
Conclusions and Implications for FDI Policy in Developing Countries, New Methods of Research, and a Future Research Agenda

THEODORE H. MORAN, EDWARD M. GRAHAM,
and MAGNUS BLOMSTRÖM

How do the results presented in this volume help answer the question, “What is the impact of foreign direct investment (FDI) on development?”¹ The evidence gathered in this volume demonstrates that a search for a “universal result” of FDI on a developing-country economy is simply misguided. FDI can have dramatically differing impacts—both positive and negative.

On the positive side, when FDI occurs under reasonably competitive conditions—in particular, with low barriers to trade and few restrictions on operations—foreign firms, or multinational corporations (MNCs), can help the host country conduct activities its economy is already engaged in more efficiently. Or—even more valuable—FDI can bring entirely new kinds of activities into the host economy, changing the production possibility frontier—the development trajectory—available to the country. Far beyond simply adding more capital to a host economy, FDI can be the conduit to the cutting edge of research and development (R&D), production technology, and management expertise in use around the world. FDI truly becomes “trade on steroids” with strongly favorable—not harmful—implications for host country development.

1. The conclusions and policy implications presented in this chapter represent the views of the editors—Theodore H. Moran, Edward M. Graham, and Magnus Blomström. There has been no attempt to have the contributors to this volume come to a “consensus view.”

FDI can generate spillovers and externalities in a horizontal and—more often—in a vertical direction. FDI can increase competition in individual sectors and demonstrate to local firms how to meet that competition. FDI can even impart “positive productivity shocks” to motivate indigenous firms to raise their performance and improve their quality.

FDI can provide explicit assistance and coaching to local firms that want to become suppliers. As part of this assistance, foreign investors can introduce host country companies to members of the investors’ network in other countries and to international markets more generally. Furthermore, FDI can lower input prices, increase demand, and improve local firm profitability as well as bring new, better, and cheaper goods and services to consumers. When accompanied by increases in trade, larger flows of FDI can enhance economic growth.

To be sure, these outcomes may not happen in a uniform way in every case, and—as discussed later—when host countries undertake multiple liberalizing reforms simultaneously, it is likely to be difficult to separate out just exactly what specific benefits derive from specific sources. FDI does not guarantee that all of these positive results will occur in all countries—they may be subject to varying human resource, financial system, and institutional constraints.

On the negative side, FDI in protected host country markets leads to an inefficient use of local resources and subtracts from local economic welfare. Foreign investors in countries with domestic content, joint venture, and technology sharing requirements deploy production techniques lagging far behind the frontier in international industry. Foreign affiliates with older technology and less efficient plants are not good candidates to develop from an infant industry to a robust world competitor.

Investment restrictions and trade restrictions affect foreign investors’ backward linkages into the host economy. Local firms that sell to foreign affiliates in protected markets are often subscale in size and inefficient in operation; they seldom have strong exports. FDI under restrictive and distortionary conditions is not associated with developing a world-class supplier network in the host economy similar to the kind found under more competitive conditions. In fact, investment restrictions combined with trade restrictions hinder host country growth.

Implications for Policy Toward FDI

The dichotomy in outcomes in the studies gathered in this volume provides a framework to address the policy issues that opened this volume—namely, whether host country development is best promoted by imposing performance requirements on foreign investors and requiring them to share technology with indigenous firms, simply by allowing foreign investors access to all (or most) domestic sectors, or by providing special

incentives and subsidies to lure foreign investors to choose the host economy as a base for operations.

The studies collected in this volume provide clear guidance for the first of these queries: The evidence cannot in any way be taken to support the contention that host country development objectives would be served by levying performance requirements or imposing other restrictions on FDI or on trade and investment together.

Quite to the contrary, the kinds of measures resurrected by some developing countries (i.e., domestic content requirements, joint venture mandates, and technology sharing regulations) are precisely the kinds of host policies most likely to interrupt the “intrafirm trade” and “parental supervision” shown in this volume to be so potent for host development. These restrictive measures lead to outdated technology, inefficient production processes, and wasteful use of host country resources.

Most strikingly, as Robert Lawrence reads the evidence presented here, in protected and distorted economies, a little bit of FDI is likely to worsen the economic welfare of the host a little, while a lot of FDI is likely to worsen the economic welfare of the host a lot more.

What about the latter two queries: To serve their interests most effectively, should host governments simply open their economies up to greater trade and investment, or expend resources to attract and fulfill foreign investor demands? The answer to whether to expend resources to attract and fulfill foreign investor demands is more complicated than a simple yes or no.

The Question of Providing Incentives and Subsidies to Foreign Investors

In chapter 4, Garrick Blalock and Paul J. Gertler provide the most extensive exposition of the argument that externalities justify providing incentives and subsidies to foreign investors. The creation of externalities means that foreign investors cannot appropriate for themselves all of the benefits that their activities bring to the host economy. From the host country’s perspective, under these conditions, MNCs tend to underinvest in comparison to what would be optimal from the host’s point of view. Thus, the host country’s policy goal should be to expend resources to move the foreign investors toward that optimal level of investment. The introduction to this volume noted, however, that the analysis of providing incentives to attract foreign investors—even when externalities are present, as shown in the Blalock and Gertler data—should not be limited to whether or not a host country should merely push money toward MNCs (Blomström and Kokko 2003).

Investment flows depend upon macro, micro, and institutional reforms—low inflation rates, realistic exchange rates, reasonably efficient legal and

regulatory systems that protect property and reward savings and investment, low levels of corruption—that create favorable conditions for business operations in general.² Beyond this, there are three broad categories of “investment promotion” expenditures that are regularly associated with host efforts to attract foreign direct investors.

The first category of expenditures focuses on providing information to potential investors in an effective and timely manner—including the creation of an efficient investment promotion agency, which is staffed to provide customized investment proposals, ready to brief MNCs at their headquarters, and backed by up-to-date Web sites with current economic and legal data as well as links to established investors (“satisfied customers”).

