

Eight Things Development Professionals Should Know about Foreign Direct Investment

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Although global flows of foreign direct investment (FDI) have not recovered since the 2008 financial crisis, flows to developing countries have continued to register a very modest growth. But what is the impact of these FDI inflows on the recipient developing economies?

This paper reviews the existing evidence to produce eight messages that could help development professionals understand the implications of FDI inflows for developing countries.

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- Executive Summary -

1. Multinational firms are producers of knowledge

Multinationals have, and continue to be, heavily involved in creating new knowledge by engaging in research and development (R&D) activities. In 2018, the top 100 global companies invested more than \$350 billion in R&D, representing over a third of business-funded R&D worldwide (UNCTAD 2019). This knowledge forms part of a multinational's "ownership advantages" - intangible assets such as management techniques and well-established brand names - and enables them to compete successfully in foreign markets.

2. Multinational firms transfer knowledge to their overseas operations

Studies on FDI in Indonesia, China, India, and Turkey find evidence of knowledge transfers from foreign headquarters to acquired firms in host countries, which can result in cost savings and improvements in product quality that benefit both acquired firms and consumers. Foreign ownership can also increase target firms' exports, output, employment, and wages. Firms that undergo domestic ownership changes do not experience similar gains, suggesting that these beneficial effects are due to foreign ownership rather than any other ownership change.

3. Foreign affiliates benefit from continuous injections of knowledge from headquarters

The benefits of foreign ownership are driven by a continuous supply of headquarter services from the foreign parent: divestment (sale of foreign affiliates to local investors) is associated with a drop in total factor productivity accompanied by a decline in output, markups, and export and import intensity.

4. Productivity spillovers associated with FDI mostly benefit the supplying industries

Within the target industry, there are two types of externalities associated with FDI: knowledge spillovers and pecuniary externalities (which include changes in the market structure or level of competition due to FDI presence). These effects work in opposition, so the overall effect of intra-industry spillovers from FDI depends on which effect dominates. Studies find that manufacturing plants acquired by foreign investors increase competition by lowering output prices, which, as expected, is associated with higher physical productivity and lower prices at domestic plants in the same industry. Firms that share suppliers with foreign affiliates or have owners who previously worked for multinationals also experience productivity increases.

Considering inter-industry spillovers, FDI presence is associated with higher total factor productivity, more innovation, greater product diversification, and improved product quality in input-supplying industries.

5. FDI inflows facilitate integration into global value chains and affect the composition and the quality of exports

Multinational investment can boost export growth and fundamentally restructure sectoral export patterns. Targets of foreign acquisitions become more integrated into global value chains, which increases their export intensity and reliance on imported inputs. There is also evidence that the presence of foreign affiliates increases exports of local producers through knowledge spillovers about export markets.

6. Foreign affiliates tend to create good jobs

Foreign affiliates generally pay higher wages relative to domestic firms in developing countries, with a wage differential ranging from around 10-70%. One explanation for this wage premium is that multinational firms are more productive, so they earn higher profits and can therefore pay higher wages. Compared to domestic firms, foreign affiliates spend more on worker training and provide greater job stability (are less likely to shut down).

7. FDI inflows may help improve environmental performance

Studies have not found much support for the pollution haven hypothesis, which refers to the possibility that multinational firms, particularly those engaged in highly polluting activities, relocate to countries with weaker environmental standards. In contrast, foreign ownership is associated with reductions in energy

intensity and the implementation of environmental management systems.

8. Investment promotion works

Investment promotion efforts aim to reduce the costs of FDI by providing information on business conditions and helping foreign investors deal with bureaucratic procedures. These activities are an effective way of attracting FDI to developing countries, especially in settings where obtaining information and complying with bureaucratic requirements is more difficult. However, successful investment promotion requires professionalism, effort, and commitment to customer service.

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Abstract: Although global flows of foreign direct investment (FDI) have not recovered since the 2008 financial crisis, flows to developing countries have continued to register a very modest growth. But what is the impact of these FDI inflows on the recipient developing economies? This paper reviews the existing evidence to produce eight messages that could help development professionals understand the implications of FDI inflows for developing countries.

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1 Multinational Firms are Producers of Knowledge

Engaging in FDI is costly because it requires setting up new productive facilities. Moreover, foreign affiliates are disadvantaged relative to indigenous competitors, who are more familiar with the local rules and regulations and consumers' preferences. Therefore, only the most productive firms or firms that possess "ownership advantages" are able to successfully compete in foreign markets (Dunning 1988). According to Dunning, these ownership advantages are intangible assets that can take the form of new technologies, know-how or management techniques, and well-established brand names. These assets are developed in headquarters but can easily be transferred to foreign subsidiaries without compromising productivity. The more recent theory of heterogeneous firms predicts that multinationals have higher productivity than other firms in their country of origin because only the most productive establishments can afford the extra cost of setting up production facilities abroad (Helpman, Melitz, and Yeaple 2004).

Consistent with the existence of ownership advantages, the data confirm that multinationals have, and continue to be, heavily involved in creating new knowledge by engaging in research and development (R&D) activities. In 1995, more than 80% of global royalty payments for international transfers of technology were made from foreign subsidiaries to their parent firms (UNCTAD 1997). In 2002, just 700 firms (almost all of them multinational corporations) accounted for 46 percent of the world's total R&D expenditure and 69 percent of the world's business R&D spending (UNCTAD 2005). In 2018, the top 100 global companies invested more than \$350 billion in R&D, representing over a third of business-funded R&D worldwide (UNCTAD 2019).

In sum, multinational corporations are major producers of knowledge and innovation, but do they transfer this knowledge to developing countries where they operate? This is the question to which we turn next, by focusing on the impact of foreign ownership on firm productivity.

2 Multinational firms transfer knowledge to their overseas operations

While many studies have documented the superior performance of foreign affiliates, establishing a causal relationship between foreign ownership and affiliates' productivity is challenging because of selection bias: multinationals could have simply cherry-picked the best-performing local producers as foreign acquisition targets, or chosen to invest in the most productive industrial niches.

