
Introduction and Overview

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What is the impact of foreign direct investment (FDI) on development? The answer is important for the lives of millions—if not billions—of workers, families, and communities in the developing world. The answer is crucial for policymakers in developing and developed countries and in multilateral agencies. The answer is central to the debate about the costs and benefits of the globalization of industry across borders.

Yet determining exactly how FDI affects development has proven to be remarkably elusive. Investigating how FDI can contribute to, or detract from, the growth and welfare of developing countries is a challenge the Institute for International Economics takes up in the chapters of this conference volume.

Why has the relationship between FDI and development been so difficult to investigate? What quandaries in analysis, or deficiencies in procedure, have impeded the investigation in the past? How can analysis be strengthened, and what do the results show?

This volume gathers together the cutting edge of new research on FDI and host country economic performance, and presents the most sophisticated critiques of current and past inquiries. The volume probes the limits of what can be determined from available evidence and from innovative investigative techniques. It presents new results. This conference volume also concludes with an analysis of the implications for contemporary policy debates, and proposed new avenues for future research.

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Finding an Empirical Framework for Policy Analysis

Three bodies of “conventional wisdom” about nonextractive FDI’s impact on host countries in the developing world exist:¹

“Washington Consensus” Enthusiasm. The first source of conventional wisdom can be found in the “Washington consensus,” which is still reiterated by multinational investors and business advocacy groups, that asserts FDI is unequivocally “good” for development (as long as the investors do not pollute the environment or blatantly abuse workers), and the more FDI the host country can attract the better.²

Academic Skepticism. The second source of conventional wisdom is reflected in academic skepticism that any noteworthy relationship between FDI and development exists. From this perspective, “One dollar of FDI is worth no more (and no less) than a dollar of any other kind of investment.”³

Dirigisme Resurrected. The third source of conventional wisdom is found in the renewed conviction among (some) developing countries that host country development objectives can be achieved only by imposing performance requirements on multinational investors. The trade-and-investment agenda for the World Trade Organization (WTO), according to some prominent developing countries, must therefore be reshaped to allow host governments to force technology transfer, promote inputs of domestic origin, and ensure that backward linkages to the local economy occur.⁴

The chapters in this volume show that all three of these perspectives are inaccurate and provide misleading—or even harmful—advice about how developing countries might harness FDI to enhance their growth and welfare. To sort through the policy options available, policymakers

1. For the special problems of FDI in natural resources and in infrastructure, as well as in manufacturing, see Moran (2005).

2. For a retrospective evaluation of the “Washington consensus,” see Williamson (2003).

3. Dani Rodrik, Appel Inaugural Lecture at Columbia University, March 27, 2003. See also Rodrik (1999, 37).

4. Communication by Brazil and India on the need to amend the TRIMs agreement, in *Foreign Direct Investment and Performance Requirements: New Evidence from Selected Countries*, Geneva, UNCTAD, 2003, 38–39. Also, Development Provisions, WTO Secretariat note to the Working Group on the Relationship between Trade and Investment, June 11, 2002.

will want to know whether the evidence supports the view that host countries should

- make a concerted effort (including special incentives and subsidies) to lure foreign investors to choose their economy as a base for operations;
- simply open the economy to foreign firms without any special incentives; or
- advance their own development interests by insisting that foreigners share technology, production, and ownership with indigenous firms.

This conference volume addresses the controversial issues that are central to all three of these options.

New Methodologies and New Results in Measuring FDI's Impact on Development: Searching for Externalities and Spillovers

The studies in this volume start with the first option—which has always been the most severe research challenge—investigating whether it might be in the host country's interest to devote scarce domestic resources to attracting and incorporating FDI into its development strategy.

The answer depends in large part on whether an FDI project generates positive externalities ("spillovers") for the host economy. Positive externalities can be defined as benefits created by the project that are not appropriated by the foreign investor undertaking the project, nor by the factors of production (workers) employed by the project, nor by the suppliers to the project unless possibly the suppliers are able to expand their activity beyond that directly accounted for by the project. A positive externality would be created, for example, if sales to the foreign-controlled enterprise enabled suppliers to increase their efficiency and this resulted in lower prices to clients in the local economy other than the foreign-controlled enterprise.

Such externalities can justify a subsidy to be granted to the undertaking by public authorities, as explained in the study by Blalock and Gertler (chapter 4). The value of the subsidy, of course, should never exceed the value of the positive externalities generated by the project. This poses a challenge, however, because this latter value, as demonstrated in this volume, is extremely hard to calculate, so hard indeed that the extent to which FDI even in net creates positive externalities in developing host nations is subject to some uncertainty. As demonstrated in the studies of this section, past studies have produced highly diverse answers to the questions of whether externalities do exist and how great are their magnitudes.