The second category of “investment promotion” expenditures needed to make a host country a serious contender for foreign investment includes modernly equipped industrial parks, well-functioning infrastructure, and effective vocational and skill-training institutions suited to the investors’ generic (if not industry-specific) human resource needs.

To complete the list, the third category of “investment promotion” expenditures involves meeting foreign investor demands to provide tax breaks and direct subsidies at least equivalent to other host countries in the region.

China, for example, introduced what was to become a highly successful model of investment promotion beginning in the middle 1980s, via the establishment of its “special economic zones” designed to attract foreign investors (Graham 2004). Originally, these zones were meant to be experiments with economic reform, at a time when Chinese economic policy remained quite Communist in direction even though the Deng Xiao Ping “reformist” faction shared power in Beijing with the more orthodox Li Peng faction. Over time, these zones became what amounted to havens for foreign investors, where these investors received special treatment, including most importantly insulation from the stultifying regulations associated with Communist doctrine. The zones also provided much-upgraded infrastructure, particularly in telecommunications and logistics, than was available elsewhere in China. At the same time, the Chinese central government in Beijing allowed local governments to engage in “policy experimentation” in the zones in their territories, with this experimentation turning into effective “policy competition” as each zone tried to make itself more attractive to foreign investors than competing zones. This included some positive incentives for investors, including tax relief, duty-free importation of capital goods, and provision of trained workers. Finally, it included insulation from much of the corruption that had become endemic in the largely state-owned industrial sector of China. In short, the zones provided each of the three types of investment promotion discussed above.

2. See the *International Country Risk Guide 2004*, *Institutional Investors Ratings 2004*, *Competitiveness Indicators of the World Economic Forum 2004*, and *Transparency International 2004*.

During the late 1980s, these zones attracted cumulatively at least \$6 billion in FDI, small figures compared with recent flows to China but enormous by the standards of the 1970s or even the early 1980s. By 1990, a number of new zones had been created, some of these designated as “economic and technical development zones” for which the legal framework was somewhat different than for the original special economic zones. In 1991, acting largely on the basis of the success of the special economic zones and the economic and technical zones in attracting FDI, China removed many restrictions on foreign investment elsewhere in the economy so that the benefits of location in these zones to foreign investors was reduced. Even so, to this day, a large percentage of FDI to China flows into the zones or into newer industrial parks located close to the zones, largely because these zones and proximate areas still provide better infrastructure than available in most other areas of China.

An examination of the most thoroughly researched case of a developing country’s attempt to attract foreign investment—the case of Costa Rica and Intel in 1996—suggests that these three types of expenditures noted above need to be evaluated separately (Spar 1998). To “market” the country, Costa Rican authorities suspected from the beginning that they would have to grapple with less than perfect information markets.³ Costa Rica had an unusual reputation for political stability in comparison to other Central or Latin American countries. In the early 1990s, the country already had an FDI base concentrated in low-skilled garment factories. But Costa Rican officials nonetheless doubted that their economy would pop up automatically on the horizon of the more advanced manufacturing investors with no experience in their country that they hoped to recruit, in contrast to China, which by 1996 was on the horizon of just about every such investor.

To launch the search for MNCs in medium- and higher-skilled activities, Costa Rica devoted up front resources to restructure the country’s investment promotion agency, CINDE (Coalición Costarricense de Iniciativas para el Desarrollo), by staffing it with high-paid personnel, specially trained to prepare feasibility studies tailored to meet the needs of the new target companies. The government realized that CINDE would need operating and travel funds for several years before any concrete results could appear.

In the effort to catch Intel’s attention, Costa Rica discovered—as predicted—that the country was not even on the long list of prospective production sites Intel was considering until CINDE pushed its national name into view. Even then—despite what Debora Spar calls “assiduous” campaigning with unsolicited project proposals—it took more than two

3. Eduardo Alonso, *Trade and Investment Promotion: The Case of CINDE in Costa Rica, 2000*, presentation at the Inter-American Development Bank, Washington, September 18, 2001.

years even to wrangle an appointment with senior Intel management, traveling (of course) at CINDE's own expense to the semiconductor MNC's headquarters in California.

As for host country expenditures on infrastructure and on worker training, Costa Rica had to address Intel's concern about the risks associated with operating in an untried locale where delays in shipment, production downtime, or inadequate staffing would not only cost the parent money but reduce the "lead time over rivals."⁴ To qualify for a spot on Intel's "short list" of production sites for assembly and testing of its latest Pentium microprocessors, the government committed itself to construct a new cargo terminal at the national airport, to build a new electric substation dedicated to meeting the power needs at Intel's plant, and to create special vocational training programs designed jointly by Intel and the Costa Rican Institute of Technology.

In closing the deal, Costa Rica provided tax breaks to Intel: full exemption from income taxes for the first eight years of operation and a 50 percent exemption for the next four. CINDE asserted that it had no choice but to match the tax treatment available from the other alternative sites Intel was considering (Indonesia, Thailand, Brazil, Chile, and Mexico) (Alonso 2001).

CINDE hoped that securing the Intel plant would have a "signaling" or "demonstration effect" that would influence the decisions of other foreign investors. As it turned out, Costa Rica tripled its stock of foreign investment in the subsequent three years, to a total of \$1.3 billion, with exports totaling \$3.3 billion annually—allowing the country to overtake Chile as the most export-intensive country in Latin America. A survey of 61 foreign multinationals showed that 72 percent (36 in electronics, 13 in medical devices, 3 in business services, and 9 in other sectors) weighed Intel's choice of Costa Rica heavily in their own calculations (Larraín, Lopez-Calva, and Rodriguez-Clare 2001).

Costa Rica's government acted—the investment promotion authorities admitted (Alonso 2001)—without any but the most intuitive calculation of the potential for positive spillovers from Intel's operations to local firms, workers, and communities and later from the operations of Motorola, Abbott Laboratories, Baxter Healthcare, Procter & Gamble, FedEx, and others. The only concrete point of reference was that the new Intel factory would employ approximately 3,500 workers with average wages approximately 50 percent higher than elsewhere in the domestic manufacturing sector (\$3.36 per hour at Intel versus \$2.21 elsewhere).

