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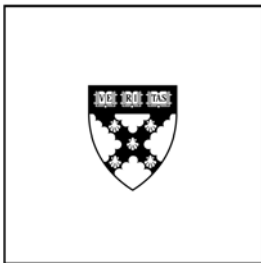
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Laura Alfaro

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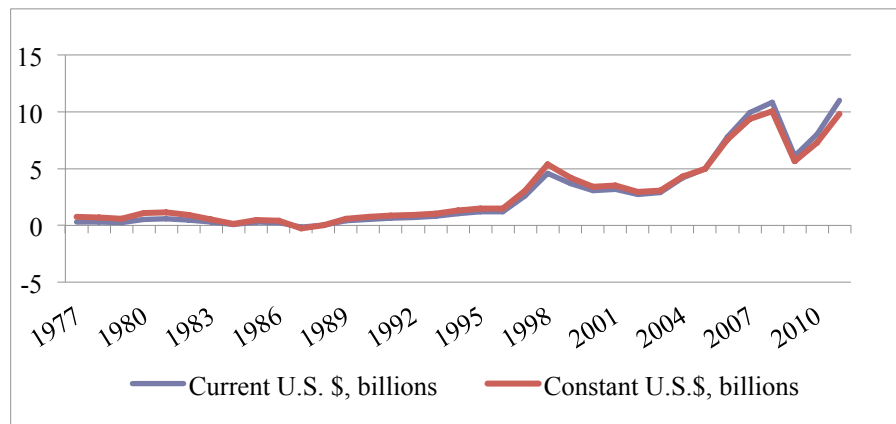
Laura Alfaro

Harvard Business School and NBER¹

1. Introduction

In 1996, Intel Corporation announced the construction of a semiconductor assembly plant in Costa Rica. Production started in 1998. Intel's investment was six times what had been the annual foreign direct investment (FDI) in this Central American country of 3.5 million people (see Spar, 1998) and it marked the expansion of FDI in electronics, medical devices, and business services by companies such as Boston Scientific, Hewlett Packard, IBM, and Procter & Gamble. But Intel's investment in Costa Rica was also emblematic of the desire of Central American countries to move away from textile and clothing manufacturing into higher-end manufacturing and services, in hopes of boosting development efforts by promoting technology upgrades, knowledge spillovers, and linkages of foreign with domestic firms. In 2014, the company announced the restructuring of the facilities. Intel's Global Services Center as well as the company's Engineering and Design Center will remain in their current location in Costa Rica. These operations will gain relevance in Research & Development related activities. As part of its global strategy, the company will relocate its assembly and test operation to Asia, where these activities will be concentrated. Headcount for R&D services operations currently reaches 1200 people and new positions were recently been announced.

Figure 1. Central America and the Dominican Republic: FDI Net Inflows, 1977-2011



Source: World Bank Development Indicators, 2013.

During this period, FDI in the region increased from less than US\$1.3 billion in 1996, close to 1.6% of the region's GDP, to US\$4.6 billion in 1998, reaching US\$11 billion in 2011, approximately 5% of GDP. However, as Figure 1 shows,² the increase was far from linear, being

¹ Laura Alfaro, Harvard Business School, Morgan 263, Boston MA 02163, USA (e-mail: lalfaro@hbs.edu). The author thanks Sebastian Auguste and Osmel Enrique Manzano for valuable comments. Katelyn Barry, John Elder, and Hillary White, provided invaluable research assistance. The author was Minister of Planning and National Economic Policy for Costa Rica, 2010-2012.

² The figure and analysis include Costa Rica, El Salvador, Guatemala, Panama, Honduras, and Nicaragua as well as the Dominican Republic (usually included in regional analyses due to its similarities).

characterized by slowdowns associated with world events such as the subprime mortgage crisis in the United States and the related worldwide Great Recession of 2008-2009.

Throughout its history, foreign investment in Central America had followed a series of cycles driven by a combination of external and internal—or push and pull—factors, geographic and localization advantages, and a variety of promotion strategies and development models. The first cycle, in the late nineteenth and early twentieth centuries, was largely driven by geographic advantages associated with agricultural production and mineral extraction with MNCs typically behaving as enclaves. Following the Great Depression and the stagnation of the world economy, a second stage, lasting from the 1950s through the 1970s, was driven by tariff jumping. This was part of the region's import substitution model, associated with the formation of the Central American Common Market. Foreign companies invested mostly in textiles, food and beverages, and light industry. Following the debt crisis of the 1980s, yet another cycle began with the renewed push towards export-led models. Central American countries created various schemes to attract investment and promote manufacturing exports, often under export processing zones.³

Because FDI includes technology and know-how as well as foreign capital, it came to be seen during this stage as an engine of growth, almost guaranteed to boost the host country's development.⁴ Knowledge spillovers and backward and forward linkages between foreign and domestic firms were expected to bring productivity gains, technology transfers, new processes, improved managerial skills and know-how, employee training, international production networks, and access to markets.⁵ Foreign investment, by complementing domestic savings, could create employment, help diversify exports, foster linkages, transform the production structure, and upgrade the technology of the production processes, fueling growth that, in turn, would foster development.

In pursuit of all these potential externalities, governments in many developed and developing countries have, over several decades, substantially reduced barriers to foreign direct investment and offered special incentives to attract foreign firms and foster relationships between multinational enterprises (MNEs) and local firms.⁶ In Central America, for example, governments have used fiscal and financial incentives and promotion strategies such as special processing zones to encourage foreign companies to set up operations.

Though Central America is small, it is by no means homogeneous. Costa Rica, reacting at an early stage to the limits of the textile and clothing industries, emerged as the leader in product diversification, attracting firms in intermediate- and high-technology sectors. In Panama, the Canal has served as a platform for the flow of FDI, particularly in financial services. El Salvador and Guatemala aim to diversify their investments by attracting business services, while Honduras

³ See Economic Commission for Latin America and the Caribbean (2010).

⁴ The academic literature on foreign direct investment is vast and has been surveyed many times. See Markusen (1995), Caves (1996), Blomström and Kokko (1998), Hanson (2001), Lipsey (2002), Markusen (2002), Alfaro and Rodríguez-Clare (2004), Barba-Navaretti and Venables (2004), Görg and Greenaway (2004), Moran (2007), Alfaro, Kalemli-Ozcan, and Sayek (2009), Harrison and Rodríguez-Clare (2010), Kose et al. (2009, 2011), and Alfaro and Johnson (2012) for surveys on determinants, effects, spillover channels, and empirical findings. See also Yeaple (2013) and Antras and Yeaple (2014) for recent overviews of the theoretical literature on multinational firms.

⁵ See Caves (1996) and Blomström and Kokko (1998) for discussions on technology transfers.

⁶ On the debate behind incentives to attract FDI, see Hanson (2001) and Blomström and Kokko (2003).

and Nicaragua continue to attract firms in low-skill manufacturing. The Dominican Republic, usually associated with the region, receives investments in textiles, tourism, and intermediate-technology sectors.

But the impact of FDI on Central American, in fact on the host economies in general, is difficult to assess. Indeed, the empirical evidence for FDI generating the expected positive effects is ambiguous at both the micro and macro levels.⁷ In a survey of the literature, Hanson (2001) argues that there is only weak evidence that FDI generates positive spillovers for host countries. In a review of the micro-level analysis literature on spillovers from foreign-owned to domestically owned firms, Görg and Greenaway (2004) conclude that the effects are mostly negative. Surveying the macro-level empirical research, Lipsey (2002) notes that there is no consistent relation between the size of inward FDI stocks or flows and GDP or growth. Blomström and Kokko (2003) conclude from their review of the literature that spillovers are not automatic, since local conditions have an important influence on firms' adoption of foreign technologies and skills. Alfaro, Kalemli-Ozcan, and Sayek (2010), also finding conditional effects, show that not all countries satisfy the "preconditions" for taking advantage of FDI's potential benefits. The size of spillovers from foreign firms depends on the domestic firms' ability to respond to new entrants, new technology, and new competition. These characteristics are, in turn, determined to some extent by country characteristics such as the levels of human capital and financial development. Weaknesses in these areas may reduce the capacity of domestic industries to absorb new technologies and to respond to the challenges and opportunities presented by foreign entrants—in other words, to benefit from FDI. Similar conclusions are reached by Moran (2007), Nuno and Fontoura (2007), Meyer and Sinani (2009), Bruno and Campos (2013), and Iršová and Tomáš (2013).

The type of investment attracted might itself signal host-country limitations. For instance, resource-based countries with low per-capita income frequently report fairly high FDI inflows. But in such cases, sometimes the MNCs behave as enclaves, importing all their inputs and restricting their local activities to hiring labor, and thus do not contribute significantly to economic growth and development.

Thus, there appears to be a significant gap between what the doers think they are doing and what the scholars see happening. Do the mixed empirical results imply that national policies to attract FDI are unwarranted? In Central America, FDI seems to have been important for the creation of the textile-maquiladora industry and the diversification and expansion of exports. But does this justify special treatment?

Multinational corporations (MNCs) have always stirred strong emotions, both in home and host countries. In home/parent countries, the debate has ranged from those who worry that foreign investment by MNCs lowers wages and destroys jobs, entrepreneurship, and communities at home to those who argue that firms must invest abroad in order to stay competitive in an increasingly international environment. Recipient countries have an ambiguous attitude towards MNC as well. Some policy makers argue that FDI can play an important role in accelerating their countries' development efforts by bringing in capital and technology. Others view multinational corporations as monopolistic entities that grow through the exploitation of

⁷ See Section 3 for an overview of the empirical literature.

their competitive advantage in technology, bringing economic dislocation and dependence, exploiting natural resources, and threatening local culture and sovereignty. Are both claims partially true, with the effects varying by sector and type of investment?

To tackle these questions, it is helpful to understand the evolution of the literature on FDI. One strand of the literature acknowledges that the benefits generated by FDI are not exogenous, but rather are conditional on the presence of complementary policies and conditions that help firms, regions, and countries absorb those benefits. This strand does not find an exogenous positive effect of FDI on economic growth, but rather finds positive effects conditional on local characteristics, notably the policy environment and institutional quality (Balasubramanayam et al., 1996, Bénassy-Quéré, Coupet, and Mayer, 2007), human capital (Borensztein et al., 1998), local financial markets (Alfaro et al., 2004, 2010, sector characteristics (Alfaro and Charlton, forthcoming), sectoral composition (Aykut and Sayek, 2007), and market structure (Alfaro et al., 2010).

The second strand seeks to understand not whether but how FDI affects growth, paying particular attention to labor-market interactions and the linkages generated between foreign and domestic firms. A related set of papers analyze the different effects on growth of different kinds of FDI, analyzed by sector of investment, form of investment, and origin of capital.

The rest of the paper is organized as follows. Section 2 presents definitions and summarizes the likely motives for foreign direct investment. Section 3 discusses general potential effects of FDI on the local economy and summarizes recent findings on complementarities between FDI and local policies, conditions, and institutions. Section 4 summarizes new efforts to understand the mechanisms and channels by which host countries can benefit from multinational activity and from the different types of FDI. Section 5 summarizes the role of regional pull and push factors and promotion strategies and summarizes the debate on the use of incentives to attract foreign companies. Section 6 concludes.