Researchers have dealt with this selection issue by constructing a counterfactual: using the performance of a carefully selected control group as a good approximation of how acquisition targets would have performed without foreign ownership. A common estimation technique combines propensity score matching with a difference-in-difference approach, though each study differs in terms of how the matching is done and who is included in the control group.

Arnold and Javorcik (2009) were the first to apply this methodology to study foreign acquisitions. The authors use Indonesian Manufacturing Census data to compare the performance of acquired plants with similar domestic plants operating in the same industry in the same year, over the period 1983-2001. They find that a change from domestic to foreign ownership leads to improved plant productivity, reaching a 13.5% increase in the third year under foreign ownership. These productivity improvements take place alongside increases in machinery and equipment investment, employment, average wages, and output, suggesting an on-going restructuring process. Plants receiving foreign investment also become more integrated into the global economy by exporting a larger share of their output and sourcing a larger share of their inputs from abroad. Acquired plants thus receive technology transfers through machinery and equipment as well as imported inputs. The authors also find that foreign privatizations result in better firm performance than domestic privatizations, which suggests that these beneficial effects are due to foreign ownership rather than

an ownership change in general.

Proprietary technologies only constitute part of multinationals' ownership advantages. Tacit knowledge, know-how, management techniques, and marketing strategies may be equally important drivers of multinationals' success. The transfer of these intangible assets can be very valuable to FDI recipients in developing countries. Arnold and Javorcik's research finds evidence of such a transfer: foreign ownership leads to higher labour productivity (and total factor productivity) without increasing the skill intensity of the labour force (defined as the share of white-collar workers in total employment) or the capital-to-labour ratio.

J. Wang and X. Wang (2015) build on Arnold and Javorcik (2009)'s approach by comparing the impact of foreign acquisitions to that of domestic acquisitions, focusing on Chinese manufacturing firms over the 2000-2007 period. They find evidence that both types of ownership changes are beneficial for target firms. Compared to domestic acquisitions, foreign ownership does not necessarily increase target firms' productivity, but it does improve their financial condition (measured by the leverage and liquidity ratios), and also boosts their exports, output, employment, and wages. In contrast, Chen (2011), who uses data from the US for 1979-2006, finds that acquisitions by firms from industrialized countries lead to a 13% higher labour productivity increases in the target firms three years after the ownership change than acquisitions by domestic firms. Foreign ownership also tends to increase their targets' employment and sales.

Several explanations are consistent with the observed patterns. It is likely that new foreign owners introduce organizational and managerial changes that make the production process more efficient by reducing waste, lowering the percentage of faulty products and using labour more effectively¹. It is also possible that although foreign owners do not alter the skill composition of labour, they are able to attract more experienced and motivated employees. They may also substitute expatriate staff for local managers and introduce pay scales linked to performance. This would be consistent with the earlier observation that acquired plants hire a large number of new workers and increase the average wage². Finally, foreign owners may invest more in staff training³. Another possibility is that the use of higher-quality inputs or more suitable parts and components translates into higher productivity, which is consistent with the observed increase in the use of imported inputs after foreign acquisition.

Foreign ownership can also benefit consumers. Stiebale and Vencappa (2018) study the impact of foreign acquisitions in India over the period 1998-2011. A unique feature of their dataset is that it contains product-level information (prices and quantities) for each firm, as well as standard measures of firms' input expenditures, which allows them to measure product quality and a firm's cost structure (marginal costs of production and product markups).

Relative to a carefully-chosen comparison group of non-acquired firms, foreign acquisitions result in a large increase in sales, which are mainly driven by higher sales of existing products, with no impact on productivity. The impact on product quality and costs provides more interesting insights. Foreign acquisitions, especially from technologically advanced countries, lead to significant decreases in marginal costs that are fully offset by higher markups, resulting in only small changes in prices on average. This increase in prices and markups seems to be driven by enhanced product quality rather than market power. Sales increase upon acquisition, both in absolute terms and conditional on prices, which is consistent with quality upgrading. The average unit value (total value of sales divided by quantity) of material inputs increases post-acquisition, suggesting

¹Sutton (2005) gives a relevant example of organizational changes introduced by a foreign investor in its Chinese affiliate. According to the interviewed engineer, what mattered was not the obvious alteration to the physical plant, but rather the shift in work practices. This shift involved a move away from traditional notions of inspection at the end of the production line to a system in which each operator along the line searched for defects in each item as it arrived and as it departed. Constant monitoring avoided further resource wastage on defective units, and resulted in a lower share of products that needed rejection at the final quality control stage. More importantly, this system allowed the sources of defects to be quickly identified and rectified.

²Cho (2018) provides empirical evidence of the prevalence and importance of manager transfers to affiliates of multinational corporations. The study, using data on foreign affiliates of Korean MNCs, finds that most foreign affiliates have managers transferred from their parent companies. These transferred managers at first comprise a significant portion of the managerial positions at foreign affiliates, but gradually become outnumbered by local managers as the affiliates grow. Despite the transferred managers being comparatively few in number, they are positively associated with the growth of the affiliates' productivity.

³Koch and Smolka (2019) show that foreign-acquired firms in Spain actively raise the skills of their workforce by providing worker training.

that input quality is reflected in both input prices and output quality. Overall, their results indicate that knowledge transfer from foreign acquirers to domestic firms can result in both cost savings and improvements in quality, benefitting both firms and consumers.

Bircan (2019)'s study on Turkish plants during 1991-2001 is very similar to that of Stiebale and Vencappa (2018) in terms of data and methodology, except that it focuses entirely on firm-level outcomes (rather than outcomes at the firm and product level). Bircan's findings suggest that following a foreign acquisition, revenue productivity at target plants rises by up to 9%: a 13% improvement in physical productivity, which is accompanied by a 4% drop in real output prices. Firms' post-acquisition markups are only slightly higher, suggesting that customers also benefit from the cost-savings associated with greater physical productivity.

In sum, the evidence from the existing literature indicates that knowledge transfer takes place between headquarters and foreign affiliates, which then gives foreign affiliates the potential to become sources of knowledge externalities. We will return to this point in Section IV.

