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## How Beneficial Are Foreign Acquisitions of Firms in Developing Countries? Evidence from Six Countries

Alexandros Ragoussis

### Key Findings

- Acquisitions of domestic firms by foreign investors have doubled as a share of FDI in developing countries over the past 10 years. The acquired firms in developing countries can be diverse. They can be in any sector but more commonly in activities that rely on land and established distribution networks, as well as in sectors where entry is highly regulated. For developing countries, income level and market size are strong predictors of the intensity of “brownfield” investment.
- This report explores differences in the performance and development impact of brownfield FDI relative to greenfield FDI and domestically owned firms by analyzing a unique set of industrial censuses from six developing countries: China, Côte d’Ivoire, Indonesia, Moldova, Serbia, and Vietnam. Although FDI’s benefits to economic development have been well studied using aggregate statistics and country case studies, this report brings new evidence on the contributions of brownfield FDI to developing countries’ competitiveness, productivity, and labor markets.
- Results show that firms acquired by multinational enterprises not only perform better than the average domestic firm at the time of the acquisition but also improve their performance after acquisition faster than local firms along some of the key dimensions that matter for development. For example, over the first five years of a firm’s operation, a brownfield affiliate is 70–100 percent more likely to export than a domestic firm. Wages in foreign take-overs at the end of the first five years of operations are 40–50 percent higher than in domestic firms.
- Furthermore, contrary to conventional belief about the potential job-destroying effects of foreign mergers and acquisitions, employment in newly acquired firms tends to grow faster in most countries than employment in domestic firms with similar characteristics. Specifically, two years after acquisition, the average employment in brownfield affiliates expands by approximately 4 percent, compared with 1.5 percent in domestic firms with similar characteristics. The firms’ asset value after the acquisition follows a similar path. In addition, wages in brownfield affiliates tend to increase, compared with relatively stagnant wages in the domestic firms. The experience of the six countries analyzed in this study suggests that foreign acquisitions could be adding more value in markets at the lower end of the development spectrum—that is, in countries where most FDI still takes place through greenfield investment.
- A policy framework that is supportive of brownfield investment should emphasize (a) streamlining investment screening mechanisms and approval processes, (b) increasing the effectiveness of competition policies to reduce the administrative burden of merger and acquisition controls, and (c) enhancing cooperation between competition and investment authorities. Although legal safeguards to protect the public interest ought to be preserved, an alleviation of the administrative burden, unpredictability, cost, and time involved in brownfield investment would facilitate the process greatly. Differential treatment of brownfield multinationals with respect to investment incentives should also be avoided.

## Introduction

Acquisitions of domestic firms by foreign investors have doubled as a share of total foreign direct investment (FDI) in developing countries over the past 10 years. In the past, foreign investors in developing countries would typically establish new facilities in unused “green fields” rather than investing in established companies in potentially contaminated “brown fields,” as the analogy goes. That is still how most FDI takes place outside the industrialized world.

The balance between the two modes of entry, however, is shifting toward more brown-field investment. Upper- and lower-middle-income countries lead the way (figure 2.1). The trend is also discernible in outward investment by upper- and lower-middle-income countries to other developing countries and, notably, to high-income economies.

The rise of foreign acquisitions brings tensions in the investment landscape. The United States and the European Union have enacted strict screenings of foreign acquisitions in response to perceived challenges to national security. Cases of investment withdrawals—either rejected or withdrawn over security concerns—tripled in 2018 alone, often receiving high publicity (UNCTAD 2019). China and South Africa have also changed their FDI screening mechanisms in recent years for the same reasons. Although tensions arise primarily over assets in high-income and large emerging economies, they entail a risk of shaping narratives, policy precedents, and responses beyond their own jurisdictions.

But how beneficial is brownfield FDI for developing countries? Opinions vary. Greenfield FDI adds new elements to the economy: new facilities, new jobs, and additional production capacity. Brownfield investment, by contrast, transforms existing production. Any positive effect would therefore tend to materialize over longer time frames and with varying intensity.

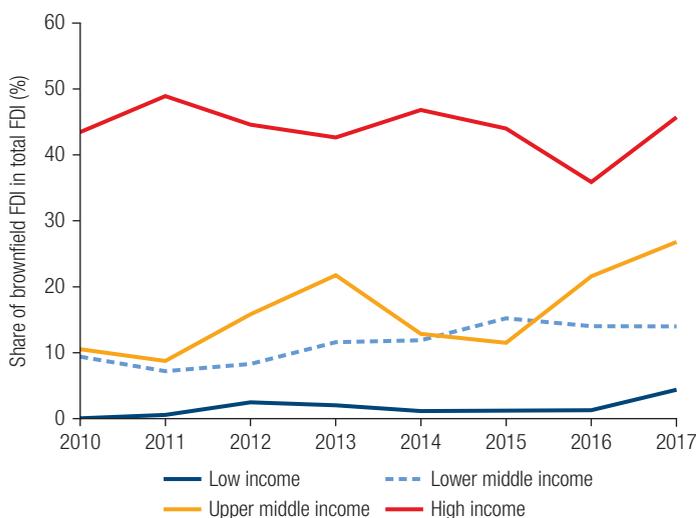
That brownfield investment represents rents to existing assets is the prevailing explanation offered by various empirical studies for the

modest effects on aggregate growth (Harms and Meon 2018; Wang and Wong 2009). Narratives likening cross-border mergers and acquisitions (M&A) to “bad cholesterol” or qualifying them as “useless” rely on this evidence to play down their contribution (Beattie 2014; Harms and Meon 2018). These critiques are not new. Following the 1990s surge of acquisitions of state-owned enterprises, the United Nations Conference on Trade and Development (UNCTAD) noted “concerns in political discussions and the media that foreign acquisitions as a mode of entry are less beneficial for economic development, if not positively harmful” (UNCTAD 2000).

For the development community, one complicating factor in discerning the effect of brownfield investment is that most of the evidence comes from high-income countries, where the impact of investment can be different in scope and depth than in developing countries. In addition, much of what captures the public eye tends to focus on macroeconomic growth, overlooking the shift of attention to development outcomes at the level of firms, the jobs they create, or the wages they offer. Little is known about acquired firms in developing countries<sup>1</sup>—what they look like, how they evolve, and whether conventional narratives do justice to their contribution in development terms.

This study uses a unique set of industrial censuses from six developing countries (China, Côte d’Ivoire, Indonesia, Moldova, Serbia, and Vietnam) to shed additional light on these three questions. The discussion that follows shows that acquired firms in developing countries can be diverse. They can be in any sector but are more common in activities that rely on land and established distribution networks, as well as in sectors where entry is highly regulated.

Motivations matter: firm acquisitions are strongly associated with market-seeking and asset-seeking FDI. For developing countries, income and the size of the market are strong

**FIGURE 2.1** Brownfield Investment Rose as a Share of Total FDI in Developing Countries, 2010–17

Source: World Bank, based on 2019 United Nations Conference on Trade and Development (UNCTAD) Mergers and Acquisitions (M&A) database, <http://www.unctad.org/fdistatistics>.  
 Note: The trend is illustrated using a two-year moving average. All country income categories use 2017 World Bank-defined classifications; “developing” countries refers collectively to low- and middle-income countries. FDI = foreign direct investment.

predictors of the intensity in which acquisitions take place. And while there is a sorting of average outcomes between the three groups—greenfield affiliates doing better than brownfield affiliates, and the latter doing better than domestic firms—brownfield affiliates are shown to develop significant advantages over domestic firms, and those advantages are consolidated in the first five years of their operations. Steeper transformation paths of domestic firms taken over by foreign investors highlight important contributions of brownfield FDI to some key outcomes that matter for development.

Although more evidence would be necessary to establish general conclusions, the experience of the six countries analyzed in this study suggests that foreign acquisitions could be adding more value in markets at the lower end of the development spectrum—that is, in countries where most FDI still takes place through greenfield investment. This study’s findings could therefore be more relevant for rapidly growing economies where the share of foreign acquisitions is rising as well as for investment into sectors in which

brownfield investment takes place more frequently, such as agriculture or services.

Governments have various means to foster the potential of brownfield ventures in these contexts. Improving the predictability of screening mechanisms; strengthening competition enforcement; ensuring equal applicability of incentives such as tax credits, preferential rates, or subsidies; and facilitating the participation of foreign investors in development of firms can go a long way in that direction. Although legal safeguards to protect the public interest ought to be preserved, an alleviation of the administrative burden, unpredictability, cost, and time involved in the process would facilitate brownfield investment greatly.

The rest of the chapter is organized as follows: *The Choice between Brownfield and Greenfield FDI* reviews existing knowledge on brownfield FDI as the starting point for the investigation. *Characteristics of Markets Affecting Brownfield FDI* describes countries and sectors where brownfield investment grows more rapidly. *Differences between Brownfield Affiliates and Other Firms* delves into the firm-level outcomes, growth, and transformation paths of firms taken over by foreign investors. *Policy Considerations for Brownfield FDI* explores policy options for countries to foster their development potential.

## The Choice between Brownfield and Greenfield FDI

There are two main ways for a foreign investor to enter a market: either set up a new firm or acquire existing facilities (box 2.1). The choice between the two depends naturally on which yields the greatest return. The benefits and costs differ substantially by mode of entry.

The value of a firm’s assets is the prime driver of brownfield investment. Access to a successful firm’s technology, machinery, or brand name represents a future stream of revenues to the acquirer, especially when those assets yield lower returns domestically than

**BOX 2.1****Conceptual Overlaps between Mergers, Acquisitions, and Brownfield FDI**

“Mergers and acquisitions” (M&A) is a general term used to describe the consolidation of companies or assets through various types of financial transactions. The terms “merger” and “acquisition” are often used interchangeably, although they have slightly different meanings.

In an *acquisition*, a company purchases another entity, partially or entirely, and establishes itself as a new owner. From a legal point of view, the target company does not cease to exist. In other words, acquisitions involve the purchase of an entity’s assets without a change in market structure.

In a *merger*, on the other hand, one or several entities involved cease to exist, and a new entity may be created; thus there is a change in market structure. In the case of public firms, the boards of directors of the two companies approve the combination of their assets and seek shareholders’ approval. If the purchase of assets takes place without the consent of the board or shareholders of the target company, the operation is called a “hostile take-over.” A hostile take-over can also result in a merger, whereby companies’ stocks are surrendered, and new company stock is issued in its place.

Depending on the activities exercised by the buyer and seller, M&A can further be classified

as (a) *horizontal*: between firms that produce and sell the same products—that is, between competing firms; (b) *vertical*: between firms operating at different stages of the value chain; or (c) *conglomerate*: between firms in unrelated businesses.

“Brownfield foreign direct investment (FDI)” is a broader term for any purchase by a foreign entity of assets that corresponds to more than 10 percent of the total assets of a target company, which is the threshold for a foreign investment to be considered direct (FDI) according to the International Monetary Fund (IMF) and Organisation for Economic Co-operation and Development (OECD).