In principle, it is clear that externalities might be created in a number of ways—via, e.g., movement of workers and managers who have been trained

by multinational firms into jobs outside those firms, such that the benefits of the greater “human capital” of these persons are captured by agents in the host economy other than the foreign affiliate; an increase in efficiency of suppliers (see above); leakage of technological and managerial information into the economy as a whole via channels other than suppliers or movement of workers and management; and “demonstration effects” whereby the success of one foreign investor induces other investors to come to the country. But measuring these is fraught with difficulty.

The studies in the first part of this volume provide insights into why externalities are difficult to identify and measure, while showing why past studies have produced such diverse results regarding the existence and magnitude of spillovers. Moreover, these studies suggest how externalities might be more rigorously identified and measured in the future.

Robert E. Lipsey and Fredrik Sjöholm

In chapter 2, Robert E. Lipsey and Fredrik Sjöholm begin their review of previous research by citing their own consternation at an inability to find a “universal relationship” between inward FDI and host country economic performance. Looking first at wage spillovers, they note that foreign firms consistently pay higher wages than domestic firms in both developed and developing countries, after controlling for firm-specific characteristics. Whether the higher foreign-paid wages lead to higher wages in domestically owned firms is more problematic in the studies Lipsey and Sjöholm review, although their own research in Indonesia shows significant spillovers. Investigating the possibility that foreign investors simply move into high-wage geographical locations or high-wage industries, Lipsey and Sjöholm’s research suggests that relocation does not cause the correlation. Instead, their findings show that a link between the multinational corporation’s presence and the higher domestic wage persists even as the geographical and industry breakdowns become finer.

With respect to productivity spillovers, the authors note that the earlier predominance among researchers who found no beneficial impact from FDI on domestic firms has been giving way to more positive results—a trend that is substantially reinforced from the findings reported in this volume. Reviewing studies on productivity spillovers in Indonesian manufacturing, Lipsey and Sjöholm note that all cross-section studies and three out of four panel data studies find statistically significant intraindustry spillovers (the one that fails to find intraindustry spillovers finds inter-industry spillovers instead). Spillovers are highest in sectors with vigorous competition.

In assessing whether any negative effects from FDI exist, Lipsey and Sjöholm note that studies depicting a “harmful” impact by exposing domestic firms to greater competition may miss an important analytical point: If

incoming FDI raises average productivity across foreign-owned and domestically owned firms, the outcome for the host country should be considered favorable, even if the least efficient local companies became unprofitable or were forced out of the industry.

Why, they ask, have previous studies come to such varied conclusions? Some analysts have blamed the differences in results on the use of panel data in some studies and cross-section data in others. Lipsey and Sjöholm's investigations, using different economic techniques and data sources, on Indonesian wages and productivity, however, show that this distinction is not crucial. Rather, the diverse results may be attributed, they suggest, to differences in the countries' ability to benefit from FDI, due to varying levels of indigenous human resources, to disparate degrees of private-sector sophistication, to differing levels of competition, and to contrasting host country policies toward trade and investment—all themes that resonate strongly in the other studies included in this volume.

Coming full circle on the impact of FDI on host economies, Lipsey and Sjöholm conclude that—absent consideration of these differences among the settings in which FDI occurs—“the main lesson might be that the search for universal relationships is futile.”

Beata Smarzynska Javorcik and Mariana Spatareanu

In chapter 3, Beata Smarzynska Javorcik and Mariana Spatareanu provide a new analytical framework within which researchers can investigate horizontal and vertical spillovers and externalities.

Looking first at horizontal spillovers, Javorcik and Spatareanu point out that researchers face the challenge of disentangling the positive impact of knowledge flows from the potentially negative short-run effect that an increase in competitive pressures from foreign entry may have on some domestic firms. Since it is difficult to capture each effect separately, in a vast majority of cases the research results reflect the combined effect of the two forces.

Javorcik and Spatareanu use surveys commissioned by the World Bank of local firms in Latvia and the Czech Republic in 2003 to assess managers' perception of whether the rising foreign presence in their sector has affected firm performance. For “knowledge spillovers,” the survey data identify two principal channels—the movement of labor (managers and workers) from foreign firms to host country companies, and the opportunity for host country companies to observe and imitate best practices and production techniques.

In terms of competitive pressures, 48 percent of Czech firms interviewed and 40 percent of Latvian enterprises believed that the presence of multinationals increased the level of competition in their sector. Almost 30 percent of firms in each country reported losing market share as a result of FDI inflow, and local firms also lost 6 to 10 percent of their employees to multinationals.