3 Foreign affiliates benefit from continuous injections of knowledge from headquarters

The literature discussed in Sections I and II has documented a positive effect of foreign ownership on firm performance. But is this effect due to a one-time knowledge transfer or does it rely on continuous injections of knowledge? This question matters for designing investment promotion policies, as it determines how the benefits of FDI inflows evolve over a foreign affiliate's lifetime.

To shed light on this question, Javorcik and Poelhekke (2017) focus on divestments (foreign affiliates that are sold to local owners) and compare their performance to a carefully chosen group of plants that continue operating under foreign ownership. Their study of 157 cases of divestment of Indonesian manufacturing plants finds that divestment is associated with a drop in total factor productivity accompanied by a decline in output, markups, and export and import intensity. Non-exporting foreign affiliates that are divested show similar patterns, suggesting that the loss of export markets cannot entirely explain this worsened performance. These findings are consistent with the benefits of foreign ownership being driven by continuous supply of headquarter services from the foreign parent.

4 Productivity spillovers associated with FDI mostly benefit the supplying industries

4.1 Intra-industry spillovers

There are two types of externalities associated with FDI. The most important type (from the host country's perspective) are knowledge spillovers, which take place when knowledge created by a multinational enterprise is used by an indigenous firm without (full) compensation. Typically, knowledge spillovers happen through the demonstration effect (local firms obtain knowledge about new products, technologies, marketing and management strategies, or business opportunities in foreign markets by observing the actions of foreign affiliates), movement of labour (local firms hire workers trained by multinationals), or through the transfer of knowledge from foreign affiliates to their suppliers or customers (provided affiliates are not compensated for the transfer). The second type of externality, pecuniary externalities, take place through firm-to-firm interactions and occur through prices in a properly functioning market. In particular, the entry of foreign affiliates may change the market structure and increase the level of competition in a manner similar to trade liberalization, leading to competitive externalities. Similarly, foreign affiliates entering into downstream sectors may increase demand for inputs, which in turn gives local firms incentives to invest in product

upgrading, cost-saving technologies, or increased capacity, all of which may improve performance.

Econometric studies of intra-industry spillovers from FDI are usually unable to distinguish between the various spillover channels. A typical study relates the total factor productivity of local firms to some measure of FDI presence in the same industry. This means that the empirical results capture both knowledge spillovers and competitive externalities. As pointed out by Aitken, Hanson, and AE Harrison (1997), if increased competition leads to local firms losing part of their market share and spreading their fixed costs over a smaller market, FDI presence may be negatively correlated with the indigenous firms' performance in the short and medium run. However, in the long run, the weakest performers may exit, which then reverses the sign of the correlation. Thus, the overall effect of intra-industry spillovers from FDI depends on whether knowledge spillovers dominate competitive externalities or vice versa, which in turn depends on the time frame considered, characteristics of the host country and the type of FDI it receives.

The first rigorous study of intra-industry spillovers, conducted by Aitken, Hanson, and AE Harrison (1997) on more than 4,000 Venezuelan plants between 1976 and 1989, is a good illustration of how country conditions matter. The study concludes that FDI inflows lead to negative spillover effects: while foreign equity participation is positively correlated with total factor productivity in recipient plants with fewer than 50 employees (but not in other plants), increased FDI presence negatively affects the total factor productivity of domestic firms in the same industry. Their interpretation of the latter finding is that the expansion of foreign affiliates reduces the market share of local producers, forcing them to spread their fixed cost over a smaller volume of production, which results in a lower observed total factor productivity. As pointed out by Moran (2007), the finding that only some plants benefitted directly from an increase in foreign ownership suggests that FDI in Venezuela presented limited potential for productivity spillovers. Moran argues that this situation was due to heavy restrictions imposed by the government on foreign investors, which included strict joint venture and local content requirements. Further, foreign investors were forbidden from exercising confidentiality and exclusive use of trade secrets in their mandatory joint ventures, which lowered their incentives for technology transfer. During the time period considered in the study, Venezuela was pursuing an import substitution strategy, so indigenous producers were not exposed to significant competition from abroad. This can explain why FDI inflows could have had a large negative effect on market shares of indigenous producers.

The inability of the empirical literature to distinguish between knowledge spillovers and competitive externalities explains why literature surveys of intra-industry spillovers conclude that the results from the numerous existing studies are mixed (Gorg and Strobl 2001, Saggi 2002, Gorg and Greenaway 2004, Smeets 2008). However, some progress has been made by either trying to distinguish between the impact of FDI on prices, markups, and marginal costs, or by focusing on alternative outcomes. The Bircan (2019) study on Turkey (mentioned in Section III) finds that plants acquired by foreign investors increase competition by lowering output prices, which, as expected, is associated with higher physical productivity and lower prices at domestic plants in the same industry. Physical efficiency at domestic plants responds by a larger extent than price, which results in positive but insignificant spillovers onto revenue productivity. A back-of-the-envelope calculation suggests that increased multinational activity accounts for just over 10% of the rise in average physical productivity of domestic plants over the sample period. Kee (2010) takes a novel and interesting approach to examining intra-industry spillovers by identifying business relationships between Malaysian garment producers and their suppliers of intermediate inputs. Her results indicate that Malaysian firms become more productive as a result of sharing suppliers with foreign affiliates. She shows that an exogenous EU trade policy shock, which induced some foreign affiliates operating in Bangladesh to expand, led to better performance of the domestic firms that shared suppliers with foreign affiliates. Overall, the spillover effect from sharing suppliers can explain a quarter of the product scope expansion and a third of the productivity gains within domestic firms. Other studies that focus on spillovers taking place through the movement of labour, in the context of developing countries. Gorg and Strobl (2005) study firm-level productivity in Ghana, using data on the previous work experience of domestic firm owners. Their results suggest that firms that are run by owners who worked for multinationals in the same industry immediately prior to opening their own firm are more productive than other domestic firms. Poole (2013) uses matched employer-employee

data from Brazil and studies wage spillovers, and finds that wages of incumbent workers in domestic firms are positively affected by the share of workers with prior work experience from multinationals.

