
Comparative Advantage and the Globalization of Manufacturing Industries: The Struggle to Tilt the Playing Field for International Investment

Chapter 5's studies of host-country efforts to use FDI in manufacturing industries such as automobiles, petrochemicals, and electronics/computers to penetrate international markets raise fundamental questions for the design of contemporary policies that go well beyond the pros and cons of export-performance requirements per se. They require examination of the questions introduced at the beginning of this volume, namely, how well do the international markets where FDI takes place function? What are the principal obstacles to the more effective functioning of these markets? Are there rigorous reasons for host authorities in the developing countries and economies in transition to intervene to influence foreign-investor behavior? Or should they simply improve micro and macroeconomic fundamentals in their own countries with the expectation that international investors will then deliver appropriate amounts of economic activity to them along lines of comparative advantage?

There are three kinds of possible justification for host-country activism to push or pull international investors to locate full-scale-sized manufacturing operations in their economies: (1) to correct for market failures; (2) to compensate for the interventions of others on "second best" grounds; and (3) to weigh in as a player in a strategic-trade struggle over the distribution of rents and externalities that accompany the activities of the companies.

What light does the evidence from the globalization of the automotive, petrochemical, and electronics/computer industries in chapter 5 shed on these overlapping but analytically distinct rationales for possible intervention? And what kind of policy responses might be most appropriate and least dangerous?

Market Failure Rationales for Host-Country Intervention

Chapter 3, on investment promotion, drew on models of information gaps, asymmetric information, and signaling to suggest the need for light-handed intervention (i.e., advertising and product differentiation) on the part of potential host governments to attract FDI. The goal would be to highlight obscure or hidden advantages for investors from operating in the host country, so as to make up for lack of enthusiasm that might spring from foreign firms being unable to distinguish any particular site from those at the very bottom.

These sectoral studies support the contention that would-be host countries need to fill in information gaps and market themselves as favorable sites for international operations. The behavior of the international automotive, petrochemical, and computer/electronics firms is not filled with evidence of aggressive search and abundant eagerness to try out new production possibilities. Quite the opposite: these sectoral studies reveal that parent companies are reluctant to consider new production sites.

But what is striking is that in all three industries the “stickiness” in the parent firms’ behavior continues even as information gaps are filled, even as new hosts distinguish themselves as cost-effective production sites, even as competitive pressures to alter old production patterns mount, and even as indications that change would be in the firms’ own long-term self-interest become apparent.

What explains the reluctance of US automobile investors to invest in sourcing from what they had discovered were cheaper locales in Mexico and Brazil, despite the need to meet the competition from Japanese imports in the US auto market that been growing for a decade but sharply increased in 1975? What explains the reluctance of Japanese firms to invest in sourcing from Malaysia and Thailand for the home market as well as third-country markets despite rising labor costs for Japanese electronics firms in Japan? And what explains the reluctance of oil and petrochemical firms to locate ethylene and methane plants near inexpensive feedstock sources despite technical synergies and large transportation savings?

Equally notable, however, is how reluctance could be transformed into enthusiasm. Once the first movers in each industry shifted direction, after much hesitation, there was a remarkable follow-the-leader response: Ford, Chrysler, and Nissan abandoned their resistance and followed General Motors in Mexico; Ford and Volkswagen abandoned their resistance and followed Fiat and General Motors in Brazil; Mitsubishi, Isuzu, Mazda, Nissan, and Peugeot abandoned their resistance and followed Toyota in Thailand; Apple and Hewlett Packard abandoned their resistance and followed IBM in Mexico; methanol and ethylene production was re-deployed to hydrocarbon rich countries after 1974; General Electric, RCA,

Zenith, Fairchild, Texas Instruments, National Semiconductor, and Motorola matched each others' moves in Singapore and Malaysia; and the Japanese electronics firms followed each other like schools of fish into Malaysia and Thailand.

Might this pattern of stickiness in the FDI process, followed by rapid bursts of new investment, be indicative of broader market failures? And, if so, what are the implications for host welfare, and for global welfare?