2. Definition of Terms and Motivation for Foreign Direct Investment and Multinational Activity⁸

A multinational enterprise is an enterprise that controls and manages production establishments—plants—in at least two countries.⁹ A multinational corporation or transnational corporation is an enterprise which owns and controls income-generating assets in more than one country. The acquisition of such assets involves a foreign investment either through *portfolio investment*—the acquisition of foreign securities and bonds—or through *foreign direct investment*—the construction of new production facilities (commonly referred to as “greenfield” investments) or the acquisition of existing firms (“brownfield” investment or mergers and acquisition). Firms can also reinvest profits in their current operations. *Parents* are entities in the source country that control productive facilities—called *affiliates*—in host countries.

⁸ For recent trends, see United Nations Conference on Trade and Development (2013).

⁹ Caves (1996:1) uses the term “enterprise” rather than “company” to direct attention to the top level of coordination in the hierarchy of business decisions; a subsidiary may itself be a multinational.

As noted by Graham and Krugman (1995: 7), “The very definition of FDI poses serious problems” as what we seek to measure is the extent to which foreign firms and individuals control the host country production/facility/assets.¹⁰ That is, it is not easy to define precisely what is implied by control and even an entity’s nationality can be hard to define. As Desai (2009) notes, “It used to be the case that “production or distribution might move abroad, [while] the loci of critical managerial decision-making and the associated headquarters functions were thought to remain bundled and fixed. Now firms are unbundling headquarters functions and reallocating them worldwide. The defining characteristics of what made a firm belong to a country—where it was incorporated, where it was listed, the nationality of its investor base, the location of its headquarters, are no longer unified nor are they bound to one country”

Since control can be exercised in many ways, the measurement of FDI poses some difficulties. The United Nations Centre on Transnational Corporations (UNCTAD) defines FDI as an investment involving a long-term relationship and reflecting a lasting interest in and control of an enterprise resident in an economy other than that of the investor. FDI inflows are capital provided by a foreign direct investor to an FDI enterprise.¹¹ The International Monetary Fund’s (IMF) “International Financial Statistics” defines net FDI inflows as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. The World Bank defines foreign direct investment (net inflows in the reporting economy, in current US\$) as investment that is made to acquire a lasting management interest (usually 10 percent of voting stock) in an enterprise operating in a country other than that of the investor (defined according to residency), the investor's purpose being an effective voice in the management of the enterprise. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

These institutions, as well as most national agencies, such as the U.S. Department of Commerce, classify an investment as direct if a foreign investor holds at least 10% of a local firm’s equity. This arbitrary 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 will participate in and influence its management. When a foreign investor purchases a local firm’s securities or bonds without exercising control over the firm, that investment is regarded as a portfolio investment. Regardless of measurement difficulties, it is the desire for partial or complete control over the activities of a firm in another country that distinguishes FDI from portfolio investment. Foreign direct investment is characterized by the ownership of assets in one country by residents of another one with the purpose of controlling those assets.

¹⁰ “Direct investment is ownership that carries with it actual control over that which is owned which is the aspect that distinguishes direct investment from portfolio investment—establishment of a claim on an asset with the purpose of realizing returns,” Graham and Krugman (1995: 9).

¹¹ A parent enterprise is defined as an enterprise that controls assets of other entities in countries other than its home country, usually by owning a certain equity capital stake (10% or more). A foreign affiliate is an incorporated or unincorporated enterprise in which an investor, who is resident in another economy, owns a stake that permits a lasting interest in the management of the enterprise (an equity stake of 10% for an incorporated enterprise or its equivalent for an unincorporated enterprise). FDI stock is the value of the share of the foreign enterprise capital and reserves (including retained profits) attributable to the parent enterprise plus the net indebtedness of affiliates to the parent enterprise. See UNCTAD (2013).

Given the diversity among MNEs and the different motives to invest abroad, the patterns of foreign investment have long been recognized to be complex. Firms can invest abroad to serve a market directly; to gain access to inputs, raw materials, or labor; to increase operational efficiency; or simply to keep competitors from acquiring strategic assets (see Desai, 2009). An alternative categorization by motivation recognizes resource-seeking or supply-oriented FDI, designed to gain access to natural resources such as minerals or to unskilled labor; market-seeking or demand-oriented FDI, designed to satisfy one or several foreign markets; efficiency-seeking or rationalized FDI, designed to promote a more efficient division of labor or specialization in an MNE's portfolio of foreign and domestic assets; or strategic-asset-seeking FDI, designed to protect or augment a firm's specific advantages and/or to reduce those of its competitors.¹²

However, the fundamental question underlying FDI activities is always this: Why is an investor willing to acquire a foreign firm or build a new factory abroad? After all, there are added costs of doing business in another country, including communication and transport costs, the expense of stationing personnel abroad, and barriers due to language, customs, and exclusion from local business and government networks. Many firms could be multinational but choose not to be. While many countries have many MNEs, others have none.

It may seem that the answer is simply the ordinary pursuit of profit: The multinational firm expects to enjoy either larger annual cash flows or a lower cost of capital. But how can a foreign firm offset the local firm's advantage of superior knowledge of the market, legal and political systems, language, and culture?

One explanation, known as the cost-of-capital theory, is that the investing foreign firms, because of their size or structure, have access to lower-cost funds not available to local firms. In this view, multinationals are simply arbitragers moving capital from low-return countries to high-return ones. However, if the 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 making a portfolio investment? Evidence shows that investors often fail to bring all the investment capital with them when they take control of a foreign company; instead, they tend to finance an important share of their investment in the local market. FDI flows—particularly among developed countries and increasingly emerging markets—proceed 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.”¹³

¹² For analytical simplicity, FDI has usually been classified as either horizontal or vertical. A firm engages in horizontal FDI when it replicates a subset of its activities or production process in another country; in other words, when the same (horizontal) state of the production process is duplicated. See Markusen (1984), Brainard (1997), and Markusen and Venables (2000). Firms engage in vertical FDI when the fragmentation of production is by function; that is, when they break up the value-added chain, often motivated by cost considerations arising from factor cost differences. Helpman's (1984) category of export-platform FDI, in which the affiliates' output is (largely) sold in a third market, has also been increasingly recognized. Empirical evidence on the different types includes Brainard (1997), Carr, Markusen, and Maskus (2001), Hanson, Mataloni, and Slaughter (2001, 2005), Markusen and Maskus (2002), Yeaple (2003, 2006), Ekholm et al. (2007), and Alfaro and Charlton (2009).

¹³ Kindleberger (1969): 3.

Given the limitations of applying the traditional international-finance approach, Hymer (1960) proposed a more broadly accepted framework, derived from the industrial organization literature, in which real (as opposed to financial) factors explain the location decisions of multinational firms.¹⁴ This view suggests that a firm engages in FDI not because of differences in the cost of capital but because certain assets are worth more under foreign rather than local control, which allows the firm to compete in unfamiliar environments. An investor's decision to acquire a foreign company or build a foreign plant rather than simply exporting or engaging in other forms of contractual arrangement with foreign firms thus involves (a) ownership of an asset, (b) the production location, and (c) the choice of whether or not to keep the asset internal to the firm.

First, a firm can possess some *ownership advantage*—a firm-specific asset (such as patents, technology, processes, and managerial or organizational know-how) that enables it to outperform local firms. Second, *locational factors*, such as opportunities to tap into local resources, can provide access to low-cost inputs or low-wage labor or can allow the firm to bypass tariffs that protect a local market from imported goods. Third, the *internalization* of global transactions may be preferable to the use of arm's-length market transactions. In general, the more “imperfect” a market is, the higher the transaction costs and the greater the benefits of internalizing certain transactions rather than, for example, establishing a partnership or joint venture with a local firm or simply licensing the advantageous asset to a domestic firm.

According to this view, the genesis of FDI is the investor's possession of some asset, such as technology or know-how that offers an important gain for the investing firm. This, in turn, suggests that FDI can play an important role in modernizing and promoting that country's economic growth.¹⁵ However, there might also be offsetting costs to the host country. Since the proprietary asset or technology provides its owner with some market power or cost advantage over indigenous producers, the foreign firm will seek to exploit that power.

3. Foreign Direct Investment and Host Countries: Effects, Absorptive Capacities, and Complementarities

3.1. Multinationals, Knowledge Spillovers, and Linkages: Potential Effects

Because FDI embodies capital, technology, and know-how, there is the potential for host countries to benefit from spillovers. But, there are also potential tradeoffs.

Spillover mechanisms include direct knowledge transfer through partnership, the opportunity to learn from the innovation and experience of foreign firms, and interaction and movement in labor markets. If foreign firms introduce new products or processes to the domestic

¹⁴ This approach to the theory of the multinational firm is also known as the OLI framework (Dunning, 1981). Hymer's approach was later refined by several authors, including Kindleberger (1969) and Caves (1974) and culminating in Dunning's (1981) OLI framework. See the description in Antràs and Yeaple (2014).

¹⁵ Third-world multinationals are often closer than first-world multinationals are to their host countries geographically, culturally, economically, and politically. As such, their know-how and technologies (intangible assets) may be particularly well suited to the other emerging markets in which they invest and they may possess competitive advantages that enable them to circumvent or exploit local institutional voids; see Khanna and Palepu (2004).

market, domestic firms may benefit from the diffusion of that technology.¹⁶ In some cases, domestic firms may benefit solely by observing foreign firms. In other cases, technology diffusion may occur as domestic employees move from foreign to domestic firms. There is also the potential to create linkages between foreign and domestic firms.

One of the mechanisms by which FDI could generate positive production externalities depends on the flow of workers out of MNCs. MNCs devote more resources to labor training than domestic firms do. Given that a large part of this labor training is not paid for by workers and constitutes knowledge that is not completely firm-specific, this constitutes a positive externality which leads to higher wages for these workers and/or higher productivity for other firms that subsequently hire these workers. There are also positive spillovers if workers increase their knowledge not through formal labor training but through on-the-job training, learning by doing, or learning by observing. The spillover can also take place through “spin-offs”; that is, when workers leave the MNC to set up their own firms and benefit from the knowledge they gained at the MNC. Knowledge spillovers can take place even without formal flows of workers out of the MNCs; one would expect knowledge about production process to diffuse from one firm to others simply through the ordinary interactions of people who do similar work for different companies.

Linkages, according to Hirschman (1958), involve pecuniary externalities. In contrast to knowledge spillovers, pecuniary externalities take place through market transactions. If a firm introduces a new good, for example, there will be a positive pecuniary externality from the firm to consumers. The same phenomenon arises when, instead of inventing a new good, the firm is simply starting up production of a good in a developing country. Backward and forward linkages are associated with pecuniary externalities in the production of inputs. If there are transportation costs, when inputs are produced with increasing returns and benefits of specialization, backward linkages are said to arise when a firm increases the demand for inputs and this leads to the introduction of new input varieties. Thanks to specialization, the introduction of these inputs increases productivity for downstream producers. Forward linkages take place when the introduction of new inputs lowers the production cost of certain goods, making their production profitable for downstream producers.

Rodríguez-Clare (1996) formalizes these channels. For example, MNCs may create backward linkages and thereby lead to the production of a larger variety of intermediate goods; this, in turn, allows the economy to gain a comparative advantage in the production of more sophisticated final goods. In the end, the economy ends up with higher productivity and higher wages thanks to the backward and forward linkages generated by MNCs.

According to this view of linkages, MNCs could even generate a negative backward-linkage effect, as shown in Rodríguez-Clare (1996). For example, if MNCs behave as enclaves, importing all their inputs and restricting their local activities to hiring labor, demand for inputs decreases as MNCs increase in importance relative to domestic firms, which *reduces* input variety and specialization. This would show up as a negative horizontal externality. Note that in this argument, it is key that MNCs displace national firms from the market, either due to labor-market constraints or by direct competition, as in Markusen and Venables (1999).