4.2 Inter-industry spillovers

While there is no consensus on the intra-industry effects of FDI, the literature's conclusions on inter-industry effects are more clear-cut. Using firm-level panel data from Lithuania, Javorcik (2004) finds evidence that FDI presence boosts the productivity of the supplying industries but not the industries in which foreign affiliates operate. She argues that while multinationals would like to prevent knowledge from leaking to their local competitors, they may want to assist their local suppliers. A one-standard-deviation increase in foreign presence in the sourcing sectors is associated with a 15% rise in productivity of Lithuanian firms in the supplying industry. This productivity effect originates from investments with joint foreign- and domestically-owned firms but not from fully-owned foreign affiliates, which is consistent with a larger amount of local sourcing being undertaken by jointly owned projects. Positive spillovers from partially-owned foreign affiliates but not fully-owned affiliates were also found in Romania (Javorcik and Spatareanu 2008), and evidence of positive spillovers through backward linkages was also found in Indonesia (Blalock and Gertler 2008), and China (Liu 2008, Du, Harrison, and Jefferson 2011).

Typically, the studies of inter-industry spillovers from FDI do not distinguish between pecuniary spillovers and knowledge spillovers⁴. In a meta-study of inter-industry spillovers, Havranek and Irsova (2011) collect 3,626 estimates of spillovers produced by more than a hundred researchers. Their analysis suggests that model misspecifications reduce the reported estimates and that journals select relatively large estimates for publication (though this issue was not found in working papers). Taking these biases into consideration, they conclude that the average spillover effect from foreign affiliates to the supplying sectors is economically significant, whereas the spillover effect to the buying sector is small in absolute value (though statistically significant). Greater spillovers are received by countries that have underdeveloped financial systems and are open to international trade. Greater spillovers are generated by investors who come from distant countries and have only a slight technological edge over local firms. Almost all studies of inter-industry effects rely on industry-specific measures of foreign presence in downstream sectors. One exception is a study on the Czech Republic by Javorcik and Spatareanu (2009), which makes an explicit distinction between self-selection (i.e., the possibility that more productive firms become suppliers to foreign affiliates) and the learning effect (i.e., the productivity benefits accruing to suppliers from their interactions with affiliates). Their results are consistent with both high productivity firms having a higher probability of supplying affiliates as well as suppliers learning from their relationships with affiliates.

The studies mentioned so far focus primarily on manufacturing sectors, yet FDI inflows into the retail sector can also generate knowledge externalities and pecuniary spillovers. A case study by Javorcik, Keller, and Tybout (2008) finds that the entry of Wal-Mart into Mexico facilitated the modernization of the retail sector and stimulated fundamental changes in the relationship between retailers and suppliers of soaps, detergents, and surfactants. The entry of Wal-Mart pushed high-cost suppliers out of business, benefited surviving producers by providing access to a larger market, and prompted suppliers to introduce more innovations. Survey evidence from Romania confirms that, compared to firms that did not serve foreign retailers, firms supplying foreign supermarket chains were more likely to innovate, diversify their production, and improve the quality of packaging. An econometric analysis based on Romanian firm-level data also finds that the expansion of global retail chains led to a significant increase in the total factor productivity of supplying industries: a 10% increase in the number of foreign chains' outlets was associated with a 2.4-2.6% boost to total factor productivity. This performance boost was driven by both within-firm improvements and between-firm reallocation (Javorcik and Li 2013). Another line of research considers alternative outcomes resulting from inter-industry spillovers. Javorcik, Turco, and Maggioni (2018) examine the relationship between the presence of foreign affiliates and product upgrading by Turkish manufacturing firms. Their

⁴An exception is Javorcik (2004), who made some progress towards this goal by controlling for the demand from foreign affiliates based in downstream sectors.

analysis suggests that Turkish firms in sectors and regions more likely to supply foreign affiliates tend to introduce more complex products (using a measure of complexity developed by Hidalgo and Hausmann 2009).

5 FDI inflows facilitate integration into GVCs and affect the composition and the quality of exports

As mentioned in Section III, targets of foreign acquisitions become integrated in global value chains, which increases their export intensity and reliance on imported inputs (measured as the share of imports in inputs). Arnold and Javorcik (2009) find that in Indonesia, three years after the ownership change, export intensity increased by almost 14 percentage points, while the share of imports in inputs increased by 11 percentage points.

The presence of foreign affiliates may also boost exports of local producers through knowledge spillovers about export markets. Aitken, Hanson, and AE Harrison (1997)'s study of over 2,000 Mexican manufacturing plants demonstrates that the presence of exporting multinationals in the same region reduces the export costs for Mexican firms, but no such externalities are found for exporting firms in general. Using detailed Chinese trade statistics identifying the type of exporters and their location, Chen (2011) find that the presence of foreign affiliates in the same sector is associated with more frequent and higher unit value trade transactions by Chinese firms. Using the same dataset, Swenson (2008) shows that information spillovers can explain the positive association between the presence of foreign affiliates and new export connections by private Chinese exporters.

The impact of FDI inflows can be so large that it is visible at the aggregate level. Export superstars (firms that are born big, start out being highly productive, and grow fast) drive exports in novel sectors in developing countries. Often it is just a handful of firms - most frequently foreign multinationals - that fundamentally restructure sectoral export patterns (Freund and Pierola 2015, Freund, Fernandes, and Pierola 2016). In Freund and Moran (2017)'s review of case studies in Malaysia, Costa Rica, and Morocco, the authors conclude that "the objective of generating exports - in particular, exports in novel sectors - is more likely to come about by overcoming market failures and other obstacles that hinder multinational investment than by promoting domestic entrepreneurship."