Ownership of a 10 percent share does not necessarily grant control over the firm. The investor’s ability to make independent decisions would require a majority share, although shareholders can significantly influence the firm strategies and managerial decisions at lower thresholds, generally over 30 percent. The purchase can be friendly or unfriendly and result in various combinations of outcomes in terms of creating a new legal entity, including a simple acquisition or a merger. Joint ventures do not fall under the category of brownfield foreign investment because they refer to the establishment of new facilities—greenfield investment—involving a local and a foreign entity.

in international markets. The foundation of the decision to acquire lies in the investor’s ability to raise the value of the assets, which often involves a substantial but lower commitment of resources than setting up a subsidiary from scratch. Partly for this reason, brownfield FDI seems to attract less productive investors than greenfield investment, on average.<sup>2</sup>

Fundamentally, there can be two sources of surplus from foreign acquisitions: (a) the efficiency gains due to operational synergies, and (b) the valuation gains associated with the relaxation of the target firm’s liquidity constraints. The more credit constrained the

target firm, the larger the valuation gains relative to operational synergies.

These sources of surplus can become a relatively more important motive for brownfield investment during financial crises—a situation often referred to as “fire-sale FDI,” coined by Paul Krugman to describe the surge in foreign acquisitions of Asian firms during the 1997–98 financial crisis (Krugman 2000). Indeed, a crisis is associated with a 30 percent increase in the probability of a foreign acquisition of a typical target relative to the noncrisis average (Alquist, Mukherjee, and Tesar 2016). But more generally, valuation gains appear to explain an important

share of variation in cross-country mergers and acquisitions (M&A): firms in countries whose stock market has increased in value, whose currency has recently appreciated, and that have a relatively high market-to-book value tend to be purchasers, while firms from weaker-performing economies tend to be targets (Erel, Liao, and Weisbach 2011).

The value of the acquired assets is always assessed against the purpose of the investment. If the main objective is to sell in the domestic market—a “market-seeking” investment—then acquiring a company that is already operating is a common way to gain access. Market intelligence is part of that advantage: existing firms know the demand and know the risks, so the investor does not have to start at the bottom of the learning curve. Complementarity between acquired assets and foreign owners’ tangible and intangible assets is another factor that often tips the balance in favor of brownfield FDI (Balsvik and Haller 2010; Curran, Lv, and Francesa Spigarelli 2017). In all cases, the average domestic firm in a host country would rarely combine all these qualities, so foreign investors “cherry pick” the more successful, productive, and profitable ones that suit their plans (Almeida 2007; Balsvik and Haller 2010; Bertrand et al. 2012; Guadalupe, Kuzmina, and Thomas 2012).

There are reasons why investors may prefer to set up a new venture rather than acquire an existing firm. Control over precious intellectual property, operations, and management would justify that preference. To secure their property, investors are often willing to bear higher costs of construction and navigate a host country’s regulatory system and tax structure, in what consists overall in a longer-term commitment to the market and host country.

The activity of the firm itself matters in the decision to build or buy. Acquisitions do not make equal sense in all sectors of economic activity; they can be more beneficial for the investor in markets where there is higher contractual intensity, higher informational asymmetries among firms as well as between firms

and consumers, and greater costs in setting up new facilities. Sectors such as real estate, financial services, or pharmaceuticals are examples (Davies, Desbordes, and Ray 2018). The high cost of setting up a local supply network in a vertically integrated market with strong backward linkages also favors cross-border acquisition relative to greenfield investment (Milliou and Pavlou 2014). In high-income countries, the location, geography, and cultural barriers, together with tariff rates applied on inputs from the origin country, are other factors affecting the attractiveness of acquisitions (Davies, Desbordes, and Ray 2018; di Giovanni 2005; Roberto 2004).

Overall, a variety of factors explain the decision to acquire rather than set up a new venture: the particularities of the sector and the location, the motivation, the level of control over intellectual property, the macroeconomic environment, restrictions to alternative modes such as costly procedures for construction permits, and the length of the commitment wished by the investor.

### **Impacts of FDI on Acquired Firms and Host Economies**

What is perhaps more critical from a development standpoint, however, is the question of the impact of foreign take-overs on acquired firms. Employment tops the list of concerns. In developed economies, both job losses and gains have been documented in acquired firms over time. In developing economies, there are fewer records of effects of acquisitions on employment, but they are generally positive.<sup>3</sup> These findings are consistent with the findings that foreign investment in existing firms improves productivity (Bircan 2019; Conyon et al. 2002; Hale and Xu 2016; Lichtenberg and Siegel 2000; Maksimovic and Phillips 2001; Maksimovic, Phillips, and Prabhala 2008; Schoar 2002), which tends to be associated with larger size. Skill and knowledge transfers, as well as increased labor efficiency are the main channels through which improvements happen. And productivity improvements in turn lead gradually to better wages.

Positive valuation gains are also reported for the acquiring firm when it buys a majority stake in an enterprise in a developing country (Chari, Ouimet, and Tesar 2010). The size of the stock price increase for the buyer is more pronounced when the contracting environment is weak and in industries with high asset intangibility.

When it comes to the contribution of foreign take-overs to the growth of the host economy as whole, the prevailing view is that the growth impact of greenfield investment is stronger than that of acquisitions (Calderón, Loayza, and Servén 2004). The commitment involved in greenfield ventures also makes their impact more lasting (Bandick and Karpaty 2007; Harms and Meon 2018). Greenfield ventures not only raise the production capacity and create jobs but also intensify competition by increasing the number of suppliers, which adds to their appeal (Burger and Ianchovichina 2017; Claeys and Hainz 2007).

Cross-border acquisitions, by contrast, keep the number of market players unchanged. Their effects on market structure thus are often thought to be neutral, if not negative, which is a recurring concern when foreign investors enter by this mode (OECD 2012). In developing countries in particular, newly acquired firms can in principle capitalize on advantages associated with foreign ownership and concentrate market power more easily where competition enforcement is ineffective. Evidence on the general validity of that effect across countries and contexts remains limited.

In the same way that greenfield investment transforms markets, brownfield investment can also bring about job creation, innovation, and competition, but it takes longer for that impact to materialize as the acquired firms gradually improve their position in the host market. Recent evidence from Turkey, for example, indicates that foreign acquisitions increase physical productivity in acquired firms while lowering competitor prices (Bircan 2019). This finding suggests that their procompetitive effects may have been underestimated to date.

A distinct feature of brownfield investment is also that it can *save* jobs and revenue rather than create new ones, by restructuring companies that would otherwise fail to sustain operations (Grzegorz 2014). And although little has been written on the evolution of domestic linkages of foreign take-overs in broader areas like revenue and taxes, there is agreement that, unless they transfer their entire profit to the parent company, brownfield affiliates make a significant contribution to the host economy (Bandick and Karpaty 2007; Beattie 2014).

Feedback loops whereby brownfield investment induces more greenfield investment by reducing informational asymmetries, and greenfield investment induces more brownfield investment, have been studied less and have shown mixed results. In high-income countries, the limited evidence suggests that foreign acquisitions are associated with more greenfield FDI over time, while the reverse has been observed in developing countries: greenfield investment is associated with more brownfield investment over time (Calderón, Loayza, and Servén 2004).

## Characteristics of Markets Attracting Brownfield FDI

The decision to set up a firm or acquire one is driven by multiple factors. How does a country's level of development influence that decision? Stronger institutions associated with development enable more effective protection of investors' intellectual property and more reliable contractual arrangements, both of which make brownfield investment more appealing. A market's level of development, moreover, reflects the attractiveness of acquisition targets—the presence of successful firms that require less time and effort to bring returns—as well as structural shifts to services in which brownfield affiliates are more common. But is the relationship between share of acquisitions and level of development linear, and

which sectors and firms are more likely to receive foreign investment in developing countries?

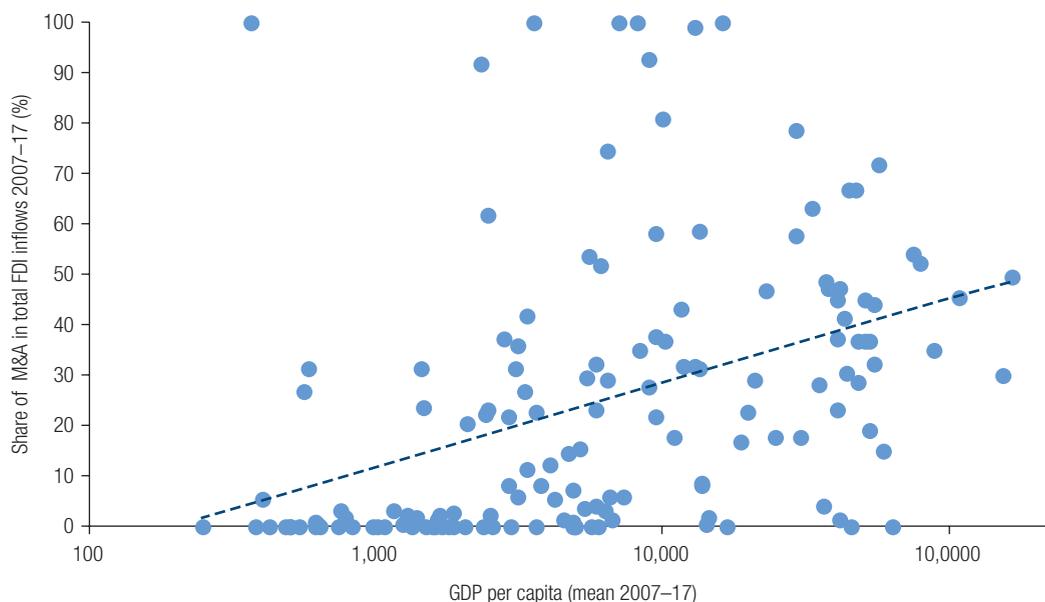
Macroeconomic investment data by mode of entry (aggregated from commercial sources) and firm-level microdata from industrial censuses in six developing countries—China, Côte d’Ivoire, Indonesia, Moldova, Serbia, and Vietnam—employed in this study yield a wealth of insights. A few caveats are in order, however. The datasets have imperfections: in all cases they include some transactions that do not strictly fall under the standard definition of FDI. They also have not been thoroughly benchmarked in terms of representativeness and coverage. (See annex 2A for more details on the sources, their contents, and limitations.)

Brownfield investment occurs frequently in developing countries, but more so in some than in others. Income is a strong predictor of both the absolute volume of brownfield

investment and its relative intensity. Of the US\$313 billion of brownfield investment in developing countries between 2014 and 2017, three-quarters consisted of acquisitions of assets in upper-middle-income countries. The more developed among developing countries also tend to receive higher shares of brownfield investment in total foreign investment (figure 2.2).

Regional concentration is also evident because of, or perhaps in addition to, income. Latin American economies such as Argentina, Chile, Colombia, Mexico, and Peru have disproportionately high shares of brownfield FDI, while in Sub-Saharan Africa, the share of foreign acquisitions in total FDI is very low. The size of the market matters as well. The BRICS (Brazil, the Russian Federation, India, China, and South Africa), Argentina, and Mexico—where larger shares of brownfield investment are recorded—are some of the largest economies in the developing world.