The work of Melitz (2003) and Helpman et al. (2004) underscores how multinational

¹⁶ See Caves (1996) and Blomström and Kokko (1998) for discussions of technology transfer.

activity can also lead to tougher competition in product and factor markets and to the reallocation of resources from less-productive domestic firms to more-productive foreign firms, leading in turn to the exit of some domestic firms. But another reallocation effect is that domestic firms can upgrade in anticipation of competition (Bao and Chen, 2013).

Another mechanism through which FDI can affect the host economy relates to failures in credit markets. Razin and Sadka (2007) present a model in which some special technical or managerial know-how, which the authors term “intangible capital,” gives foreign direct investors an advantage over domestic investors in skimming the best projects. Their analysis adds a new twist to the gains-from-FDI argument, as benefits from this unique advantage might be shifted to the domestic country, depending on the level of competition among investors, through the acquisition price that foreign direct investors pay for those plum projects. Ownership is modeled as conveying earlier access to information about the firm’s productivity, which gives the owner planning benefits. But because this information is private to the foreign direct investor, it also leads to a “lemon” 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. Razin and Sadka’s framework thus captures the tendency for FDI to be more stable than portfolio flows, but also more illiquid. Because FDI investment is liquidated at significant cost, countries prone to liquidity crises tend to attract less FDI than portfolio investment.

3.2. Empirical Findings

One robust finding is that MNEs tend to have higher productivity than domestic firms in the same sector (Haddad and Harrison, 1993; Blomström and Wolff, 1994; Kokko, Zejan, and Tansini, 1994; Helpman et al, 2004; Arnold and Javorcik, 2009). More important, however, is the possibility that MNEs improve the productivity of local firms through knowledge spillovers.

A first generation of cross-section studies generally found a positive correlation between foreign presence and sectoral productivity. For example, the pioneering work of Caves (1974) finds positive FDI spillovers in Australia, Blomström (1987) and Blomström and Wolff (1994) find positive effects in Mexico, and Sjöholm (1999) finds positive effects in Indonesia.

However, looking at plant-level data in Venezuela, Aitken and Harrison (1999)—in one of the most influential contributions to this literature—find that FDI raises productivity in plants that receive the investment while lowering that of domestically owned plants, so that the net effect on sector productivity is quite small. The authors interpret this result as a market-stealing effect whereby foreign multinational firms steal the market share of domestic firms.

Aitken and Harrison’s paper soon spawned many empirical studies. In surveys of the findings, Hanson (2001), Görg and Greenaway (2004), Meyer and Sinani (2009), Pessoa (2009), and Bruno and Campos (2013) conclude that the effects of FDI are mostly negative or that the evidence for its benefits is weak at best, particularly for developing countries. The evidence of positive spillover effects tends to be more favorable in developed countries. Haskel, Pereira, and Slaughter (2007), for example, find positive spillovers from foreign to local firms in a panel dataset of firms in the UK, while Görg et al. (2011) find more heterogeneous effects; Görg and Strobl (2003) find that foreign presence reduces exit and encourages entry by domestically

owned firms in Ireland's high-tech sector and Keller and Yeaple (2009) show strong evidence of positive spillovers from foreign multinational to domestic firms in the United States.

Pessoa (2009) reviews arguments and empirical findings on the positive effects of FDI on host country firms and is struck most by the diversity of results, which suggests that the effects of FDI will depend on the host economy's "technological congruence" and "social capability" and on the indigenous firms' familiarity with a given MNC's products and technology and/or capacity to adapt. Meyer and Sinani (2009) find that local firms may gain from productivity spillovers from foreign investors, yet the gains vary with the local firm's awareness of foreign entry and its motivation and capability to react.

Paralleling the micro evidence, a generation of papers, using cross-country growth regressions, found weak support for an exogenous positive effect of FDI on economic growth (Borensztein, De Gregorio, and Lee, 1998; Alfaro, Chandra, Kalemli-Ozcan, and Sayek, 2004; Carkovic and Levine, 2005). Using careful econometric techniques, this literature has failed to find positive productivity externalities for developing countries and, in fact, has found evidence of negative externalities.

Most empirical studies of FDI spillovers have regressed local firm productivity on FDI activity within a particular sector. Although evidence of horizontal spillovers is elusive, particularly in developing countries, the empirical work at the intra-industry level might not capture wider spillover effects on the host economy, such as those created between MNEs and their suppliers. One explanation for the lack of evidence of externalities is that multinationals have the incentive to minimize technology leakages to competitors but would like to improve the productivity of suppliers. Thus, if FDI were to generate spillovers through knowledge transfer, it is more likely to be vertical than horizontal.

With this insight in mind, a set of papers has explored positive externalities of FDI for local firms in upstream industries (suppliers). Here, the findings are more encouraging. In a widely cited paper, Javorcik (2004), using panel data for Lithuania from 1996 through 2000, examines whether the productivity of domestic firms is correlated with the presence of multinationals in downstream sectors (potential customers). Her empirical results are consistent with the existence of productivity externalities from FDI taking place through contacts between foreign affiliates and their local suppliers in upstream sectors, but there is no indication of externalities within the same industry. Similarly, using a panel dataset of Indonesian manufacturing establishments from 1988 through 1996, Blalock and Gertler (2008, 2009) find evidence of positive vertical externalities. They also find that downstream FDI increases firm output and firm value-added, while decreasing prices and market concentration. Evidence consistent with inter-industry spillovers in Colombia, Romania, and Ireland emerges from Kugler (2006), Javorcik and Spatareanu (2011), and Görg et al. (2011), respectively. Overall these studies find a positive correlation between the presence of multinationals in downstream industries and the performances of domestic suppliers.¹⁷

¹⁷ See Section 4.3 for more on the role of linkages.

3.3. Complementarities

Recent literature on the link between FDI and growth has focused on complementarities—local policies and conditions that are prerequisites for FDI spillovers to materialize.

At the macro level, the literature finds evidence of positive effects that are not exogenous but rather are conditional on local conditions and policies. For example, Kose et al. (2009, 2010) list several macroeconomic and structural policies that need to be in place for countries to reap the benefits of financial globalization. The authors emphasize that capital account policies need to be seen as part of a much broader set of policies. Similarly, Harrison and Rodríguez-Clare (2010) emphasize the relevance of complementary aspects of a trade policy regime—such as labor-market policies and the ease of entry and exit for firms—to the success of that policy. As noted by Rodrik and Rosenzweig (2009), “Appropriate development policies typically exhibit high degrees of complementarity.”

Moran (2007) points to the role of a competitive environment (import-substitution-type policies). Indeed, the work of Balasubramanayam et al. (1996) finds FDI flows to be associated with faster growth in countries with outward-oriented trade policies. Many of the first- and second-generation panel studies on FDI and growth, which found primarily orthogonal or negative relationships, were conducted in countries—such as India, Morocco, and Venezuela—with inward-oriented policies. The results in Aitken and Harrison (1999)—that the overall effect of foreign investment in Venezuela is small—are based on data from 1976 to 1989, a period during which Venezuela pursued inward-oriented policies. Moran (2007) concludes that “manufacturing FDI is more likely to make a positive contribution to a national income under reasonable competitive conditions.”

Borensztein et al. (1998), using a dataset of FDI flows from industrialized countries to 69 developing countries, find that FDI is an important vehicle for transferring technology and higher growth only when the host country has a minimum threshold of human capital. Likewise, Xu (2000) uses data on U.S. MNEs and finds that (a) a country needs to have reached a minimum human capital threshold in order to benefit from the technology transfer from MNEs and (b) most developing countries do not meet this threshold. These results suggest that FDI is an important vehicle for the transfer of technology, that there are strong complementarities between FDI and human capital, and that FDI is more productive than domestic investment only when the host country has a minimum threshold stock of human capital.

In a cross-country analysis, Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) examine the intermediary role played by local financial institutions in channeling the contributions of FDI to economic growth. In particular, they argue that the lack of development of local financial markets can limit the economy’s ability to take advantage of potential FDI spillovers. Their results show that FDI does not exert a robust positive impact on growth on its own. However, when the authors include the interaction term, it turns out to be positive and significant at one percent for various specifications of the financial sector. Thus, the authors find convincing evidence that a country needs a strong financial sector to reap the positive benefits of FDI.

Alfaro and Charlton (2013) provide industry-level evidence by using data for OECD

countries and showing that the relation between FDI and growth is stronger for industries more reliant on external finance. These results, apart from being consistent with the existing macro literature and the hypothesized benefits of FDI, are further evidence of important cross-industry differences in the effects of FDI. Hermes and Lensink (2003) and Durham (2004) provide further evidence that a country with a well-developed financial market gains significantly from FDI. Prasad, Rajan, and Subramanian (2007), also focusing on correlations, find that for financially dependent industries in countries with weaker financial systems, foreign capital does not contribute to growth.

Bruno and Campos (2013) also state that FDI effects are conditional, depending at the macro level on minimum levels of human capital or financial development and at the micro level on the type of linkage (forwards, backwards, or horizontal).

Alfaro, Kalemli-Ozcan, and Sayek (2009) examine whether the financial-markets channel through which FDI is beneficial for growth operates through factor accumulation or through total factor productivity (TFP). The authors find that if FDI has an effect on growth, it does not seem to operate via the accumulation of physical or human capital, even when their analysis considers threshold and interaction effects with the absorptive capacities of the economy. Instead, the interaction of FDI with strong financial development affects growth through gains in TFP.

The importance of well-functioning financial institutions to economic development has been extensively discussed in the literature. Researchers have shown that well-functioning financial markets, by lowering transaction costs, ensure that capital is allocated to the projects that yield the highest returns and therefore enhance growth rates.¹⁸ Furthermore, as McKinnon (1973) states, the development of capital markets is “necessary and sufficient” to foster the “adoption of best-practice technologies and learning by doing.” In other words, if limited access to credit markets restricts entrepreneurial development and if entrepreneurship encourages assimilation of best technological practices made available by FDI, then the absence of well-developed financial markets limits the potential for positive FDI externalities. Although some local firms might be able to finance new requirements with internal financing, the greater the gap in technological knowledge between their current practices and new technologies, the greater the need for external finance, which is restricted in most cases to domestic sources.

At the micro level, other researchers have found causal but indirect results emphasizing the complementarity of FDI and financial development. Javorcik and Spatareanu (2009a) find that, among Czech firms, those supplying multinationals tend to be less liquidity-constrained than others. This micro evidence further suggests that, in the absence of well-functioning financial markets, local firms may find it difficult to start business relations with MNEs and reap the benefits of productivity spillovers. This mechanism is consistent with the growth effects found in Liu (2008) and with the formalization in Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2010).

Most barriers to foreign investment today affect services rather than goods. While there is considerable empirical evidence on the impact of FDI on manufacturing productivity, a nascent empirical literature studies the effects of services liberalization on manufacturing productivity.

¹⁸ See, among others, Goldsmith (1969), McKinnon (1973), Shaw (1973), and King and Levine (1993a, b).

Arnold et al. (2006) find a positive relationship between service sector reform and the productivity of domestic firms in downstream manufacturing sectors. Arnold, Javorcik, and Mattoo (2008) find the same effect in India. The effects and complementarities of reducing barriers to services and goods remain an important topic for future research.