The same picture emerges from Harding, Javorcik, and Maggioni (2019)'s cross-country analysis of sector-specific FDI promotion efforts undertaken by national investment promotion agencies in 77 developing countries during 1984-2006. Their focus on investment promotion activities rather than actual FDI inflows is justified on three grounds: a lack of comprehensive data on FDI flows disaggregated by sector, country and time, focusing on policy choices attenuates endogeneity concerns (reverse causality between high unit values and high FDI inflows), and the effectiveness of investment promotion policies makes them a good proxy for actual FDI inflows (see Section VIII for a discussion). The study exploits within-country variation in the FDI targeting practices across sectors and time to identify its impact on the country's export structure, while accounting for heterogeneity specific to country-product, country-year, and product-year combinations. The authors conclude that products belonging to sectors targeted by investment promotion efforts experience an increase in exports and revealed comparative advantage (measured by the RCA index). Similarly, Harding and Javorcik (2012) examine the relationship between unit values of exports at the product level and FDI promotion efforts undertaken by national investment promotion in the sector to which a given product belongs. Their sample covers 105 countries from 1984 to 2000, and their findings are consistent with a positive effect of FDI on unit values of exports in developing countries.

The impact of multinational presence on the quality of exports is also documented in a micro-level study by Bajgar and Javorcik (n.d.), who use customs data from Romania and firm-level information for 2005-2011. They find a positive relationship between the quality of products exported by Romanian firms and the presence of multinational enterprises in the upstream (input-supplying) industries. Export quality is

also positively related to multinational presence in the downstream (input-sourcing) industries and the same industry, but these relationships are less robust. These conclusions hold both when the product quality is proxied with unit values and when it is estimated following the approach of Khandelwal, Schott, and Wei (2013).

6 Foreign affiliates tend to create good jobs

6.1 FDI and wages

A large number of empirical studies find that foreign affiliates pay higher wages relative to domestic firms in developing countries. The wage differential between domestically and foreign-owned firms ranges from about 10-70% depending on the country considered (see studies cited by Heyman, Sjöholm, and Tingvall 2007)⁵.

Several explanations have been proposed for this phenomenon. Foreign firms may pay a wage premium in order to reduce labour turnover, which prevents knowledge spillovers from benefitting their domestic competitors (Fosfuri, Motta, and Ronde 2001). Higher productivity and the resulting higher profitability of foreign affiliates may translate into higher wages because of rent-sharing arrangements between foreign firms and their employees (Budd, Konings, and Slaughter 2005). Higher wages paid by foreign affiliates may serve as compensation for a higher labour demand volatility in foreign plants (Fabri, Haskel, and Slaughter 2003) or for a higher foreign plant closure rate (Bernard and Sjöholm 2003). It is also possible that due to a lack of knowledge of the local labour market, foreign firms may find it difficult to identify and attract good workers without paying a wage premium (Lipsey and Sjöholm 2004). Higher wages paid by foreign affiliates may also be a result of cherry picking: foreign companies only acquiring domestic firms with above average human capital (Almeida 2007). Finally, higher wages may reflect unobservable worker characteristics such as higher ability or greater motivation.

A formal argument for the FDI wage premium in developing countries was proposed by Egger and Kreickemeier (2013). The authors develop a general equilibrium two-country model with heterogeneous producers and rent sharing at the firm level due to the fairness preferences of workers. There are two sources of an FDI wage premium in the model. First, because multinational firms are more productive, they earn higher profits and can therefore pay higher wages. Second, since rent-sharing relates to a firm's global profits, multinational can pay higher wages than an otherwise identical firm that does not choose a multinational status. In a setting with identical countries, the multinational wage premium disappears once firm characteristics, such as productivity, are controlled for, because all firms above certain productivity threshold will choose to become multinational. In a setting with asymmetric countries, the threshold productivity level necessary to become multinational is higher for multinationals headquartered in the less advanced economy - a finding that is consistent with the stylized fact that most FDI flows are from more advanced to less advanced countries. Therefore, in the less advanced economy foreign multinationals and purely national firms with identical productivity levels can coexist. These multinationals pay higher wages than their otherwise identical national competitors since they have higher global profits, which they share with their workforce in both countries. Thus, the FDI wage premium would only exist in less advanced countries.

Examining the causal effect of foreign ownership on wages is quite challenging due to the lack of necessary data: ideally, we would like to trace the pay of individual workers continuously employed in firms that changed ownership, and control for worker- and firm-specific characteristics. Firm-level studies are unable to separate the effect of wage changes of continuing workers from the impact of the changing composition of the labour force: if foreign acquisitions result in greater reliance on skilled labour, they will automatically result in average wage increases and a firm-level foreign wage premium. The recent availability of linked employer-employee data has allowed researchers to make progress in this area. The broad message emerging

⁵The foreign wage premium is smaller after controlling for firm characteristics, such as size (AE Harrison and Scorse 2010). However, a larger size of foreign affiliates may reflect their superior productivity and thus a direct effect of their ownership status *per se* (see Arnold and Javorcik 2009)

from these studies is that the FDI wage premium is positive in developing countries. Hijzen et al. (2013) rely on linked employer-employee data from Brazil, Germany, Portugal, and the UK. They define foreign acquisitions in terms of majority ownership: a change from having 50% or less of foreign-owned assets to over 50% of foreign-owned assets. In their most stringent specification, they construct a counterfactual using propensity score matching at the firm-worker level⁶. The average estimated effect is equal to about 6% in Brazil and 3% in Germany, but it is much smaller and not statistically significant for the UK and Portugal (possibly due to smaller sample sizes). Earle, Telegdy, and Antal (2013) benefit from a very long panel encompassing 4,926 foreign acquisitions in Hungary, and linked employer-employee data from a random sample of about 6.6% of production workers and 10% of non-production workers in the firms considered. They employ a majority ownership definition of FDI. Acquisitions they study nearly always involve large changes in ownership share: 70% of acquisitions occur in firms whose pre-acquisition foreign share is zero. To construct a comparison group, they conduct propensity score matching at the firm level, and matches are restricted to the same industry and year. Considering incumbent workers only, the estimated FDI premium is about 4.5%⁷. The authors find positive effects for all education, experience, and gender groups, occupations, and wage quantiles. Interestingly, subsequent divestment to domestic owners largely reverses the estimated effects.