The implications for domestic company operations, as reported by the Latvian and Czech firms, were mixed. Firms reporting rising competitive pressures as a result of foreign entry enjoyed a larger increase in employment relative to companies that were not affected by FDI inflows, and experienced faster productivity growth. But firms reporting loss of a market share, which they attributed to foreign presence in their sector, experienced a much larger decline in employment and slower total factor productivity (TFP) growth than other firms.

Turning to vertical spillovers, Javorcik and Spatareanu draw on a survey of 119 majority-owned multinational affiliates operating in the Czech Republic. The results show widespread local sourcing of some kind: 90 percent of 119 multinationals surveyed reported that they purchased product inputs—not just services—from at least one Czech supplier, while the median multinational had a sourcing relationship with 10 Czech firms and a multinational in the top quartile had a sourcing relationship with at least 30 Czech firms. Furthermore, more than a tenth of respondents acquired all of their intermediates from Czech enterprises.

Javorcik and Spatareanu argue that isolating the extent to which vertical spillovers from foreign firms constitute true externalities is complicated, because there are at least three scenarios for the development of supplier relationships between local firms and foreign multinationals. The first possibility is “cherry picking”—that is, multinationals simply award contracts to the best local firms that are already at the required level of sophistication.

The second scenario is that potential suppliers experience what Javorcik and Spatareanu call a “positive productivity shock” after which they reach the performance level sufficient to obtain contracts from a multinational. This shock may include higher requirements demanded by the foreigner (e.g., International Organization for Standardization [ISO] 9000 certification to ensure compliance with internationally recognized standards for quality management) that mesh with the local firm’s own motivation to establish a new, superior business relationship (involving advance funding and/or more reliable payment when dealing with foreign affiliates). Supporting this second (“positive productivity shock”) scenario, 40 percent of all reporting Czech companies that acquired ISO 9000 certification indicated that they underwent the qualification process in order to become a supplier to the MNC. However, the MNCs did not consider the ISO certification requirement—or technical audits, which they also frequently required as a condition of becoming a supplier—as a form of direct assistance even though both served the Czech firms as a guide to correcting operational deficiencies.

The third scenario is that local suppliers improve their performance while supplying a multinational thanks to explicit assistance extended by the foreign investor. Supporting the third (“externality”) scenario, one-fifth of the 119 multinationals surveyed reported providing some type of direct support to the Czech companies they source from. Advance payment and

financing were the most frequent form of assistance; employee training and help with quality control ranked second and third. Other types of assistance included supplying inputs, lending/leasing machinery, providing production technology, organizing production lines, providing assistance with financial planning and business strategy, and facilitating introduction to export markets.

All three scenarios support the finding that the presence of foreign firms in downstream industries is positively correlated with higher productivity of domestic firms in the supplier industries. However, the “cherry picking” scenario would not necessarily involve externalities.

Garrick Blalock and Paul J. Gertler

In chapter 4, Garrick Blalock and Paul J. Gertler, like Javorcik and Spatareanu, use interviews with firm managers in Indonesia to illuminate the processes of technology transfer to suppliers, but they go considerably farther in demonstrating—rigorously—the presence of externalities that diffuse throughout the Indonesian economy and generate welfare benefits to both firms and consumers.

The authors’ interviews with Indonesian managers provide a detailed description of the assistance foreign investors offer to local firms. For example, before an Indonesian firm could qualify as a supplier an American investor would inspect the local factories, suggest modifications, and then ship their subsequent products for testing in the United States. Once design standards were met, the US firm would send Indonesian firm managers to the parent headquarters to master the multinational’s quality control, inventory control, and cost control systems, with future purchases dependent upon reliable performance. Japanese managers depicted a similar sequence, adding that they would introduce qualifying suppliers to related companies in their industrial group, in Indonesia and abroad. Their goal was to enable suppliers to maximize economies of scale and even out capacity utilization. In a reciprocal process, the Japanese affiliates would bring Malaysian and Thai—as well as Indonesian—suppliers into each other’s markets to increase competition and reduce dependence on a single supply source.

Moving from descriptive material to econometric analysis, using Indonesian data on manufacturing establishments that have been extensively and conscientiously collected by region since 1988, Blalock and Gertler show that FDI’s effect in augmenting suppliers’ productivity is large and significant. Their tests then find that this technology transfer to suppliers results in lower prices, increased output, higher profitability, and increased entry in the supplier market. Furthermore, lower supply prices lead to lower prices, increased output, higher profitability, and increased entry throughout the Indonesia economy. The economic returns to the host country exceed the private returns to the multinational investors and their direct suppliers.