Overall, the literature on complementarities has found that some countries lack the preconditions to reap the potential benefits of FDI, which may help explain the ambiguity in the findings on the relationship between FDI and growth. Spillovers from foreign to domestic firms depend on the domestic firms' ability to respond successfully to new entrants, new technology, and new competition. That success is, to some extent, determined by local characteristics such as the level of human capital and the development of the local financial markets as well as by the overall institutional level of the country. Weaknesses in these areas may reduce the capacity of domestic industries to absorb new technologies and respond to the challenges and opportunities presented by foreign entrants. Variation in such "absorptive capacities" between countries (and between industries within countries) is a promising line of research that may produce a synthesis of the current literature's conflicting results.

4. Channels, Mechanisms, and Sources of Differences

Empirical studies have focused on finding indirect evidence of externalities by exploring whether increases in MNE presence are associated with increases in local firms' productivity. However, it is important to investigate the channels, mechanisms, and sources of differential effects in order to establish the robustness of these findings, not to mention devising appropriate policy interventions to maximize the benefits from FDI.

4.1. Factor Markets

FDI could contribute to a host country's development via factor accumulation; that is, by increasing the country's stock of physical and/or human capital. The foreign capital injected into the host economy can contribute to physical capital formation, while employee training can contribute to skill development. But here, too, the empirical evidence shows that neither of these benefits can be presumed.

Labor A few studies have evaluated the factor-market effects of multinational production. In terms of human capital, FDI can increase national welfare if MNEs pay higher wages than domestic firms do. As mentioned above, one robust finding is that the productivity of MNEs tends to be higher than that of domestic firms in the same sector. Under these circumstances, FDI would lead to a higher GDP. But if MNEs paid market wages, the increased GDP would be completely captured by the MNEs, with no increase in national welfare.

There is ample evidence, however, that MNEs do pay above-market wages (Blomström, 1983; Haddad and Harrison, 1993; Aitken, Harrison, and Lipsey, 1996; Girma, Greenaway, and Wakelin, 1999; Lipsey and Sjöholm, 2001; Sjöholm and Lipsey, 2006). It is very likely, then, that the fruits of their higher productivity are shared with nationals, which could, in turn, justify government incentives for MNEs.

Aitken, Harrison, and Lipsey (1996) investigate the impact of foreign-owned plants on the wages paid by domestically owned establishments in Mexico and Venezuela. Their analysis suggests an increase in industry wages—especially for skilled workers—due to foreign multinational production. Similarly, Feenstra and Hanson (1997) find that a higher level of maquiladora activity leads to a higher share of total wages going to skilled (nonproduction) workers in Mexico, a result they interpret as increased demand for skilled labor from foreign multinational firms.

Harrison and Rodríguez-Clare (2010), reviewing the literature on FDI and wages, conclude that, after adjusting for firm and worker characteristics, foreign firms pay a small wage premium that is between 5 and 10 percent.

Furthermore, there is ample anecdotal evidence that MNEs undertake substantial efforts to educate local workers and that they offer more training to technical workers and managers than local firms do.¹⁹ In some cases, MNEs also enter into training cooperation with local institutions. For example, Intel and Shell-BP have made contributions to local universities in Costa Rica and Nigeria, respectively; in Singapore, the Economic Development Board has collaborated with MNEs to establish and improve training centers.²⁰ However, in an empirical analysis of a panel of countries, te Velde and Xenogiani (2007) find that FDI enhances skill development (particularly secondary and tertiary enrollment) only in countries that are already relatively well endowed with skills. The finding that FDI's contribution to skill development is conditional on a threshold of human capital illustrates the emerging understanding of the importance of complementarities, which we discussed in the previous section.

Financial markets There is an emerging literature on the effect of FDI on local capital markets. One reason policy makers give for promoting foreign investment in developing countries is the scarcity of capital for new investment. This argument is based on the assumption that foreign investors provide additional capital when they set up new enterprises in local markets. However, Kindleberger (1969), Graham and Krugman (1995), and Lipsey (2002) show that investors do not transfer their entire investment upon taking control of a foreign company; instead, they tend to finance an important share of their investment in the local market.²¹ Furthermore, faced with rising exchange-rate volatility, many foreign investors have found ways to hedge by borrowing on local capital markets. If foreign firms borrow heavily from local banks, instead of bringing scarce capital from abroad, they may exacerbate domestic firms' financing constraints by crowding them out of domestic capital markets.

Harrison and McMillan (2003) and Harrison, Love, and McMillan (2004) test that possibility. Harrison and 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

¹⁹ See Fosfuri, Motta, and Ronde (2001) and the discussions in Alfaro and Rodríguez-Clare (2004) and Alfaro, Kalemli-Ozcan, and Sayek (2009).

²⁰ World Bank (1995), Spar (1998), and Larraín, López, and Rodríguez-Clare (2000).

²¹ As mentioned above, the industrial organization literature suggests that firms engage in FDI not because of differences in the cost of capital but because certain assets are worth more under foreign control than under local control. If the lower cost of capital were the only advantage a foreign firm had over domestic firms, it would remain unexplained why a foreign investor would endure the troubles of operating a firm in a different political, legal, and cultural environment rather than simply making a portfolio investment.

foreign firms, but also that borrowing by foreign firms exacerbates the credit constraints of domestic firms. Harrison, Love, and McMillan (2004), using company-level data across a panel of countries, get results suggesting that, in a country such as Côte d'Ivoire, with numerous market imperfections and with credit access rationed due to interest-rate ceilings, foreign investors did indeed crowd domestic enterprises out of local credit markets. In their panel of countries, however, they found that foreign investors also tended to crowd *in* domestic enterprises; that is, as foreign investment increased, the amount of credit available to domestically owned firms actually rose. Harrison and Rodríguez-Clare (2010) argue that these contrasting results point to policy complementarities, such the aforementioned complementarities between FDI and local financial markets (see Alfaro et al., 2004, 2010). In a country with credit-market imperfections, such as Côte d'Ivoire, FDI exacerbated the imperfections. The importance of such complementarities is discussed in the next section.

4.2. Selection, Competition, and Reallocation

The selection decisions of multinational firms choosing to invest in high-growth countries/sectors/companies suggest that the higher the productivity of the host country, the greater the multinational activity there. In contrast, knowledge spillovers imply that multinational activity *causes* (rather than being caused by) higher aggregate domestic productivity. Greater multinational activity can also lead to tougher competition in product and factor markets and to the reallocation of resources from less-productive domestic firms to more-productive foreign firms, leading to the exit of some domestic firms. Here again, multinational activity appears as the cause (not the result) of higher aggregate domestic productivity. The effects of the latter two mechanisms are also countervailing: Tougher selection means a contraction of domestic production while technology spillovers represent positive externalities.

Recent studies by Arnold and Javorcik (2009) and Guadalupe et al. (2011) account for the endogenous acquisition decisions of foreign multinational firms and find that those firms acquire the best-performing domestic firms. These studies also show, even after addressing the acquisition decisions, that foreign ownership leads to significant productivity spillovers in acquired plants. Fons-Rosen et al. (2013), on the other hand, find little evidence of spillover.

Using a propensity score combined with difference-in-differences analysis to control for both nonrandom sampling and changes in observables/unobservables, Arnold and Javorcik (2009) find that Indonesian manufacturing plants that become foreign-owned (a) invest more in fixed assets—particularly in machinery—than domestically owned firms with similar characteristics do and (b) increase both the import-intensity of their inputs and the export-intensity of their output. Interestingly, the authors also find that these plants implement organizational changes that improve worker performance. Such findings can help explain the robust relationship between foreign ownership and plant TFP. The organization of multinational firms will be discussed in the next section, “Multinationals and Organization.”

While these results offer important insight into how FDI drives higher TFP in the plants receiving it—that is, at the micro level—it is another exercise altogether to shed light on the mechanism by which FDI generates macro-level growth for the host country.

One approach to this question can be understood in light of new trade theories that emphasize firm heterogeneity, as illustrated by Melitz (2003). In his model, gains from trade occur through reallocation of market share from less-productive to more-productive firms. This cannot take place, however, when there are barriers to firm exit and expansion, confirming the importance of FDI being accompanied by complementary policies such as credit availability and low barriers to entry/exit and to reallocation of factors.

In order to understand the mechanisms by which an economy responds to multinational production, to evaluate the effect of foreign investment, and to set the corresponding economic policies, we need to distinguish between market reallocation and knowledge spillover.²² If knowledge spillover is the primary source of productivity gains, special treatment for foreign firms—often in the form of tax breaks and financial incentives—may be justified and sufficient. But if productivity gains also arise from market reallocation, it would be important to improve domestic market conditions—including labor supply and credit access—and to eliminate barriers to such reallocation.

While there has been extensive research on the knowledge spillover effect of multinational firms, there has been little on the role of market reallocation in the aggregate impact of multinational production and on the different ways in which market reallocation and knowledge spillover influence the potential gains from multinational competition. Evidence on the domestic selection effect of multinational production is limited. Analysis that disentangles the relative importance of knowledge spillovers and selection is even scarcer.

Alfaro and Chen (2013) disentangle the roles of selection and knowledge spillover in determining the aggregate impact of multinational production on host-country productivity. Using a micro theoretical foundation that captures simultaneously these two distinct aspects of multinational production, the paper develops an empirical strategy to distinguish their relative importance while accounting for the self-selection of multinational firms. It also provides a structural framework with which to quantify the magnitude of productivity gains associated with each effect and to perform counterfactual analysis. The paper's analysis offers new evidence on the market reallocation effect of FDI and on the cross-country heterogeneity in gains from openness to multinational production.²³ These results suggest that sensible policy should aim to facilitate gains from competition and the reallocation of resources by improving domestic conditions—including credit access and labor supply (particularly skilled labor)—while eliminating regulatory barriers.

²² Although the role of market reallocation is underemphasized in evaluating gains from multinational production, its role is well established in assessing the productivity gains from trade liberalization; see Melitz and Redding (forthcoming) for a recent overview.

²³ Ramondo (2009), using a panel of domestic and foreign plants in the Chilean manufacturing sector, finds the entry of foreign plants to be negatively correlated with the market shares of domestic incumbents but positively correlated with their productivity. Kosova (2010), analyzing exit and sales growth of domestic firms in the Czech Republic, finds evidence consistent with crowding out and technology spillovers.

4.3. Linkages

Another promising inquiry into the growth-inducing mechanism of FDI has been the effort to uncover the potential for spillovers by formalizing whether and how foreign-owned firms generate meaningful linkages to domestic firms, both intra-industry (horizontal) and inter-industry (vertical). As discussed above, since MNEs are motivated to provide technological spillover to their suppliers but *not* to their competitors, most of the recent literature has focused on the mechanism for vertical, rather than horizontal, linkages.

An important question is whether all vertical (supply) relations have the potential to develop into positive linkages and to generate positive FDI spillovers. The cherry-picking behavior of many foreign firms with respect to local firms that can already supply goods (Javorcik and Spatareanu, 2005) is not associated with potential positive externalities. That foreign firms seem to help some suppliers improve their performance again implies an externality only if these benefits are not fully internalized by the foreign firm.

Interviews with suppliers and MNEs in Costa Rica revealed few cases in which there had clearly been a positive technology transfer from an MNE to a supplier (see Alfaro and Rodríguez-Clare, 2004). The interviews also revealed that MNEs often lacked technical knowledge about the production processes of the *inputs* they used. When they did have such knowledge, it tended to be about production processes for sophisticated inputs that, because they were unlikely to be supplied by local firms, were usually sourced from highly specialized international suppliers. While the interviews provided no evidence of knowledge spillovers via technology transfer, they did reveal many instances in which local firms had decided to upgrade their production processes in order to become MNE suppliers.