As a result of knowledge brought by foreign investors to the host country, marginal productivity of workers in foreign affiliates should be higher than in domestic firms. If this productivity advantage is significant, equilibrium wages should rise in response to increased FDI. In other words, there would be pecuniary spillovers: an overall shift in the aggregate labour demand curve could lead to upward pressure on wages faced by both domestic and foreign firms. Alternatively, there could be spillovers due to human capital accumulation. The entry of multinationals brings new knowledge that is then absorbed by domestic workers, increasing the domestic stock of human capital and making the local labour force permanently more productive. While in the US there is evidence of wage spillovers from domestic to foreign firms, in Mexico and Venezuela, FDI is associated with higher wages only in foreign affiliates. There is no evidence of wage spillovers leading to higher wages for domestic firms in these countries (Aitken, Hanson, and AE Harrison 1997).

6.2 FDI and worker training

From the worker's perspective, employment in a foreign affiliate may be more rewarding than employment in a local firm if the former offers more opportunities for training and professional development. The existing evidence supports this view: Filer, Schneider, and Svejnar (1995) find that foreign-owned firms in the Czech Republic spend 4.6 times more than domestic firms on hiring and training, and a study on Malaysia also shows that foreign-owned firms provide more training to their workers than domestic enterprises (Bank 1997).

6.3 FDI and job stability

Workers tend to value stable jobs, and most of the evidence suggests that multinationals offer greater job stability. Data from the US (1980s-1990s) and Indonesia (1975-1989) suggests that multinational firms are less likely to shut down than domestic firms, due to their larger size and superior productivity relative to domestic firms. After accounting for differences in size and productivity, multinationals are more likely to shut down than domestic firms (Bernard and Jensen 2007, Bernard and Sjöholm 2003), though in the case of Indonesia this result is due to features of the available data. Prior to 1990, the number of foreign-owned enterprises in Indonesia was small and consequently a few plants could lead to large rates of entry and exit. More recent data from Indonesia, spanning the period 1988-1996, gives the opposite result (AE Harrison and Scorse 2010).

⁶Firm controls include industry and region fixed effects, log employment and its square, and the average wage, while worker controls encompass wages, gender, age, age squared and tenure

⁷However, these results most likely suffer from attenuation bias due to measurement error, since nearly half of workers with both pre- and post-acquisition observations have only a single observation for one or more periods

7 FDI inflows may help improve environmental performance

The spectacular growth in FDI flows during the 1990s, along with the increasing importance of developing economies as host countries, has raised concerns about the potential effect of FDI on the natural environment (Zarsky 1999). A lot of research effort has been devoted to testing the so-called pollution haven hypothesis, which refers to the possibility that multinational firms, particularly those engaged in highly polluting activities, relocate to countries with weaker environmental standards.

This literature encompasses three strands. The first strand considers the patterns of outward FDI from industrialized countries. In an early study, Eskeland and AE Harrison (2003) test whether the pattern of outbound US investment during the 1980s and early 1990s can be explained by variations in pollution abatement costs across different sectors of the US economy. They conclude that sector-specific abatement costs are not significantly associated with outbound US FDI, though they do point out that their sample may not have included enough time series variation. In contrast, Kellenberg (2009) finds support for a pollution haven effect when accounting for strategically determined environment, trade, and intellectual property rights policies. His results suggest that for the top 20th percentile of countries in terms of growth in US foreign affiliate value-added, as much as 8.6% of that growth between 1999 and 2003 can be attributed to declining relative stringency and enforcement of environmental policy. This effect is even more pronounced in developing and transition economies, where approximately 32% of US foreign affiliate value-added growth can be attributed to falling relative levels of environmental stringency and enforcement.

Simple summary statistics presented by Hanna (2010) show that between 1982 and 1999 (the last year considered), foreign assets of US multinationals in clean industries grew at a relatively faster rate than foreign assets in pollution-intensive industries. This is true when all destination countries are considered, as well as when non-OECD destinations are considered. However, this pattern cannot be taken as evidence against the pollution haven hypothesis, as it has been suggested that by nature of their technologies, industries with the largest pollution abatement costs also happen to be the least footloose (Ederington, Levinson, and Minier 2005). In response to this concern, Hanna (2010) does not use industry-level measures of environmental stringency but rather exploits the plausibly exogenous variation in firm-level regulation created by the Clean Air Act Amendments (CAAA). Following the passage of the CAAA in 1970, the Environmental Protection Agency (EPA) established separate national ambient air quality standards, i.e., a minimum quality level that all US counties were required to meet, for four criteria pollutants. Each year, counties where air pollution concentrations exceeded federal standards for a specific pollutant received a non-attainment designation for that pollutant, while counties that were in attainment of federal standards received an attainment designation. Manufacturing plants that emit a criteria pollutant and were located in a county that was designated as non-attainment were subject to relatively tougher regulatory oversight than emitting plants in attainment counties. The nature of the CAAA regulatory program allowed the author to employ a differences-in-differences-style approach to test whether firms were more likely to expand their overseas manufacturing operations when the US counties in which they operated fell into non-attainment and were, thereby, subject to tougher environmental oversight. The results suggest that the CAAA legislation increased the outbound FDI of US-based multinational firms, inducing multinationals to increase their foreign assets in polluting industries by 5.3% and their foreign output by 9%. Larger multinational firms accounted for much of the increase in FDI, but contrary to the pollution haven hypothesis, heavily regulated firms did not disproportionately increase production in developing nations relative to other countries.

The second strand of the literature considers inflows of FDI to developing countries. In an early study, Javorcik and Wei (2004) focus on firm-level investment flows from multiple industrialized countries to 25 economies in Eastern Europe and the former Soviet Union, which have a large variation in environmental standards. The authors account for the effect of host country corruption and include information on both the polluting-intensity of the potential investor and the environmental stringency in the potential host country, which allows them to test whether dirty industries are relatively more attracted to locations with weak standards. They find no systematic evidence that FDI from "dirtier" industries is more likely to go to countries with weak environmental regulations. Similarly, Dean, Lovely, and H. Wang (2009) focus on manufacturing

equity joint ventures (EJV) projects in China across 28 industries during 1993-1996. They use data on actual collected water pollution levies to construct a measure of provincial environmental stringency, drawing on annual Chinese environmental and economic censuses. Their results show that EJVs in highly-polluting industries funded through Hong Kong, Macao, and Taiwan are attracted by weak provincial environmental standards. In contrast, EJVs funded from non-ethnically Chinese sources are not significantly attracted by weak standards, regardless of the pollution intensity of the industry. These findings are consistent with pollution haven behaviour, but not by investors from high-income countries. Cai et al. (2016) examine the effects of China's 1998 Two Control Zones (TCZ) policy, in which tougher environmental regulations were imposed by the central government in TCZ cities but not others. Their estimation exploits differences across three dimensions: (i) city (TCZ versus non-TCZ cities), (ii) industry (more polluting versus less polluting), and (iii) year (before and after the policy change). They find that multinationals from countries with better environmental protections than China are insensitive to the toughening environmental regulation, while those from countries with worse environmental protections than China show strong negative responses⁸.

