Foreign Direct Investment, Finance, and Economic Development

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Chapter for *Encyclopedia of International Economics and Global Trade*

September 2017

Research has sought to understand how foreign direct investment affects host economies. This paper reviews the empirical literature, specifically addressing the question: How does FDI affect economic development of host countries and what is the role of local financial markets in mediating the potential benefits? We first define FDI and discuss general theories on types and drivers of FDI. This review takes a host-country perspective rather than a firm perspective and thus only highlights the key insights from the rich firm-level literature on MNCs. We then focus on how financial conditions in host countries affect the extent of FDI-related capital inflows, shape the operations of foreign firms, and mediate the extent of productivity spillovers from FDI to local firms. The survey focuses mainly on work related to developing countries.

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We thank the editors Mariana Spatareanu and Francisco Rivera Batiz as well as John Simon, and Katelyn Barry for great comments and suggestions.

Introduction

In the early 1990s, cross-border capital flows rose sharply. Their composition also changed in meaningful ways. An increasing share of flows directed towards developing countries (Calvo et al., 1996) largely took the form of foreign direct investment (FDI) rather than portfolio or equity flows. Following the sharp decline in capital flows worldwide precipitated by the global crisis of 2007-2008, FDI flows to developing countries rebounded more quickly than other components of global capital flows (Duttagupta et al., 2011) and remain high, at roughly 10 percent of gross fixed capital formation.[1]

Developing and emerging market economies' increasing participation in FDI inflows over the past two decades reflects both push and pull factors (Reinhart & Reinhart, 2008; Forbes & Warnock, 2012; Fratzscher, 2012). On the push side, declining transportation costs, significant differences in factor prices, and slowing growth rates in developed countries drove an increasing number of firms to establish operations abroad. On the pull side, many governments, seeing FDI as key to bringing the capital, technology, and know-how needed to move their economies from traditional activities to higher-end manufacturing and services, not only liberalized flows but actively competed for FDI with a variety of preferential incentives and policies (Harding & Javorcik, 2007).

With several decades of activities to assess, we can ask: what has been the effect of FDI on development in the host economies? In the broadest sense, FDI can affect economic development by increasing the availability of factors of production, specifically, capital.[2] But FDI can be more than capital. The possibility that foreign-owned firms can have a positive impact on the local economy and on productivity levels of domestic firms is perhaps of even greater importance. Improvements in local productivity due to the presence of foreign companies may arise from a number of channels. On the macro side, FDI could spawn new economic sectors, push an economy's technological frontier, and diversify exports. On the micro side, through knowledge spillovers and linkages between foreign and domestic firms FDI could foster technology transfer,

[1] Source: UNCTADstat, Foreign direct investment: Inward and outward flows and stock, annual, 1980-2014 Table. Available from http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=96740.

[2] Although FDI can be associated with cross-border transfers of factors of production beyond capital (e.g., labor, machinery), capital flows, because they account the bulk of activity, have received the most attention in the literature. Non-capital factor flows associated with FDI are discussed by Burstein & Monge-Naranjo (2009), McGrattan & Prescott (2009), and Ramondo (2014), among others.

improve managerial and employee skills, and boost investment incentives and productivity in upstream and downstream sectors. Intensifying competition that results from foreign entry could incentivize local firms to upgrade their productivity, drive out unproductive domestic firms, and reallocate factors of production to more productive firms and uses.

Theoretical benefits notwithstanding, empirical studies of the effects of FDI have produced mixed evidence. Lipsey (2004) observes that the overall evidence from macro-level empirical research favors positive effects of foreign presence on wages and the volume and diversity of domestic exports, but finds no consistent relationship between the size of inward FDI stocks or flows and GDP or growth. On the micro side, a first generation of cross-sectional studies generally found a positive correlation between foreign presence and within-industry productivity, for example Caves (1974) in Australia and Blomström (1986) and Blomström & Wolff (1994) in Mexico. However, controlling for the fact that foreigners selectively enter the most profitable firms and industries, Aitken & Harrison (1999) show productivity to improve in plants that receive FDI investment and decline in domestically owned plants in the same industry, rendering the net effect of FDI on sector productivity quite small. Evidence of positive spillover effects has tended to be more favorable in vertically related industries (Javorcik, 2004), and more generally in developed countries.[3]

In light of the foregoing evidence, initial optimism has given way to a more nuanced view of FDI. There is consensus that the development benefits of FDI are not automatic, but will depend on a number of conditions in a host economy. FDI's ability to push the knowledge frontier may depend on a host country's current level of economic development and education (Borensztein et al., 1998) to introduce new exports and open up markets on existing trade policies and the overall competitive environment (Balasubramanyam et al., 1996), and to generate spillovers and cultivate linkages with other sectors on the strength of local financial markets (Alfaro et al., 2004, 2010). Such *complementarities* between FDI and other country characteristics help to explain the findings that spillovers are greater in developed than in developing countries. This review focuses on **complementarities between FDI and local financial markets.** Specifically, we address the question: *How does FDI affect economic development of host countries and what is the role of local financial markets in mediating the potential benefits?*

[3] Based on findings from Görg & Strobl (2002) in Ireland, Haskel et al. (2007) in the United Kingdom, and Keller & Yeaple (2009) in the United States.

The focus on the FDI-finance-development nexus omits many other aspects of the rich macro literature on FDI including non-finance related determinants of global FDI flows, and the important role of host-country institutions and complementarities other than finance.[4] Focusing on development outcomes, this review also omits discussion of developed-to-developed country FDI and home-market effects of FDI. We predominantly take a host-country perspective rather than a firm perspective and thus only highlight the key insights from the rich firm-level literature on MNCs, including motives for international expansion, internal organization, choice of market entry mode, and productivity drivers. Discussion of the link between finance and the development benefits of FDI also excludes consideration of FDI in the financial sector including how it can shape the quality of local financial institutions.[5] Analysis of financial-sector-FDI (such as multinational banks setting branches or subsidiaries in developing countries) is discussed in detail by Poelhekke (2017) in Chapter 3 of the current volume. Finally, although it raises certain policy implications, the review does not delve into government policies aimed at attracting FDI, and what is known about their effects.