Given the ambiguity of this survey data, an integrated approach that links theory and evidence is needed to flush out the potential for spillover effects. Theoretical work by Rodríguez-Clare (1996) suggests that under certain conditions (specialization advantage, increasing returns, and high transportation costs), increased demand for specialized inputs would lead to the local production of new types of these inputs, generating positive externalities for other domestic firms that use them. According to this view of linkages, MNEs could even generate a negative backward-linkage effect. If, for example, they were to behave as enclaves, importing all their inputs and restricting their local activities to hiring labor, demand for domestic inputs might decrease as the MNEs increased in importance relative to domestic firms, leading to a reduction in input variety and specialization (see also Markusen and Venables, 1999).

However, as discussed in Alfaro and Rodríguez-Clare (2004), it is important to consider the model's key assumptions and how violation of these assumptions might affect the potential for multinationals to create linkages. One important assumption is that the intermediate inputs are nontradable and, by extension, that the input-sourcing behaviors of domestic and foreign-owned plants are identical. Were goods perfectly tradable—that is, were there no transportation costs—it would not make sense to talk about a firm introducing a good to a developing country. Given demand, all existing goods would automatically be available everywhere. Only demand for nontradable inputs generates meaningful linkages. Furthermore, given the higher import-

intensity of the inputs of foreign-owned firms, the assumption of nontradability is evidently overly restrictive.

As mentioned in Barrios, Görg, and Strobl (2011), the assumption of identical input-sourcing behavior “goes against the very premise underlying the search for spillovers arising from FDI, namely that foreign multinationals are different [from] their domestic counterparts in production organization mode.”²⁴ Arnold and Javorcik (2009) provide evidence that firms that become foreign-owned import a larger share of their inputs than they would have had they remained domestically owned. Ideally, researchers would take into account only purchases of nontradable inputs, but data constraints usually make such precision impossible.

A second caveat is that only demand for intermediate goods that exhibit increasing returns (as opposed, for example, to constant returns to scale) entails linkages. A third caveat is that demand for inputs with a low elasticity of substitution generates linkages with a stronger effect on productivity than does demand for inputs that have good substitutes. A fourth caveat is that multinationals seem to hire more skilled workers than domestic firms do. Positive linkage effects by multinationals might be less likely in the face of greater competition between MNEs and domestic firms for scarce skilled labor.

With these four caveats in mind, how do we set out to measure such linkages? The traditional interpretation of a finding frequently reported in the empirical literature—that the share of inputs bought domestically is lower for MNEs than for local firms (Barry and Bradley, 1997; Görg and Ruane, 2001)—has been that MNEs generate fewer linkages than domestic firms do. Theory, however, suggests that the share of inputs bought domestically is not a valid indicator of the linkages MNEs can generate. Barrios, Görg, and Strobl (2011) show that when measuring whether MNEs generate positive linkages, the results depend heavily on the choice of the backward-linkage measure. The authors also discuss in detail the assumptions underpinning the prior literature’s traditional measure of linkages. A more appropriate measure is the ratio of the value of inputs bought domestically to the number of workers hired by the firm, which can also be defined as the share of inputs sourced domestically times intensity (inputs per worker). While MNEs may have a lower share (as they are more likely to import inputs), they may also be likely to have higher intensity coefficients.

Alfaro and Rodríguez-Clare (2004) found, consistent with earlier evidence, that the share of inputs sourced domestically was lower for foreign firms than for domestic firms in Brazil, Chile, Mexico, and Venezuela, but also that the intensity coefficient for foreign firms was higher. The linkage coefficient was higher for foreign firms in Brazil, Chile, and Venezuela, whereas in Mexico the authors could not reject the hypothesis that foreign and domestic firms have similar linkage potential. Another important result was that entrant foreign firms tended to have a lower linkage coefficient, but that the linkage tended to increase over time, highlighting the importance of the duration of study (as well as of the timing, since studies closer to liberalization efforts are more likely to produce negative results).

²⁴ See also Grima, Grog and Pisu (2008) and Gorg an Seric (2013).

Interestingly, a positive backward-linkage effect does not necessarily imply a positive externality from MNEs to suppliers. Rather, such a positive linkage effect should lead to a positive externality from MNEs to other firms *in the same industry*; that is, a positive horizontal externality. In a theoretical framework, Alfaro, Chanda, Kalemlı-Ozcan, and Sayek (2010) elucidate this idea by developing a model in which the presence of positive linkages depends on the extent of the local financial sector's development. They model a small open economy in which final goods production is carried out by foreign and domestic firms which compete for skilled labor, unskilled labor, and intermediate products. To operate a firm in the intermediate goods sector, an entrepreneur must develop a new variety of intermediate good, a task that requires upfront capital investment. The more developed the local financial markets, the easier it is for credit-constrained entrepreneurs to start their own firms.²⁵ The increase in the variety of intermediate goods leads to positive spillovers to the final goods sector. As a result, financial markets allow the backward linkages between foreign and domestic firms to turn into FDI spillovers. Crucially, though, this model implies that spillovers should be horizontal rather than vertical.

However, the evidence of horizontal spillovers from FDI has remained elusive. Iršová (2013), in a meta-analysis of the literature, finds that, on average, horizontal spillovers are zero.²⁶ Why do we not observe a positive externality from MNEs to other firms in the same industry? Quality of data, errors in the measurement of productivity, and endogeneity issues in the presence of multinationals are all possible answers to this puzzle. But another is that there might be some negative horizontal externality that offsets the positive one; for example, the competition effect occasioned by the entry of MNEs, as argued by Aitken and Harrison (1999) and shown in Alfaro, Chanda, Kalemlı-Ozcan, and Sayek (2010) and Alfaro and Chen (2013). Iršová (2013), too, finds this effect, but also finds that the sign and magnitude of horizontal spillover depend systematically on the characteristics of the domestic economy and the foreign investors.

An important challenge for the literature is therefore to control for competition effects. Data availability imposes a significant restriction on efforts to address this issue through econometric work, particularly in developing countries. In some recent work, Alfaro, Chanda, Kalemlı-Ozcan, and Sayek (2010) combine theory and a calibration approach to formalize the mechanism through which the trickle-down effect of FDI via backward linkages depends on the level of local conditions—including market structure, financial markets, and competition for skilled and unskilled labor—and to quantify the properties of the model for realistic parameters.

Of course, externalities and spillovers are, by their very nature, hard to measure. Quality upgrades, worker training, and improvements in the business environment and in organizational practices are some of the factors that can also have positive effects on the host economy. In addition, MNEs may cluster worldwide to benefit from their interaction. Firms that agglomerated

²⁵ Hirschman (1958) argues that linkage effects are realized when one industry may facilitate the development of another by easing conditions of production, thereby setting the pace for further rapid industrialization. He also argues that in the absence of linkages, foreign investments could have limited or even negative effects on an economy (the so-called enclave economies).

²⁶ In an earlier meta-analysis, Havranek and Iršová (2011) examine 3,626 estimates of spillovers and find the average spillover to be economically significant for suppliers and statistically significant but small for buyers.

in, for example, Silicon Valley and Detroit now have subsidiary plants clustering in Bangalore and Slovakia, known respectively as the Silicon Valley of India and the Detroit of the East.

The agglomeration of economic activity, as long recognized by regional and urban economists and economic historians, is one of the salient features of economic development. An extensive body of research examines the distribution of population and production across space and the economic characteristics and effects of spatial concentrations. Understanding the emerging spatial concentrations of multinational production around the world and the driving forces behind these new concentrations in comparison to those of their domestic counterparts is crucial for designing and improving policies.

Alfaro and Chen (2014) investigate the patterns and determinants of the global economic geography of multinational firms. The authors' analysis shows that the emerging offshore clusters of multinationals are not a simple reflection of domestic industrial clusters. That is, within a host country, multinationals follow different agglomeration patterns than their domestic counterparts do. The location decisions of MNEs reflect location fundamentals, including market access (to avoid trade costs) and comparative advantage (to seek abundant factors with lower costs) but also reflect agglomeration economies. Agglomeration economies stress the benefits of geographic proximity between firms, including lower transport costs between input suppliers and final good producers (vertical linkages), labor-market and capital-good-market externalities reflecting MNEs' high capital- and innovation-intensity, and technology diffusion. In addition, multinational entrants display stronger propensities to cluster with incumbent multinationals than with incumbent local plants. Again, this is especially the case when capital-good-market externalities and technology diffusion benefits are strong.

4.4. The Role of Institutions

North (1995) describes institutions as the rules of the game in a society, defining them more formally as the humanly devised constraints that structure political, economic, and social interaction. There is an important distinction between policies and institutions: Policies are choices made within a political and social structure; that is, within a set of institutions.

Institutions consist of both informal constraints, such as traditions and customs, and formal rules, such as constitutions, laws, and property rights. They provide the incentive structure of an economy. The early work by North (1981) and later contributions such as Acemoglu et al. (2001, 2002) and Acemoglu and Johnson (2005) show that a society's social, legal, and political institutions shape its economic performance. For example, they effect investment decisions by protecting the property rights of entrepreneurs against the government and other segments of society and by preventing elites from blocking the adoption of new technologies. In general, weak property rights due to poor institutions can lead to lack of productive capacities or to uncertainty in returns.

The relation between institutions and capital flows—foreign direct investment, in particular—can be one channel through which institutions promote growth via capital formation and spillovers. Bénassy-Quéré, Coupet, and Mayer (2007) list several reasons why the quality of institutions may matter for attracting FDI. Good institutions may attract foreign investors while weak institutions, meanwhile, can saddle investors with additional costs, such as

corruption (Wei, 2000). Given FDI's high sunk costs, it is especially vulnerable to uncertainty, including the uncertainty stemming from bureaucratic inefficiency, policy reversals, weak enforcement of property rights, and a weak legal system in general. Antras, Desai and Foley (2009) demonstrate that weak investor protections limit the scale of multinational firm activity.

Alfaro et al. (2007, 2008) use an empirical framework to examine different explanations for the lack of flows of capital from rich countries to poor ones—the Lucas paradox. The authors find evidence that institutional quality is the most important variable explaining the lack of flows—particularly of FDI—to poor countries. The study considers reverse causality, examines the determinants of the volatility of capital flows, and investigates whether institutions and policies play a role in reducing the instability in international financial markets. The evidence suggests that both low institutional quality and bad policies—bad monetary policies, in particular—help explain the long-run volatility of capital flows.

Bénassy-Quéré, Coupet, and Mayer (2007) implement cross-section estimations, panel data estimation, and control for the correlation between institutions and GDP per capita and for endogeneity of institutions. The authors find a wide range of institutions (bureaucracy, corruption, transparency, and legal institutions) that matter for inward FDI independently of GDP per capita. The institutional proximity of the origin and host countries also matters, but the authors find little impact of institutions in the origin country. Buchanan, Li, and Rishi (2012) also find a positive relation between institutional quality and FDI and a negative relation between institutional quality and volatility. As the authors note, these results suggest that efforts to improve institutions may help developing countries receive more FDI, independently of the indirect impact of higher GDP per capita.²⁷

4.5. FDI, Volatility, and Crises

It is sometimes argued that FDI is inherently less volatile than portfolio investment. However, several studies find FDI to have a significant negative effect on plant survival and stability. In addition, the footloose nature of MNEs makes them more volatile than purely domestic firms. Görg and Strobl (2003), for example, find Irish establishments with foreign ownership to be more likely than indigenous plants to exit the market, controlling for other plant- and industry-specific characteristics. Gibson and Harris (1996) and Bernard and Sjöholm (2003) reach similar conclusions for New Zealand and Indonesia, respectively. Bernard and Jensen (2007) focus on domestic multinationals in the U.S. and find them to be more likely than purely domestic U.S. firms to shut down home-country plants.