Should other developing countries follow what has come to be known as "the Costa Rica model"?

4. Intel manager quoted in Spar (1998, 5).

With regard to providing up-to-date information tailored to meet investor needs, Dani Rodrik and Ricardo Hausmann (2004) argue that host country public spending on foreign investment feasibility studies provides “informational externalities” that the market does not supply on its own. The Foreign Investment Advisory Service of the World Bank Group has found that the social returns from reducing search costs for foreign direct investors, enhancing credibility of information, and facilitating site comparisons are quite high: a net present value of almost four dollars for every dollar spent.⁵

With regard to expenditures on infrastructure and skill-building institutions, host authorities trying to attract first-time investors in nontraditional sectors face a challenge similar to a used car dealer trying to help a buyer overcome the fear of making an expensive purchase and being stuck with a potential “lemon” (Akerloff 1970). Unlike used car dealers, however, host governments cannot eliminate the investor’s risk by offering a warranty, but host authorities can reduce the investor’s risk by addressing the most likely sources of trouble (e.g., port congestion, power failures, and skilled-manpower shortages). Faced with making “irreversible commitments under uncertainty,” Avinash Dixit and Robert Pindyck (1994) find that calculations of high profitability may be a relatively weak motivator of new corporate investment in comparison to concrete actions by the host that narrow the scope of uncertainty surrounding the project.⁶ The rationale for public expenditures on improvements in infrastructure and in vocational education to attract foreign firms is strengthened by the likelihood that they will improve the business environment for indigenous firms as well.

What about awarding tax breaks to foreign investors?

The Costa Rican case highlights a policy dilemma of increasing importance to both developing and developed countries. Over the past two decades, there has been an escalation in the packages of tax breaks, incentives, free land, below-market-priced office space, and other subsidies that both developed and developing countries have been offering to attract multinational investors, and/or to keep home country investors in place (Thomas 2000).

Developed—and not developing—countries have led the increase in incentive packages. Ireland was a leader, awarding special incentive packages to more than 1,200 foreign firms between 1980 and 2000. German grants to firms settling in the former East Germany have grown to exceed the already generous treatment European Union (EU) members awarded

5. See Wells, Jr. and Wint (2000). A survey of 25 African investment promotion agency Web sites, in contrast, showed a lack of up-to-date economic or legal information, and few usable links to key ministries or existing investors.

6. See Dixit and Pindyck (1994). As shown in the Costa Rica case, such host country expenses may play both a risk-reducing and a signaling role.

to investors in lagging regions. US locational subsidies to national and international firms from state and local governments have risen from \$27,000 per job created in the mid-1980s to approximately \$200,000 per job created in the late 1990s.

Developing countries have been drawn into this competition for FDI. However, although the availability of tax breaks and direct subsidies has grown, the amounts are not as large and the deployment is not as effective as in the developed economies (Shah 1995).

Traditional analysis assumed that multinational investors did not base their locational decisions on tax considerations, and that there was little competition between developed-country and developing-country production sites. Both of these assumptions are being challenged by contemporary econometric research that shows multinational investors becoming more responsive to locational incentives and competition growing between developed- and developing-country sites (Mutti 2003; Altshuler, Grubert, and Newlong 2001). Using data from 48 developed and developing countries, John Mutti shows that over the past two decades the responsiveness of international investors to locational incentives has grown, and that sensitivity to tax competition is particularly pronounced for production destined for international markets.

In fact, the propensity of MNCs to base their decisions about locations on host country tax policy is strongest for plants producing manufactures for export from the developing world. Here Mutti finds that tax measures to reduce the cost of capital by 1 percent raise MNC production in the manufacturing sector of the host country by approximately 3 percent.

This escalation of revenue giveaways has made the need for a public policy solution increasingly apparent: developed and developing countries have a common interest in working together to cap and control tax breaks and locational subsidies on an international basis. Past efforts to impose restraints on host country treatment of potential investors—within an Organization for Economic Cooperation and Development (OECD) context—have had, at best, only very modest success (Thomas 2000). It would be mutually advantageous for developed and developing countries to try again with new vigor imposing limits within a multilateral framework. Developing countries might be allowed two tiers of locational incentives, with least developed hosts graduating to middle-level status according to an automatic formula (Mutti 2003, chapter 4).

Instead of competing to match whatever tax treatment was available from other jurisdictions, developing countries could devote more of those resources available for investment promotion to overcome imperfections in the supply of information, make infrastructure improvements, and launch education and training initiatives that can benefit foreign and indigenous firms alike.

Besides international agreement to limit competition in tax giveaways, the analysis presented here—in particular, the differentiation between

“harmful” FDI and “beneficial” FDI—points to two other areas in which developed- and developing-country interests overlap.

Developed Country Support for Outflows of “Harmful” FDI?

As illustrated in this volume, the “Washington consensus”—that FDI is “good” and more is always better than less—was, and is, incorrect. It is not in developing countries’ interest to have FDI that depends upon trade restrictions and/or other protection from competition to survive. Nor is it in developed countries’ interest to have inefficient, welfare-harming—and trade-reducing—FDI flowing from the home economy to the host.

Yet a survey of national political risk insurance agencies in 21 OECD countries whose mission is to support outward flows of FDI to developing countries shows that 19 (including the Overseas Private Investment Corporation of the United States, and equivalents in the United Kingdom, Canada, France, Germany, Italy, and Japan) do not screen projects to eliminate those that require protection to survive.⁷ The Multilateral Investment Guarantee Agency (MIGA) and International Finance Corporation (IFC) of the World Bank Group, as well as the investment guarantee programs of the Inter-American Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the African Development Bank must be added to this list.