**FIGURE 2.2 Higher Shares of Brownfield Investments Occur in More Developed Economies**



Source: World Bank calculations, based on data from the United Nations Conference on Trade and Development (UNCTAD) Mergers and Acquisitions (M&A) database (<http://www.unctad.org/fdistatistics>) and fDi Markets, a *Financial Times* dataset (<https://www.fdimarkets.com/>).

Note: The figure shows investment destination countries with per capita GDP below US\$15,000. Data are averages for 2007–17. FDI = foreign direct investment; GDP = gross domestic product; M&A = mergers and acquisitions.

The sectoral composition of these large economies might also lie behind cross-country differences in the intensity of acquisitions. The aggregate data confirm that although brownfield investment can take place in any sector, it occurs more intensely in (a) activities that rely on land (agriculture, mining, and real estate, for example) where access is restricted; (b) activities where distribution and client

networks are hard to build from scratch, such as food and beverages, wholesale and retail trade, and health services; and (c) sectors that are highly regulated, such as financial services (figure 2.3). Manufacturing activities with strong backward or forward linkages to these industries—such as food processing, tobacco, or pharmaceuticals—also attract significantly greater shares of brownfield investment.

**FIGURE 2.3 Brownfield FDI Is Likelier in Sectors that Rely on Land, Have Established Distribution Networks, or Are Highly Regulated**

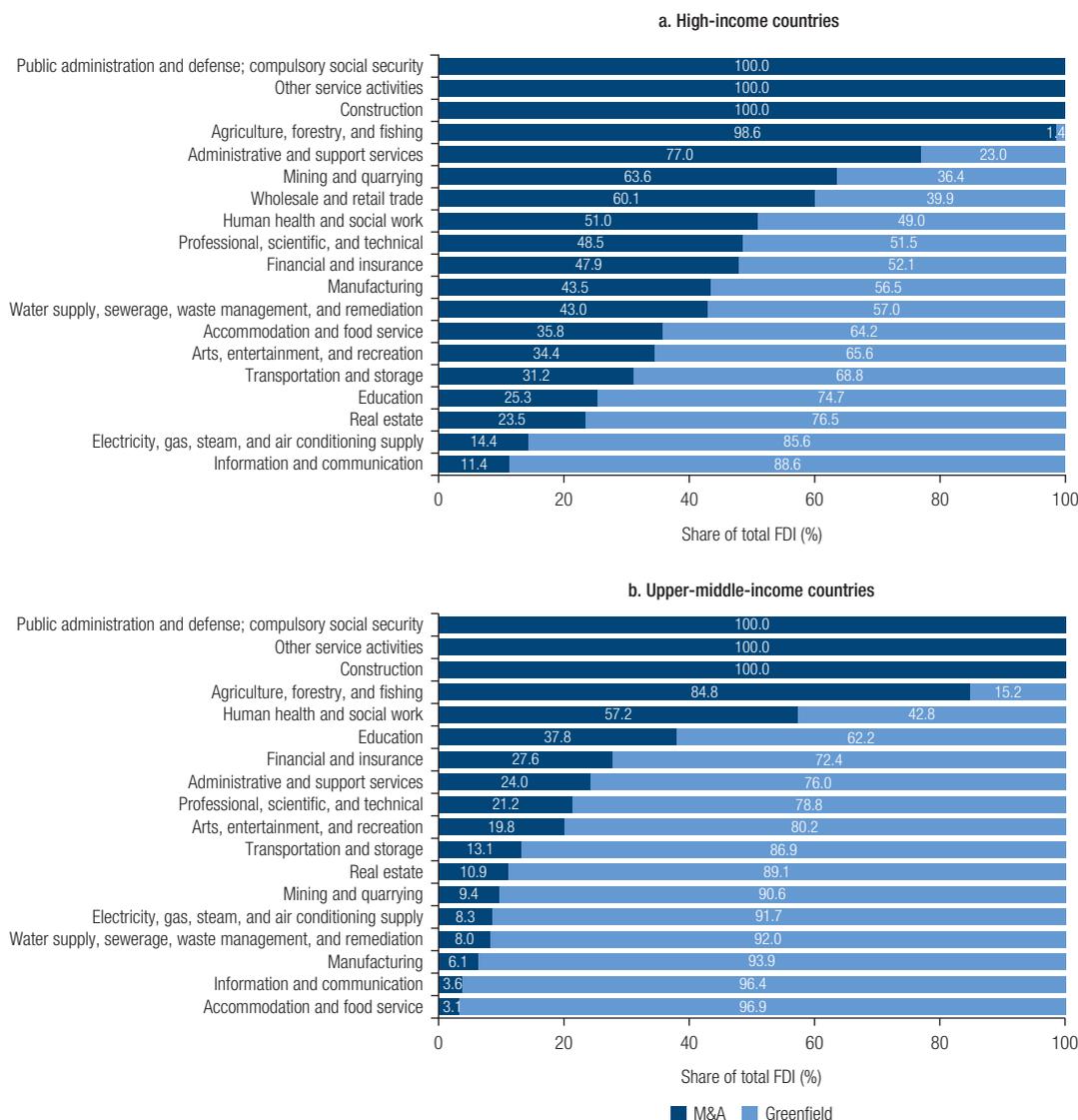
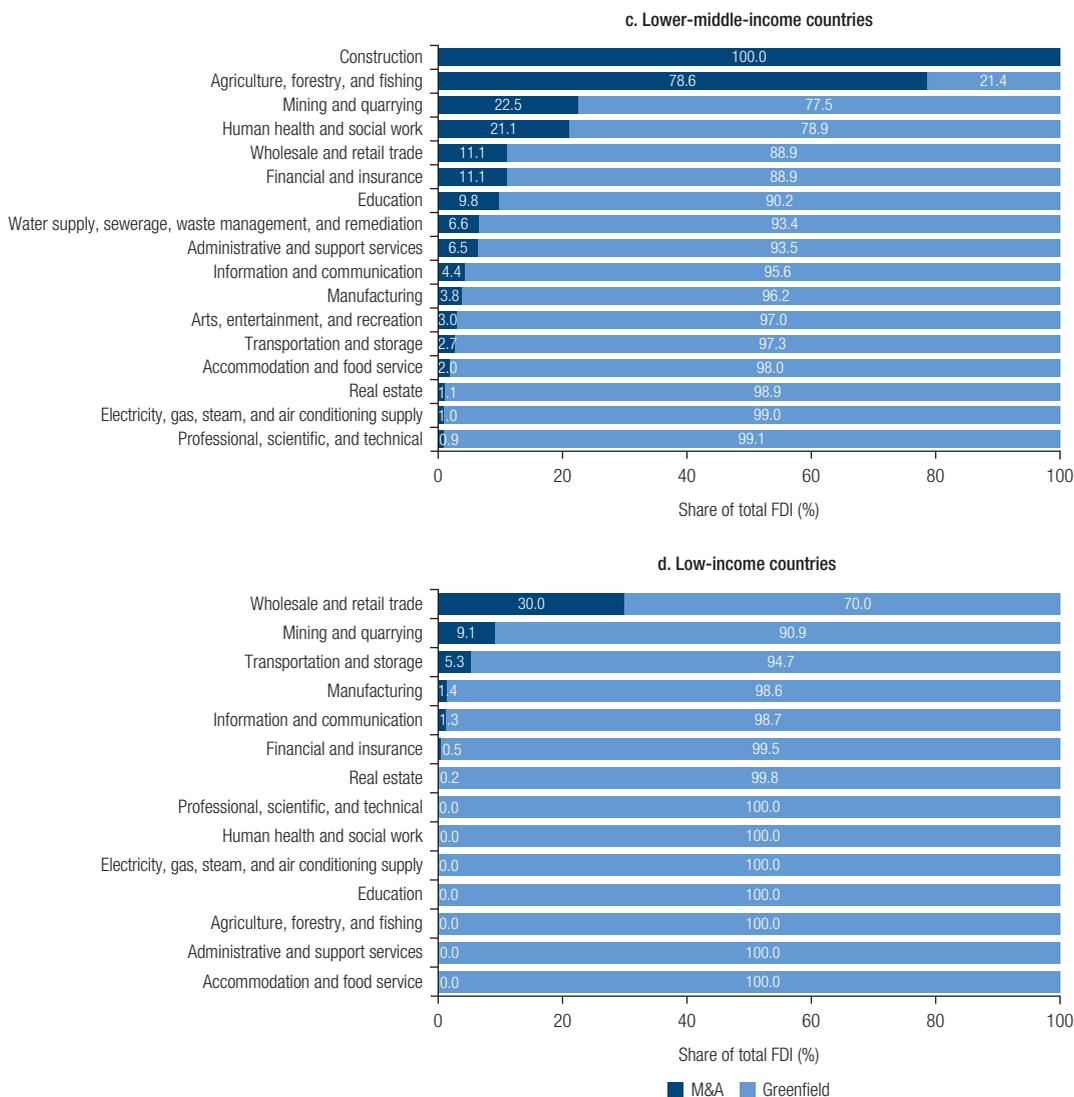


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**FIGURE 2.3 Brownfield FDI Is Likelier in Sectors that Rely on Land, Have Established Distribution Networks, or Are Highly Regulated (continued)**

Source: World Bank calculations, based on data from the United Nations Conference on Trade and Development (UNCTAD) Mergers and Acquisitions (M&A) database (<http://www.unctad.org/fdistatistics>) and FDI Markets, a *Financial Times* dataset (<https://www.fdimarkets.com/>).

Note: Data are for 2010–17. Volumes are aggregated by country income group, following the World Bank classifications for fiscal year 2017 throughout, to maintain consistency. Only shares of foreign direct investment (FDI) over total industry values exceeding US\$20 million are represented in the panels. FDI = foreign direct investment; M&A = mergers and acquisitions.

In upper-middle-income countries, a substantial share of brownfield investment takes place in all these sectors in addition to important volumes in manufacturing. In lower-middle-income countries and low-income countries, by contrast, the volumes remain lower and sectoral concentration is high: brownfield investment tends to take

place in agriculture, mining, wholesale trade, and construction. In other words, this mode of entry prevails in industries where foreign investors have few to no alternatives.

More generally, country-specific factors such as the market size, level of development, and quality of institutions explain a

much greater share of variation in modes of entry than sectoral characteristics. Firm-level data from six developing countries lend support to this conclusion (see annex 2B, table 2B.1). Although both country-specific factors and sector-specific factors drive the intensity by which foreign investors choose one mode over another, the former explain twice as much of the variation in frequency of foreign acquisition as the latter.

### **Differences between Brownfield Affiliates and Other Firms**

Delving further into how brownfield affiliates differ from the rest of firms in host economies is not simple because of data constraints. Many industrial surveys do not ask firms to report the origin of their capital, whether domestic or foreign. This reduces the number of surveys that can be used for this exercise.

