



## Foreign Direct Investment and mark-up dynamics: Evidence from Spanish firms<sup>☆</sup>

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### ABSTRACT

A review of the literature indicates that Foreign Direct Investment has the potential to increase the intensity of competition and to act as a channel for technology transfers. Using a Spanish firm level data set, we disentangle these effects by estimating a dynamic model of firm level performance, which we proxy by mark-ups. We find that FDI has a positive long-run effect on the mark-ups of targets, but this is limited to firms in R&D intensive sectors. In addition, we find weak evidence that foreign presence dampens margins. However, this effect appears to be more than compensated by positive spillovers in the case of knowledge intensive industries.

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### 1. Introduction

In an early pioneering contribution, [Caves \(1974\)](#) put forward the idea that Foreign Direct Investment (FDI) influenced host country conditions through two main channels. On the one hand, FDI ought to result in technology transfers to host country firms. This effect was conjectured to be both direct—Multinational Corporations (MNCs) providing subsidiaries an efficiency advantage—and indirect—MNCs generating positive spillovers. On the other hand, an important foreign presence could also increase the intensity of competition in the recipient country.<sup>1</sup> While the latter conjecture is intuitively appealing, direct empirical evidence of

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<sup>1</sup> Caves' insights can be summarised by the following sentences: "The host nation's private sector does not benefit directly because the foreign subsidiary is efficient, or brings to its shores skilled entrepreneurship or productive knowledge. Rather its gains depend on spill-overs of productivity that occur when the multinational corporation cannot capture all quasi-rents due to its productive activities, or to the removal of distortions by the subsidiary's competitive pressure", [Caves \(1974, p. 176\)](#).

the pro-competitive effect of FDI is limited, if not non-existent.<sup>2</sup> By and large, the empirical literature has focused on the technological effect, possibly because unearthing the pro-competitive effect of FDI is not trivial.<sup>3</sup>

The purpose of this paper is to attempt to disentangle empirically the efficiency, spillovers, and competition effects of FDI on firms' mark-ups. We chose mark-ups as a proxy for firm performance for three reasons. First, mark-ups are a natural choice when attempting to gauge changes in competitive pressure. Second, this measure captures the evolution of price as well as costs, both of which will be affected by the FDI induced effects identified above. Third, this variable is less prone to measurement problems stemming from the use of industry-wide deflators, as it directly reflects firms' pricing behaviour.

The empirical analysis is carried out with Spanish firm level data over the period 1983–1996. Potentially, Spain's experience represents an interesting case to test the conjectures presented above as a number of factors contributed to a large increase in competitive pressure and a surge in FDI.<sup>4</sup> The increase in competitive pressure is documented in Siotis (2003), where a drop in (econometrically estimated) industry mark-ups is identified as a result of Spain's entry into the EU.

The main innovations contained in this paper are as follows. First, we use price-cost margins rather than productivity (in the remainder of the paper, we use mark-ups and price-cost margins interchangeably). Second, we focus on the dynamic responses of the dependent variable. In turn, these responses form our main identification argument. Concretely, we conjecture that the effects identified above will work their way through at a different pace. Third, we split our sample using R&D intensity, which provides an additional identifying hypothesis. Fourth, we use the identity of firms as a further check on the robustness of our results. Since Spanish owned firms typically lag foreign subsidiaries along the technological dimension, domestic firms (as opposed to foreign subsidiaries) are likely to be the main beneficiaries of spillovers. Fifth, we apply the Generalised Method of Moments (GMM) in order to deal with endogeneity biases. This also allows us to properly account for industry and firm level fixed effects.

We find that after controlling for potential endogeneity biases and economy-wide effects, FDI has a positive long-run effect on the mark-ups of target firms, but this is limited to R&D intensive sectors. In addition, domestically owned firms are the main recipient of spillovers in knowledge intensive industries. Last, the results weakly indicate that an important foreign presence dampens margins, at least in the short-run. However, in the case of R&D intensive industries, this appears to be more than compensated by positive spillovers.

The rest of the paper is organised as follows. The next section indicates why, under fairly general conditions, FDI could be expected to act as a channel for technology transfers as well as influence the intensity of competition. Section 3 presents the data and describes how we constructed the variables. Section 4 contains the econometric specification as well the main results. Section 5 concludes.

## 2. Motivation and testable conjectures

### 2.1. Technology transfers and competition

The fact that MNCs possess firm-specific assets that confer them a competitive edge is well established in the literature (Markusen, 1995). If these assets are transferred to the subsidiary, the latter will be more efficient and, as a general rule, enjoy higher margins (the “direct” effect). For instance, this obtains in the case of Cournot or a Bertrand model with product differentiation, constant marginal cost and with firms facing a linear residual demand curve.<sup>5</sup> However, the existence of important costs associated with a change of management may temporarily lead to lower margins, particularly if it involves a foreign firm. This may result because of differences in culture, language, or an inadequate knowledge of consumer preferences, that is, there may be a short-run drop in mark-ups driven by “teething problems compounded by foreignness” (Harris and Robinson, 2002).<sup>6</sup>

It is also a common observation that MNCs have the potential to generate positive spillovers in the host location (the “indirect effect”; see Barba Navaretti et al. (2004) for an extensive analysis). In the event that these spillovers are large and market-wide, host country competitors are likely to experience an increase in mark-ups (for instance, this is the case in the models mentioned above with complete spillovers). However, even within the simple class of models we refer to, the predictions regarding industry-wide margins are less clear-cut when spillovers are limited and/or only affect a subset of firms. The latter may occur if only those firms which are sufficiently “close” to the source (with “closeness” defined as technological, product, or geographical proximity) can appropriate the positive externalities generated by MNCs.

<sup>2</sup> In his industry level study, Caves (1974) found that the profitability of Canadian domestic plants during the period 1965–67 was negatively correlated with the average share of foreign plants in industry sales. This finding was interpreted as evidence of the pro-competitive effect of FDI. Clearly, this finding cannot be given a causal interpretation. In a similar vein, Kokko (1996) simultaneously estimates the labour productivity determinants of foreign owned and domestic plants in Mexico for the year 1970. He reports that labour productivity in domestic plants is positively correlated with productivity in foreign plants, but this holds only for a subset of industries. This finding is interpreted as pointing to the existence of competition related spillovers.

<sup>3</sup> A recent exception is provided by Bloom Shankerman and Van Reenen (2005) who show that R&D activity generates two types of externalities on rivals: technological spillovers and an increase in product market rivalry.

<sup>4</sup> In 1986, the country joined the European Union (EU) which led to the progressive opening of the Spanish economy and triggered a wave of domestic liberalisation meant to bring the Spanish economy into the European mainstream. Moreover, entry into the EU coincided with the most important liberalisation exercise in Europe since the 1960s, namely the implementation of the Single Market Programme.

<sup>5</sup> A drop in costs accompanied by a downward adjustment in prices (leading to larger output) typically results in a fall in the elasticity of the residual demand faced by the firm (and therefore, a higher mark-up). Clearly, the particular case of an iso-elastic residual demand is an exception.

<sup>6</sup> In addition, a fall in the target firm's profitability may also occur when FDI is driven by a technology sourcing. This conjecture has received both theoretical and empirical support (for theoretical results, see Siotis (1999), and for empirical evidence Neven and Siotis (1996), Driffield and Love (2003)). However, while sourcing may be a realistic motive, its importance is likely to be very limited compared to “traditional” FDI, particularly in the context of Spain.

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