These official and quasi-official political risk insurance agencies look at the commercial viability of the project—as well as other environmental and social criteria such as compliance with core labor standards—to qualify it for coverage. But “commercial viability” can be misleading. Protected FDI projects are often highly profitable. In fact, protected investors value political risk coverage, especially breach of contract coverage, to preserve their status quo arrangements. As Moran notes in chapter 11, Chrysler’s boutique auto assembly plant in Mexico during the country’s import-substitution period was the company’s most profitable operation anywhere in the world. Hewlett-Packard, Apple, and Compaq lobbied *against* the liberalization of Mexico’s computer sector in order to preserve their ability to exact a second round of oligopoly rents from 2- to 3-year-old technology for models priced 130 to 170 percent higher than world prices.

But taxpayers in developed countries do not have any reason to back government-supported political risk insurance for FDI projects that lower developing-country welfare and impede trade expansion. The interests of both developed and developing countries would be served by a joint agreement among official political risk insurance agencies to screen out, and not support, FDI projects that are launched with trade protection.

7. The 2004 Commitment to Development Index, Foreign Policy Magazine/Center for Global Development, *Foreign Policy*, May/June 2004.

A Common Developed- and Developing-Country Agenda for Trade and Investment Negotiations Within the WTO Framework

The trade and investment agreement that emerged from the Uruguay Round—the Trade Related Investment Measures (TRIMs) Agreement—committed all countries to phase out domestic content requirements and import-export balancing requirements imposed upon foreign affiliates. Developed countries had two years to end the use of these measures, while developing countries had five years and least developed countries had seven years.

Both developing and least developed countries were allowed to petition to extend their phaseouts. Concerned that foreign affiliates with domestic content requirements would be uncompetitive—a concern that the evidence presented in this volume has shown to be well founded—several developing countries have requested more time to deal with the inevitable dislocations and adjustments, including the Philippines, Malaysia, Thailand, Romania, and Chile. For these petitions, the World Trade Organization (WTO) Council on Trade in Goods has permitted a longer phaseout period in exchange for a specific schedule for eliminating the domestic content or trade-balancing requirement.

The TRIMs Agreement provided for a self-review to begin in 2000. During this review, some developing-country negotiators have continued to assert that domestic content requirements are a useful and necessary means to create local industries and promote host country growth. At the WTO Ministerial Conference in 2003 in Cancún, the developing countries indicated—under the rubric of “development provisions”—that they wished to reopen the TRIMs Agreement.⁸

The evidence presented in this conference volume shows clearly that domestic content requirements, and the implicit trade protection associated with imposing such requirements, do not create efficient local industries or promote host country growth. Weakening or undoing the TRIMs Agreement would not serve the self-interest of developing countries. Quite to the contrary, reaffirming the TRIMs Agreement and adding multilateral prohibitions on joint venture and technology sharing requirements would serve the self-interest of developing countries.

While it appears that the Singapore issues—including trade and investment (as well as competition and government procurement)—will not be included in the Doha Round, the WTO Working Group on the Relationship between Trade and Investment will continue to address the contentious

8. 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. See also *Development Provisions*, WTO Secretariat note to the Working Group on the Relationship between Trade and Investment, June 11, 2002.

arguments involved (*Inside US Trade* 22, no. 32, August 6, 2004, 1). The evidence demonstrates clearly that in these working group discussions, the trade and investment agenda of the developing and the developed countries should overlap with regard to performance requirements: the existing TRIMs Agreement should be endorsed, not weakened, and the roster of prohibited practices should be expanded to include mandatory joint venture and technology sharing requirements.

Implications for Future Research Methodology

The studies assembled in this volume make important contributions to the understanding of how to disentangle the diverse impact of FDI on the host economy and how to identify spillovers and externalities in a more rigorous fashion. These chapters, and commentaries by Gordon Hanson, Michael P. Keane, Marc Melitz, and Robert Lawrence, explore in some detail the challenges that remain.

Three particular challenges stand out for researchers attempting to use econometric techniques to test for externalities—challenges concerning endogeneity, the market power of firms, and heterogeneity in firms' production functions.

Endogeneity

As Gordon Hanson points out in his commentary, many factors affect an industry or region that might, on the one hand, stimulate FDI, on the other hand, raise wages or productivity in domestic firms. Finding a correlation between an increase in foreign investment and an increase in domestic firm wages or productivity and concluding a causal relationship from it would not necessarily be justified.

For example, a host country might take the decision to make a number of business-friendly reforms simultaneously. These reforms might serve to attract foreign firms into the country while providing a setting in which domestic firms could operate more productively. Thus, inferring that the entry of foreign firms led to improved domestic firm productivity would be incorrect.

A particularly tricky case, Michael P. Keane points out, could arise in investigating what happens when a country improves its intellectual property rights (IPR) protection. Better IPR protection might make the country more attractive to foreign investors, since they could exercise greater control over their technology, leading to fewer knowledge spillovers into the host economy. Thus, the result would be a negative correlation between domestic firm productivity and foreign penetration. Or the result might be enhanced attraction of foreign investors and greater ability of domestic firms to exercise greater control over their own technology, producing

a positive (but spurious) correlation between domestic firm productivity and foreign penetration.

The contributors to this volume do not offer any miraculous solutions to the problems of endogeneity. The principal challenge, rather, is for future researchers to replicate Garrick Blalock and Paul J. Gertler's careful and creative analysis. Their study investigated whether Indonesian plants had higher total factor productivity (TFP) growth in regional industries where there was more rapid downstream demand by multinationals. Hanson points out that by isolating region-year effects, Blalock and Gertler establish the average plant in the region as the control group. They then examine whether there was a larger fall in either regional industry concentration or industry prices in sectors where downstream growth by multinationals was larger. Positive answers in both cases, Hanson argues, preclude external factors from determining domestic firm productivity outcomes and foreign investor location outcomes simultaneously. Blalock and Gertler's demonstration that foreign entrants transfer technology to suppliers to reduce cost and improve quality and that diffusion of technology induces competition in both the supply sector and other downstream buyer sectors—creating welfare gains for both consumers and firms—remains robust.