As Gordon Hanson points out in his commentary, a rigorous test of FDI's impact requires isolating the relationship between changes in FDI and changes in domestic firm behavior without marring the investigation with other factors that might affect both simultaneously. Hanson notes Blalock and Gertler's exceptional achievement in isolating FDI's impact *per se* without the disturbing effects of other factors, finding an explicit control group in running regressions and checking for endogeneity. As Hanson notes, "this sort of external validation of FDI spillovers is all too rare in the literature."

In addition, Blalock and Gertler test whether FDI insures against market imperfections that limit credit availability during times of financial stress. They perform a "natural experiment" comparing the response of firms with foreign equity ownership to firms without foreign equity ownership during the 1997–98 Indonesian financial crisis. The results show that foreign investment is less vulnerable than domestic investment during an externally inflicted credit crunch.

Whereas liquidity constraints denied domestic exporters the opportunity to take advantage of the massive Indonesian devaluation, exporters with foreign ownership could access credit through their parent company and use the Indonesian economy as a base for expanded production and exports. Exporters with foreign ownership increased capital investment by 8 percent, domestic employment by 15 percent, and value added by 30 percent more than exporters without. Blalock and Gertler conclude that the ability of foreign firms to sustain investment during times of crisis provides a form of liquidity insurance and hastens economic recovery.

Asim Erdilek

In chapter 5, Asim Erdilek compares the research and development (R&D) activities of foreign investors with domestic firms, and investigates whether domestic firms are more likely to engage in R&D as the foreign investor presence in their sector grows. He uses highly disaggregated data and formulates new R&D indicators beyond those usually found in FDI and R&D literature.

Erdilek finds that MNCs undertake more R&D within the host country than domestic firms, which generates new production techniques that would otherwise not exist. Perhaps more notably, he shows that national firms increase their own R&D activities as multinationals expand in their sector.

Erdilek's data show that foreign establishments with the highest external ownership (81 to 100 percent foreign owned) have a lower propensity to engage in R&D internally than foreign establishments with lower external ownership. But this result must be interpreted carefully in light of the discovery reported later in this volume that MNCs are much more likely

to share their most advanced technology, quality control, and marketing procedures with their wholly owned or majority-owned foreign affiliates than with less closely controlled companies, which obviates the need for local R&D except for relatively minor customizing purposes.

Holger Görg and Eric Strobl

In chapter 6, Holger Görg and Eric Strobl argue that the traditional way of measuring technological externalities—productivity spillovers or improvements in domestic establishments' productivity—is too narrow. Quite apart from technological externalities, multinationals can affect indigenous performance through “pecuniary externalities,” which may affect entry, growth, and survival of plants in the host economy.

Unlike technological externalities, pecuniary externalities do not affect the production function of the benefiting firm, but rather improve the profitability of the firm via cost reductions or increases in revenues. When multinationals increase output, the demand for intermediate products also increases, which allows local suppliers to produce at a more efficient scale, reduces average costs, and lowers prices to all buyers, foreign and domestic.

Görg and Strobl's empirical estimations use plant-level data from the Republic of Ireland. Using a simple entry model, Görg and Strobl find that the influx of FDI has stimulated the entry of domestic plants in the same industry. Their simulations suggest that without MNCs the actual number of plants would have been considerably less: depending on the counterfactual, as much as 30 percent less. While admitting that their results are quite tentative, Görg and Strobl point out that this exploration of pecuniary externalities has not received much attention in the literature to date.

Ping Lin and Kamal Saggi

In an old joke, an economist is defined as someone who—discovering that something works in practice—wonders whether it will work in theory. Chapter 7, authored by Ping Lin and Kamal Saggi, actually tests the reality of the jest.

Lin and Saggi construct a model that captures two conflicting effects of FDI on local industry. On the one hand, they want to show that an MNC's entry decreases the market share of firms that directly compete with it in the final good market, thereby leading to a decreased demand for the required intermediate good. On the other hand, they also want to show that the MNC's entry expands the number of backward linkages as it locally sources the intermediate good.

Their model captures the complexity of the outcome when multinationals may have a negative impact on their local competitors but a positive impact

on local suppliers. Lin and Saggi's model demonstrates that the multinational's entry enlarges the extent of backward linkages if and only if its technological advantage over local competitors is not too large—in fact, under such circumstances, the effect of increased demand dominates the effect of increased competition.

Thus, rather impressive discoveries of spillovers and externalities pervade the studies in section I of the conference volume. Nevertheless, the authors have a decidedly skeptical view toward the justification for providing, as Gordon Hanson states, “the kinds of subsidies that many countries have begun to offer multinationals.”