Stickiness in FDI and the Welfare Effects of “Irreversible Investments under Uncertainty”

Looking first at the stickiness in the FDI process, it is important to proceed with caution. After all, part of the hesitation and reluctance to change patterns of investment may not necessarily be evidence of any kind of market failure. It may simply reflect what modern investment theory, associated with the work of Dixit and Pindyck (1994), considers under the rubric of irreversible investments under uncertainty.

In the Dixit-Pindyck framework, investors are more cautious about constructing a new facility than abandoning an old one. The “asymmetrical caution” in this model goes beyond the simple desire to avoid repeating start-up costs over and over again; it is similar to acquiring a financial option and springs from attributing value to delay in making large new investments (quasi-irreversible commitments) as the firm receives new information that might either confirm or contradict whether the new pattern of production is superior to the old.

In this model, the delay while new information piles up retards the investment process well beyond what conventional capital-budgeting calculations predict. It explains, in the calculation of Dixit and Pindyck (1994), why investment decisions by firms often require “hurdle rates” three to four times the cost of capital.¹

Does firm behavior of this kind justify some kind of public-sector intervention to trigger or speed the investment decision?² Within the Dixit-Pindyck framework, what may be optimal for the private investor is not necessarily optimal for any given host. The investor values the possibility of delay; the host prefers a commitment to proceed. A good

1. It is little wonder, therefore, that the offer of trade protection is such a powerful tool in attracting FDI, because it provides profitability and stability to the investor. Launching an export project, in contrast, especially where economies of scale are large, requires making a sizable (indivisible) lump-sum investment without any opportunity to fill such information gaps incrementally.

2. Dixit and Pindyck (1994) point out that the idea of endowing the postponement of action with “a financial option value” (because the firm receives additional information with which to make the investment decision) is compatible with both perfectly competitive and imperfectly competitive settings for firm behavior.

example of such divergence, according to Dixit and Pindyck, can be found in pricing offshore oil leases. Conventional finance theory would lead firms and governments to time the development of a new field as a function of the current price of oil, the expected rate of change of the price, the quantity of production, and the investment cost. Discounting these numbers forward and summing would then generate a value for the reserve.

But it would be erroneous for either party to make the calculation this way, according to Dixit and Pindyck, because it ignores the value to any firm bidding for the property of having flexibility about when it might actually develop the reserve; that is, the conventional financial approach ignores the option value of possible delay as the firm observes what transpires in international oil markets.

To induce the firm not just to acquire the right to invest but actually to undertake development promptly, therefore, public authorities should expect to receive less in terms of bids from lease auctions, or to give away more in terms of royalty and other tax regulations, than otherwise would be the case. And, in fact, government bodies in oil and gas bearing regions, in developed and developing countries alike, insist upon “relinquishment requirements” that limit the amount of time a company can hold a tract before developing it, to force the firm to move more quickly than its own incentive structure might dictate. And government bodies must expend resources (accept lower lease bids and lower royalty and other tax rates) to compensate the investor for the promise of prompt exploitation.

Similarly, a host government trying to convince an international investor to commit capital to develop a new production site would have to expend more resources than conventional finance theory would suggest to trigger the firm’s commitment to production.

What is best for the world at large? Is there a possible divergence between what is optimal for the individual investor and what is optimal for global welfare?

From the point of view of global welfare, what is socially optimal depends upon whether and how fast “learning” would take place in the absence of investment.

On the one hand, what Dixit and Pindyck call a “global social planner” might not want to stimulate new patterns of investment too fast; the world as a whole might gain from delay as new information is acquired. On the other hand, if new information does not emerge, or emerges too slowly (suboptimally slowly), while less-efficient patterns of production remain in place and new patterns of investment are delayed, the world is worse off for allowing the firms to do what best suits their self-interest.

Does information about new sites for world-scale-sized plants that can be integrated into the parent firms’ global/regional sourcing strategies

emerge fast enough, or too slowly, from the perspective of global welfare? It is instructive to look at what kind of information investors identify as most valuable to them in assessing such investment possibilities.