The rest of this chapter is organized as follows. In Section II, we define FDI and discuss general theories on types and drivers of FDI. How financial conditions in host countries affect the extent of FDI-related capital inflows is discussed in Section III; the role of local financial conditions in shaping the subsequent operations of foreign enterprises, including their likelihood to increase host economy exports, in Section IV; and the role of financial conditions in host country productivity through spillovers to local firms and reallocation effects in Section V. Section VI concludes with a brief discussion of policy implications and directions for future research.

Definitions, Types, and Drivers of Foreign Direct Investment

[4] The vast academic literature on foreign direct investment has been surveyed many times. See Markusen (1995), Blomström & Kokko (1998), Hanson (2001), Alfaro & Rodríguez-Clare (2004), Barba Navaretti et al. (2004), Görg & Greenaway (2004), Lipsey (2004), Moran (2007), Caves (2007), Alfaro et al. (2009), Harrison & Rodríguez-Clare (2010), Yeaple (2013), Foley & Manova (2014), Antràs & Yeaple (2014), Alfaro (2015, 2017), and Alfaro and Chen (2016) for surveys of determinants, effects, spillover channels, and empirical findings.

[5] For reviews of the topic of FDI in the financial sector, see Clarke et al. (2003) and Goldberg (2007).

International capital flows associated with investments in firms in which a foreign investor acquires a controlling stake are classified as *direct investments* and those associated with purchases of stocks or bonds without a controlling stake as *portfolio* or *equity investments*.[6] That control can be exercised in many ways and to varying degrees complicates measurement of foreign direct investment at the macro level. The Organization for Economic Development (OECD), International Monetary Fund (IMF), United Nations Conference on Trade and Development (UNCTAD), and U.S. Department of Commerce, among others, classify a firm as "foreign-owned" if a non-national investor (the "parent") holds *at least 10 percent* of the equity of a local firm (the "affiliate").[7] The somewhat arbitrary 10 percent threshold is meant to reflect the notion that large stockholders, even if they do not hold a majority stake, will have a strong say in a company's decisions and participate in its management.

Total FDI is an account in the national balance of payments that sums up, at the country level, the total value of the affiliate equity, reinvested earnings and net inter-company loans attributable to foreign parents. An FDI flow is a change in FDI, year-to-year. Note that FDI thus defined obscures some of the interesting variation in the *actual activities* of foreign firms in a host economy. Specifically, FDI statistics fail to capture the portion of the foreign enterprise financed by local debt or equity. They do, on the other hand, capture components that do not necessarily involve a movement of financial capital across borders in the current period, for example increases in affiliate reinvested earnings. Increases in inter-company loans will also increase FDI, but there is evidence that MNCs adjust levels of inter-company loans opportunistically on the basis of tax rates (Blouin et al., 2014), in which case such FDI inflows are likely to be driven by financial rather than operational considerations. As noted by Hausmann & Fernandez-Arias (2000): "FDI is not the firm and its assets. Instead, it is just one of the sources of financing for the firm."

Therefore, recent research has increasingly analyzed firm-level *operational* data in order to better understand the impact of FDI on host economies. Foreign investment can take place via the construction of new production facilities (greenfield investment) or via a merger or acquisition of

[6] Our focus being on firms in the real economy, other components of international capital flows including changes in government reserves and other investments (which predominantly feature flows related to international banking transactions) are not central to our discussion.

[7] As stated by OECD (2008, p. 23): "Accordingly, direct investment is considered evident when the direct investor owns directly or indirectly at least 10 percent of the voting power of the direct investment enterprise. In other words, the 10 percent threshold is the criterion to determine whether (or not) an investor has influence over the management of an enterprise, and, therefore, whether the basis for a direct investment relationship exists or not." This definition is also used by the IMF (2009) and by UNCTAD.

an existing local company (brownfield investment). In 2007, the value of recorded mergers and acquisitions stood at over 50 percent of total FDI flows, but with some interesting variation across countries (Antràs & Yeaple, 2014). Investment activity between developed economies has tended to take the form of mergers and acquisitions (M&As), developed-developing country FDI the form of greenfield investment. Although foreign-owned companies can be stand-alone firms, research has focused on activities of multinational corporations (MNCs), defined as firms that own and control assets in at least two countries (Caves, 2007). MNCs represent only a small share of all firms, but account for a significant amount of global economic activity including roughly 90 percent of U.S. exports and imports (Bernard et al. 2009).

What drives firms to transact across borders? Motivations for FDI vary, but the economic literature identifies three broad types: horizontal, vertical, and complex.[8] Horizontal FDI, which involves establishing abroad an affiliate in a firm's primary industry to serve customers in the foreign market, is observed when the cost of doing so is less than the cost of producing at home and shipping to the end market. Vertical FDI, which involves establishing a foreign affiliate that produces inputs to or provides intermediate services associated with a final product, is a response to differences across countries in production costs or availability of specific factors and inputs (e.g., raw materials). The emergent concept of "complex" FDI reflects the increasing sophistication of global production and distribution chains in which firms' positioning can be driven by both horizontal and vertical motivations.

More fundamentally, what accounts for investors' willingness to acquire foreign firms or build new factories abroad rather than rely on arms-length transactions (e.g., with third-party sellers or suppliers)? In the face of added costs of doing business in another country, including those incurred for communication and transportation and stationing personnel abroad, barriers associated with language and customs, and exclusion from local business and government

[8] On horizontal FDI, see Markusen (1984), Brainard (1997), Markusen & Venables (2000), and Helpman et al. (2004), on vertical FDI, Helpman (1984), Yeaple (2003b), and Alfaro & Charlton (2009), and on complex FDI, Yeaple (2003a) and Ekholm et al. (2007). For reviews of the literature, see Antràs & Yeaple (2014). Ramondo et al. (2014) provide an empirical description of types of sales (horizontal, vertical, export-platform) for U.S. foreign affiliates. For a discussion on the role of geography, and the location of FDI see Alfaro and Chen (2014, 2016). For an analysis of integration choices along the value chain see Alfaro, Conconi, Fadinger, and Newman (2016) and Alfaro, Antràs, Chor, and Conconi (2015).

networks, how can a foreign firm offset local firms' advantage and superior knowledge of the market, legal and political systems, language, and culture?