In sum, the evidence produced by the first two strands of the literature does not suggest that relocation of dirty production from industrialized countries to developing countries with weak environmental standards is taking place to an extent that raises concerns, if at all.

The third strand of the literature compares the performance of foreign affiliates in terms of pollution emissions or (more frequently) energy intensity to that of local firms. The focus on energy intensity is necessitated by the lack of data on firm-level emissions, particularly in developing countries, but the two are highly correlated (Chung 2016). Most existing studies examine the correlations between environmental impact and foreign ownership, but are unable to establish a causal relationship. Using data collected by the Indonesian Environment Ministry's PROKASIH (Clean Rivers) program for 1989-90, and controlling for plant scale, age, and efficiency, Pargal and Wheeler (1996) find that foreign ownership is not significantly correlated with water pollution emissions in Indonesia. Eskeland and AE Harrison (2003) examine plant-level data from Cote d'Ivoire, Mexico, and Venezuela and find that the energy share (the cost of energy use divided by the total value of the plant's output) is negatively correlated with foreign ownership. Cole, Elliott, and Strobl (2008) use plant-level data from Ghana and find no strong evidence that foreign ownership influences total energy use, though plants with foreign-trained managers are found to have lower energy intensity. In a cross-sectional study of around 1,200 firms, Albornoz et al. (2009) find a positive correlation between foreign ownership and implementation of environmental management systems.

A recent paper by Brucal, Javorcik, and Love (2019) accounts for selection into foreign ownership, i.e. the possibility that foreign investors choose to acquire local plants with better environmental performance, and thus comes much closer to capturing the causal effect of foreign ownership. These authors work with panel data and hence are able to account for unobserved plant-specific characteristics and examine the stability of the estimated effects over time. Thanks to very detailed plant-level information on energy inputs, they are also able to measure energy use in physical units and provide a more detailed analysis on the types of fuel used. Their analysis of 210 acquisition cases in Indonesia over the period 1983-2001 suggests that while foreign ownership increases the overall energy usage due to the expansion of output, it decreases the plant's energy intensity and carbon emission intensity. Specifically, acquired plants reduce energy intensity by about 30% two years after acquisition, relative to the control group of non-acquired plants. The authors also find that foreign divestments lead to an increase in energy intensity. Finally, they find that at the aggregate level, entry of foreign-owned plants is associated with an industry-wide reduction in energy intensity.

The overall message emerging from this literature is that, contrary to the fears expressed in the 1990s, FDI may actually benefit the environmental performance of developing countries

⁸Interestingly, two studies focusing on FDI inflows into the US find that stronger environmental regulations deter FDI (Keller and Levinson 2002, Millimet and Roy 2016)

8 Investment promotion works

The message emerging from this paper is that FDI inflows benefit developing host countries in many ways. In particular, evidence on positive externalities associated with FDI suggests that policy intervention in the form of investment promotion may be warranted. But let us be very clear: we are not advocating tax breaks or subsidies for foreign investors because such policies are unlikely to be value for money⁹. Rather we are suggesting investment promotion efforts aimed at reducing the costs of FDI by providing information on business conditions and helping foreign investors deal with bureaucratic procedures. Such investment promotion activities include: advertising, investment seminars, participation in trade shows, direct marketing efforts, facilitating visits from prospective investors, matching prospective investors with local partners, helping investors obtain permits and approvals, preparing project proposals, conducting feasibility studies, and servicing investors whose projects have already become operational (see Box 1 for more details). Investment promotion stands out among industrial policies because it does not involve large outlays and does not introduce price distortions - the worst thing that can happen is that no FDI will come.

The evidence presented by Harding and Javorcik (2011) suggests that investment promotion is an effective way of attracting FDI to developing countries. To examine this question, the authors rely on the fact that the majority of investment promotion agencies (IPAs) target particular sectors in their efforts to attract FDI. Sector targeting is considered best practice by investment promotion professionals, as it is believed that more intense efforts concentrated on a few priority sectors are likely to lead to greater FDI inflows than less intense across-the-board attempts to attract FDI (Loewendahl 2001, Prokcsch 2004). If investment promotion is effective then one would expect to see priority sectors experience an increase in FDI inflows after targeting starts relative to non-priority sectors during the same time period. In other words, if investment promotion works, one would expect to see that countries receive relatively more FDI of the type they are actively pursuing.

Harding and Javorcik (2011) use detailed information on priority sectors and the timing of FDI targeting activities in 56 countries combined with data on US FDI flows, disaggregated by country and sector. Their analysis indicates that priority sectors receive more than twice as much FDI as non-priority sectors. While the magnitude of the effect may seem large, it is not implausible. Considering positive flows of US FDI to developing countries, the median sector-level flow was equal to \$11 million in 2004. Thus, the estimated effect of investment promotion translates into an additional annual inflow of \$17 million for the median sector-country combination. A quick look at the amounts that multinational corporations actually invest in developing countries reveals that FDI inflows of that magnitude are not uncommon. Importantly, these authors find that offering tax holidays or subsidies does not increase the effectiveness of investment promotion efforts.

Given that information provision and assistance with administrative requirements are crucial components of IPA activities, investment promotion should be more effective in settings where obtaining information and complying with bureaucratic requirements is more difficult. The findings of Harding and Javorcik (2011) confirm this view: investment promotion appears to be more effective in countries where English is not an official language and in countries which are more culturally distant from the US. Investment promotion also works better in countries with less effective governments, higher corruption, and a longer time period required to start a business or obtain a construction permit.

