the Historical ORBIS dataset allows to distinguish two types of owners:

shareholders and ultimate owners. For each shareholder and ultimate owner, the dataset provides: name (and/or the identification number), ownership share, nationality (that allows to identify foreign owners) and type (i.e., bank, financial company, insurance company and corporate companies, among others). For the current analysis, using information on firms' shareholders and ultimate owners, following the applied literature, we identify three alternative definition of foreign firms. Based on our first definition, to qualify as foreign, a firm should have at least 10% of its capital directly owned by a single foreign persons or company (i.e., a single foreign shareholder). All firms not meeting this criterion are defined as Italian owned (or national firms), including firms without ownership information. Using a second definition, we define as foreign those firms with at least 10% of their capital owned by foreign persons or companies (i.e., one or more foreign shareholders). Finally, using information on ultimate owners, we identify foreign firms as those with 25.01% or more of their capital owned, directly or indirectly, by a foreign entity (i.e., a global ultimate owner).

According to these three alternative definitions of foreign firms, we qualify firms receiving FDI in each year, as those firms that become foreign in t (and was national in $t-1$).¹ Analogously, firms that return to being domestic in t (after being foreign in $t-1$) are those that lose FDI. We start with a descriptive analysis and compare firms receiving FDI² and losing FDI with national firms in each relevant year (2006-2014), and we look at their performance, such as firms' size (the number of employees, in log), labour productivity (the logarithmic transformation of the ratio between added value and the number of employees) and profitability (ROS), among others.³

In the empirical analysis, we start with a multi-level modeling to understand the sources of variation at the firm/industry/province/region level and we find that the level that matters the most is the firm level. Then, to investigate which characteristic matter the most we employ a “multinomial” model to assess the effect of firm level characteristics on the probability of receiving/losing FDI. Indeed, we employ a joint modeling of firms becoming foreign and of foreign firms going back to being domestic. For this purpose, we develop an ad hoc (pseudo) likelihood framework to account for this pattern. Moreover, we use a correlated random effect approach (Mundlak, 1978; Chamberlain, 1980; Wooldridge, 2010) to account for the possible endogeneity of firm characteristics. Monte Carlo results (work in progress, so results are preliminary and incomplete) show that the joint estimation performs better than separate estimations.

In our analysis, the dependent variable (the binary variable $fdi_{i,t}$) is equal to 1 if firm i receives/loses FDI in year t (where t varies between 2006 and 2014) and 0 otherwise.⁴ As explanatory variables, at the firm level we employ the economic and financial variables that the empirical literature has shown influencing FDI. In particular, we account for firms' size, productivity, profitability, financial stability and age. At the local level, we consider regional and provincial characteristics that in the literature are found to have a role in determining FDI. At provincial level, we include economic development (proxied by the per-capita GDP), labor market conditions (employment rate), market openness (export minus imports over GDP), agglomeration (i.e., number of active firms and number of foreign firms), financial development and propensity to finance (proxied by the ratio between bank loans and deposits),

¹ Given our definition of firms receiving FDI, 2006 is the first year in which we can identify inward FDI.

² We define firms receiving FDI using the first definition of foreign firms (i.e., considering the 10% of direct share owned by a single foreign shareholder).

³ In our analysis we only include firms that do not change their nationality in the period 2005-2014 and firms that change their nationality, from national to foreign, and from foreign to national, only once.

⁴ We alternatively qualify firms receiving/losing FDI (and estimate the probability that a firm receives FDI) using the three definitions of foreign firms (i.e., considering the 10% of direct share owned by a single foreign shareholder, the 10% of direct share owned by one or more foreign shareholders and the 25.01% or more of capital owned directly or indirectly by a global ultimate owner).

the knowledge base (proxied by the stock of patents) and demography indicator (i.e., life expectancy). Moreover, among regional controls we include human capital and productivity, measured by the share of graduates on population, and the value added value per worker, respectively. In order to account for institutional development, we control for the length of court proceedings.

All regressors are lagged one period with respect to the dependent variable. Moreover, in each specification, we control for time invariant sectoral effects through the Pavitt-sectors (Science based, Specialized suppliers, Scale intensive, and Supplier dominated industry and service sectors) dummy variables. We control for three geographical area dummy variables which identify firms operating in the North, Centre or South of Italy, respectively: in this way we account for the omission of geographical specific time invariant characteristics which might bias our parameter estimates. We also include year dummies which allow us to account for the economic cycle and common macroeconomic factors.

For our sample of Italian firms, the probability of receiving a FDI is related to their size and age (as shown, for instance, by Bhupatiraju, 2019). Given that finding out about target firms requires time and resources, this may be profitable mostly for investments (target firms) above a certain size. Notice that Italian firms are relatively smaller than other European industrialized countries, and this may (at least partially) explain the relative less attractiveness of Italy for FDI. Other firm-level variables appear to have a limited effect, however the role of productivity is to be further explored.

Focusing on local factors, economic development (GDP per capita) increases the probability of inward FDI, together with better institutional quality (faster processing times). These two variables refer to different dimensions of economic development, the first in terms of wealth per capita and the second in terms of efficient local institutions (probably for property rights protection and contract enforcement). Both GDP per capita (see, e.g., Daniele and Marani, 2011) and length of trials (see, e.g., Comi et al., 2021) have been shown to be affecting inward FDI at the provincial level. Another variable that seems to be significant in some specifications is the financial development, probably suggesting that the more the bank credit available the less likely are inward FDI. Overall, notice that differences emerge both across sectors and geographical areas.

On the ‘retention’ side, that is the factors that help retaining foreign capitals invested in Italian firms, at the firm level the factor resulting consistently significant across specifications is the firm productivity (turnover per employee): the more a firm is productive, the more likely that foreign capital leaves the firms, thus suggesting that FDI investments lose appeal when firms become more productive, may be because they were motivated by underperforming firms to start with. On the local level, the determinants attracting foreign capital are to a great extent the same that help retaining them. Indeed, both higher economic development and faster courts make capital retention more likely. Last, the higher financial capacity (more loans over deposits) make foreign capital leaving more likely. To conclude, notice that at the local level the factors that attract foreign capital are the same that help retaining it. At the firm level, where factors seem relatively more important, size and age attract FDI while lower productivity retains FDI.

Notice that is still work in progress and we are still completing data collection, especially at the firm level, where we will extend the analysis to consider innovative capacity (patents at firm level), intangibles (registered trademarks), other variables to explain financial constraints. At the local level, we are completing the data collection on the banking system (with bad loans and zombie firms), on human capital (PISA survey on student performance), infrastructure availability, institutional quality (with quality of institutions and crimes against properties), further on economic development (e.g., number and values of protests; entrepreneurship), demography (birth rate, old-age index, internal migration balance, etc.), and

culture (e.g., entertainment and tourism). Given all these potential variables, we are applying methodologies for variable selection (e.g., Lasso). Last but not least, we are investigating the spatial dimension of these phenomena testing for agglomeration economies.

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