An explanation provided by cost-of-capital theory, which focuses on the availability of financial capital, is that foreign firms' size or structure may afford access to low-cost funds unavailable to local firms. This rationale, which renders multinationals simply arbitrageurs that move capital from low return to high-return countries, although it has some explanatory power, is incomplete. If lower cost of capital were the only advantage, why would a foreign investor endure the headaches of operating a firm in a different political, legal, and cultural environment rather than simply make a portfolio investment? There is evidence, moreover, that investors that take control of a foreign company sometimes finance a significant share of the investment in the local market. Finally, FDI flows—particularly among developed countries—have proceeded in both directions and often in the same industry. As MIT economic historian Charles Kindleberger noted, "Direct investment may thus be capital movement, but it is more than that."[9]

Hymer (1976) was among the first to propose the existence of multinational firms to be explained by real (as opposed to financial) factors. He argued that non-financial assets enable MNCs to compete internationally, for example their ability to exploit market power and limit competition across multiple markets. Subsequent work identified additional advantages of multinational ownership summarized by Dunning (1981) in the ownership-location-internalization (OLI) framework, which identifies three broad classes of MNC advantages.[10] *Ownership* advantages suggest that MNCs have some firm-specific valuable assets like patents, technology, processes, and managerial and organizational know-how that allow them to overcome the costs of operating in another country. They have the opportunity to leverage these across multiple business units at little incremental cost and simultaneously deploy them in multiple *locations;* additionally, the cost of arms-length dealings may favor *internalization* of global market transactions. The productivity advantage such non-financial assets afford over local firms may compensate to some degree for the impediments to and added cost of operating abroad.

These two explanations, MNCs as providers of cross-border capital and owners of valuable assets, together provide a more comprehensive rationale for why they own and operate assets

[9] Kindleberger (1969), p. 3.
[10] This includes work by Kindleberger (1969), Caves (1971), Buckley & Casson (1976), and Rugman (1981), among others.

across borders. MNCs' possession of intangible as well as tangible capital could account for the potential of FDI to contribute to host country economic growth not only through capital, but also via spillover, competition, and productivity effects. The explanations' degree of relevance can vary for any given foreign investment. MNCs' importance as providers of cross-border capital may dominate when, for example, local capital is scarce, as when a financial crisis or currency depreciation prompts deep-pocketed foreign investors to scramble to acquire undervalued local assets. MNCs that finance a large share of their foreign operations locally, on the other hand, may be less important as providers of tangible than of intangible capital, such as technology, managerial know-how, and global market access. These subtleties are elucidated below, the focus on FDI and inflows of tangible capital in Section III, and on the development benefits frequently attributed to intangible capital including MNCs' higher productivity and spillovers to local firms in Sections IV and V.

Financial Markets: Effects on FDI and Capital Inflows

One of the most direct ways through which FDI can contribute to economic development is by **increasing the amount of capital available in the local economy**. In developing countries, in which capital is typically scarce relative to labor, policy makers frequently view potential capital injection to be the key benefit of FDI because it directly increases investment and gross domestic product (GDP) in the host economy.[11] FDI thus allows countries to supplement capital provided via local savings with capital coming from abroad. However, as the following discussion will show, the extent to which foreign firm activity indeed generates a net increase in capital depends on local financial conditions.[12]

[11] The dearth of flows from rich to poor countries relative to the predictions of neoclassical theory, termed the "Lucas paradox" (Lucas, 1990), has fueled a vast literature in international macroeconomics that seeks to understand the determinants of international capital flows (or lack thereof) between rich and poor countries and the consequences for economic growth (see Alfaro et al., 2007, 2008, 2014).

[12] Here we focus on host country financial conditions. A rich literature on home country financial conditions finds that good conditions generally facilitate, and tight conditions constrain, outward FDI flows. Klein et al. (2002) discuss two primary channels at play, a relative wealth (foreign assets appearing relatively cheap when home market conditions, in particular, exchange rates, are favorable) and a credit access effect (risk capital actually being available). In a cross-country study using measures of equity- and debt-market strength, di Giovanni (2005) finds home market conditions to explain roughly 10-15 percent of the variation in the dollar value of bilateral M&A flows, and deep stock markets to be more important than credit markets.

Host country financial conditions may have an ambiguous effect on total FDI because they affect both whether a foreign investment takes place and whether it is financed through FDI. On the one hand, good financial conditions attract investment to a host market in part because they allow foreign investors to finance for an important share of their investment locally (Kindleberger, 1969; Graham & Krugman 1995; Lipsey, 2004). Local financing may be preferable to cross-border financing because it allows investors to hedge the exchange rate risk associated with sales or cost denominated in the local-market currency. On the other hand, precisely because investors are likely to substitute FDI with local funds, in countries with good financial markets the total value of capital that foreign firms bring from aboard may be low. In the data on affiliates of U.S. multinationals, Lehmann et al. (2004) find total host country financing (provided primarily in the form of debt) indeed accounts for a larger share of financing than what is provided by U.S. parents.