Market Power of Firms

Michael P. Keane labels dealing with the market power of firms “the PQ problem”—researchers must use sales revenues (price times quantity, or PQ) without information on quantity itself. If FDI appears to change the revenue results for firms in an industry, it is not clear whether this change in revenue derived from shifts in productivity or in prices since FDI is expected to occur in industries where firms have market power (this is more likely to be a concern in a horizontal direction than in a vertical direction). A knowledge spillover that enables firms to enhance market power could be mistakenly interpreted as a productivity enhancement.

The only general solution, argues Keane, is to estimate the production function jointly with an assumed demand system, as he and Susan E. Feinberg have calculated for US MNCs and their manufacturing affiliates in Canada (Feinberg and Keane 2004). Levinsohn and Melitz (2002) and Katayama, Lu, and Tybout (2003) have also attempted to deal with the “PQ” problem.

Heterogeneity in Firms' Production Functions

The standard econometric approach to search for spillovers is to estimate production functions in which the total factor productivity (TFP) of the domestic firms in a particular industry/country is taken to be the function of some measure of FDI brought into the industry/country by MNCs (usually market share of MNC affiliates in the industry, or the average foreign

equity participation across all firms in an industry). But, as Robert Lipsey and Fredrik Sjöholm point out, knowledge spillovers are likely to alter the production functions in important ways that go beyond shifts in TFP, like changing the capital intensity of the operation or the marketing strategy of the firm, as shown in the materials gathered. Or FDI may generate reorganization—as Feinberg and Keane observe—that allows the firm to take advantage of economies of scale. Therefore, Lipsey and Sjöholm and Keane conclude that it is far too narrow to concentrate the search for spillovers by simply looking for shifts in TFP.

Heterogeneity in production functions within industries, as Feinberg and Keane observe, and between industries complicates the investigation of spillovers in other ways as well.

The limitations of econometric tests for spillovers lead Keane to conclude that economists should devote closer attention to the case study literature to trace the mechanisms through which knowledge transfers occur. Gordon Hanson adds that surveys of firm managers can be improved in ways that will help remedy the difficulties in the use of econometrics encounters in establishing causality. These possibilities are explored next.

Case Studies and Survey Results

Economists frequently refer to case studies as “anecdotal” evidence, with the pejorative connotation that they present results that are one-off observations whose implications are liable to be negated the next time any other observation is reported. This flimsy result may occur from using case studies, but need not be.

As the political science and political economy literature demonstrate, small numbers of cases can be chosen and structured comparisons carefully carried out in order to specify counterfactuals, test hypotheses, and provide conclusions that can be further tested and independently verified (King, Keohane, and Verba 1994; George and Bennett 2004). Larger numbers of case studies can be gathered so as to avoid selection bias and provide generalizable results. This is the approach Theodore H. Moran undertakes in investigating the performance differences between affiliates that are tightly linked into the parent MNC’s production network and affiliates that are prevented by domestic content and joint venture requirements from being so linked. Moran tests the hypothesis in a handful of industries and in a handful of countries during a defined time period, then moves the analysis across industries, across countries, and across time periods, matching the case study results with other statistical investigations.

Case study analysis has the advantage of being rich in detail, and allowing the researcher to examine directly what statistical analysis can only infer. For instance, an important analytical question is whether a foreign investor will provide explicit assistance to suppliers if the investor cannot capture all

the benefits for himself—or whether a foreign investor will provide explicit assistance even if some of the improved supplier performance might be spread to competitors. Moran’s case studies and Blalock and Gertler’s interviews show that the answer is frequently “yes,” with the investors explaining that they want host country suppliers to achieve economies of scale, produce items of reliable quality, and capture the lowest price even if this benefits rivals. Moreover, foreign investors realize that they cannot hold their suppliers to exclusive commercial relationships in the real world.

Similarly, the case study evidence introduced in this volume can make an important contribution to the debate about whether host country suppliers to MNCs “learn” how to export from the MNCs, or whether more capable host country firms become suppliers to MNCs and also—coincidentally—begin to send products abroad. In Malaysia, Thailand, and Indonesia—as recounted in the surveys in part I and the case studies in part III—indigenous firms on the path to becoming “contract manufacturers” for the electronics industry reported that they first entered export markets by being taken by the hand by the foreign investor in their home country and set up in a purchase relationship with a sister affiliate in a neighboring country. Afterward, these indigenous firms began to sell their output in that neighboring country and in external markets more broadly.

In both examples above, as Lipsey and Sjöholm point out, the case studies demonstrate that foreign investors do provide spillovers and externalities to host countries in the developing world. However, the case studies do not demonstrate that this outcome occurs in the “average” case let alone every case. But—as indicated above—if there are similar results across countries, industries, and time periods, researchers can be increasingly confident of the results.

Blalock and Gertler’s manager interviews and Javorcik and Spatareanu’s survey results offer some of the same advantages for research on FDI–host economy impacts, subject to the caveats they note about sampling techniques. An “intriguing” possibility, as Hanson suggests, is to try to structure manager interviews and firm surveys in a manner that overcomes the problem of endogeneity.

The question “Did your firm become more productive after the arrival of foreign firms?” Gordon Hanson argues, implicitly controls for industry fixed effects, but leaves open the possibility that some external factor “caused” both a growing foreign presence and a rising domestic firm productivity. A more useful question then might be, Did the growth rate of productivity in your firm increase after foreign firms arrived in your industry?—or rather, Did the foreign presence lead to a difference in domestic firm productivity? But the causal inference is still incomplete without knowing why the foreign presence increased. The solution, Hanson concludes, might be more frequent surveys timed around events likely to trigger FDI.

