



Intellectual Property Rights and the productivity effects of MNE affiliates on host-country firms



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ABSTRACT

In this paper we investigate the impact of increased Intellectual Property Rights (IPR) protection on the productivity effects that MNE affiliates exert on local host-country firms. Conceptually, we argue that IPR protection has two opposing effects: On the one hand, it weakens the productivity effects through reduced knowledge spillovers and increased monopoly power of MNE affiliates. On the other hand, it strengthens productivity effects through increased knowledge sharing (with local suppliers) and higher quality products and processes produced and used by MNE affiliates. Given these opposing forces, the net outcome is an empirical matter. Using a sample of 81,299 local firms in 17 countries, we find that increased IPR protection strengthens backward (to supplier) productivity effects and weakens forward (to customer) productivity effects. These moderating effects of IPR protection are only observed in industries that strongly rely on patents to protect intellectual property. The results suggest that increased IPR protection leads to increased knowledge sharing with local suppliers, yet also to increased monopoly power over local (corporate) customers.

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1. Introduction

Over the past decade, there has been a surge in studies investigating the productivity effects of multinationals (MNEs) and their foreign affiliates on domestic host-country firms. The results of these studies have diverged widely (Görg & Strobl, 2001; Görg & Greenaway, 2004; Meyer & Sinani, 2009; Smeets, 2008). Apart from methodological reasons (Görg & Strobl, 2001), two main conceptual explanations have emerged.

First, many studies theoretically focus on knowledge spillovers, yet empirically they measure (changes in) local firm productivity and relate that to MNE affiliate activity. The estimated productivity effects may indeed incorporate positive influences (such as knowledge spillovers), but also negative influences (such as competition effects). The net outcome will thus depend on which of these effects dominates (Aitken & Harrison, 1999; Garcia, Jin, & Salomon, 2013).

Second, differences in institutional settings between countries can induce differences in the way MNE affiliates affect local firms (Meyer & Sinani, 2009; Smeets, 2008). Since virtually all firm-level

empirical investigations of MNE induced productivity effects are single-country studies, such differences have so far not been accounted for. In a meta-analysis of 66 individual MNE spillover studies, Meyer and Sinani (2009) corroborate this view. They find that institutions matter, noting also that “progress [in theory development] is inhibited by the lack of multi-country firm-level datasets” (p. 1090).

In this paper, we build on these two observations by studying the moderating impact of Intellectual Property Rights (IPR) protection on the productivity effects of MNE affiliates on local (host-country) firms. In our conceptual discussion, we acknowledge the multitude of channels through which MNE affiliates can affect their local competitors, suppliers, and customers. Local competitors may benefit from knowledge spillovers, yet may be hurt by increased competition. Local suppliers may benefit from knowledge sharing, but may be forced to cut their prices when MNE affiliates act as monopsonists. Finally, local (corporate) customers may benefit from superior input quality, but may be hurt when MNE affiliates act as monopolists. Accordingly, in all directions, there is a trade-off between positive (embodied or disembodied) knowledge diffusion and negative adverse competition effects (e.g. Aitken & Harrison, 1999; Castellani & Zanfei, 2006; Caves, 1974; Chung, 2001; Javorcik, 2008; Meyer & Sinani, 2009; Garcia et al., 2013).

Our main interest is in how increased IPR protection affects these trade-offs. On the one hand, proponents of strong IPR

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protection argue that it will induce MNEs to innovate, enhancing (cross-country) knowledge transfers and local productivity improvement. On the other hand, opponents point out that strong IPR protection will shift the rents of innovation towards the MNE as it is better able to appropriate technological developments, while it also enhances the MNE's market power in local markets (Maskus, 2000). Indeed, this trade-off is also present in the context of our study: Increased IPR protection reduces knowledge spillovers, but increases the incentives for knowledge sharing. At the same time, it strengthens MNE affiliates' position versus their local competitors, their buying power vis-à-vis their local suppliers, and their monopoly power over local customers. How these opposing impacts ultimately affect the strengthening of IPR protection on the productivity effects of MNE affiliate activity on local firms is therefore an empirical question. However, we expect the moderating impact of IPR protection to be particularly important in industries relying on formal protection of Intellectual Property Rights.

To investigate this, we use a *multi-country firm-level* dataset, comprising of 81,299 local firms in 17 countries during the period 2003–2008. The multi-country dimension in our data is required to obtain variation in the strength of national IPR protection. The firm-level aspect of the data allows us to directly measure IPR's moderating impact on inter-firm (i.e. MNE affiliate-local firm) productivity effects. This level of detail however, comes at the cost of having a rather selective set of countries. In particular, the countries in our sample are mainly developed or (advanced) emerging economies, limiting the variation in IPR protection.

Previewing our results, we find strong and consistent effects of differences in IPR protection on backward (to suppliers) and forward (to customers) MNE affiliate productivity effects, yet only in industries that rely strongly on patents to protect their intellectual property. Under weak IPR protection, backward productivity effects are negative, but they increase substantially as IPR protection increases. These results are consistent with increased incentives for knowledge sharing with local suppliers. Under weak IPR protection, forward productivity effects are positive, but they decrease as IPR protection increases. These results are suggestive of increased monopoly power of MNE affiliates over their corporate customers.