Beyond lowering the extent of capital inflows, foreign firms borrowing heavily from local banks may exacerbate domestic firms' financing constraints by crowding them out of domestic capital markets. Harrison & McMillan (2003) analyze the behavior of mostly French multinationals operating in Côte d'Ivoire, finding not only that domestic firms are more credit-constrained than foreign firms, but that borrowing by foreign firms exacerbates the credit constraints of domestic firms. In a country such as Côte d'Ivoire, with numerous market imperfections and with credit access rationed due to interest-rate ceilings, the total pool of capital available for local firms did not increase; rather banks substituted lending to domestic with lending to foreign firms. Harrison, Love, & McMillan (2004) on the other hand show results suggesting that FDI tends to *crowd in* finance for domestic enterprises across a panel of countries. That is, as foreign investment increases, the amount of credit available to domestically owned firms actually rises. These two studies highlight that the effect of FDI on local credit constraints is heterogeneous across countries, with important complementarities between FDI and preexisting local financial conditions.

Foreign firms are *less* likely to tap into local capital markets in countries where financial conditions are poor and therefore such countries may attract more FDI. Lehmann et al. (2004) indeed find that in developing countries, the financing share from U.S. parents is 45 percent (as opposed to 30 percent in industrial countries), much of it provided in the form of equity. Desai et al. (2004) find that firms substitute for missing or inefficient local debt markets also through their *internal* capital markets, in the form of inter-company loans. They show foreign affiliates of U.S. firms in countries with weak capital markets to offset approximately three-quarters of reductions in

external borrowing with internal funds from parent companies. Local affiliates are more likely to opportunistically tap into parent firms' internal resources through inter-company loans when local credit conditions deteriorate or in times of crisis.[13] While this suggests that internal capital markets can alleviate external financing constraints, limits to multinational firms' total resources and intra-firm competition for such resources may still restrict the growth of local affiliates in underdeveloped financial markets and render the size of projects suboptimal, as argued by Feinberg & Phillips (2004).

Antràs et al. (2009) highlight a different mechanism through which poor financial markets may incentivize FDI – by affecting the firm's optimal organizational form. They model a world in which an inventor has the option of transferring technology internationally via an arms-length (market based) relationship or internally, though FDI. The key result in their model is that when the local financial sector, in particular, investor protections, are weak, local funders will insist on foreign equity participation (i.e. FDI) in order to ensure sufficient monitoring and value maximization by local entrepreneurs. The authors' empirical analyses confirm that in countries in which credit markets are deeper (as measured by the private credit to GDP ratio) and investor protections higher, firms are more likely to use arms-length relationships than to establish foreign affiliates via FDI while parent firms will own a higher share of affiliate equity and finance a greater share of affiliate assets internally in countries in which financial conditions are weaker.[14] Using a similar theoretical lens, Carluccio & Fally (2012) show that firms are also more likely to integrate their suppliers when they are located in financially underdeveloped markets, which also leads to more FDI.[15]

Keeping in mind the theortically ambiguous effect of host market financial development on FDI, Desbordes & Wei (2014) seek to empirically assess its causal impact on greenfield FDI. The challenge of such work lies in addressing identification concerns arising from the reverse causality between FDI and financial development as well as omitted variabes that are related to both. The authors use an identification strategy that follows Rajan & Zingales (1998), in which identification

[13] Recall that inter-company loans are included in calculations of total FDI.
[14] Specifically, they report parent provided financing to average 45 percent of affiliate assets in countries in the lowest, and 38 percent of affiliate assets in countries in the highest, quintile of private credit.
[15] Relatedly, Antràs & Foley (2015) show that the quality of the local institutional environment also affects the choice of contractual terms in arms-length relationships between multinationals and their suppliers. Transactions are more likely to occur on cash in advance or letter of credit terms (as opposed to more flexible terms) when the importer is located in a country with weak contractual enforcement.

proceeds from the interaction of industry financial vulnerability and measures of host country financial development, and the effect is theorized to be larger for firms in financially vulnerable industries. They find that the net effect of host country financial development on the magnitude of greenfield FDI is positive, and that the effect primarily operates by increasing the average size (rather than the number) of greenfield projects.

A related strand of literature proposes that albeit FDI does bring fresh capital into the economy, it reflects, to some extent, arbitrage activity by multinationals. Rather than driven by fundamental productivity arguments, this type of FDI is akin to foreigners opportunistically purchasing undervalued local assets (Krugman, 2000; Aguiar & Gopinath, 2005).[16] In this case, even if FDI does bring fresh capital, some authors have questioned whether this is indeed beneficial to the host economy, one of the main concerns being volatility, i.e. sudden movements of capital in and out of the country. Although crisis-related flows might provide temporary relief, they might not represent a net capital increase in the long run. Baker et al. (2009) seek to empirically disentange real versus arbitrage-driven foreign investment and suggest that arbitrage is about half as important as fundamentals. Rapid deterioration in host country debt and equity markets can precipitate a surge in arbitrage-driven FDI.

On the other hand, Razin & Sadka (2007) make the case that foreigners are likely to pay a premium for local assets, in which case the host economy does benefit from a long-term capital increase even if FDI flows are opportunistic. In their model, technical or managerial know-how affords foreign direct investors an advantage over domestic investors in skimming the best projects. Depending on the level of competition among investors, the benefits of this unique advantage might be shifted to the domestic country through the acquisition price foreign direct investors pay for plum projects. However, the advantage also leads to a "lemons" problem. That is, if an investor needs to sell a firm, potential buyers might suspect the sale to be motivated by private information about its true productivity rather than by a genuine need for liquidity. The local firm may then sell for less than would otherwise have been the case.[17]

[16] See also Froot & Stein (1991) and Klein & Rosengren (1994) in the context of capital inflows into the United States.
[17] The last two paragraphs relate to a broader discussion of how foreign capital flows affect the rate of return to capital, especially in capital scare countries (see discussion in Alfaro et al. (2007, 2008, 2014). The traditional neoclassical model would posit that capital scare countries would attract foreign capital. In the presence of diminishing returns, net capital inflows would reduce the rates of return in the domestic economy. Some authors have argued that, while welfare enhancing, this may negatively affect domestic capitalists (see Mac Dougall, 1958). However, this effect may be counteracted in the presence of external economies of scale or complementarities, linkages or transfers of

Financial Markets and Macro-Level Effects of FDI

The broad finding from the macro literature is that across countries, FDI is *not* unambiguously associated with GDP growth although it is correlated with higher wages and the volume and diversity of domestic exports (Lipsey, 2004). More recent empirical studies have unveiled that the quality of local financial markets is one important precondition in the extent to which FDI translates into GDP growth, increases in aggregate productivity, and exports. Finally, several recent papers also document that FDI may lower volatility during times of crisis as foreign owned firms are buffered from negative local shocks by their access to the parent and its global networks.