Relatively few studies have examined how multinationals respond to a crisis compared to how local firms do and how the performance of an MNE's establishment is linked across the countries in which it operates. Alvarez and Görg (2007), investigating the response of multinational and domestic firms to an economic downturn in Chile, find that multinationals reacted to the economic crisis no differently than domestic firms did. Desai, Foley, and Forbes (2008), evaluating the response of multinational and local firms (outside the U.S.) to sharp

²⁷ See also Nunnenkamp (2004) and Alfaro, Kalemli-Ozcan and Volosovych (2014)

currency depreciations, find that sales, assets, and investment increase significantly more for U.S. multinational affiliates than for local firms.

While these studies focus on regional economic slowdowns and currency depreciations, Alfaro and Chen (2012) investigate the micro responses to a crisis by examining differences in establishments' performance during the recent global financial meltdown, with an emphasis on how foreign ownership affected resilience to negative shocks. The authors look at the global scope and considerable heterogeneity of that crisis to explain the role of FDI in microeconomic performance. To disentangle the effects of foreign ownership from other effects, the authors use a worldwide panel dataset of detailed information on the industry, location, and operations of more than 12 million establishments. To control for observable and unobservable differences between foreign subsidiaries and local establishments, they match each foreign subsidiary with a local establishment with similar characteristics and operating in the same country and industry. The effect of foreign ownership is thus inferred from the divergence in performance. The authors explore the time variation of the data and separately consider non-crisis (2005-2007) and crisis (2007-2008) periods. Comparing the effect of foreign ownership during the crisis with its effect in non-crisis years makes it possible to identify the role of production and financial links in increasing the resilience of foreign subsidiaries to negative demand and financial shocks.

The findings suggest that, on average, foreign subsidiaries responded better to the global financial crisis than local control plants with similar economic characteristics did. But while foreign ownership had a pronounced advantage during the crisis, it did not during normal economic periods. Foreign subsidiaries with stronger vertical production links with their parent firms performed better than the control establishments during the crisis, while those with horizontal links did not. Again, this pattern is not observed in non-crisis years. Similarly, foreign subsidiaries operating in industries with greater intra-firm financial links had a greater advantage over local controls only during the crisis period, and especially in host countries with worsened credit conditions.

These findings have important implications for the academic and policy debates on the role of foreign direct investment. In many countries, there are growing concerns that FDI is more volatile than domestic investment, leading to greater vulnerabilities—especially during crises. The analysis in Alfaro and Chen (2012) suggests that, while multinationals' footloose behavior might lead to greater volatility, vertical production and financial links between foreign subsidiaries and parent firms could alleviate the impact of a crisis on a host country.

4.6. Multinationals and Organization

Despite the extensive recent theoretical and empirical literature, as noted by Melitz and Redding (forthcoming), firm productivity remains largely a black box. Empirical research on the roles of technology adoption, innovation, management practice, firm organization, and the feedback loop from foreign direct investment is still scarce.

A small number of recent papers explore where multinational firms locate innovation activity and how this affects their productivity. Studies on German and British enterprises have shown that companies with relatively strong R&D ties with the United States, as measured by the

share of patents with inventors residing in the U.S., benefit more from R&D growth in the U.S. than less-well-connected competitors do. For UK-based companies, knowledge spillovers from foreign R&D investment to domestic corporations result in a productivity increase of 5 percent on average (Griffith et al., 2006), while German companies enjoy a 15-percent productivity increase (Harhoff et al., 2012). The drawback of this literature is that it captures only patent activities and hence only a small fraction of total innovation activity. Furthermore, patent data do not make clear where the innovation activity actually took place.

An emerging literature aims to understand the role of management practices in inter-firm and inter-country productivity differences, which are widely known to be enormous (Caselli, 2005; Syverson, 2011). Researchers have attempted to explain why some countries and some firms within these countries can use their factors of production more efficiently and extract more output than other countries and firms do. The traditional approach to this puzzling question has been to explore the slow diffusion of technology, on the assumption that differentials are due to “hard” technological innovations as embodied in patents or to the adoption of new advanced equipment. A growing body of research focuses instead on the misallocation of resources across plants (Alfaro, Charlton, and Kanczuk, 2009; Hsieh and Klenow, 2009). That is, differences are a matter not only of the level of factor accumulation, but also of how these factors are allocated across production units. Echoing these studies, Alfaro and Chen (2013) suggest that reallocation of capital and labor as a result of increased multinational production could lead to important productivity gains.

Yet another explanation of productivity differences, studied more recently using firm-level data, is that they reflect variations in management practices. Recent work by Bloom et al. (2013), for example, using a survey of management practices in over 30,000 plants across the U.S., finds that more structured management practices are associated with greater productivity and profitability, higher rates of innovation, and faster employment growth. Multinational firms tend to have more structured management practices.

Bloom and van Reenen (2010) find that management practices vary widely across countries, industries, and firms. They find not only that multinationals are generally better managed in every country but also that multinationals transplant their management styles abroad.²⁸ The authors also find that export firms are better managed than non-exporters and that exporting is dominated by multinationals. Finally, they find that, in general, competition tends to improve management practices via selection, the exit of badly managed firms, and innovation.

²⁸ In a related paper, Bloom, Sadun, and van Reenen (2012) examine the differences in IT-related productivity between establishments owned by U.S. multinationals and establishments that either are owned by non-U.S. multinationals or are purely (non-U.S.) domestic. The authors find that foreign affiliates of U.S. multinationals appear to obtain higher productivity from their IT capital than domestic firms and affiliates of non-U.S. multinationals do and are also more IT-intensive. This is true in both a UK establishment-level dataset and in a European firm-level dataset. The authors also show that American firms have higher scores on “people management” practices, defined in terms of promotion, reward, hiring, and firing practices.

4.7. Heterogeneity

Of course, the quality of foreign direct investment may be affected by any number of project and industry characteristics such as the mode of entry (greenfield versus M&A) and the country of origin.²⁹

Greenfield versus merger and acquisition. Calderón, Loayza, and Servén (2004) distinguish the feedback and macroeconomic effects of greenfield foreign direct investment from those of mergers and acquisitions (M&A). M&A, although more prominent in industrialized countries, have also taken place in developing countries, particularly those undertaking extensive privatization. For a large sample of both industrial and developing countries, the authors find that, during 1987-2001, a greater number of mergers and acquisitions was followed by higher greenfield investment, while it was only in developing countries that higher greenfield investment was followed by a greater number of mergers and acquisitions. In both industrial and developing countries, both types of FDI lead to domestic investment, but domestic investment does not lead to FDI of either type. Finally, neither type of FDI appears to precede economic growth in developing or industrial countries, but economic growth does have a positive effect on FDI.

More recently, Neto, Brandão, and Cerqueira (2010) study the differential effect of greenfield versus M&A on growth based on a panel of 53 countries over the period 1996-2006. The authors find evidence of bidirectional causality between FDI, M&A, and growth. They find that greenfield investment has a positive effects on economic growth in both developed and developing countries, while M&A's effect on economic growth is negative in developing countries and insignificant in developed countries. Harms and Méon (2011) find that while greenfield FDI substantially enhances growth, M&A has, at best, no effect. Problems common to all these studies are data availability and the sample selection bias of the different forms of investment. Future work exploiting long time-series should help us better understand the different effects.

Country of origin Research has found that the country of origin matters. Girma and Görg (2007) differentiate acquirers by country groups in their investigation on wage premia and Javorcik and Spatareanu (2008, 2011) examine the impact of investor origin on vertical spillovers from foreign direct investment.

Javorcik and Spatareanu (2011), in particular, use firm-level panel data from Romania to examine whether a foreign investor's nationality affects the degree of vertical spillovers. In this case, the Association Agreement between Romania and the European Union (EU) implies that inputs sourced from the EU are subject to a lower tariff than inputs sourced from the United States or Canada. American investors may therefore have a greater incentive, on average, than EU investors do to source from Romania; this creates greater potential for vertical spillovers. The empirical analysis supports this hypothesis, showing a positive association between the presence of American companies in downstream sectors and the productivity of Romanian firms

²⁹ Javorcik, and Spatareanu (2011), for example, find significant differences between effects associated with foreign investors of different nationality in Romania. Our data, however, do not allow controlling for these differences.

in the supplying industries but showing no significant relationship in the case of European affiliates. The results also indicate that Romanian firms in sectors whose products are expensive to transport benefit more from the downstream presence of American affiliates than Romanian firms in sectors with low shipping costs. No such pattern is found for European affiliates.

Sectors Alfaro (2003), using an UNCTAD dataset to investigate the effect of FDI on growth, finds suggestive evidence of a positive effect in the manufacturing sector but only ambiguous evidence for the service sector. On the other hand, the effects of FDI in the primary sector tend to be negative. Although it might seem natural to argue that FDI can convey great advantages to host countries, such gains might differ across the primary, manufacturing, and service sectors. UNCTAD World Investment Report (2001: 138), for instance, argues that “in the primary sector, the scope for linkages between foreign affiliates and local suppliers is often limited.... The manufacturing sector has a broad variation of linkage intensive activities. [In] the tertiary sector the scope for dividing production into discrete stages and subcontracting out large parts to independent domestic firms is also limited.” A stereotyped contrast can be drawn between FDI directed towards natural resources, as exemplified by United Fruit Company-Chiquita in Central America, and FDI directed towards labor-intensive manufacturing sectors, such as those in Singapore.

Timing Merlevede, Koen, and Spatareanu (2013) find that foreign entry initially affects the productivity of local competitors negatively, but that, once majority-foreign-owned firms have been present for a while, this drop is more than offset by a permanent positive effect on local competitors. The effect on the productivity of local suppliers, in contrast, is transient: The entry of majority-foreign-owned firms boosts the productivity of local suppliers after a short adaptation period, but then this improvement fades. The positive impact of minority-foreign-owned firms on local suppliers is immediate, but smaller and also transient.

5. Evolution of FDI in Central America: Push-Pull Factors and Promotion³⁰

The determinants of capital flows have been extensively examined in the literature. Calvo et al. (1996) distinguished between the role of external (push) and domestic (pull) factors. External factors include the global business cycle, the integration of world capital markets, diversification of investments internationally, contagion effects, and declining world interest rates, which improve creditworthiness and reduce default risk in developing countries. Domestic factors include the political and economic stability associated with monetary, fiscal, trade, and capital market policies. But the most important drivers of FDI flows, in addition to technological advances and the political and macroeconomic environment, have been the attitudes of host countries regarding FDI's potential costs and benefits.

Foreign direct investment provokes strong emotions in both home and host (recipient) countries. In home countries, some fear that foreign investment lowers domestic wages, destroys local jobs, and erodes technology leadership, while others believe that firms *must* invest abroad in order to remain competitive in an increasingly global environment. In recipient countries,

³⁰ For a historical overview of international business, see Jones (1996).

some insist that FDI accelerates economic development by bringing new capital and technologies, while others fear that foreign control of local factors and assets will create enclaves and economic dependence.

Policy instruments such as incentives, trade barriers, and direct restrictions against foreign control of local resources or sectors have paralleled the prevailing political mood regarding FDI. Over the past three decades of increased global financial integration, many governments adopted policies of financial liberalization and promotion in order to lure more capital flows.