In surveys that do include ownership information, greenfield affiliates can be identified only if a firm's activity is observed in the year it is established, which is rare. Many firms do not report activity figures until several years after entry, which adds a significant margin of error in the estimates. To identify brownfield affiliates, by contrast, information on the time of establishment is not needed. All that is required is a moment when foreign ownership turns positive. The sample of firms where this happens is older and larger; it tells us a lot about the characteristics of firms that foreign investors acquire. But to reliably study differences between greenfield affiliates, brownfield affiliates, and domestic firms, the three samples need to be comparable to avoid attributing age differences to ownership and mode of entry. This requirement constrains this exercise to firms that are younger and smaller.

The six countries used for this study—China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam—represent a solid sample for the exercise. Covering various periods from the early 2000s to recently, they contain

almost 54,000 observations of multinational firms that have been acquired by foreign investors at some point in their lifetime. Of these, about 16,700 observations are from firms whose time of origin is observed (see annex 2A, table 2A.1).

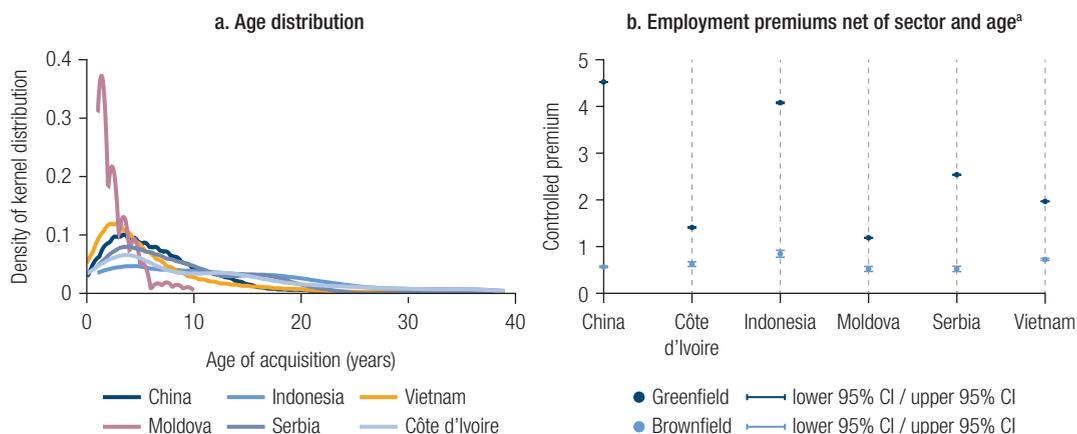
The countries themselves are quite diverse, spanning three continents and three income levels, with stark differences in terms of market size (ranging from China to Moldova) and varied industrial structures. The regulatory context of the six countries varies as well. With the exceptions of Serbia and Vietnam, the rest fare rather poorly during the period studied in terms of the World Bank's *Doing Business* scores—particularly on the subcomponent dealing with construction permits, which would incentivize modes of entry other than greenfield.<sup>4</sup> The sample overall allows cross-country evidence over multiple dimensions that previous studies have not been able to capture.

### **Different Outcomes of Brownfield Ventures Relative to Greenfield Ventures or Domestic Firms**

A closer examination of the six countries' industrial censuses reveals important differences within the multinational segment by mode of entry, as expected from previous work. The average brownfield affiliate is larger than a greenfield affiliate, measured by workforce size. However, this statistic masks the fact that greenfield affiliates that can be identified in the sample are often younger than the rest of the firms. The bulk of acquisitions takes place within the first 10 years of a firm's lifetime, but that margin makes acquired firms on average older than greenfield affiliates at the time of observation (figure 2.4, panel a).

When accounting for how long firms have been in operation, that is, at a given age, greenfield affiliates are typically larger than brownfield affiliates in all sample countries. In turn, both types of multinational enterprises (MNEs) are significantly larger than their domestic counterparts (figure 2.4, panel b).

**FIGURE 2.4 Greenfield Affiliates Typically Have Larger Workforces than Brownfield Affiliates, Considering Age of the Firm**



Source: World Bank calculations, based on industrial censuses from six countries.

Note: Industrial census data were analyzed from China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam (for data details, see annex 2A). CI = confidence interval.

a. In panel b, the graph shows premia relative to the benchmark of a domestic firm, set at 0. "Domestic" refers to the firms that have not changed their ownership from local to foreign at any point in the observed sample.

Myriad dimensions and layers can be studied under the umbrella of firm-level outcomes. In terms of development impact, more emphasis is placed on impacts that reflect two broad objectives: *competitiveness* (which captures productivity and returns to investment) and *inclusiveness* (the extent to which these returns benefit a broad range of society). These two objectives conceptually track two pillars of sustainable development—economic and social—to which typically a third pillar, environmental, is added. Firm-level data used for this exercise only shed light on the first two, although several hypotheses can be made on the differential effect on the environment of brownfield versus greenfield investment.

The economic and social outcomes of foreign-owned firms differ substantially from those of domestic firms (box 2.2). These differences in turn help shift macroeconomic and social outcomes in host countries, depending on the volume of investment and the presence of complementary conditions that facilitate the absorption of this foreign investment by firms, regions, and countries.

Productivity, the value of the firm's assets, exports, and diversification of production are conventional measures of how competitive a firm is, while the extent to which these returns benefit local workers and suppliers can be measured by wages and imports, respectively.

Starting from competitiveness, both types of multinationals are significantly more productive than the average domestic firm in all six countries observed (figure 2.5). The value of firms' assets is a distinct feature of brownfield affiliates (figure 2.5, panel c); indeed, it is a major motivation for investment. Valuable assets, however, are not reflected in significantly better labor productivity for brownfield affiliates than greenfield affiliates (figure 2.5, panel b): the averages across the two groups of firms are within the margin of error, and in all countries are significantly better than domestic firms. When it comes to internationalization, both brownfield and greenfield affiliates have greater exposure than domestic firms, and comparable levels in exports and imports (figure 2.5, panels d and e), exhibiting closer supply linkages to the domestic market in only one case: Indonesia.

**BOX 2.2****The Evidence on Economic and Social Outcomes of Multinational Enterprises**

Although foreign direct investment (FDI) is generally associated with positive effects on development, whether these effects will materialize is neither automatic nor monotonic; it varies considerably across various types of enterprises, sectors, regions, and countries, and it is highly dependent on mediating factors and local conditions.

A recent examination of the World Bank Enterprise Surveys highlighted systematic differences between foreign multinational enterprises (MNEs) and domestic firms across 63 countries over 10 dimensions that matter for development. Although there appears to be no striking trade-off between competitiveness and inclusiveness of foreign multinationals, their premiums over domestic firms differ substantially across regions and income groups.

Relative to other regions, foreign MNEs established in eastern Europe and central Asia, for example, exhibit better outcomes than domestic firms on most of the dimensions relating to competitiveness (such as productivity, outward orientation, and innovation) as well as inclusiveness (wages or provision of training). Foreign MNEs established in Latin America stand out in terms of productivity and skills transfer, while in Sub-Saharan Africa, foreign MNEs stand out with respect to job expansion and wages.

The mix appears to be highly specific to the type of multinationals each region attracts, including the industry and investor motivations as well as the host economy conditions. In the Middle East

and North Africa, for example, multinationals differ significantly in terms of export propensity and geographical diversification because of the concentration of FDI in natural resource sectors. Multinationals also contribute more to gender empowerment in this region than anywhere else by employing significantly more women in managerial positions than do domestic firms, potentially because of social and cultural differences between the home and host countries.

Differences in some key areas that drive competitiveness (such as productivity, innovation, and skills transfer) appear to increase with income, while premiums in all other areas are greatest in lower-middle-income or low-income markets, highlighting the relevance of foreign multinationals for socioeconomic progress in these contexts.

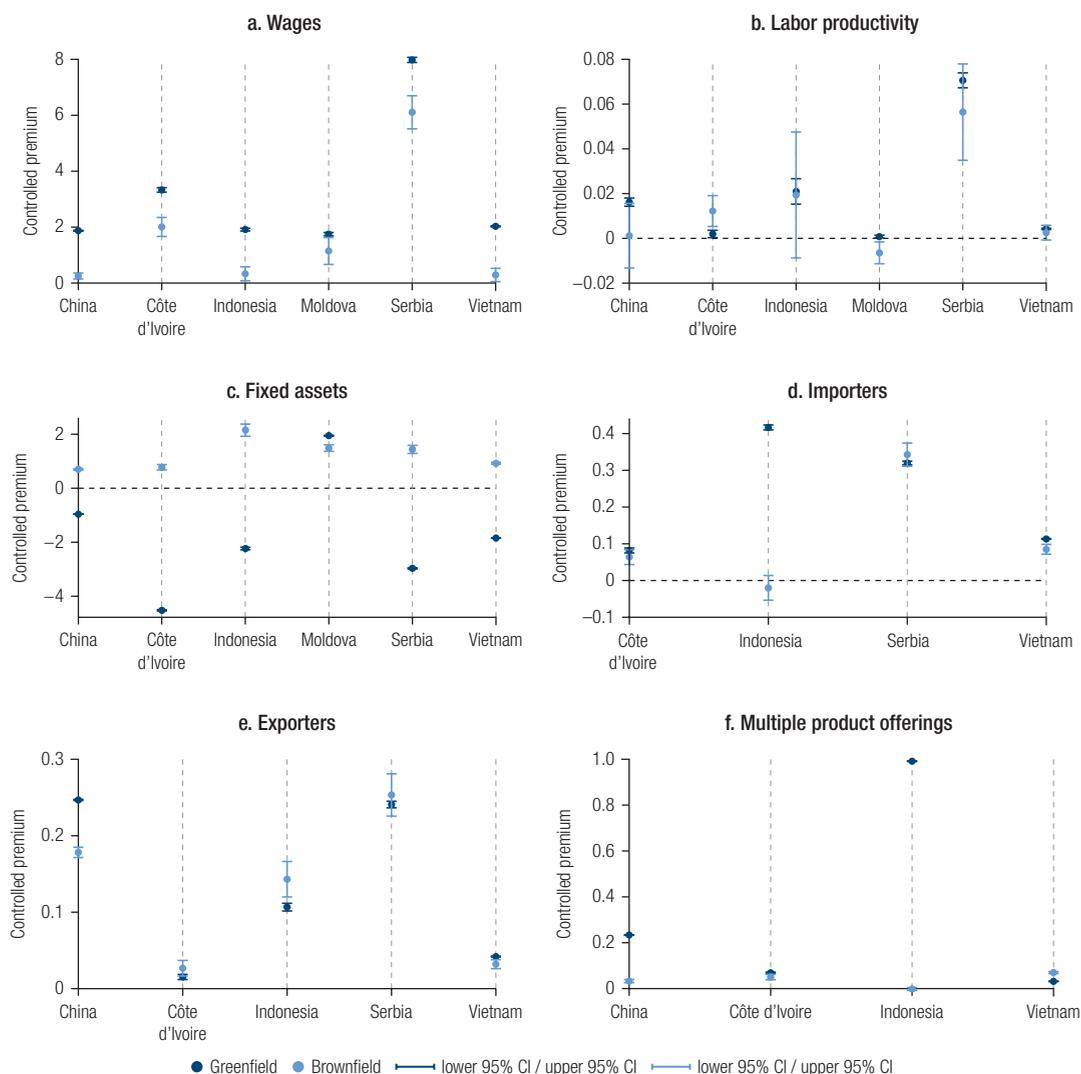
Outcomes of foreign-owned firms, however, should not be confused with the aggregate development impact of international business; they are one among a number of such drivers that shift the macroeconomic and social outcomes of host countries. The actual aggregate impact of foreign multinationals on host countries remains dependent on the volume of investment and the presence of complementary conditions that facilitate their absorption by firms, regions, and countries. These conditions include the policy environment, quality of local institutions and financial markets, sector characteristics, and spatial collocation of domestic with foreign firms.