In one of the first empirical studies to test the relevance of financial markets to aggregate gains from FDI, Alfaro et al. (2004) find no robust positive impact of FDI on the growth of host economies. Only when the authors include the interaction term between levels of FDI and local financial market development does the effect of FDI on growth become positive and significant for various specifications of the financial sector. Hermes & Lensink (2003) and Durham (2004) reach the same conclusion using different samples and measurement choices. These aggregate results provided evidence that sound local financial markets are an important precondition for benefits of FDI to materialize.

To elucidate the mechanisms underlying this aggregate effect, Alfaro et al. (2009) examine whether the financial-markets channel through which FDI fosters growth operates through factor accumulation or total factor productivity (TFP). The macro-level, cross-country analysis finds the positive interaction effect between FDI and financial institutions to affect not the accumulation of physical or human capital, but rather growth in aggregate TFP. Alfaro & Charlton (2007) provide industry-level evidence using data for OECD countries. They show that, controlling for levels of financial development, the relationship between FDI and growth is stronger for industries more reliant on external finance. In another macro study, Prasad et al. (2007) find that an influx of foreign capital spurs the growth of finance-dependent industries only in countries with highly developed financial markets, and hinders their growth in countries with less developed financial markets.

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technology, in which case more foreign capital inflows could raise the rate of return to capital in the local capital markets.

Research on sources of productivity differentials among firms, albeit far from conclusive, has revealed that affiliates of multinational corporations tend to be more productive than domestic firms in the same sector.[18] They also tend to be better-managed (Bloom & Reenen, 2010). Shared with nationals, for example through higher wages, such productivity advantages can enhance national welfare. Considerable evidence shows that MNCs do, in fact, pay higher wages which reflects both their hiring of higher quality workers (i.e., selection) but also willingness to pay a premium, even after accounting for selection (Poole, 2013).

What drives productivity differentials between foreign and domestic firms? Answering this question is again made difficult by *selection*, i.e. the fact that foreigners tend to acquire the better performing local firms. Thus a firm's higher productivity may not be *caused* by foreign ownership, but rather may attract foreign investors to the firm. Recent research has made inroads into controlling for selection and shows that, following foreign acquisition, firms increase their import-and export intensity, make organizational changes, (Arnold & Javorcik, 2009) and increase innovation (Guadalupe et al., 2012).

Evidence is growing for the view that the foreign affiliates' better access to finance is a key precondition allowing them to achieve these superior operating outcomes. Using domestic acquisitions as a control group for foreign acquisitions of Chinese firms, Wang & Wang (2015) document that foreign ownership significantly improves the financial conditions of target firms. Specifically, they find that following acquisitions, foreign-acquired firms rely less on external short-term debt and more on internal capital than domestic-acquired firms. The size of the effect is meaningful – the liquidity ratio of foreign-acquired firms increases over 4 percentage points more in foreign-acquired firms relative to domestic-acquired firms over its pre-acquisition mean of 11 percent.

Manova et al. (2015) further document that MNC affiliates' preferential access to finance increases their ability to export. They hypothesize that because firms need to finance certain fixed and variable costs in order to reach new export markets, MNC affiliates will exhibit better export performance relative to domestic firms, especially in financially dependent sectors. Using data

[18] Early studies that show this include Haddad & Harrison (1993), Blomström & Wolff (1994), Kokko et al., (2001), Helpman et al. (2004), Ramondo (2009), and Alfaro & Chen (2017). For theoretical insights, see Helpman et al. (2004) and Antràs & Helpman (2004). For a review of the broader productivity literature, see Bartelsman & Doms (2000) and Syverson (2011).

from China, they show that wholly foreign-owned affiliates export 62 percent, and joint ventures 50 percent, more than domestic firms in sectors highly dependent on external finance relative to financially less sensitive sectors. Their results suggest that FDI may be a powerful export engine in financially underdeveloped economies.

Bilir et al. (2015) illustrate a mechanism through which local financial markets can affect foreign firms' export intensity by shaping the local competitive landscape. That strong local financial markets are a key determinant of the entry and growth of domestic enterprises is well established (e.g., Rajan & Zingales, 1998). The level of local competition can, in turn, shape the strategies and operating performance of foreign firms. Bilir et al. (2015) develop a model in which strong local capital markets attract a greater number of foreign firms (financing effect) but also affect the geographic composition of their sales (competition effect). Because they increase the competitiveness of local firms, stronger financial markets are associated with lower foreign affiliate sales in the host market (horizontal FDI) and higher sales to home and third-country markets (vertical and export platform FDI). The authors' empirical analysis of foreign affiliates of U.S. firms suggests that improving a country's financial condition by one standard deviation is, on average, associated with a 10.6 percent increase in the number of affiliates, a decrease in local market sales of 2.5 percentage points, and an increase in the shares of exports to the United States and third-country destinations of 1.0 and 1.5 percentage points, respectively. This provides a mechanism whereby FDI will increase exports in counties with well-developed financial markets.

Other papers focus on times of crisis and show that foreign firms' ability to tap into various capital markets can render them more stable, thus providing some buffer against the increased volatility in the local economy. In one of the earliest studies of this phenomenon, Desai et al. (2008), evaluating the response of multinational and local firms to sharp currency depreciations, find sales, assets, and investment to increase significantly more for U.S. multinational affiliates than for local firms during times of crisis.