5.1. Trends: Evolution and Changes

Over the last century, attitudes towards FDI have exhibited remarkable swings.

International direct investments exploded from the 1880s until the early 20th century, boosted by economic growth and improvements in transportation and communications and becoming heavily concentrated (55%) in natural resources such as petroleum, coal, iron, and agricultural products. Throughout this period, governments did not attempt to control or restrict international private transactions in any systematic way. FDI enjoyed this liberal business environment until the late 1920s. In Central America, this first stage is that of the banana- and gold-producing enclaves (for example, the United Fruit Company). According to Bulmer-Thomas (2003; taken from Economic Commission for Latin America and the Caribbean [2010]), FDI for the seven countries of the region totaled approximately US\$200 million, much of which was invested in the expansion of the rail network.

World War I and the nationalization of foreign property in Russia in 1917 dealt heavy blows to FDI, but it was the onset of the Great Depression in 1929 that marked the end of its golden era. Stagnation in the world economy and the breakdown of the international financial system reduced the number of attractive investment opportunities. More importantly, receptivity toward FDI declined during the 1930s and restrictions increased worldwide as governments became concerned about its potential impact on their economies and national sovereignty. Many countries, seeking to regain control of their natural resources, denounced the “extractive” nature of FDI, reflecting multinationals’ large involvement in the exploitation of natural resources.

The 1960s brought a slow resurgence of FDI, largely due to a positive macroeconomic environment. This new wave of FDI, in contrast with the previous wave, was concentrated in manufacturing and in developed countries, with Western Europe, the United States, and Canada accounting for nearly two-thirds of inward FDI. Still, some manufacturing MNEs found new opportunities in countries pursuing import substitution development strategies. Some countries, while keeping tariff levels high to protect domestic industries, allowed MNEs to pursue “tariff jumping” investments and set up factories to cater to local markets. In Central America, the import substitution model and the formation of the Central American Common Market paralleled global trends.

The 1970s and early 1980s brought a new wave of difficulties for FDI. Surging oil prices and the developing countries’ debt crisis slowed the flow of FDI, with both developing and developed countries questioning its merits. But after years of skepticism, the pendulum swung back in favor of FDI in the late 1980s, as a broad consensus began to emerge regarding FDI’s

potential benefits to host economies. FDI began to be portrayed as a means to improve a society's well-being by providing capital, technology, and know-how.

This change in attitude may have been due to the fact that the 1980s debt crisis cut off developing countries' access to credit and to portfolio investment. Moreover, the industries in which MNEs were now active—high technology and services—made FDI far more attractive to developing countries as a possible promoter of technology absorption. As relations between MNEs and host countries improved, governments began to ease restrictions on FDI and increasingly offered incentives in an effort to attract investment and be integrated into the globalized economy. One of the most dramatic policy changes occurred in China, as the government gradually opened the domestic market to foreign companies.

In Central America, the 1980s debt crisis signaled a break with the state-led industrialization model and the adoption instead of an export-development model. With a new attitude towards FDI, now seen as an engine of growth and jobs, came important FDI promotion schemes. Countries also liberalized trade and negotiated bilateral and multilateral free-trade agreements. During the 1980s, FDI in Central America was concentrated in manufacturing, especially in the textile and clothing segments, and was channeled towards export activities, largely in pursuit of lower labor costs (export platforms to serve the U.S. market). Operations have been conducted essentially under free zones or similar systems.

FDI soared worldwide during the 1990s and the first half of the 2000s, with growth reaching 50% in 2006. The growth of FDI slowed down during the subprime mortgage crisis and subsequent recession, with different growth rates in the last years (see Table 1).

Table 1: Central America and Dominican Republic: Selected Indicators on Foreign Direct Investment and International Production, 1990-2012

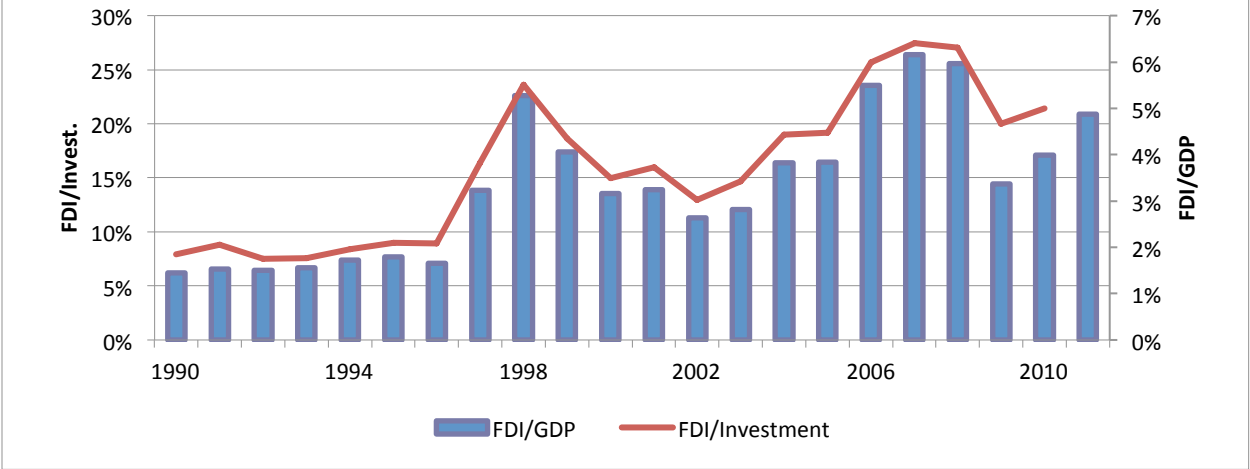
	Value (Billions of dollars)							Annual Growth Rate (Percent)									
	1990	2007	2008	2009	2010	2011	2012	1991-1995	1996-2000	2005	2006	2007	2008	2009	2010	2011	2012
FDI inflows	207	1,979	1,697	1,198	1,490	1,652	1,351	22.1	39.4	32.4	50.1	35.4	-14.2	-29.4	24.4	10.9	-18.2
FDI outflows	239	2,147	1,858	1,175	1,505	1,678	1,391	16.5	35.6	-5.4	58.9	53.7	-13.5	-36.8	28.1	11.5	-17.1
FDI inward stock	1,942	15,660	14,909	18,041	20,380	20,874	22,813	8.6	16.0	4.6	23.4	26.2	-4.8	21.0	13.0	2.4	9.3
FDI outward stock	1,786	16,277	16,206	19,326	21,130	21,442	23,593	10.6	16.9	5.1	22.2	25.3	-0.1	19.3	9.3	1.5	10.0
Sales of Foreign Affiliates	6,026	31,764	30,311	23,866	22,574	24,198	25,980	8.8	8.1	5.4	18.9	23.6	-4.6	-21.3	-5.4	7.2	7.4
Gross Pro. of Foreign Affiliates	1,477	6,295	6,020	6,392	5,735	6,260	6,607	6.8	6.9	12.9	21.6	20.1	-4.4	6.2	-10.3	9.2	5.5
Assets of Foreign Affiliates	5,938	73,457	69,771	74,910	78,631	83,043	86,574	13.7	18.9	20.5	23.9	20.8	-5.0	7.4	5.0	5.6	4.3
Exports of Foreign Affiliates	1,498	5,775	6,664	5,060	6,320	7,436	7,479	8.6	3.6	13.8	15.0	16.3	15.4	-24.1	24.9	17.7	0.6
Empl. of Foreign Affiliates ('000)	24,476	80,396	77,386	59,877	63,043	67,852	71,695	5.5	9.7	8.5	11.4	25.4	-3.7	-22.6	5.3	7.6	5.7
GDP (in current \$)	22,121	55,115	60,780	57,920	63,468	70,221	71,707	5.9	1.3	8.4	8.2	12.5	10.3	-4.7	9.6	10.6	2.1
Gross Fixed Capital Formation	5,099	12,399	13,824	12,735	13,940	15,770	16,278	5.4	1.1	11.8	10.9	13.8	11.5	-7.9	9.5	13.1	3.2
Exports	4,141	17,321	19,990	15,196	18,956	22,303	22,432	7.9	3.7	13.8	15.0	16.3	15.4	-24.0	24.7	17.7	0.6

Source: UNCTAD, World Investment Reports, 2013.

FDI increased in Central America during the 1990s, triggered by demand and supply factors such as the privatization of state-owned energy and telecommunications companies (except in Costa Rica). Flows also increased due to the improved business climate—the greater

economic and political stability—and to specific policies favorable to FDI. With the prohibitions associated with the Agreement on Subsidies and Countervailing Measures, the end of the Agreement on Textiles and Clothing, and greater competition from China and India, Central America lost its competitiveness in textiles and clothing. Foreign firms increasingly began to invest instead in service industries, including tourism and business services. Flows have reached almost 6% of the region’s GDP and close to 25% of capital formation (see Figure 2).

Figure 2: Central America and Dominican Republic: Foreign Direct Investment, Net Inflows, 1990-2011



Source: World Bank Development Indicators, 2013.

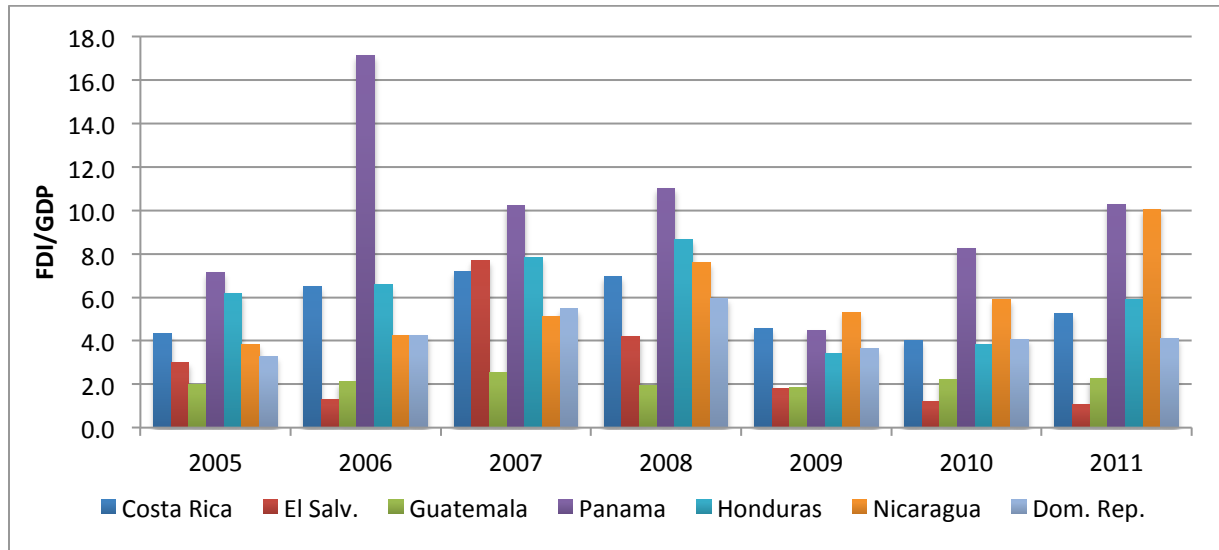
In the last decade, FDI flows to Panama as a percentage of GDP have surpassed those of other countries in the region (see Figure 3). These are largely associated with the Canal and Canal-related services and with financial services, the real estate sector, and the creation of special economic zones such as the Panama-Pacific Special Economic Area and the Colón Free Zone.