To anticipate a discussion that will reappear in the concluding section of this volume—on the implications for policymakers—it is important to note that the provision of host country resources to attract and/or provide special treatment to foreign investors can take many forms. For example, host country support for foreign investment can be informational: a country can provide current economic and legal information in a “proactive” fashion to reduce a foreign investor's travel and research costs for comparing production sites. A host country can also entice foreign investors by providing skill-training programs and vocational institutions, modernizing infrastructure, creating industrial parks, and streamlining regulatory agencies, all of which will almost certainly benefit indigenous firms and workers as well. Finally, a host country can shower foreign investors with tax breaks and direct subsidies.

The concluding part of this volume will argue that policymakers should evaluate the wisdom of providing these types of FDI support separately, even when they suspect that there are likely to be positive externalities for the host economy of the kind shown here.

Aggregate Assessment of FDI's Impact on Host Country Growth

What is FDI's impact on host country growth? A large and growing body of literature uses aggregate FDI flows to test whether FDI accelerates economic growth, frequently showing evidence of a positive relationship between FDI and growth. Following Borensztein, De Gregorio, and Lee (1998), much of the research emphasizes that FDI is particularly growth enhancing after the host country acquires a minimum stock of human capital.

Maria Carkovic and Ross Levine

In chapter 8, Maria Carkovic and Ross Levine reassess earlier findings regarding FDI and economic growth, using two new databases that add to the comprehensiveness and accuracy about FDI flows in addition to new

techniques not used in previous studies. In particular, they utilize an estimator designed by Arellano and Bover (1995) and Blundell and Bond (1997) (ABBB) to correct deficiencies they identify in existing cross-country studies of FDI and growth. Carkovic and Levine argue that this (ABBB) estimator, which is a modified Generalized Method of Moments (GMM) estimator, is more appropriate to available panel data than one based on ordinary least squares (OLS). But, for comparison, they also run the same regressions using an OLS estimator.

The authors suggest that the ABBB estimator and their specification

- exploit the time-series dimension of the data to produce more precise estimates than do earlier studies;
- eliminate biases associated with traditional cross-country FDI-growth studies by controlling for any country-specific fixed effects;⁵
- control for the potential endogeneity of the explanatory variables to reduce estimation biases; and
- eliminate biases in the estimated coefficients and standard errors in current FDI-growth analyses by explicitly accounting for the inclusion of lagged dependent variables as regressors.

By providing both OLS and the ABBB estimation results, Carkovic and Levine seek to provide a more accurate assessment of the FDI-growth relationship than past aggregate studies, demonstrating—in particular—that the latter estimator fails to demonstrate a robust exogenous effect of FDI on growth under specifications where the former does show such an effect.

Thus, in marked contrast to earlier work, Carkovic and Levine conclude that FDI does not exert a robust, independent impact on economic growth when other factors are taken into account. Even if host countries raise their average years of schooling, they find that FDI flows do not appear to boost growth. Carkovic and Levine argue that while sound host country economic policies may spur both growth and FDI, their results are inconsistent with the view that FDI accelerates growth as a general proposition.

Bruce Blonigen and Miao Grace Wang

In chapter 9, Bruce Blonigen and Miao Grace Wang disagree with Carkovic and Levine. They focus on an issue that often goes unnoticed in empirical

5. They accomplish this by introducing a country-specific variable that is assumed to be time-invariant, and then eliminating it by first-differencing independent variables in the time dimension. This is appropriate if country-specific effects are fixed (time-invariant). For more discussion of this approach, see the concluding section of this volume that identifies areas for further research.

cross-country studies of FDI—the use of databases that combine evidence from developed and developing countries. Pooling data this way inherently assumes, Blonigen and Wang point out, that the determinants and effects of FDI are identical for developed and developing countries even though theory often suggests that they may fundamentally differ. As a result, inferences derived from studies with pooled data may be incorrect or misleading for one or both types of countries.

Blonigen and Wang investigate the sensitivity of results when rich and poor country data are pooled for three different types of empirical FDI research: research on the determinants of cross-country FDI activity; research on the effects of FDI on country-level growth; and research on the issue of whether FDI crowds out (or crowds in) domestic investment in the host country. In all three areas, they find evidence that commingling wealthy and poor country data is a faulty method of investigation and leads to mistaken conclusions.

When data are kept segmented, the authors find that vertical motivations for FDI, for example, are more likely to predominate in investment flows to low-wage countries than to high-wage countries, and that FDI is much less likely to crowd out domestic investment in less developed countries than in developed countries. Indeed, in related work, Miao Grace Wang (2004) shows that FDI crowds in domestic investment in non-OECD countries—by stimulating backward or forward production linkages—whereas no such effect is evident in OECD countries.