*Sources: Alfaro 2017; Lejarraga and Ragoussis 2018.*

Improvements in the competitiveness of firms acquired by foreign investors, however, pass through only partially to workers. The productivity premiums of both brownfield and greenfield affiliates over domestic firms should translate into broadly similar wage premiums for workers. However, this is not the case: there appears to be a clear sorting between greenfield, brownfield, and domestic firms in terms of wages (figure 2.5, panel a). Both brownfield and greenfield FDI pay their workers better than domestic

firms, yet greenfield affiliates pay considerably more.

Why this discrepancy? Greenfield FDI adds production to the economy, so it boosts demand for labor, driving wages up for new hires. Paying “efficiency” wages (those above market clearance) is also to be expected as frontier firms enter new countries. On the other hand, “sticky” wages (those that respond slowly to changes in the performance of a company or the economy) would tend to keep wages of brownfield ventures at

**FIGURE 2.5** Brownfield Affiliates and Greenfield Ventures Differ from the Average Domestic Firm

Source: World Bank calculations, based on industrial censuses from six countries.

Note: For this figure, industrial census data were analyzed from China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam (further described in annex 2A). The graphs show premia relative to the benchmark of a domestic firm, set at 0. "Domestic" refers to the firms that have not changed their ownership from local to foreign at any point in the observed sample. Vertical bars indicate the confidence interval (CI). Industrial censuses vary in their coverage of different variables, and so some countries are missing from selected panels.

lower levels that persist after the acquisition. In the smaller countries in the sample, such as Côte d'Ivoire, Moldova, and Serbia, these wage premiums of multinational firms are significantly greater than in bigger economies.

As brownfield investment increases in a host country, the characteristics of acquired

firms evolve as well in directions that depend on the country context and period of study (see annex 2C). In China, for example, the average size of firms acquired by foreign investors relative to the rest increased over 1998–2007, while the opposite happened in Serbia and Indonesia over 2006–13 and 2009–15, respectively. In both

China and Vietnam, the trend in average productivity over the periods studied has been toward acquisitions of firms that resemble more the rest of firms in the economy, while in Serbia and Indonesia, that has not been the case. General patterns in the evolution of acquired firm characteristics would require study of more country cases over longer periods.

### **Differences in Growth Paths between Brownfield Affiliates and the Average Domestic Firm**

Foreign investors do not target the average domestic firms for acquisition. So questions naturally arise as to whether brownfield affiliates look different from the first day they are established and whether differentiation is the result of (a) growth over their lifetimes, or (b) direct influence of the foreign investor.

By comparing the growth and transformation paths of firms in the different categories over several key outcomes such as employment, labor productivity, wages, and levels of internationalization, the evidence points to a positive answer to both questions, to varying extents. Track records of firms allow observations for only five to seven years after firms enter.<sup>5</sup> A deeper analysis of transformation following acquisition yields insights for only the same number of years. These first years of a firm's life cycle capture important dynamics: whether in developing countries or in mature economies such as the United States, half of start-ups fail within that period.

**Growth paths of brownfield affiliates and greenfield ventures.** Firms that get acquired by foreign investors look different at origin from firms that do not. They start off larger and more productive from the first year of their operations, and they offer better wages for their workers than the average domestic firm. These differences are not statistically discernible at the very origin but become apparent already within the first year of a firm's lifetime.

Average wages in the three categories of firms are clearly sorted, with brownfield affiliates paying marginally less than greenfield affiliates throughout the first years of their operations. Wages in foreign take-overs at the end of the first five years of operations are 40–50 percent higher than domestic firms, and the gap can reach 70 percent in greenfield affiliates (figure 2.6, panel a).

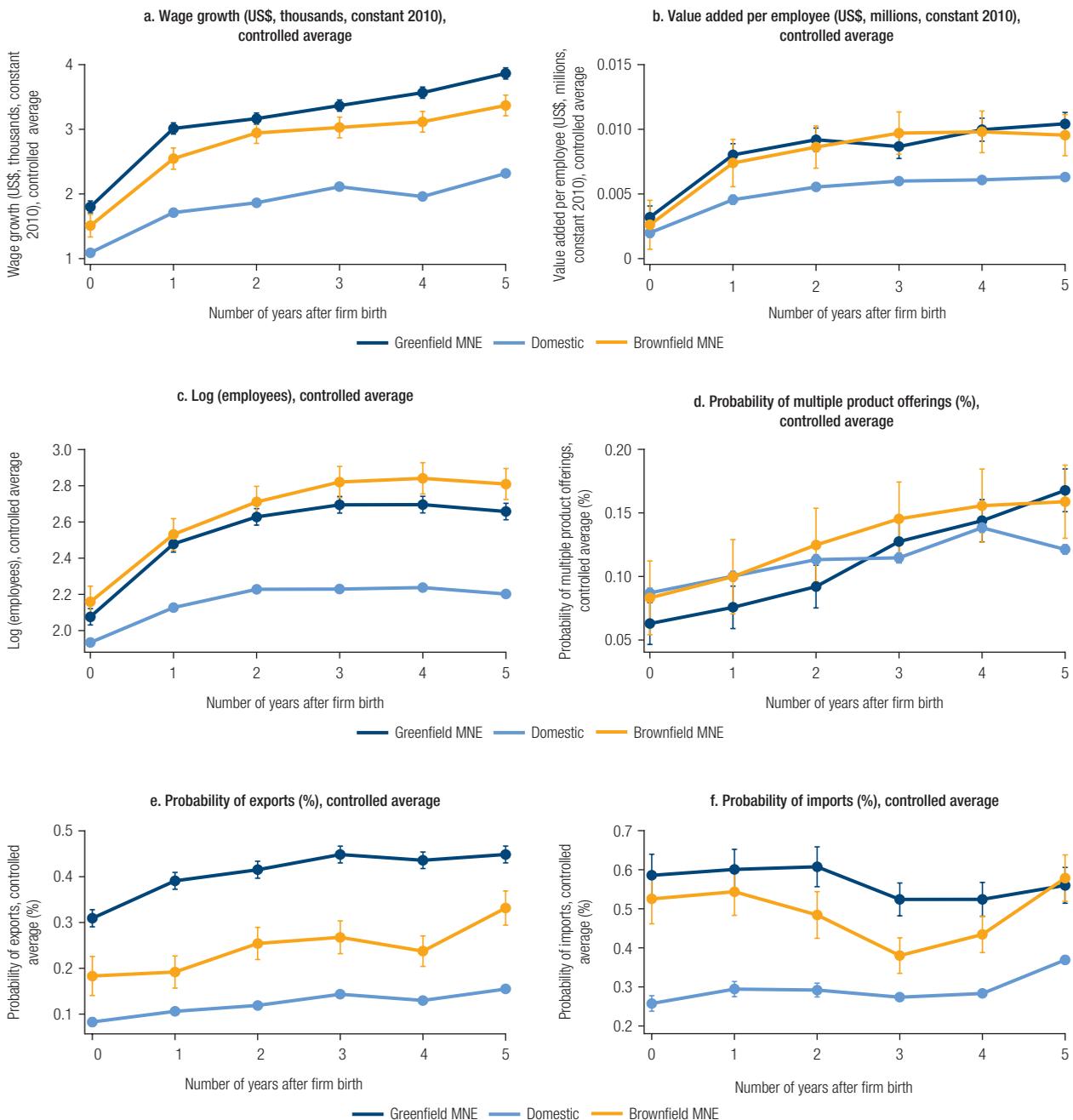
The same pattern arises when it comes to importer and exporter status: greenfield affiliates are significantly more internationalized than brownfield affiliates, which in turn are significantly more exposed to global markets than domestic firms (figure 2.6, panels e and f). Specifically, over the first five years of the firm's operations, a brownfield affiliate is 70–100 percent more likely to export than domestic firms, while greenfield affiliates are at least three times more likely to export throughout the period. By the fifth year of their operation, brownfield and greenfield affiliates tend to significantly narrow their gap in terms of internationalization.

Overall, much of the growth in the firms' employment takes place within the first three years of their operations. After that time, firm sizes seem to stabilize. Both brownfield and greenfield affiliates begin with more ambitious undertakings, stabilizing at levels that are 15–25 percent larger than the average domestic firm (figure 2.6, panel c). When it comes to product offerings, while all types of firms diversify within the first five years of their operations, greenfield and brownfield affiliates accelerate their diversification more rapidly, and by the fifth year of their lifetimes end up with a profile that includes different activities (figure 2.6, panel d).

**Firm transformation after firm acquisition.** Growth paths show that acquisition targets start off with above-average potential, which translates into better outcomes in the medium to long term. But is it foreign ownership that improves firm performance, or rather advantages at birth and the ability of firms to grow differently?

This exercise examines changes in outcomes for firms that transition into MNE

**FIGURE 2.6 Brownfield and Greenfield FDI Firms Perform Better than Domestic Firms over the First Five Years of Operation**



Source: World Bank calculations, based on industrial censuses from six countries.

Note: For this figure, industrial census data were analyzed from China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam (as further described in annex 2A). "Domestic" refers to the firms that have not changed their ownership from local to foreign at any point in the observed sample. Growth paths of firm outcomes can be captured in a simple framework using an interaction between indicators of firm group (greenfield, brownfield, domestic) and years after entry in the following specification:  $y_{ics} = group \cdot d_t + \alpha_{cs} + \delta d_{it_0} + \epsilon_{ics}$ . The sample is restricted to cohorts whose entry is observed. To account for differences that might be driven by country characteristics, sector composition, and macroeconomic trends, the regressions also control for country-sector fixed effects (FE) and cohort fixed effects. Wage growth paths are calculated using constant deflated values in U.S. dollars. Regression includes country FE\*2-digit sector FE as well as cohort start year dummies. Vertical bars indicate the margin of error. FDI = foreign direct investment; MNE = multinational enterprise.

status relative to firms of similar profile that remain domestic. The procedure involves matching every firm acquired by foreign investors to a firm that remains domestic and has similar characteristics (in terms of employment, age, and sector) during the year before the acquisition takes place.<sup>6</sup> Average outcomes in the two groups of firms are then tracked over the years before and after the acquisitions in a framework identical to the growth paths used in the previous section.