With sufficient care, manager interviews and firm surveys might also be helpful in investigating questions about the market power of firms (whether changes in sales revenues of domestic firms associated with FDI inflows can be attributed to changes in productivity or in prices) and about heterogeneity in firms' production functions (whether knowledge spillovers from foreign investors change the capital intensity of operations or the marketing strategy of domestic firms). Thus, taken together, case studies and survey results can increase the confidence the research community has in statistical studies where inference is the only causal link. For example, Brian Aitken, Gordon Hanson, and Ann Harrison (1997) show that the probability of an indigenous Mexican plant engaging in exports is positively correlated with the proximity of that plant to multinational investors but uncorrelated with the concentration of exporters in the region in general, suggesting that some "learning" or "triggering" mechanism is at work.⁹ Case studies and management surveys can add confidence to the inference about causation.

Priority Areas for Further Research

There are many areas in which further research on FDI's impact on the host economy is sorely needed. Three of the most important involve expanding the analysis of the contribution of FDI and trade to host country growth, investigating whether FDI can help the poorest developing countries where human resource levels are very low, and exploring how host countries might enhance their prospects for spillovers and externalities from foreign investors.

The Contribution of FDI and Trade to Host Country Growth

In part II of this volume, Maria Carkovic and Ross Levine offered a reassessment of whether FDI accelerates economic growth. They critiqued the research of Borensztein, De Gregorio, and Lee (1998), whose work showed a positive relationship between FDI and host country growth, since their own research suggested that FDI did not accelerate growth as a general proposition.

Bruce Blonigen and Miao Grace Wang countered by arguing that inappropriate pooling of data from developed and developing countries was

9. Aitken, Hanson, and Harrison (1997) find that the relationship between the presence of foreign plants and exports on the part of domestic plants is independent of proximity to national borders, independent of proximity to the capital city, and independent of the existence of other exporters. This means, they argue, that the superior export performance of these particular Mexican firms cannot be attributed to some local comparative advantage from where they are situated, but must rather come (somehow) from proximity to the foreign investors.

responsible for results indicating that FDI does not significantly affect per capita growth. When inappropriate pooling of data is avoided, they found that FDI does have a significant impact on developing-country growth. However, their estimation techniques employ an ordinary least squares (OLS) estimator with panel data and using this—Carkovic and Levine argue—might lead to what amounts to a “false positive.”

Marc Melitz attempted to reconcile these two investigations by pointing out that the Carkovic and Levine rejection of the FDI-growth relationship arises when they introduce controls on trade openness. When changes in trade and FDI occur simultaneously, the evidence in both studies, Melitz argues, shows a strong positive impact on developing–host country growth.

The “reconciliation” of these two major research studies would clearly benefit from further investigation. Carkovic and Levine note the concerns about mixing rich and poor countries in empirical studies of FDI and growth, but they indicate that limiting the data used to developing countries did not alter their own results. They also disagree with Melitz that it was inappropriate to control for trade openness in assessing the relationship between FDI and growth; Carkovic and Levine argue that it is important to know whether an independent relationship between FDI and growth exists. However, to do so one would have to sort out the complex interdependence between trade and FDI that is noted in the literature, and it is not clear that simply including a measure of trade openness as an independent variable achieves this. Also, it is worth noting that a forthcoming article by Pradeep Agarwal (forthcoming 2005) using an Arellano and Bover and Blundell and Bond estimator but a somewhat different specification than Carkovic and Levine shows a robust relationship between FDI and growth in a sample of developing countries.

The Carkovic and Levine results emerge after they introduce a country-specific variable that is assumed to be time invariant and then eliminate it by first-differencing independent variables in the time dimension. This is appropriate if country-specific effects are fixed (time invariant) but could go awry if these effects are not—e.g., if the country-specific effect proxies for policy toward FDI, which certainly has changed for some countries in their sample over the time range of the data.

Melitz uses the case studies introduced in part II of this volume to contrast how FDI in import-substitution strategies may reduce trade, while FDI as part of a corporate integration strategy may expand trade, reducing host country growth in the first scenario and increasing host country growth in the second. But he concludes—like Robert Lawrence—that more extensive research is needed to confirm empirically that the combination of restrictions on FDI and on imports is behind the subaverage performance of developing countries that attract FDI without concurrently increasing their level of trade.

A puzzle emerges in the trade-and-FDI-generate-growth relationship, however, because Blonigen and Wang fail to find a robust relationship

between FDI and growth among developed countries, where trade barriers would appear to be lower than for developing countries in general. One explanation might be that FDI among developed countries is heavily populated with mergers and acquisitions rather than greenfield investment, which may not lead to a boost in growth. Alternatively, FDI as a percent of gross domestic product (GDP) has been higher to developing countries than to developed ones, even if the absolute magnitude of the flows to developed countries has been large. Thus, the result for developed countries could be that FDI's contribution is simply lost in the noise—i.e., the data are just not good enough to enable econometric “filters” to discern the effect even if such an effect is present.

The Human Resource Threshold for Benefits from FDI

Many statistical studies have found that FDI positively affects growth in developing countries only if the country has a minimum threshold stock of human capital. The results reported by Borensztein, De Gregorio, and Lee (1998), for example, suggest that for a given level of human capital, an increase in FDI raises the growth rates of per capita income, except for economies with the lowest level of schooling. Blonigen and Wang likewise find that FDI has a significant impact on per capita growth only after education levels in the less developed country (LDC) are at a high enough threshold level.

However, Mauritius illustrates how “ideas” introduced via FDI can alter a host country's development path 10 to 20 times more powerfully than trade liberalization alone. Mauritius was a nation so poor it was used by British economists to illustrate the concept of “Malthusian economics” (Romer 1992, 1994). Moran adds Madagascar, Lesotho, the Dominican Republic, and the Philippines to the country case studies in which low-skill FDI operations create tens of thousands of jobs and hundreds of millions of dollars in exports. Dani Rodrik and Ricardo Hausmann point out that FDI provides the best prospect for El Salvador to upgrade the country's export base from footwear and garments to higher value-added manufactures (Rodrik and Hausmann 2004).