Looking specifically at the debate about the FDI—host country growth relationship, Blonigen and Wang find that inappropriate pooling of data from developed and developing countries is responsible for estimating insignificant effects of FDI on per capita GDP growth. When mixing of the different bodies of evidence is avoided, they find that FDI does have a significant impact on per capita growth in less developed countries, in a pattern similar to the one found by Borensztein, De Gregorio, and Lee (1998), once a threshold in educational levels has been exceeded. Their estimation techniques employ an OLS estimator with panel data.

Can the apparently contradictory findings about the relationship between FDI and growth from authors Carkovic and Levine and Blonigen and Wang be reconciled? In his commentary, Marc Melitz argues that the answer is yes.

When Carkovic and Levine examine the impact of FDI on host country growth, with controls for initial per capita GDP, skill abundance, inflation, and government size, Melitz points out, their baseline results actually confirm the finding of Blonigen and Wang that above (historical) average levels of FDI are significantly correlated with above (historical) average growth rates. Even in the version of their analysis using the ABBB estimator, Carkovic and Levine's dismissal of the link between FDI and growth comes only after they introduce controls for trade openness and domestic financial credit. This leads Carkovic and Levine to the conclusion that FDI has no independent effect on host country growth.

Melitz notes, however, that the increasing presence of MNCs among developing countries—as Blonigen and Wang point out in their criticism of faulty pooling of data sources—is likely driven more by vertical production relationships than the horizontal FDI relationships that are more prominent among developed countries. Vertical FDI in turn strongly depends upon low trade barriers. Expanded channels of trade are a necessary complement to FDI in which intermediate inputs are imported by the foreign affiliate and exported as a processed product.

Thus, Melitz argues, the results reported by both Carkovic and Levine and Blonigen and Wang seem to point in the same direction. Joint changes in FDI and trade are significantly correlated with growth—increases in FDI that come along with increases in trade lead to higher rates of increase in host country GDP. Indeed, in this light, Melitz concludes it could actually be argued that Carkovic and Levine provide a new underpinning to the FDI-trade-growth relationship by showing that this correlation is not driven by unobserved country characteristics.⁶

Why do changes in FDI that are not accompanied by changes in trade fail to contribute independently to economic growth in economic countries?

Melitz notes that one answer (drawing on the next set of studies in this volume, particularly Moran) might derive from restrictive policies toward FDI on the part of some countries—prohibiting majority ownership, imposing joint venture partners, dictating domestic content requirements, protecting local markets—that impose substantial performance penalties on the affiliates and prevent the integration of host country production into the MNCs' international sourcing networks. Increases in FDI in countries with such restrictive policies are not likely to be linked with increases in trade, and could well be associated with declines in trade as affiliate production substitutes for imports. Increases in FDI in countries with more liberal investment policies, in contrast, are likely to lead to joint increases in trade and FDI as affiliates import intermediates and reexport finished products back into the parent's supplier chain, with a positive impact on host country growth.

Susan E. Feinberg and Michael P. Keane

The potent interaction between trade and investment, as mediated within multinational corporate networks, is highlighted in the discoveries of Susan E. Feinberg and Michael P. Keane in their study of the special characteristics of firms that are organized to trade internally. In chapter 10, they ask whether MNCs that are organized to trade intrafirm in developing countries operate differently from MNCs with little or no intrafirm trade.

6. For the continuing controversy among Carkovic and Levine, Blonigen and Wang, and Melitz, see the concluding section of this volume, on implications for further research.

In their previous research on MNCs in the United States and Canada, Feinberg and Keane discovered that MNCs that were organized to trade intrafirm were more dynamic technologically than MNCs with no intrafirm trade. In the context of US-Canada trade liberalization, as MNCs expanded their intrafirm trade they transformed the nature of the parent-affiliate relationship, by substantially increasing the production share of bilateral intrafirm shipments of intermediates.

Canadian manufacturing affiliates became more intimately integrated into the MNC's global strategy. Knowledge flows, production coordination, reporting links, and other communication channels expanded both with the US parent and with other foreign divisions of the MNC. This phenomenon that Feinberg and Keane call "deep integration" was supported by both quantitative data and qualitative interviews with managers of MNC affiliates in Canada.

Their results refute the popular conviction in Canada that reduction in tariffs vis-à-vis the United States would "hollow out" Canadian manufacturing. Overall, bilateral trade liberalization was trade creating, as production integration within US MNCs led Canadian affiliates to increase their sales to the United States while the US parents expanded sales in the Canadian market. The result was a win-win process for workers and communities on both sides of the US-Canadian border and elsewhere where the MNC had operations.

Feinberg and Keane extend their analysis to affiliate activity in 48 other developing countries from 1983 to 1996 and discover that MNC affiliates that are organized to trade intrafirm tend to be part of much larger and more active MNC networks (measured either in terms of total foreign sales or number of affiliates) than affiliates that are not. These affiliates generally grow faster and pay higher real wages than affiliates that do not trade intrafirm. They also differ systematically in terms of technology and organization. These affiliates are significantly more likely to have intrafirm trade with the MNC parents, in both directions.