Contrary to conventional belief about the potential job-destroying effects of M&A, employment in newly acquired firms grows at similar or often faster rates than the control group of domestic firms for the first few years after acquisition (figure 2.7, panel a). More specifically, two years after acquisition, the average

employment in brownfield affiliates expands by approximately 4 percent, compared with 1.5 percent in domestic firms with similar characteristics. The value of firms' assets after the acquisition follows a similar path. In addition, wages in brownfield affiliates appear on average to increase, marginally widening the differences with domestic firms (figure 2.7, panel b).

Transformation paths are highly dependent on the context. The options available to domestic firms of similar characteristics differ across markets, and so do the limitations in foreign owners' decision making—all of which affect the value added from foreign capital. Large upper-middle-income countries (notably, China) offer more growth opportunities to firms independently of the origin of their capital. Indeed, transformation paths in the sample of five smaller or lower-income

**FIGURE 2.7 Targeted Firms Improve Their Performance after Acquisition by Foreign Investors**

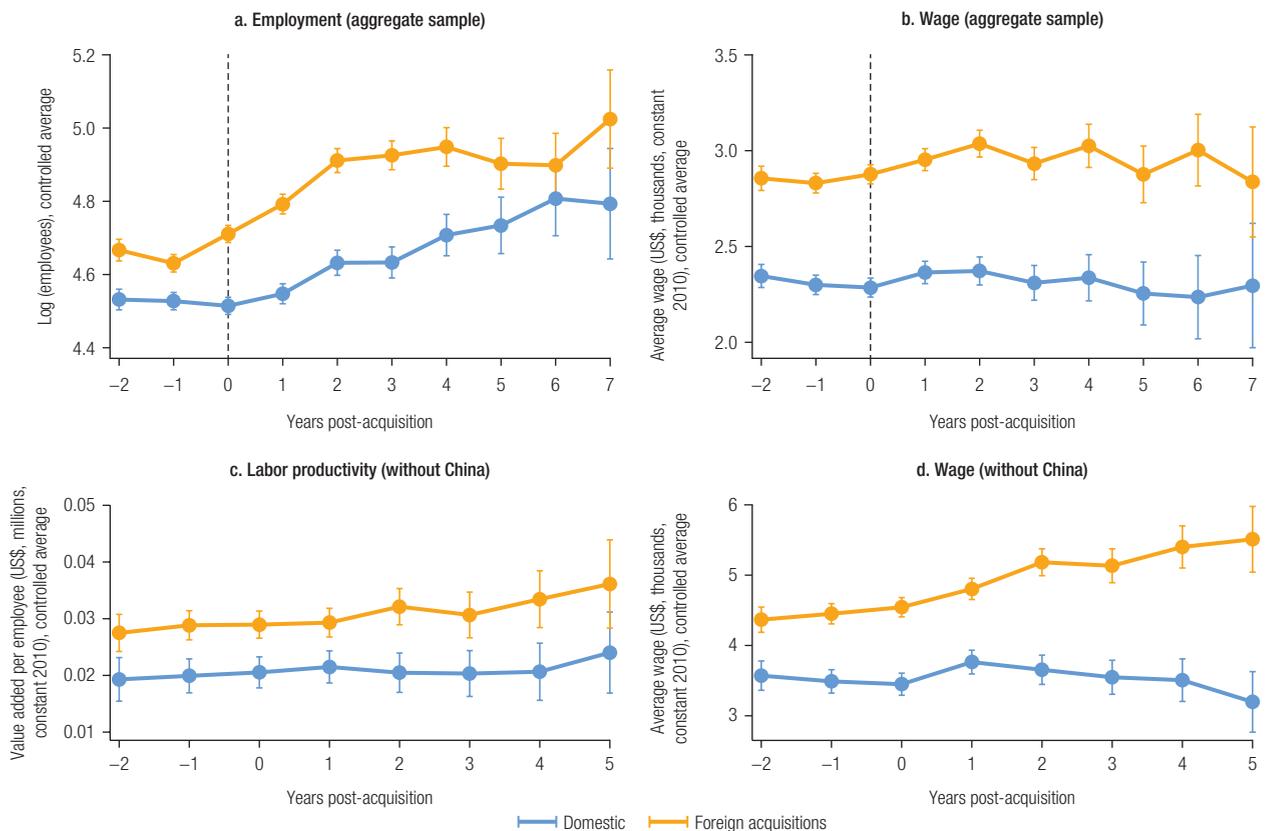
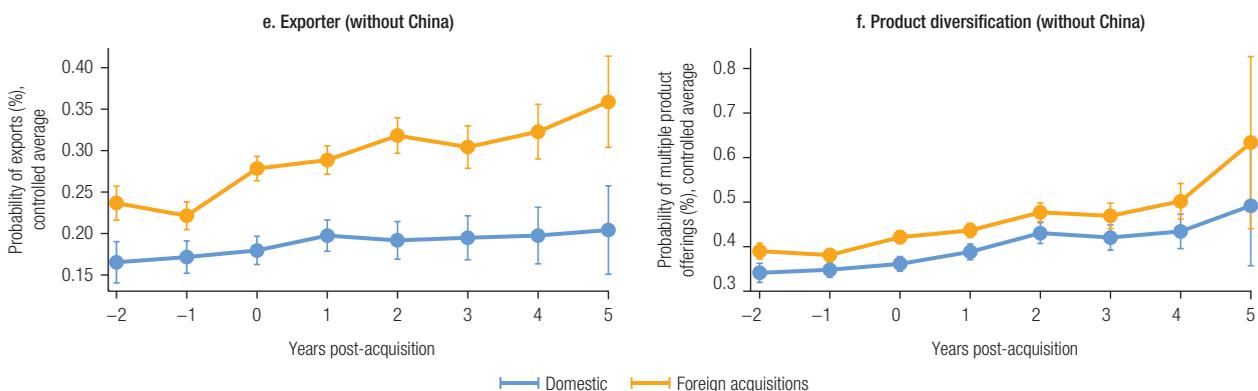


Figure continues next page

**FIGURE 2.7 Targeted Firms Improve Their Performance after Acquisition by Foreign Investors (continued)**

Source: World Bank calculations, based on industrial censuses from six countries.

Note: "Without China" refers to results for five countries: Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam. Industrial census data analyzed for this figure are further described in annex 2A, table 2A.1. "Domestic" refers to the firms that have not changed their ownership from local to foreign at any point in the observed sample. Growth paths of firm outcomes can be captured in a simple framework using an interaction between indicators of firm group (brownfield, domestic) and years after entry in the following specification:  $y_{it} = group \cdot d_i + \alpha_{cs} + \delta d_{it} + \varepsilon_{it}$ . The sample is restricted to equinumerous groups of brownfield affiliates and domestic firms matched on the basis of employment, age, and sector, in the year before the firm was acquired. To account for differences that might be driven by country characteristics, sector composition, and macroeconomic trends, the regressions also control for country-sector fixed effects (FE) and year fixed effects. Regression includes country FE\* 2-digit sector. Vertical bars indicate the margin of error.

countries excluding China (Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam) confirm greater value addition of foreign capital in some dimensions (figure 2.7, panels c–f). Acquired firms in these countries significantly increase their ability to access markets through exports and product diversification, while wages adjust to a higher level than expected. Specifically, by the fifth year following acquisition, the average brownfield affiliate has increased wages by 10–30 percent relative to no adjustment in the wages of domestic firms. The rise in labor remuneration reflects, at least partly, adjustment to a marginally higher level of productivity. These premiums for new brownfield affiliates persist for the observed period following acquisition.

These findings come with caveats. That ownership shares are unobserved dilutes potentially stronger impact in cases in which foreigners gain majority or full control of domestic firms.<sup>7</sup> Moreover, that the reported estimates are conditional on country and

sectoral effects conceals important variations of benefits that are specific to these levels. Benefits from greater market access and diversification, for example, are expected to be more pronounced in manufacturing and primary commodities than in services. There are also a number of dimensions—such as liabilities and the skill composition of workforce, or relative measures such as export-to-sales ratio—where differences are less discernible in the sample studied following acquisition.

Overall, and despite important data limitations, the evidence supports a value addition of foreign investors in some key dimensions related to development, such as employment and market access complementing systemic benefits of acquisitions reported from other sources (box 2.3). The evidence also suggests that these advantages are more pronounced in markets that are less developed, smaller, or both, which is a general hypothesis warranting further investigation.

**BOX 2.3****Systemic Benefits of Brownfield Foreign Direct Investment: Telecommunication Acquisitions in Africa**

Starting in the mid-1990s, state-owned telecommunications operators in Africa were privatized in large numbers, with the vast majority acquired by foreign brownfield investors. Acquirers included global firms in the industry from Europe such as Orange, Vodafone, and Portugal Telecom, but also developing-country multinational firms such as Maroc Telecom, South Africa's MTN, and India's Bharti Airtel. The sector grew rapidly, with a subsequent phase of booming greenfield investment through license acquisitions and a wave of new brownfield investment in existing operators over the past decade.

Firms that were acquired by foreign investors often invested in network expansion and upgrade, especially for mobile and fixed internet access. Following the acquisition of Ghana Telecom, for example, Vodafone invested around US\$1 billion in improving the digital infrastructure in the country. There were 400 sites in 2008, increased to more than 2,000 sites within six years.

Employment reductions during an initial restructuring of the acquired firms have not been rare but were often followed by fast growth and subsequent job creation. The acquisition of Burkina Faso's Airtel by Orange in 2016, for example, was associated with a drop of the enterprise's full-time headcount from 291 to 259, followed by a 10 percent average annual increase annually that increased the headcount to 365 by 2019. Jobs offered to local populations by these multinational firms often served as a vehicle for skills upgrade: in 2016, for example, 80 percent of the 20,000 employees of the Middle East and Africa branch of Orange received training averaging 26 hours.

Engagement of the operators in areas outside the strict boundaries of their markets has also been common. Orange funded the Africa Cup of Nations football tournament in 2013 and supported more than 30 rural radio stations in 13 counties by providing

them access to free electricity 24 hours a day. In addition, it provided four incubators for entrepreneurs in four countries and six accelerators as well as programs and e-education services for digital skills to schoolchildren, university students, and young professionals in partnership with local ministries of education. Vodafone invested in Healthline in Ghana, the first medical call center in Africa.

The rapid growth has helped boost the economy and employment across Africa. In 2015, mobile technologies and services generated 6.7 percent of Africa's gross domestic product (GDP), or around US\$150 billion in economic value. Africa's mobile ecosystem directly supported over 1 million jobs. The expansion of the sector has also supported an additional 2.4 million jobs indirectly through production inputs, wages, public funding, and profits spent in other sectors. This development has strengthened economic activity in other industries through improved information sharing and increased access to data and mobile broadband.