Blalock et al. (2008) study the response of foreign and domestic firms to a large currency devaluation in Indonesia following the 1997 East Asian financial crisis. They find that although the devaluation, representing an increase in exporters' competitiveness, should have increased firms' investment, only exporters with foreign ownership increased their capital significantly during the crisis. Post crisis, employment and capital were more than 20 percent, and value added and materials usage more than 40 percent, lower for domestic-owned exporters than for foreign-owned

exporters they had resembled before the crisis. Álvarez & Görg (2007) find little difference in the response of multinationals and domestic firms to an economic downturn in Chile, which suggests that effects may differ based on the institutional environment.

Alfaro & Chen (2012) examine differences in performance in the wake of the recent global economic crisis, with an emphasis on how foreign ownership affected firms' resilience to negative shocks. To disentangle the effects of foreign ownership from other effects, the authors use a worldwide panel dataset that reports detailed information on the operations, location, and industry of more than 12 million establishments, and control for observable and unobservable differences by applying a matching technique that pairs foreign subsidiaries with local establishments with similar characteristics operating in the same country and industry. The authors exploit time variation in the data and infer the effect of foreign ownership from the divergence in performance paths. The role of production and financial links in increasing the resilience of foreign subsidiaries to negative demand and financial shocks is observed by comparing performance during the crisis period (2007-2008) with that during the non-crisis period (2005-2007).

The findings of Alfaro & Chen (2012) suggest that, on average, foreign subsidiaries performed better than local control firms with similar economic characteristics during the global financial crisis, but not during normal economic periods. Deeper investigation reveals foreign subsidiaries with strong vertical production links, but not those with horizontal links, with their parent firms to have performed better than control establishments during the crisis, a pattern that is not observed in non-crisis years. The advantage of foreign subsidiaries operating in industries with greater intra-firm financial links over local controls was similarly observed only during the crisis period, and particularly in host countries with poor credit conditions. These results highlight how MNCs' ability to generate internally both finance and demand can help to sustain subsidiary performance under weak host country financial and demand conditions.

Financial Markets and Micro-Level Effects of FDI

Beyond bringing capital and affecting macro-level outcomes like wages, exports, and volatility, multinationals can have also affect development if their presence leads to increasing productivity of local firms. The theoretical channels behind such indirect effects and the relevance of finance therein, are discussed next.

A. Theoretical Channels

Spillovers. MNC affiliates tend to be among the most productive firms in a host market. There is evidence that they have access to advanced technologies, better management practices, and knowledge of global export opportunities. Knowledge of such technologies, practices, and opportunities can spill over to local companies through geographic proximity (Aitken et al., 1997) or the movement of labor between foreign and domestic firms (e.g., Poole, 2013). Such spillovers can benefit both same and related sector firms (horizontal and vertical spillovers, respectively). However, positive externalities from spillovers are not automatic. They depend on local firms taking specific actions, for example, adapting and imitating foreign firms' technologies or practices, expanding capacity or improving quality to better serve foreign markets, and augmenting human or physical capital to become more efficient.

Self-upgrading. Anticipating that entry by foreign firms will intensify competition local firms may make endogenous investments to upgrade their productivity (Aitken & Harrison, 1999; Helpman et al., 2004; Alfaro & Chen, 2017). Increased competition may force some domestic firms to exit the market, but will incentivize others to upgrade their productivity in order to compete more effectively with foreign entrants. Conceptually similar to the notion that potential suppliers will upgrade to serve foreign entrants, the effect of this "self-upgrading" is *horizontal*, affecting the local firms that compete in the same industry as the foreign firm, rather than *vertical*. A topic of considerable theoretical and policy debate, how entry threat affects incumbent firm innovation and productivity has only recently been studied in the context of foreign firm entry.

Linkages. FDI externalities can also occur through backward and forward linkages.[19] Rodriguez-Clare (1996) formalizes likely effects of linkages as follows. MNC activity fosters production of a greater variety of intermediate goods, affording the economy a comparative advantage in the production of more sophisticated final goods and boosting productivity and

[19] In contrast to spillovers, which are thought to be incidental, linkages are pecuniary externalities, that is, they take place through market transactions (Hirschman, 1958). See also Rivera-Batiz and Rivera-Batiz (1990) for an early formalization of the externalities from foreign investment through gains from specialization, increasing returns, and linkages in the use of specialized services.

wages. Foreign firms can increase variety of intermediates by generating *demand* for local inputs (backward linkages) in the markets they enter. Such increased demand can engender productivity improvements in upstream industries by affording local firms the benefit of economies of scale[20] and providing incentives to make endogenous investments in order to serve the larger market. Foreign firms can also directly *supply* higher quality or greater variety of intermediate goods from which other firms in the economy can benefit (forward linkages). A negative backward-linkage effect is also possible, however. MNCs that behave as enclaves, importing their inputs and restricting local activities to the hiring of labor, as they increase in importance relative to domestic firms, can suppress demand for inputs, thereby *reducing* variety and specialization (Rodriguez-Clare, 1996).[21]

To elucidate the mechanisms through which positive linkages depend on the degree of development of the local financial sector, Alfaro et al. (2010) model a small open economy in which final goods production is carried out by foreign and domestic firms that compete for skilled and unskilled labor and intermediate products. Because an entrepreneur must develop a new variety of intermediate good in order to operate in that sector, which necessitates upfront capital investment, the more developed the local financial markets the easier it is for credit-constrained entrepreneurs to start firms.[22] The increase in the variety of intermediate goods leads to positive externalities in the final goods sector. As a result, financial markets allow the backward linkages between foreign and domestic firms to turn into positive externalities.[23] Crucially, though, this model implies that positive externalities should be horizontal rather than vertical.

Note that none of the three channels – spillovers, self-upgrading, and linkages – produces development benefits automatically. Rather they presuppose local firms making endogenous

[20] Whether this effect shows up in the TFP residual depends on the model employed, specifically, on whether increased demand translates into greater scale for existing suppliers or the introduction of new product varieties (see Alfaro & Rodríguez-Clare, 2004, p. 149).