If the US-Canadian experience is a guide, Feinberg and Keane predict that this integration of operations among developed and developing economies could potentially generate dynamic benefits, such as transferring best practices in production and quality control as well as exchanging knowledge about advances in logistics and transportation across developing-country borders.

Feinberg and Keane's observations about the internal integration of production among home and host country affiliates reinforces the findings of both Carkovic and Levine and Blonigen and Wang—as synthesized by Melitz—that rising levels of trade and foreign investment must go together to ensure a positive impact on host country growth. These findings carry a clear policy implication: There is likely to be an important synergy between liberalization of trade and liberalization of investment, leading developing countries to more productive use of local resources and (*ceteris*

paribus) higher domestic growth rates when both occur simultaneously. This is a central theme in the chapters that are collected in the third section of this volume.

Designing Policies to Capture Beneficial (and Avoid Harmful) Economic Impacts of FDI

The studies in this section go well beyond the findings of “diverse” impacts of FDI on a host country economy. The authors identify the conditions under which FDI can be most beneficial and least beneficial—or most harmful—to host country development.

Theodore H. Moran

Expanding on earlier investigations of the relationship between FDI and development undertaken at the Institute for International Economics, in chapter 11 Theodore H. Moran finds a substantial difference in operating characteristics between subsidiaries that are integrated into the international sourcing networks of the parent multinationals, and subsidiaries that serve protected domestic markets and are prevented by mandatory joint venture and domestic content requirements from being so integrated. These different operating characteristics include size of plant, proximity of technology and quality control procedures to the international frontier, speed with which production processes are updated, efficiency of operations, and cost of output. The former subsidiaries have a more positive impact on the host country, often accompanied by vertical backward linkages and externalities of the kind noted by Javorcik and Spatareanu as well as Blalock and Gertler. The latter subsidiaries have a much less positive—and sometimes demonstrably negative—impact on the local economy.

Using detailed case studies of FDI, sector by sector, Moran demonstrates this contrast in performance first in Mexico, Brazil, Malaysia, and Thailand, and then extending across different countries, industries, and time periods. Far from being “anecdotal” in the sense that any random new observation may overturn a previous conclusion, he shows that case study analysis, carefully structured to avoid selection bias and to yield generalizable results, can be an important supplement to statistical analysis.

This difference in affiliates’ performance takes the contention of Lipsey and Sjöholm—that perhaps the search for a single universal impact from FDI on the host economy is futile—one step further. Moran’s evidence in chapter 11 shows clearly that FDI in manufacturing and assembly does not have one distinct impact on host country development, but rather two clearly divergent effects—the first beneficial, the second harmful.

On the positive side, Moran shows that when parents use affiliates as part of their strategy to remain competitive in international markets they maintain those affiliates at the cutting edge of best technology, management, and quality control. They coordinate production through whole or majority ownership, with freedom to source without reference to domestic content requirements. This model of “parental supervision” meshes closely with the “deep integration” of Feinberg and Keane that provides such powerful benefits through intrafirm trade. It reinforces the earlier finding of Blomström, Kokko, and Zejan (1992) that host countries are likely to receive greater amounts of technology and more advanced production and quality control processes in their domestic economies by not imposing ownership limits or technology sharing mandates on foreign investors than by enacting regulations to force technology sharing.

On the negative side, Moran reproduces cost-benefit analyses showing that a sizable fraction of FDI projects designed for import substitution and protected by trade restrictions actually subtract from host country welfare and—as suspected by Melitz—hinder host country growth. Mandatory joint venture requirements lead foreign investors to use older technologies. Domestic content requirements raise foreign affiliate production costs and hinder exports. The resulting performance penalties effectively preclude the emergence of protected infant industries as world-class competitors.

Moran argues that failure to differentiate between export-oriented FDI and import-substitution FDI, between foreign investors free to source from wherever they wish and foreign investors operating with domestic content requirements, or between foreign investors obliged to operate as minority shareholders and foreign investors with whole or majority ownership, accounts for the inability of earlier studies—such as the oft-cited works of Aitken and Harrison (1999) and Haddad and Harrison (1993)—to make sense of how FDI impacts a host economy.

Guoqiang Long

China is now the largest recipient of FDI in the world. New data on foreign investor behavior in the Chinese market, collected by Guoqiang Long in chapter 12, confirm both the disadvantages of using joint venture and other performance requirements on foreign investors to try to build an advanced industrial base in the host economy, and the benefits of liberalizing investment regulations and exposing foreign as well as domestic firms to international competition.