The outcomes of foreign acquisitions have been more spectacular in some countries than in others, with the context making a difference. Gasmi et al. (2013) note poor outcomes of some acquisitions in resource-scarce, landlocked African countries as well as in resource-rich African countries because of weak contractual design, inadequate policy enforcement in the infrastructure sector, and insufficient aggregate demand. The bundling of telecommunications with banking services allowed some incumbents to compete successfully against brownfield ventures in some markets. Sector-specific taxation imposes additional costs to the investor in others. Generally, in the absence of strong state capacity, competition is a necessary complement to foster development outcomes of such investments.

*Sources:* Estrin and Pelletier 2018; Gasmi et al. 2013; GSMA Intelligence 2016; GSM Association (GSMA) financial statements; Orange 2017; Staff 2015.

## Policy Considerations for Brownfield FDI

A policy framework for foreign investment comprises incentives, rules, and restrictions that firms need to comply with through their life cycle. These policy elements are not systematically designed to favor one mode of foreign entry over another. Yet, typically, some are more relevant to investors entering through a particular mode or to sectors where brownfield investment takes place more intensively.

### Investment Incentives by Mode of Entry

Investment incentives such as tax credits, preferential rates, or subsidies are commonly made conditional on characteristics of the firm. Most developing countries that grant tax holidays (77 percent) condition them on location requirements within the country (World Bank 2018). Less common is the requirement to export or to sell to exporting firms and engage in research and development (R&D). The mode of entry can be specified—as was done in the Czech Republic, Mozambique, or South Africa, where preferential treatments and concessions are explicitly applicable only to greenfield investments or acquired firms that plan on expanding production capacity—although no widespread discrimination has been reported in the literature over that dimension.<sup>8</sup>

Incentives are not often a deal breaker for foreign investment. They might add an important element to the equation when other, more fundamental components are present. Asset-seeking investment, such as FDI in natural resource sectors, tends to be less responsive to incentives (World Bank 2018), which suggests that any discrimination by mode of entry might be less relevant. But more generally, the signal that some foreign investors are less welcome than others can hurt the growth prospects of countries that would otherwise benefit from brownfield FDI in the medium term.

## Sensitivity of Brownfield FDI to Investment Restrictions

Statutory restrictions on foreign investment generally apply to all modes of entry. Thresholds on foreign equity (for example, investment screenings), restrictions on movement of people, or repatriation of profits do not discriminate between newly established firms and brownfield ventures. They apply regardless of whether equity was acquired or created. By contrast, licensing requirements, or limitations on the number of firms in a market segment, are less relevant to firms that are already operating and, by extension, to brownfield investment targeting those firms.

Although most restrictions apply equally to all modes of entry, brownfield investment tends to be more sensitive than greenfield investment to the general severity of restrictions and to certain types of restrictions in particular. Evidence in the literature, while limited, finds that a similar reduction in total investment restrictions is associated with a greater increase in cross-border acquisitions than in greenfield foreign investment, independent of a country's size or level of development (Lee 2016; Mistura and Roulet 2019). This pattern could be partly explained by the greater frequency of acquisitions in services industries, which are also subject to higher restrictions.

Restrictions that are more frequently encountered in sectors where brownfield investment takes place, such as services, could have greater impact on that mode of entry. Restrictions on movement of people and on board nominations are examples that deter investment by hindering participation of foreign investors in development of the firm. This type of restriction can be particularly stringent when investment originates from other developing countries (Borchert, Gootiiz, and Mattoo 2012).

The limited evidence to date confirms that cross-border M&A is highly sensitive to variable requirements that are left to the discretion of authorities, such as investment

screenings or economic needs tests (Lee 2016; Mistura and Roulet 2019). These procedures end up being more relevant to brownfield investment because of the prevailing ambiguity over the value this type of investment brings to the host economy. It is on the basis of this evidence that the rest of the policy discussion emphasizes investment screenings and variable requirements.

Investment screenings vary in scope and depth across countries; they tend to include a range of administrative burdens in terms of contracts and can be applied in non-transparent ways. Russia, for example, requires a national security review for foreign investments in more than 40 sectors but provides no criteria for evaluating an application on these grounds. In Tunisia, multiple sectors require preauthorization for foreign acquisitions of a majority share of a company, yet again without specific criteria for review.

Many countries do not screen prospective FDI extensively, although notable recipients of brownfield investment do, including China, India, Malaysia, Mexico, Russia, Tunisia, and Vietnam.<sup>9</sup> Investment screenings, moreover, are significantly on the rise in higher-income economies (UNCTAD 2019). By submitting more sectors or activities to review, lowering the triggering thresholds, or broadening the definition of foreign investment, countries increasingly strengthen these mechanisms. The risk of these policies is that they shape narratives and establish precedents that will likely influence the policy stance of developing countries in the future, either through reciprocity or established practice.

### **Competition Frameworks: Another Layer of Frictions**

Several types of brownfield investment aiming at control or a vertical merger of acquired firms are also the subject to review from competition authorities because of their potential impact on market dynamics. The nexus between foreign investment and

competition is loosely delimited in the literature, although there is general agreement that the feedback loops between the two are important.

Competition is typically enforced by an independent authority that has the capacity to detect anticompetitive behavior, such as collusion and abuses of dominance, as well as the power to penalize misbehavior. This authority typically requires notification of prospective M&A, issues approvals on the basis of its reviews of likely effects, and proposes remedies to minimize the anticompetitive effects of market consolidation.

In principle, the absence of proper competition enforcement can deter entry for both greenfield and brownfield investors. Private impediments to acquisitions, such as cross-holding or tactical obstacles by incumbents, are common, all falling under the realm of competition barriers (Nolan 2019). These barriers can be addressed through a well-functioning competition authority that limits the ability of incumbents to deter entry.

In practice, the rules and their enforcement often pose additional burden to investors. Although more than 120 countries and regional blocs have relevant legal frameworks, implementation is limited in countries whose competition frameworks or authorities are more recent. In these cases, the administrative burden of information requirements, their cost, and the time they take can be an impediment to an acquisition of a firm. To minimize undue burdens on the investor, many competition authorities conduct two-phase investigations or have a formal simplified notification procedure for certain transactions that allow for fast-track decisions (World Bank 2016). This procedure filters out investments that are less likely to have an impact on competition.

The independent application of competition reviews and investment screenings by different authorities, under different frameworks, can be the source of numerous failures. Of 40 developing economies across regions surveyed by the World Bank in 2016, two-thirds keep the two processes separate.<sup>10</sup>

The frameworks are often disconnected not only in terms of the criteria used to evaluate transactions but also in their procedural requirements. Generally, although competition reviews are often more focused on efficiency considerations and potential market effects, public interest considerations are pervasive in investment assessment frameworks. Therefore, the degree of subjectivity of investment reviews is higher, and so is the uncertainty of the process. The lack of predictability can be potentially discouraging for brownfield investments that qualify for such review.

An alternative proposed by some practitioners is to merge the two processes into one, in a so-called single-review model (Bakhoun and Fox 2019). An example of full convergence on the substantive criteria to review mergers and investment is South Africa, where the investment framework specifically delegates the review to the competition control framework.<sup>11</sup> The adoption of that model remains the exception rather than the rule in practice.

Overall, a policy framework that supports brownfield investment should emphasize the following:

- *Streamline investment screening mechanisms and approvals, focusing on transparency, well-defined criteria, consistency with competition frameworks, reliable time frames for reviews and decisions, and judicial redress for the investor.* Clearly defined methodologies to assess “public interest” could expand the empirical basis underpinning the assessments and increase the efficiency of the process. In addition, a multilateral investment facilitation framework would go a long way toward improving the transparency and predictability of a range of other administrative procedures to deal with investments.<sup>12</sup> International rules for investment facilitation are rare (Polanco Lazo 2018). Only a few international investment agreements cover rules on the facilitation of business activity.
- *Increase the efficiency of competition policies to reduce the administrative burden of controls, strengthen enforcement capacity, and reduce the scope for tactical impediments to foreign acquisitions by incumbents.* The objective here is to both safeguard competition and minimize the burden of administrative procedures on business by using public resources more effectively, ultimately fostering the international exposure of markets. Competition authorities are often ill equipped to deliver these mandates in lower-income countries (Berger, Gsell, and Olekseyuk 2019; World Bank 2016).
- *Enhance cooperation between competition and investment authorities with a view to reducing inconsistencies between different time lines for reviews, different thresholds and considerations triggering review, or their mandatory nature.* This cooperation stands to facilitate both processes without necessarily compromising their content: independent assessments of competition effects are essential to market well-being. A wider application of the single-review model, along with improvements in its design, could potentially prove beneficial in countries where brownfield investment is rising fast.
- *Avoid differential treatment of brownfield multinationals with respect to investment incentives.* Although more information is necessary to assess the extent of discrimination in this area, and its potential cost, eligibility for incentives is an essential element of a supportive framework for brownfield investment. It is also an element that ensures that the right signals are being sent to investors likely to enter in that mode.
- *Address operational barriers to multinationals, such as to movement of people and board nominations, to facilitate participation of foreign investors in development of the firm.* Many of these restrictions are not specific to brownfield investment but are more frequently encountered in sectors where this mode of entry is more intensive, such as services,

and can be particularly stringent with respect to investment originating from other developing countries.

The reasons why brownfield investment is more common in higher-income economies extend beyond the specific considerations already discussed. By engaging actively in the process of improving institutions and laying strong market foundations, governments are supporting brownfield investment without that necessarily being the explicit objective. Stronger institutions ensure the protection of intellectual property, respect of contractual arrangements, and shareholders' minority rights, all of which make this mode of entry more appealing. The growth of viable stock markets and successful firms that are attractive for foreign investment can have the same effect. Causality could go in both directions, as brownfield acquisitions can potentially bring longer-term benefits like stronger corporate governance, which in turn can foster stronger institutions (Bris, Brisley, and Cabolis 2008).

## Concluding Remarks

This study documents the characteristics, growth paths, and outcomes of multinational firms established through brownfield investment relative to those established through greenfield investment and domestic firms in six developing countries to shed additional light on their contribution. A key takeaway from this analysis is that brownfield affiliates add value to the development process in ways that do not differ in their essence from those established through greenfield investment.

Although more evidence is necessary to establish general conclusions and macroeconomic effects, the experience of the six countries analyzed in this study suggests that foreign acquisitions could be adding more value in markets at the lower end of the development spectrum—that is, in countries where most FDI still takes place through greenfield investment. The findings reported here could

therefore be more relevant for fast growing, lower-middle-income economies where the share of foreign acquisitions is rising. They could also be more relevant for attracting investment into sectors where brownfield investment takes place more frequently, such as agriculture or services. Governments in these contexts have the means to foster the potential of foreign acquisitions by addressing administrative frictions, enhancing the predictability of controls, and safeguarding competition.

Future research should expand the evidence base with analysis of outcomes of acquisitions over longer periods of time and in different country contexts. Additional evidence would also be warranted on the effects of acquisitions of intangible as opposed to tangible assets, as well as on the development effects on the acquiring firm, motivated by the booming outward investment from major developing economies to the rest of the world. All these extensions will allow a more nuanced case to be made for brownfield investment in the development process.