[21] This effect would show up as a negative horizontal externality, it being key to this argument that MNCs displace national firms from the market, whether through labor-market constraints or direct competition, as in Markusen & Venables (1997).

[22] Hirschman (1958) argues that linkage effects materialize when one industry facilitates the development of another by easing conditions of production, thereby abetting further rapid industrialization, and that in the absence of linkages, foreign investment can have limited and even negative effects (as in so-called enclave economies).

[23] While the authors do not conduct an empirical test of these propositions, their calibration exercise suggests that for the same amount of increase in the share of FDI, the additional growth rates made possible in financially well developed countries are almost double those made possible in financially poorly developed countries.

investments. Some local firms will be able to fund investments internally, but most will rely on local debt, and also on reasonably well-developed venture capital or equity markets for financing.

Reallocation. The prior channels focused on how financial conditions affect the ability of local firms to endogenously increase their productivity. But there is another channel, which is not the increase in within-firm productivity but the between-firm *reallocation* of productive resources, away from less and toward more productive firms. Such a process of exit, entry, and reallocation can also increase aggregate domestic productivity.

Openness to multinational production, like openness to international trade, engenders tougher competition in host-country product and factor markets. Markusen & Venables (1997) formulated one of the earliest frameworks to illustrate how intensified product market competition precipitated by the entry of foreign firms might lead some domestic firms to exit. Reallocation as a response to heightened input market competition has been described in seminal work by Melitz (2003), in whose model the least productive firms are driven out as more productive firms' demand for factors of production (especially labor) increases in response to greater export market opportunities. Using a similar theoretical framework in the context of a non-traded industry, Syverson (2004) describes a process of reallocation in response to intensified product market competition.[24]

The entry of productive foreign firms has been shown to trigger reallocation of resources from domestic to multinational, and from less productive to more productive domestic firms, ultimately forcing the least efficient domestic firms to exit the market and thereby boosting the host country's average productivity. In this case as well, the development of financial markets, labor-market rigidities, and local conditions more generally, may determine the extent of factor market reallocation and subsequent productivity effects of multinational production, re-affirming the importance of FDI being accompanied by complementary policies governing credit availability, barriers to entry and exit, and factor reallocation.

[24] Note that this relates to a growing literature that emphasizes the productivity effects of resource misallocation across establishments on country-level productivity. See, for example, Hsieh & Klenow (2009), Alfaro et al. (2008), and Bartelsman et al. (2013).

B. Empirical Evidence

Focusing on the spillover channel, Girma, Gong, & Görg (2008) find that among Chinese firms, the extent of FDI in the same industry and province is positively associated with firm-level innovative activity (specifically, process and product innovation), but only for firms with ready access to domestic finance. They further show that finance constraints adversely affect private and collectively owned, but not state-owned firms, which enjoy preferential access to domestic financial resources. These results suggest a link between access to finance and firms' ability to benefit from horizontal spillovers from FDI.[25] Manole & Spatareanu (2014) provide evidence consistent with both horizontal and vertical spillovers for Czech firms with access to finance. One issue that plagues these and similar studies is that knowledge spillovers are notoriously difficult to measure directly and are usually proxied with the extent of foreign presence in the same industry and/or region. Although results derived with this proxy are consistent with the knowledge spillover hypothesis, they do not rule out either selection (i.e., foreigners locate in industries with better-performing domestic firms or regions with well-developed financial markets) nor alternate mechanisms though which FDI and financial constraints affect outcomes, such as self-upgrading.

The idea that local firms endogenously invest to upgrade productivity in response to or anticipation of foreign entry, that is, self-upgrading, has received relatively little attention in the FDI literature.[26] An exception is a cross-country study by Bao & Chen (2015) who show how local firms (in the same region and industry) react to news announcements of foreign investment. They find that the most productive local firms in affected sectors and locales respond by increasing innovation, investment, and the wage rate, and the least productive firms by dropping and switching products.[27] Firms in the middle of the productivity distribution do not exhibit a significant productivity response. Interestingly, firms react to the threat (i.e., shortly following the announcement), rather than actual entry of FDI. Aghion et al. (2009), in an industry level study of foreign competition and innovation in the United Kingdom, find that incumbent productivity and

[25] Girma, Gong, & Görg (2008) report that vertical measures (backward and forward spillovers) were calculated as well, but found not to be consistently statistically significant.

[26] The idea that some firms endogenously upgrade productivity in response to competitive threats (and opportunities) has received more attention in the international trade literature. See, for example, Lileeva & Trefler (2010) and Bustos (2011).

[27] This echoes findings from the trade literature that firms respond to trade liberalization by dropping less productive products and focusing on core competencies. See, for example, Bernard et al. (2011).

patenting is positively related to greenfield FDI but only in industries close to the technological frontier. Although these studies do not investigate the role of financial markets, their findings are consistent with productivity improvements being contingent on tapping into local capital markets, and more productive firms and technologically advanced industries tend to be less finance constrained.

In an empirical study of linkages in four Latin American countries Alfaro & Rodríguez-Clare (2004) find that foreign firms generate substantial demand for local inputs. While theoretical models allow for both horizontal and vertical productivity effects from linkages, most empirical studies of the linkages-finance nexus have sought effects in vertically related industries.[28] An empirical study by Javorcik & Spatareanu (2009) yields results consistent with a complementarity, albeit indirect, between vertical linkages from FDI and degree of financial development. They find Czech firms that supply multinationals to be less liquidity constrained than other firms. Although it is also possible that possessing a contract from an MNC could improve their creditworthiness sufficient to enable prospective suppliers to secure outside lending, an examination of timing suggests instead MNCs' selection of less liquidity-constrained firms into supplying relationships. This suggests, in turn, that absent well-functioning financial markets, local firms may find it difficult to establish business relations with MNEs and reap the benefits of productivity spillovers through linkages.[29]

FDI can lead to reallocation effects resulting from heightened competition in input, factor, or product markets. A number of studies have documented heightened competition following FDI. Earlier referenced work of Harrison & McMillan (2003) showed that foreign firms' tapping into local capital markets can potentially reduce capital available to domestic firms. Studies conducted in several countries have documented a tendency for foreign companies to select the most qualified workers and raise local wages, especially of skilled workers (Aitken et al., 1996; Feenstra & Hanson, 1997; Hale & Long, 2008). In one of the earliest empirical papers to examine FDI's effects on product market competition, Aitken & Harrison (1999) outline a framework in which the entry of foreign firms draws demand from and lowers the productivity of local firms. Their analysis

[28] See, for example, Javorcik (2004). Empirically isolating horizontal linkage effects is difficult in part because FDI's strong within industry effects through spillovers and competition could partly offset any positive linkage effect.