While “sweatshop” abuses are a grim reality in many low-skill-intensive plants, foreign direct investors have consistently been shown to pay more than domestic employers, controlling for plant size and worker skill level, in poorer as well as richer developing countries.¹⁰ In Madagascar, for example, Mireille Razafindrakoto and François Roubaud (1995) found export processing zone (EPZ) workers earning 15–20 percent more than other workers with comparable education level, work experience, and length of tenure. In fact, Edward M. Graham (2000) has found that compensation for

10. In addition to Lipsey and Sjöholm in this volume, see Brown, Deardorff, and Stern (2002).

host country workers in foreign manufacturing subsidiaries is greater as a multiple of average compensation per worker in the manufacturing sector for lesser and least developed countries than for middle-income developing countries. In middle-income developing countries local workers in foreign-owned plants earn 1.8 times the average manufacturing compensation; in lesser and least developed countries local workers in foreign-owned plants earn 2.0 times the average manufacturing compensation.¹¹

Moreover, there is intriguing evidence that FDI in poor countries is not without externalities. When Mauritius launched its export-led growth, virtually 100 percent of the export firms were foreign-owned. Then, after gaining experience in the foreign plants, managers and workers left to start locally owned firms, representing 50 percent of total equity capital in EPZ firms within 15 years (Rhee, Katterback, and White 1990, 39). In the Dominican Republic the comparable figure for indigenous firms establishing operations alongside MNC plants was 35 percent, and 20 percent in the Philippines, both over a shorter time period. While human resource movements are well documented, flows of technology transfer—either explicit or inadvertent—require further investigation.

Thus, alongside a multitude of cases in which poorer countries have been unable to attract much FDI or to use FDI effectively for development, examples exist of poor LDCs achieving much greater (relative) success. Discovering the ingredients for turning the first into the second should be a priority area for future research.¹²

Enlarging the Prospects for Spillovers and Externalities

Given the importance of spillovers and externalities for host country development, it is surprising that more investigation of the conditions that are most conducive to the emergence of spillovers and externalities has not occurred.

As Moran points out, country studies have found that host economies that afford business-friendly treatment to both indigenous firms and foreign investors are more likely to find indigenous firms becoming suppliers to the MNCs (Rhee, Katterback, and White 1990, 39; Hill 2004). Local companies need an operating environment that enables them to operate on a competitive basis no less than foreign investors. As Beata Smarzynska Javorcik and Mariana Spatareanu report in part I of this volume, and Todd J. Moss, Vijaya Ramachandran, and Manju Kedia Shah report in part III, well-functioning financial institutions that provide credit on reasonable

11. Graham (2000, table 4.2, 93–94) eliminates salaries for foreign managers and supervisors from these calculations.

12. For initial steps along these lines, see Moran (forthcoming 2005).

risk-adjusted terms to small and medium-sized domestic firms are particularly important to creating a strong indigenous business community.

As Javorcik and Spatareanu as well as Blalock and Gertler show, the level of technological and managerial capabilities among local businesses determines whether they are likely to be able to qualify as suppliers to foreign investors, or to respond positively to the “productivity shock” created by the foreign presence. Other research has discovered the same phenomenon. Ari Kokko (1994) found that spillovers between foreign affiliates and local firms in Mexico varied as a function of the productivity difference between them; if the local firms had much lower levels of productivity, there was little evidence of spillovers. Ari Kokko, Ruben Tansini, and Mario Zejan (1996) uncover similar results among manufacturing firms in Uruguay (also see Blomström and Wolff 1994).

Country studies show that as host economies become more developed, what started out as relatively small and weak backward linkages into the host economy become thicker and more complex (Siew-Yean 2004, 225). A growing pool of trainable and trained workers helps indigenous firms just as it does MNCs. The length of time an individual foreign investor operates in a host country also affects the breadth of backward linkages, with new investors having few connections to the domestic economy and more experienced investors having a more extensive network.

Host country policies also play a role in facilitating backward linkages and spillovers. As Moran notes, studies undertaken under the auspices of the United Nations Conference on Trade and Development (UNCTAD) argue that the Economic Development Board of Singapore might serve as a model (UNCTAD 2001; McKendrick, Donner, and Haggard 2000). The Board offered to reimburse the salary of a manager from each MNC affiliate who had responsibility to invite local firms to participate in the affiliate’s own training programs and identify which firms showed promise of qualifying as suppliers. The affiliate would recommend specific machinery for these firms to purchase to upgrade their performance, for which Singapore’s Small Industry Finance Program would provide loans, which would be paid back from sales to the affiliate. The affiliate managers—or their human resource counterparts—would be asked to help design the curricula of vocational institutions adjacent to the industrial parks where the affiliates were located.

This “vendor development” model thus used foreign investors as *talent scouts* to sort through potential suppliers, and then helped the most capable or the most trainable to finance the improvements recommended by the investors. The model has relied on light-handed facilitation by host authorities, rather than regulations that obliged the MNCs to purchase specific amounts of supplier products or to form joint ventures with the supplier firms. The expenditure of host resources has been modest.

Programs to encourage spillovers and externalities cry out for further research. Should they be directed only toward smaller local firms or toward

all local firms independent of size? How can they be designed to avoid the cronyism that so often plagues government-backed financing schemes in the developing world?

Should initiatives in finance and training be fashioned to encourage “clustering” or be spread uniformly across the economic landscape? Should vocational training programs be focused on meeting the needs of foreign investors and their local suppliers, or on forms of training most needed by workers in the economy at large? All these questions lay the groundwork for future research.