Finally, assessing the extent of “masked effects” of this mode of entry on domestic firms that would otherwise exit the market, saving jobs and revenue, could shed light on the ways that brownfield investment contributes to sustaining economic activity that other modes of foreign entry cannot. Coupled with a systematic mapping of competition and investment screening frameworks, this evidence could improve technical assistance to developing countries and attract more investment that works for development.

## Annex 2A. Data Sources

### UNCTAD Aggregate Data

Cross-border mergers and acquisitions (M&A) statistical sources from the United Nations Conference on Trade and Development (UNCTAD) are based on information reported by Thomson Reuters. Such M&A conform to the standard definition of foreign direct investment (FDI) as far as the

equity share is concerned. However, the data also include purchases via domestic and international capital markets, which should not be considered to be FDI flows. Cases of round-tripping (also known as round-trip transactions) are also considered on the basis of the immediate acquiring country and immediate target country principles.

Data on announced greenfield FDI projects sourced from UNCTAD are based on the information provided by fDI Markets, a service of the *Financial Times* (<https://www.fdimarkets.com/>). fDI Markets tracks all new investment projects and expansion of existing investments but does not include information on the equity participation by investors. This suggests that the data may include investments that are not qualified as FDI. Joint ventures are also included only where they lead to a new physical operation.

### Industrial Censuses

The cross-country microeconomic evidence draws firm and establishment survey

or census longitudinal data from the six developing countries investigated in this study: China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam. For the growth path analysis, this study analyzed all cohorts of firms whose entry as well as survival for at least five years was observed (table 2A.1).

Cross-country, firm-level data have important limitations. One of the most critical concerns is the issue of comparability of employment and capital measures, which can vary from one survey to another. Harmonization has been undertaken to address this issue. However, the analysis is necessarily constrained by the data available (or not available) in the raw surveys or censuses. In addition, all surveys available for this study record foreign ownership as a binary indicator (yes or no), bundling portfolio investment of less than 10 percent with FDI (>10 percent of total assets) and not allowing a separate treatment of majority-owned affiliated of foreign firms, where effects of acquisitions could be more pronounced.

**TABLE 2A.1 Industrial Census Data Used for Cross-Country Analysis**

Country	GDP per capita (2017)	Time coverage	Restrictions	Full sample				Sample of firms whose entry is observed			
				Firms	Observations			Firms	Observations		
					Total	MNE	Brownfield MNE		Total	MNE	Brownfield MNE
China	8,827	1998–2007	Manufacturing firms (legally independent subsidiaries) with sales ≥ RMB 5 million	570,108	2,048,525	421,544	32,759	292,978	829,869	173,041	10,184
Côte d'Ivoire	1,662	2003–13	Firms in all sectors	40,424	75,326	11,127	7,937	29,380	45,541	6,063	2,290
Indonesia	3,847	2010–15	Manufacturing establishments with at least 20 employees (L ≥ 20)	33,131	169,324	15,985	5,014	6,768	19,097	1,363	712
Moldova	2,290	2004–14	Firms in all sectors	31,591	122,423	12,895	1,566	31,295	120,699	12,874	1,566
Serbia	5,900	2006–16	Firms in all sectors, with at least 6 employees (L ≥ 6)	35,402	159,487	14,029	827	10,698	31,798	3,880	171
Vietnam	2,343	2007–12	Full census of large firms, limited information on small firms	504,916	1,573,373	13,248	5,858	289,779	777,300	2,641	1,797

Source: Data provided by country authorities to the World Bank Group.

Note: GDP = gross domestic product; L = number of employees; MNE = multinational enterprise; RMB = renminbi.

## Annex 2B. Relative Importance of Country-Level versus Sectoral Factors in Favoring Greenfield or Brownfield Investment

**TABLE 2B.1** Variance Decomposition

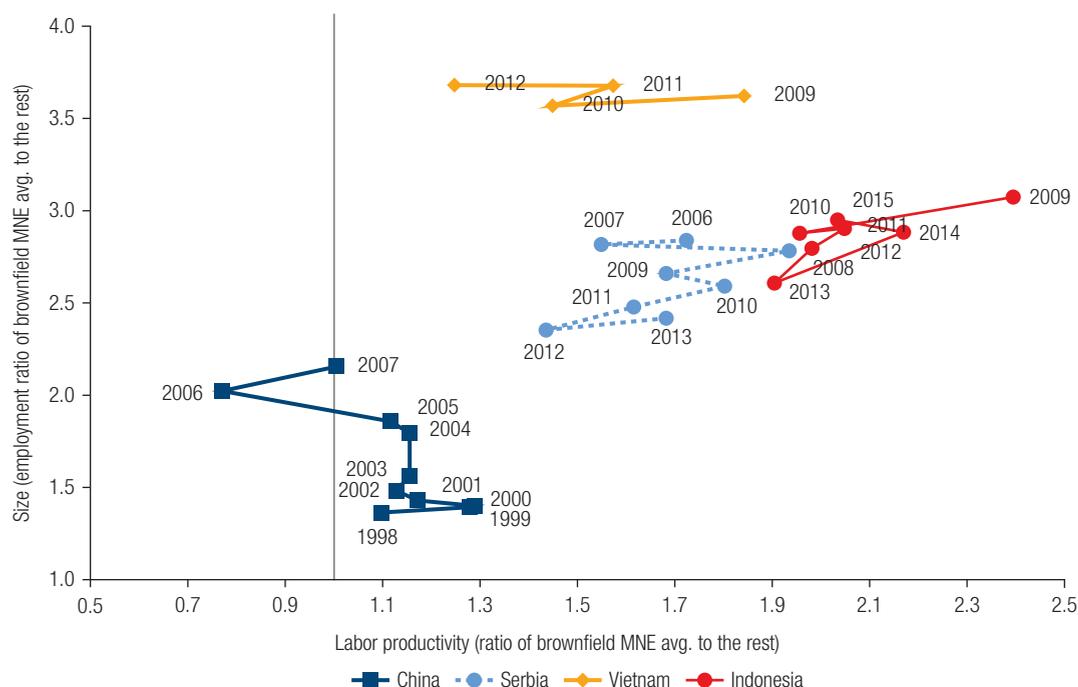
Source	Partial SS	Df	F	Prob > F (%)	Contribution to model SS (%)
<b>Model</b>	<b>1,042.00</b>	<b>1,327</b>	<b>13.21</b>	<b>0.00</b>	<b>42.9</b>
Country	21.38	5	71.96	0.00	2.1
Sector	8.49	86	1.66	0.01	0.8
Year	18.61	17	18.42	0.00	1.8
country*sector	36.16	263	2.31	0.00	3.5
country*year	237.41	31	128.87	0.00	22.8
sector*year	124.35	925	2.26	0.00	11.9

Source: World Bank calculations, based on industrial censuses.

Note: Industrial census data came from six countries: China, Côte d'Ivoire, Indonesia, Moldova, Serbia, and Vietnam (further described in annex 2A). Variance components are estimated on the linear probability of a multinational firm transitioning to foreign ownership from domestic status at some point during the period it is observed; on country, sector, and year fixed effects; and on their two-way interactions. Df = degrees of freedom; F = F-value; SS = sums of squares.

## Annex 2C. Evolution of Brownfield MNE Characteristics over Time

**FIGURE 2C.1** Evolution of Brownfield MNE Characteristics over Time



Source: World Bank calculations, based on industrial censuses from four countries.

Note: Industrial census data analyzed for this figure are further described in annex 2A, table 2A.1. MNE = multinational enterprise.

## Notes

1. Notable exceptions of research focusing on employment and productivity of acquired firms in the context of a single developing country are Gong, Görg, and Maioli (2007) (China); Arnold and Javorcik (2009) (Indonesia); Lipsey, Sjöholm, and Sun (2013) (Indonesia); and Bircan (2019) (Turkey).
2. Nocke and Yeaple (2008) find this for multinational enterprises (MNEs) making brownfield investments in the United States, while Raff, Ryan, and Stähler (2011) find a similar pattern in Japan.
3. Geluebcke (2015) shows the negative impacts of foreign take-overs on employment in Germany. Bellak, Pfaffermayr, and Wild (2006), Martins and Esteves (2008), and Mattes (2010) find no statistically significant impact of foreign acquisitions on the employment reduction in Austria, Brazil, and Germany, respectively. Yet foreign ownership is found to contribute to formal employment in developing countries like Indonesia (Lipsey, Sjöholm, and Sun 2013) and in Nigeria's manufacturing sector (Inekwe 2013), as well as China (Gong, Görg, and Maioli 2007), in addition to some high-income countries including New Zealand (Fabling and Sanderson 2014), Portugal (Almeida 2007), and Sweden (Bandick and Görg 2010).
4. Data are from the World Bank's *Doing Business* Indicators database (accessed December 2019), <https://www.doingbusiness.org/>.
5. The growth and evolution of firms continue after the first five years of their operations. However, data constraints allow examination of cohorts of firms through the end of the seventh year without major loss of statistical power. The paths in cohorts with that duration do not differ substantially in any of the dimensions discussed.
6. Propensity score matching for this exercise implements the full Mahalanobis matching based on employment, age, sector, and year to adjust for pretreatment observable differences between a group of firms targeted by foreign investors and firms that remained domestic throughout the observed period. Matching is performed separately for each country, one-to-one with the nearest neighbor the year before acquisition takes place. Weights are not used in the transformation paths.
7. In a seminal contribution 10 years ago, Arnold and Javorcik (2009) reported that foreign acquisitions of more than 20 percent equity had stronger effects in nearly 400 establishments in Indonesia: an average 24 percent increase in employment and 40 percent increase in wages within the first two years following acquisition.
8. In South Africa, for example, the additional investment allowance for industrial policy projects may not exceed R 900 million for any greenfield project with a preferred status, R 550 million for any other greenfield project, R 550 million for any brownfield project with a preferred status, or R 350 million for any other brownfield project.
9. Data on FDI screening come from the World Development Indicators database and the OECD FDI Restrictiveness Index 2017 (<https://www.oecd.org/investment/fdiindex.htm>).
10. According to a review of country-specific merger control and foreign investment regimes in 40 developing economies in multiple regions in 2016, 86 percent of countries have a predefined merger control framework, and only 70 percent have investment review mechanisms (World Bank 2016). Where investment control frameworks exist, the institutions in charge of the review as well as the regulatory framework applied tend to be both economywide as well as sector specific.
11. The exceptions are certain sectors that require government approval for foreign participation, including energy, mining, banking, insurance, and defense.
12. In 2017, during the 11th World Trade Organization (WTO) Ministerial Conference in Buenos Aires, 70 WTO members adopted a "Joint Statement on Investment Facilitation for Development," announcing discussions toward a multilateral framework on investment facilitation (WTO 2017). The discussions aim primarily at achieving transparency and predictability of investment measures; streamlining and speeding up administrative procedures and requirements; and enhancing international cooperation, information sharing, the exchange of best practices, and relations with relevant stakeholders, including dispute prevention.

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