An effective investment promotion policy requires a high-quality IPA. Harding and Javorcik (2013) find a positive relationship between IPA performance and FDI inflows. The authors use data on 156 countries, collected by the World Bank's Foreign Investment Advisory Services through the 2012 Global Investment Promotion Benchmarking (GIPB). GIPB data capture how well IPAs perform in facilitating site selection by providing potential investors with information needed to determine the location for their project. GIPB

⁹For instance, Haskel, Pereira, and Slaughter (2007) examine within-sector productivity spillovers associated with FDI using data from the UK and conclude that the value of these spillovers per job created by foreign investors was equal to about 2,400 USD in 2000 prices (4,300 USD). This is a much smaller amount than what is typically offered to attract foreign investment, which suggests that it is quite easy to overpay when extending fiscal incentives to foreign investors.

assesses two aspects of IPA facilitation. The first is the quality of the agency's website, which is rated based on its content, architecture, design, and promotional effectiveness. Websites are judged on whether they contain relevant, clear, and credible information presented in an attractive and user-friendly way. The second rating focuses on the way IPAs handle direct project inquiries from investors. This rating, collected through a "mystery shopper" exercise, captures competence and responsiveness of the agency's staff, including timeliness, quality, and credibility of informational content.

The results of GIPB 2012 reveal huge differences in the performance of various IPAs. As discussed by Harding and Javorcik (2013), the websites of only three IPAs have received close to perfect scores (95- 97%). While the top 50 websites received scores above 80%, 24 IPAs received a positive score below 30% and 13 agencies obtained a zero score (indicating no online presence). Websites also received low scores if they were not available in English, which is generally recognized as the language of international business. The quality of responses to project inquiries received much lower ratings. The top two scores were 81 and 88%. The vast majority of agencies received a rating below 50%, which means they are of limited assistance in providing the information that foreign investors need. In many cases, IPAs could not be contacted by the researcher posing as a foreign investor. Interestingly, IPAs with highly rated websites vary widely in how well they handle inquiries. There are quite a few agencies whose website obtained a score above 80% but received a score below 40% (or even 20%) for inquiry handling.

Harding and Javorcik (2013) find a positive and statistically significant relationship between the average inflow of FDI during the years 2000-10 and the average quality of the national IPA, controlling for the average level of GDP per capita, GDP growth, population size, inflation, and political stability of the host country during the period considered. The magnitude of the estimated effect is also economically meaningful: a country with the IPA quality score of 60% received on average 25% higher FDI inflows than a country with an IPA score of 45% (controlling for the country-specific characteristics mentioned above). In other words, a one unit increase in the GIPB score was associated with a 1.5% increase in FDI inflows. Thus, for example, holding everything else equal, countries with agencies with the average GIPB performance score of the Latin America and Caribbean region received 40% more FDI than countries where the GIPB score was the average for Sub-Saharan Africa. These conclusions are robust to focusing just on developing countries, controlling for various aspects of the business climate, or instrumenting for the IPA quality.

In summary, investment promotion (excluding fiscal incentives) may be a cheap and effective way of encouraging knowledge inflows. However, successful investment promotion requires professionalism, effort, and commitment to customer service. It requires maintaining an up-to-date, attractive, and user-friendly website that includes relevant and useful information for an investor's site selection process. Providing the necessary data to support this decision process makes a huge difference.

Box 1. How inward investment promotion works

Investment promotion can affect the choice of foreign investment site at all stages of the decision-making process. The process of site selection usually starts with drawing a long list of potential host countries (typically 8 to 20), which can be classified into three groups: (i) the most popular FDI destinations worldwide, (ii) countries close to the investor's existing operations, and (iii) emerging FDI destinations (non-conventional destinations that the investor may not be initially very serious about). The third category presents an opportunity for IPAs to increase their chances of being listed via advertising, trade shows, or pro-actively contacting potential investors. The long list is then narrowed down to about 5 potential sites based on the trade-off between costs and the quality of business environment. As shortlisting is usually done without visiting the sites under consideration, the information accessibility about potential host countries plays a crucial role. IPAs can increase the chances of their countries being shortlisted by providing up-to-date, detailed, and accurate data on their websites, and preparing detailed answers to investors' inquiries. The next step in the process, the investor's visit to the host country, gives IPAs the opportunity to emphasize the advantages of locating in their country, show off potential investment sites, and facilitate contact with the local business community. IPAs can also play

a role in the final stage of the process by providing information on investment incentives and offering help with the registration process. Source: Harding and Javorcik (2011)

9 Conclusion

This paper reviews the existing evidence to produce messages that could help development professionals understand the implications of FDI inflows for developing countries.

It shows that multinationals are heavily involved in creating new knowledge by engaging in research and development (R&D) activities. They transfer this knowledge to domestic firms they acquire, which can result in cost savings and improvements in product quality that benefit both acquired firms and consumers. Foreign ownership can also increase target firms' exports, output, employment, and wages. These benefits of foreign ownership are driven by a continuous supply of headquarter services from the foreign parent, rather than a one-off knowledge transfer.

FDI can result in knowledge spillovers and pecuniary externalities, both in the target industry and in input-supplying industries. For example, firms that share suppliers with foreign affiliates or have owners who previously worked for multinationals experience productivity increases. FDI presence is associated with higher total factor productivity, more innovation, greater product diversification, and improved product quality in input-supplying industries. The presence of foreign affiliates can also increase exports of local producers through knowledge spillovers about export markets.

Compared to domestic firms, foreign affiliates generally pay higher wages, spend more on worker training, and provide greater job stability (are less likely to shut down). Contrary to the pollution haven hypothesis, foreign ownership is associated with reductions in energy intensity and the implementation of environmental management systems.

Investment promotion activities are a cost-effective way of attracting FDI to developing countries - especially in settings where obtaining information and complying with bureaucratic requirements is more difficult. However, successful investment promotion requires professional staff and constant commitment to quality service.

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