[29] This result echoes findings in the international trade literature that establish financial markets and liquidity constraints to be important determinants of firms' probability of exporting and volume of exports; see, for example, Amiti & Weinstein (2011) and Manova (2008, 2013).

of panel data on Venezuelan firms finds greater FDI in a sector to be indeed associated with a decrease in domestic firm productivity, consistent with a market-stealing effect.

More recent studies explicitly incorporate firm entry and exit effects following FDI. In a framework that incorporates both product market competition and spillovers, Kosova (2010) analyzes the entry, exit, sales, and productivity growth of domestic firms in the years following the Czech Republic's liberalization in the early 1990s. She finds that the least productive firms in the same industry are more likely to exit (i.e., a "shake-out") in the short run, but that positive effects of foreign presence on the productivity of surviving firms materialize over time. She calculates that the net effect on the host economy becomes positive within approximately two years.

Adapting a Melitz-type heterogeneous firm framework to the context of foreign investment, Ramondo (2009) also models the two distinct channels of reallocation and spillovers. In her data on domestic and foreign plants in the Chilean manufacturing sector, she finds the entry of foreign plants to be negatively correlated with the survival particularly of less productive domestic firms in an industry. She also finds foreign entry to be associated with a decrease in domestic incumbents' market share, and support for positive spillovers from foreign to domestic incumbent plants in the same industry and region, the latter experiencing significant productivity gains when more productive foreign plants enter.

Building on this research, Alfaro & Chen (2017) explicitly disentangle the contribution of within-firm productivity improvements and between-firm reallocation to the aggregate impact of multinational production on host-country productivity. The authors exploit the fact that these two channels deliver distinct predictions regarding the productivity *distribution* of domestic firms, one predicting a rightward shift, and the other a left truncation. While accounting for MNCs self-selection into better-performing countries and industries, they estimate the effect of increased FDI on the distribution of firm productivity, revenue, and the minimum productivity of surviving firms. Their results suggest that although both channels contribute positively to aggregate productivity, the larger effect is associated with between-firm reallocation. Specifically, they find that when the probability of a new multinational entry increases by 10 percentage points, aggregate domestic productivity increases by 1.6 percent, of which between-firm selection and reallocation together account for 1.4 percent.

While neither of the above referenced papers explicitly draw an empirical connection between local financial markets and reallocation benefits from FDI, they do point to the importance

of policies that eliminate barriers to the movement of labor and capital between firms.

Conclusions

When technological progress and collapsing trade barriers precipitated the fragmentation of production processes and emergence of global value chains, MNCs assumed a key role in global production, investment, and trade in final and intermediate goods. Developing economies are accounting for a growing share of corresponding increases in global levels of foreign direct investment (FDI), posing both opportunities and challenges to host countries and the global economy as a whole.

Assessing the impact of multinational activity on host country development has been a major topic of economic research and policy debates. Ambiguous evidence from decades of inquiry into when and how the host countries derive benefits from foreign-firm activities notwithstanding, one finding that has emerged is that the effects are moderated by local conditions. Financial markets play a crucial role.

In this survey we decomposed anticipated development benefits into three broad sources – capital inflows, macroeconomic benefits (GDP growth, aggregate productivity, exports) and microeconomic benefits (positive externalities from spillovers, linkages, self-upgrading, and reallocation). FDI's relative contribution to these sources of development benefits appears to vary with levels of financial development. Foreign firms will be more likely to bring external capital in financially underdeveloped economies than in developed economies, where they can raise funds locally. Both types of economies are likely to benefit from increases in wages and exports due to the foreign presence, albeit though potentially different channels. While in underdeveloped economies, exports may rise because foreign firms are less finance constrained and can better afford the fixed cost of exporting, in developed economies exports may result from foreign firms shunning greater competition in local markets. Greater microeconomic benefits from FDI spillovers, positive linkages, and competitive pressures are more likely to accrue in economies with well-developed financial markets where local firms can respond to these opportunities and competitive threats via investments that increase their productivity.

The complementarity between FDI and financial market conditions implies that policies should aim at improving domestic conditions and relieving constraints, as on credit access,

especially for firms in sectors most likely to be affected by the presence of foreign companies (i.e., in competing and vertically related industries). The large size of gains from competition and reallocation of resources also points to the importance of policies that eliminate barriers to the movement of labor and capital between firms.

Despite recent advances, our understanding of how financial constraints affect multinational firm activity and economic development benefits derived from FDI is still limited. Existing research suggests that MNCs employ internalization to overcome imperfections in arms-length markets, for example in markets for inputs. To what extent MNCs internalize markets for capital and evidence of the effectiveness of this strategy is mixed. Well-designed cross-country studies could determine the level of market imperfection at which internalization becomes optimal. While research has focused on positive development outcomes from FDI, we have less understanding of potentially negative effects, for example how financial constraints affect competition between local firms and foreign entrants or whether foreign firms use their financial advantage to squeeze out competition and derive monopoly power in host markets. More detailed studies of the heterogeneous effects on local firms from the foreign presence would increase our understanding of the mixed effects of FDI found at the aggregate level. Finally, while the studies suggest that institutional features of capital, labor, and other factor markets affect productivity gains from FDI, we still have little evidence on the causal effect of policies that affect the institutional environment of FDI. These represent fruitful areas for future inquiry.

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