In a survey of 442 multinational firms operating in China, Long found that foreign wholly owned and majority-owned firms were much more likely to deploy technology as advanced as that used by the parent corporation than firms that had 50-50 shared ownership or firms with majority indigenous ownership. Approximately 32 percent of the foreign wholly

owned firms and approximately 40 percent of the majority foreign-owned firms used technology in the Chinese market as advanced as in the parent corporation, whereas only approximately 23 percent of the 50-50 shared ownership firms and approximately 6 percent of the majority indigenous Chinese-owned firms used technology as advanced as in the parent company.

Looking specifically at the automobile industry, China's "swap market for technology" strategy provided trade protection to foreign automobile companies that were willing to operate with Chinese joint venture partners who owned 50 percent of the shares. But the lack of competition in the protected domestic market led to what Long labels a "contradiction" in the swap market for technology approach, with foreign investors turning out models that were increasingly outdated.⁷ As China lowers its import barriers to conform to WTO standards, Long observes, market competition has led the foreign automobile firms to introduce newer and more technologically advanced models. He notes that the automobile industry remains one of 75 industries in which foreign companies are required to operate in 50-50 joint venture partnerships. This shows that China's liberalization of foreign investment, like its liberalization of trade, is still far from complete.

Todd J. Moss, Vijaya Ramachandran, and Manju Kedia Shah

In contrast to China's increasingly enthusiastic reception of FDI, African leaders and their general population have remained much more skeptical about the benefits of allowing MNCs to enter their economy. In chapter 13, Todd J. Moss, Vijaya Ramachandran, and Manju Kedia Shah investigate whether Africa's ongoing wariness about FDI is justified.

Moss, Ramachandran, and Shah use new firm-level survey data from the World Bank's Regional Program on Enterprise Development for Kenya, Tanzania, and Uganda to examine some of the common criticisms of FDI in Africa. They investigate the differences between domestic and foreign-owned firms, including firm size, productivity, management, training, trade, investment, and health benefits.

The authors' data suggest that FDI makes positive contributions to workers in the foreign-owned firms and to the host economy more generally. The three-country sample shows that foreign firms are more productive, bring new management skills, invest more heavily in infrastructure and in the training and health of their workers, and are more connected to global markets. Furthermore, foreign firms create value added per worker

7. For complementary evidence about the deleterious impact of performance requirements on the auto industry in China, see X. Wang (2004).

approximately twice as high as domestic firms, and their export to output ratio is more than three times as high. They are nearly twice as likely to have a formal training program for workers. Foreign firms provide on-site medical care more frequently as well as accident compensation and insurance. MNCs also invest a greater share of profits back into the firm and report a higher percentage of revenue for tax purposes. Foreign firms invest in infrastructure: 80 percent have their own generators and 28 percent have their own well (versus 26 percent and 9 percent for domestic firms, respectively). These investments in infrastructure suggest three implications. First, this could be viewed as a positive sign that companies are investing for the long term and are contributing to the country's infrastructure development. Second, this confirms that foreign firms find the general business environment a significant barrier to operation. Last, the greater relative investment also suggests that foreign firms are better capitalized to overcome these deficiencies than local firms.

Econometric tests performed by Moss, Ramachandran, and Shah show that the success of foreign firms does not derive by exercising market power or crowding out local industry. In terms of backward linkages, foreign investors rely on local suppliers for 44 percent of their inputs. Based on these results, Moss, Ramachandran, and Shah conclude that many of Africa's lingering objections to FDI are exaggerated or false.

In his commentary, Robert Lawrence exhibits more sympathy for the legacy of suspicion about the benefits of FDI in Africa, noting that much of the nonextractive investment in Africa has been associated with efforts at import-substituting industrialization. Applying the Moran distinction between FDI in protected versus open policy settings, Lawrence notes that the foreign firms' superior performance may not always have enhanced host country growth and welfare. African leaders may have viewed foreign investor behavior for much of history as a successful chase after locally generated rents, with highly protected infant industries repeatedly failing to grow up.

African leaders have not had the experience, notes Lawrence, that Long records for China, where foreign investors have increasingly become a channel to integrate the Chinese economy into world markets. Along the way, China used both sticks and carrots to affect foreign firm behavior. Applying Moran's framework to China, according to Lawrence, would be to conclude that China has succeeded despite the sticks rather than because of them. Applying it to Africa would be to conclude that superior foreign firm performance would be certain to provide greater benefits to countries like Kenya, Tanzania, and Uganda if the FDI occurred in economies that had fewer protections and distortions.

Thus, the studies in this part combine with those in parts I and II to help authorities in developing and developed countries address policy issues associated with FDI and to help future researchers build upon and improve the kinds of investigations provided in this volume.

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