References

- Agarwal, Pradeep. 2005. FDI in South Asia: Impact on Growth and Local Investment. In *Multinationals and Foreign Investment in Economic Development*, ed., Edward M. Graham. London: Palgrave/MacMillan. Forthcoming.
- Aitken, Brian, Gordon H. Hanson, and Ann E. Harrison. 1997. Spillovers, Foreign Investment, and Export Behavior. *Journal of International Economics* 43, no. 1–2 (August): 103–32.
- Akerlof, George. 1970. The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics* 84, no. 3 (August): 488–500.
- Alonso, Eduardo. 2001. Trade and Investment Promotion: The Case of CINDE in Costa Rica. Presentation at the Inter-American Development Bank, Washington, September 18.
- Altschuler, Rosanne, Harry Grubert, and Scott Newlong. 2001. Has US Investment Abroad Become More Sensitive to Tax Rates? In *International Taxation and Multinational Activity*, ed., James Hines. Chicago: University of Chicago Press.
- Blomström, Magnus, and Ari Kokko. 2003. The Economics of Foreign Direct Investment Incentives. In *Foreign Direct Investment in the Real and Financial Sector of Industrial Countries*, ed., H. Herrmann and R. E. Lipsey. Berlin and New York: Springer Verlag.
- Blomström, Magnus, and Edward N. Wolff. 1994. Multinational Corporations and Productivity Convergence in Mexico. In *Convergence of Productivity: Cross-National Studies and Historical Evidence*, ed., William Baumol, Richard Nelson, and Edward N. Wolff. Oxford: Oxford University Press.
- Borensztein, E., J. De Gregorio, and J. W. Lee. 1998. How Does Foreign Investment Affect Growth? *Journal of International Economics* 45.
- Brown, Drusilla K., Alan V. Deardorff, and Robert M. Stern. 2002. *The Effects of Multinational Production on Wages and Working Conditions in Developing Countries*. Discussion Paper 483. University of Michigan Research Seminar in International Economics (August 30).
- Dixit, Avinash K., and Robert S. Pindyck. 1994. *Investment Under Uncertainty*. Princeton: Princeton University Press.
- Feinberg, Susan, and Michael Keane. 2004. *Accounting for the Growth of MNC-Based Trade Using a Structural Model of US MNCs*. Working Paper. College Park, MD: University of Maryland.
- George, Alexander L., and Andrew Bennett. 2004. *Case Studies and Theory Development*. Cambridge, MA: MIT University Press.
- Graham, Edward M. 2000. *Fighting the Wrong Enemy: Antiglobal Activists and Multinational Enterprises*. Washington: Institute for International Economics.
- Graham, Edward M. 2004. Do Export Processing Zones Attract FDI and Its Benefits: The Experience from China. *International Economics and Economic Policy* 1: 88–103.
- Hill, Hal. 2004. Six Asian Economies: Issues and Lessons. In *Managing FDI in a Globalizing Economy: Asian Experiences*, ed., Douglas H. Brooks and Hal Hill. New York: Palgrave Macmillan.

- Katayama, H., S. Lu, and J. Tybout. 2003. *Why Plant-Level Productivity Studies Are Often Misleading, and an Alternative Approach to Inference*. NBER Working Paper 9617. Cambridge, MA: National Bureau of Economic Research.
- King, Cary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press.
- Kokko, Ari. 1994. Technology, Market Characteristics, and Spillovers. *Journal of Development Economics* 4: 279–93.
- Kokko, Ari, Ruben Tansini, and Mario C. Zejan. 1996. Local Technological Capability and Productivity Spillovers from FDI in the Uruguayan Manufacturing Sector. *Journal of Development Studies* 32 (April): 602–11.
- Larraín, Felipe, Luis Lopez-Calva, and Andres Rodriguez-Clare. 2001. Intel: A Case Study of Foreign Direct Investment in Central America.
- Levinsohn, Jerome, and Marc Melitz. 2002. *Productivity in a Differentiated Products Market Equilibrium*. Working paper. Ann Arbor, MI: University of Michigan.
- McKendrick, David G., Richard F. Donner, and Stephan Haggard. 2000. *From Silicon Valley to Singapore: Location and Competitive Advantage in the Hard Disk Drive Industry*. Stanford, CA: Stanford University Press.
- Moran, Theodore H. 2005. *Foreign Direct Investment and the Development of Low Income Poorly Performing States*. Washington: Center for Global Development. Forthcoming.
- Mutti, John H. 2003. *Taxation and Foreign Direct Investment*. Washington: Institute for International Economics.
- Razafindrakoto, Mireille, and François Roubaud. 1995. Les Entreprises Franches à Madagascar: Economie d'Enclave ou Promesse d'Une Nouvelle Prospérité? Nouvel Esclavage ou Opportunité pour le Développement du Pays? *Economie de Madagascar*, no. 2.
- Rhee, Yung Whee, Katharina Katterback, and Jeanette White. 1990. *Free Trade Zones in Export Strategies*. Washington: World Bank, Industry Development Division (December).
- Rodrik, Dani, and Ricardo Hausmann. 2004. Discovering El Salvador's Production Potential. Photocopy (August).
- Romer, Paul. 1992. Two Strategies for Economic Development: Using Ideas and Producing Ideas. *Proceedings of the World Bank Annual Conference on Development Economics*. Washington: World Bank.
- Romer, Paul. 1994. New Goods, Old Theory, and the Welfare Costs of Trade Restrictions. *Journal of Development Economics* 43.
- Shah, A., ed. 1995. *Fiscal Incentives for Investment and Innovation*. New York: Oxford University Press for the World Bank.
- Siew-Yean, Tham. 2004. Malaysia. In *Managing FDI in a Globalizing Economy: Asian Experiences*, ed., Douglas H. Brooks and Hal Hill. New York: Palmgrave Macmillan.
- Spar, Debora. 1998. *Attracting High-Technology Investment: Intel's Costa Rican Plant*. Foreign Investment Advisory Service Occasional Paper 11. Washington: World Bank Group.
- Thomas, Kenneth P. 2000. *Competing for Capital: Europe and North America in a Global Era*. Washington: Georgetown University Press.
- UNCTAD (United Nations Conference on Trade and Development). 2001. *World Investment Report 2001: Promoting Linkages*. Geneva: United Nations Conference on Trade and Development.
- Wells, Jr., Louis T., and Alvin G. Wint. 2000. *Marketing a Country: Promotion as a Tool for Attracting Foreign Investment*, rev. ed. Washington: The International Finance Corporation, the Multilateral Investment Guarantee Agency, and the World Bank.