Costa Rica, unlike the other Central American countries, realized early on that the textile and clothing industry was losing momentum and therefore launched policies to create local skills. As documented by Spar (1998), CINDE, the Costa Rican investment promotion agency, explicitly decided in the late 1980s to shift out of textiles—as Costa Rican wage levels rose and competition from lower-wage emerging markets mounted—and to concentrate instead on electronics. MNEs responded by investing in intermediate- and high-technology sectors. For the last decade, FDI flows that are generally between 4% and 6% of GDP have been a constant source of foreign capital for the country.

FDI inflows into Guatemala have historically been sluggish in comparison with the rest of the region, particularly in proportion to the size of its domestic market. In the last decade, they have remained around 2% of GDP. The largest investments were the result of privatizations, particularly of the electricity grid and telecommunications services. Textiles and garments have traditionally been the most attractive export-manufacturing sector for investors.

El Salvador has high variability; FDI reached almost 8% of GDP in 2007 but in recent years has been close to 2%, which is low for the region.

Figure 3. Central America and Dominican Republic: Foreign Direct Investment Inflows as a Percentage of GDP by Country, 2005-2011



Source: World Bank Development Indicators, 2013.

Because of their low-income status, Nicaragua and Honduras have preferential access to the U.S. market through CAFTA. In addition, low wages have also allowed these countries to maintain their positions as major exporters of clothing to the U.S. Both countries have been able to attract FDI flows averaging more than 5% of GDP throughout the decade. Honduras has also attracted FDI into a number of sectors in addition to textiles and garments: light manufacturing (basic assembly of parts for the automobile and electronics industries), agriculture, and business services. The effects of the controversial recent strategy for attracting investment by creating Hong-Kong-style charter cities remain to be seen.

The Dominican Republic's FDI inflows relate to its proximity to the United States, the size of its domestic market, and its reforms in the telecommunications and energy sectors. FDI has dominated the export businesses operating in the country's economic zones. In addition, foreign companies producing goods and services for the domestic market have recently invested. Overall, FDI has been between 4% and 6% of GDP in the last decade.

5.2. FDI Promotion and Incentives

Both developed and developing countries have tried to lure foreign investors with incentives designed to increase investment revenues and/or reduce (or transfer) the costs or risks. An incentive is any measurable economic advantage afforded to specific enterprises by (or at the direction of) a government in order to encourage certain behavior.

Fiscal incentives for FDI are designed to reduce the tax burden for foreign investors, while *financial incentives* include government grants, credit at subsidized rates, government equity participation, government guarantees, and insurance at preferential rates. Other incentives include subsidized, dedicated services and infrastructure (often through duty-free export zones), foreign exchange privileges, and even monopoly rights. Incentives can be granted at the national, state, or municipal level. Furthermore, efforts to attract FDI can be broad-based or they can target specific sectors. Direct subsidies are often granted case by case. In 2005, 68 out of 81 developing countries interviewed in the Census of Investment Promotion Agencies reported offering fiscal or other incentives to foreign investment (Harding and Javorcik, 2007).

Some host countries require MNEs to establish production facilities in specified industries—or in specified regions such as export processing zones and special economic zones—and to export their output. Alfaro and Charlton (forthcoming) identify the sectors targeted by OECD countries between 1985 and 2001. The most targeted sectors included machinery, computers, telecommunications, and transportation equipment. Heavily targeted sectors in developing countries are similar, also including wholesale trade, transportation equipment, and petroleum.

There are various types of *special economic zone* (SEZ), including free trade zones, export processing zones, free zones, industrial estates, free ports, and urban enterprise zones.³¹ Most countries offer a range of tariff, tax, and infrastructure incentives, as well as streamlined administration, to encourage firms to locate in such zones.

In the past two decades, many developing countries have established SEZs to attract investment in their economies. These SEZs have a variety of goals: providing foreign-exchange earnings, promoting nontraditional exports, providing jobs, and attracting foreign direct investment in an effort to foster technological transfer and knowledge spillovers. Many were created to provide an internationally competitive environment for exports relatively free of regulatory encumbrances. Others were seen as a way to develop the manufacturing sector and create jobs.³² Their characteristics have changed over time and now generally include duty-free access, generous tax holidays, financial incentives, and less red tape and better infrastructure than are found in the rest of the country. Zones in the 1950s through the 1970s were typically government-owned, while an increasing number are now private.

By limiting a combination of financial incentives, reduced red tape, and trade liberalization to a subset of the economy, such policies may be suboptimal from an economic point of view, as resource allocation may be distorted and benefits may accrue to only a few. However, SEZs can still play a useful role in a country's development if they serve as a catalyst for a reform process that is part of an overall national strategy. So far, studies of the costs and benefits of SEZs have presented us with mixed evidence. Some zones have attracted foreign direct investment—promoting exports and generating jobs—and others have not. In some cases, FDI has increased but has led to little or no technology transfer and no backward linkages. In many cases, moderately successful SEZs have actually led countries to defer necessary structural

³¹ Although urban enterprise zones, like other SEZs, provide favorable tax treatments and other advantages, they differ in not being treated as foreign territory. See Alfaro, Iyer, and Shah (2013).

³² See Omar and Stoeber (2008).

reforms, having served as safety valves rather than as catalysts for reform.³³

The World Trade Organization (WTO) formally prohibited granting export subsidies after January 1, 2003. However, SEZs were deemed to be compliant with WTO rules as long as the incentives offered were not contingent on export performance; there were no restrictions on sales to the domestic market.³⁴

Although the WTO agreement on subsidies dates back to 1995 and the export subsidies under export promotion regimes were eliminated, no Central American countries eliminated income tax incentives in their free zones. On the contrary, since income tax exemption was considered one of the main attractions bringing FDI into Central America under export promotion regimes, these countries, along with other small and developing countries, managed to obtain a five-year extension of the deadline for dismantling export subsidies, followed by another two-year extension; thus, these subsidies were allowed to remain in place through 2009. Before the 2009 deadline was reached, yet one more extension was granted, this time to December 2015, but the countries of the region had to accept that the new deadline would be non-extendible.

Costa Rica, the Dominican Republic, El Salvador, and Panama have drawn up proposals to reform their incentive regimes. Honduras and Nicaragua will not need to modify their incentive schemes as long as they retain their status as low-per-capita-income countries. A common feature in all the free-zone-regime reforms approved or under discussion is the granting of total or partial exemption from income tax. In addition, sectors to which the incentives are awarded now include strategic sectors (such as high-technology and R&D-intensive activities) and relatively less-developed areas within each country.

5.3. Are FDI Incentives Needed?

Although some studies minimize the role of government incentives in foreign investment decisions, both developed and developing countries try to lure foreign investors by granting special treatment to FDI. Many policy makers and academics argue that developing countries should strive to attract foreign direct investment as a means of generating higher economic growth and as a source of direct capital financing and of valuable productivity externalities for domestic firms. Yet today's more conducive environment for FDI has sparked a new debate regarding the concessions offered to foreign firms. Does FDI warrant special treatment over other forms of investment? What is the range of incentives available to policy makers? What are the costs and benefits associated with this competition across countries to attract foreign firms and how do MNEs respond to these incentives?

In policy discussions, it is sometimes argued that incentives to attract FDI are justified as a way to generate employment, but when there is already full employment, this is certainly not a valid argument. Even where there is unemployment, it is not clear that more investment will help; that would depend on the causes and nature of the unemployment. A more sophisticated argument is that FDI incentives are a valid way to increase the capital stock and thereby allow

³³ For overviews of the evidence, see Madani (1999) and Engman, Onodera, and Pinali (2007).

³⁴ "Export Processing Zones at risk? The WTO rules on subsidies: what options for the future?" UNCTAD press release, January 23, 2003, <http://www.unctad.org/Templates/webflyer.asp?docid=3154&intItemID=2261 &lang=1>, accessed November 2008.

wages to increase. For this approach to be cost-efficient, however, the rate of return to capital in the host country must be higher than it is in source countries. But if such were the case, then the incentive would not be necessary.

A related and valid reasoning is that FDI tax incentives are justified as part of an optimal tax policy if the investment elasticity to taxes is higher for FDI than for national investment. The problem with this approach, of course, is that it is ultimately self-defeating; countries would compete away the rents and pass them on to multinationals.

If foreign capital is more mobile than local capital, it could be argued that governments might want to tax income from foreign capital—both FDI and portfolio investment—at lower rates. In general, however, economists argue that for FDI to merit special treatment over other forms of investment, there needs to be some form of market failure such as externalities and spillovers.

Advocates of incentives argue that FDI, by its very nature, has important positive effects on host economies beyond the direct capital financing it supplies and the jobs it creates. FDI can help introduce new processes, managerial skills, and superior know-how into the domestic market while promoting international production networks and access to foreign markets, all of which create valuable productivity spillovers. Increased competition arising from the entry of foreign firms can force local firms to modernize, introduce new technologies, and become more efficient. FDI can also foster linkages with local firms and help jump-start an economy. Finally, countries might want to promote FDI because it is less volatile than portfolio investment flows.

Others disagree and question whether FDI's potential benefits justify special treatment. This skeptical view has been influenced by empirical studies at both the firm and national levels that show mixed results in terms of FDI's growth-enhancing externalities. But as mentioned above, the evidence that FDI generates positive spillovers in host countries suggests that a country's capacity to take advantage of these externalities might be limited by local complementarities and conditions such as infrastructure, education levels, and the policy environment. In sum, generalizations are difficult to make.

Some policy makers and government officials are concerned that, in the context of competition to attract FDI, the granting of benefits by one country—or a region within a country—may trigger similar responses by other potential host countries, precipitating a “race to the bottom,” at which point the incentives given to FDI end up exceeding the social gains and are, in fact, a net loss for the “winning” country.

6. Concluding Comments

New research insights into the role of complementarities and into the mechanisms by which FDI induces growth (when it does) have been an important step in reconciling the ambiguous evidence on FDI's ability to generate growth in host countries. The research on complementarities has shown that FDI's positive impacts are not exogenous, but rather are conditional on certain local conditions. Research into the mechanisms and channels by which FDI can generate positive externalities goes one step further, illustrating *how* complementarities—such as a competitive environment to ensure that market share is allocated to the most productive firms or developed financial markets to ensure that vertical supply

relations develop into meaningful linkages—can act as “absorptive capacities” to facilitate the benefits from FDI. Emerging research on the relation between organization and productivity on the one hand and effects of MNEs on the other hand aims to understand these questions better.

What are the policy implications of this research? FDI can play an important role in economic growth, most likely via suppliers, but local conditions matter and can limit the extent to which FDI benefits materialize. It is not clear that incentives to attract MNEs are warranted. More sensible policies might involve eliminating barriers that prevent local firms from establishing adequate linkages; improving local firms’ access to inputs, technology, and financing; and streamlining the procedures associated with selling inputs. Countries might also seek to improve domestic conditions, which should have the dual effect of attracting foreign investment (Alfaro, Kalemli-Ozcan, and Volosovych, 2007, 2008) and enabling the host economy to maximize the benefits of that investment. Tax incentives that remain in force should be valued in terms of their impact on public finances and should be viewed as one of the possible instruments whereby FDI can be established and linked to the local economy as a means of transferring know-how and technology and fostering linkages. Understanding the location interdependence of multinational firms and how they agglomerate with one another is critical to designing these economic policies (Alfaro and Chen, 2012b). But research suggests that sensible policies should also aim at improving domestic conditions, including credit access and labor supply (particularly, the supply of skilled labor), while eliminating regulatory barriers to facilitating gains from competition and reallocation of resources.

7. References

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