Our paper is the first to analyze the moderating impact of IPR protection on the impact of MNE affiliates on host country firms' productivity. The existing literature regarding IPR protection and multinationals has mainly focused on the impact of IPR strength on the amount and composition of trade and Foreign Direct Investment (FDI) that countries receive (e.g. Javorcik, 2004b; Lee & Mansfield, 1996; Maskus & Penubarti, 1995; Smith, 2001; Ushijima, 2013; Bilir, 2014). Yet three recent and related studies deserve mentioning. First, Branstetter, Fisman, and Foley (2006) investigate how US MNEs respond to increased IPR strength by means of parent-affiliate international technology transfer. They offer convincing evidence that such transfers increase significantly following IPR reform. Second, Allred and Park (2007) consider the impact of IPR reform on firm-level R&D and national patent applications. Their results suggest differential impacts for developed and developing economies, with the latter generally being hurt by increased IPR strength whereas the former largely benefit. Third, Branstetter, Fisman, Foley, and Saggi (2011) addresses the effect of IPR reform on industrial development in IPR reforming countries. They find that US MNE activity abroad tends to increase upon IPR reform, spurring value-added creation in local industry, particularly in technology-intensive industries. As such, their paper gives a foundation for the existence of the different productivity effects that we focus on in our paper. It also supports the distinction we make in our empirical analysis regarding the extent by which industries rely on patents to protect their intellectual property.

The rest of this paper is structured as follows. The next section provides a conceptual discussion of the different channels through which MNE affiliates affect local host-country firms, and how IPR protection may affect those channels. The subsequent section describes the data and the methodology, after which the empirical results and robustness checks are presented. The final sections provide a discussion and a conclusion.

2. Theory and hypotheses

Many studies have documented significant productivity advantages of MNEs and their foreign affiliates over national (host-country) firms (Blomström & Sjöholm, 1999; Markusen, 2002)¹. The international business (IB) and international economics (IE) literatures have forwarded various reasons for these productivity advantages: MNEs need an ownership advantage or firm specific asset (Dunning, 1977) to overcome their liability of foreignness (Hymer, 1960; Zaheer, 1995), implying they generally incur higher fixed (entry) costs which induces self-selection of the most productive firms (Helpman, Melitz, & Yeaple, 2004)².

The productivity advantage of MNE affiliates implies there is a potential for local firms' productivity to be affected by the presence of MNE affiliates in their country. The channels through which this may occur have received considerable attention in the literature, ranging from positive effects through knowledge spillovers to negative effects through increased competition (e.g. Castellani & Zanfei, 2006; Görg & Greenaway, 2004; Garcia et al., 2013).

In this paper we aim to investigate to what extent IPR protection matters for the productivity effects of MNE presence on local firms. In doing so, we distinguish between the effects of MNE affiliates on their (horizontal) local competitors, their (backward) local suppliers, and their (forward) local customers (cf. Javorcik, 2004a, 2008)³. We will discuss the different channels through which MNE affiliates affect local firms in each of these relationships, explaining how we expect IPR protection to differentially moderate these channels.

2.1. MNE affiliates and local competitors

The two primary channels through which MNE affiliates affect their local (horizontal) competitors' productivity are via knowledge spillovers and via direct competition effects. We will argue

¹ We also document strong and significant productivity advantages of our MNE affiliates over local host-country firms in all of our sample countries (see Table A2 in Appendix A).

² Despite the general consensus (and evidence) that MNEs and their affiliates are more productive (on average) than purely domestic firms, it has nonetheless been argued that MNEs without "advantages" may also exist (Siotis, 1999; Fosfuri and Motta, 1999). The context is usually a North–South model of trade and FDI, in which firms from the South invest in the North to tap into advanced knowledge and technology. However, empirical evidence demonstrates that at the firm-level, such firms still tend to be highly productive (Berry, 2006). Moreover, 96% of the MNEs in our sample are from the OECD countries, suggesting that their affiliates likely have above average productivity levels. Nonetheless, even in a "North–North" context, the notion of MNE affiliates investing in host-countries simply to exploit their own advantages is rather restrictive. There is a rapidly growing stream of literature in IB that points to different FDI motives – such as technology seeking versus exploiting, or competence creating versus competence exploiting motives (Kuemmerle, 1999; Cantwell and Mudambi, 2005) – that may very well have implications for the productivity effects of MNEs (for an analysis in this spirit, see Marin and Sasidharan, 2010). Unfortunately, our data do not allow us to make reliable inferences regarding the potential investment motives of the MNEs in our sample, so that we do not further consider this interesting topic here.

³ We therefore focus on MNE affiliates with local linkages. Obviously, MNE affiliates could also operate as isolated enclaves in their host countries, but this is exception rather than rule (e.g. Dunning, 1993: Ch 4,6,8; Görg and Ruane, 2000; Belderbos et al., 2001). Furthermore, from UNCTAD (2014) we obtain that the share of foreign affiliate exports in total affiliate sales has been hovering around 25% since 2005, indicating that a large share of MNE affiliates' sales is meant for local consumers and producers.

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