Investor surveys consistently include five broad categories of concern (among others) in the developing countries and the economies in transition:

- cultural factors (worker motivation, absenteeism, alcoholism, cultural preparation, etc.);
- labor regulations (flexibility in hiring and laying off workers);
- responsiveness of the surrounding economy in providing supporting goods and services;
- credibility of public-sector commitments about taxes, infrastructure, and other regulatory issues (often extending beyond the probable duration of any given government); and
- institutional base of commercial law (case law or common law) to provide precedent when disputes arise.

All five are well represented in the automotive, petrochemicals, and electronics/computer industries:

- cultural factors (from the concern about workers in “tropical” or “siesta” environments in the Brazilian and Mexican auto industry in the 1970s, to worries about alcoholism, absenteeism, and lack of a work ethic in former communist states in the 1990s);
- labor regulations (flexibility of hiring and firing in the automotive and electronics/computer plants and questions about the supervision of large, predominantly female workforces in the Malaysian and Thai cases);
- responsiveness of a given local economy in providing goods and services upon which the success of a new foreign investment would depend (from the concern about the functioning of built-from-scratch petrochemical complexes in Saudi Arabia, Indonesia, and Mexico in the mid-1970s to the ability of ASEAN firms to qualify for OEM status for automotive or electronic/computer components in the 1980s);
- credibility of host government promises (from input prices for feedstock and local utilities to provision of infrastructure in all three sectors); and
- institutional factors (from interpretations of commercial law to independence and reliability of the judicial system itself).

These are the kinds of information gaps, so to speak, that international companies find most desirable to fill in order to evaluate the risks associated with an investment opportunity. They have a common characteristic: the information can only be acquired via learning by doing. “Paper investigations,” even with expert consultants and extensive site visits, can only take the potential investor a short way toward evaluating the feasibility of a project. Ultimately, the initial investor is left with no way to reduce uncertainties except by making the financial commitment and managing the operation.

The discovery that information gaps associated with identifying new sites for global/regional sourcing can be filled only by “trying out” the site for an extended period of time fits with one of the more complicated areas of asymmetric information and signaling, namely, how to distinguish good buys from lemons (Akerlof 1970; McKenna 1986).

Analogous to the buying and selling of used cars, the lemons model features important potential differences between products, and there are sizable benefits to buyers (investors) that make the right choices and sizable advantages to sellers (hosts) that can demonstrate their status as superior suppliers. Identifying which products are good and which products are defective, however, is extremely difficult for the buyers unless they actually use the product for an extended period of time. This drives buyers toward a common “too low” price for all such products, or, in the investment case, toward a common “too uninterested” stance toward new production possibilities—appropriate only if all used cars or all new production sites are the equivalent of a lemon.³

What are the implications for world welfare? In the world of used cars, imperfections in information markets can be smoothed over by developing cadres of certified mechanics who have credentials that satisfy both buyer and seller to take the auto apart and run tests on its individual components. However, in the world of FDI, the imperfections are likely to remain.

This introduces an important element of catch-22 into the FDI process: if the only way that the information gaps can be closed is by actually making the investment, no information will be forthcoming until the first mover moves. Left on its own, “learning,” and consequently investment, will be undersupplied.

3. Under these conditions, host countries, like sellers of other hard-to-evaluate products, have an interest in expending resources to differentiate themselves; they may demonstrate their confidence in their ability to create superior business conditions (“better than the worst”) by bunching benefits to investors up front and showing self-assurance that such superior business conditions will allow them to recoup these benefits later. They may also have an incentive to share the investor’s risk by offering a warranty. For more thorough examination of the “extended warranty” option, in terms of mechanisms to increase the credibility of host-country commitments toward particularly vulnerable investments, see chapter 9, on FDI in natural resources and private infrastructure projects.

In the sectoral cases traced above, a “global social planner” with a Dixit-Pindyck (1994) orientation would have to assess whether global welfare would have improved or worsened if the hosts had not forced the issue and the international auto firms had been even slower in exploring the possibilities of Mexican, Brazilian, or Thai sourcing for auto-parts, or if the hosts had not forced the issue and the international electronics firms (especially Japanese electronics firms) had been even slower in moving toward assembly operations in Malaysia and Thailand, or if the hosts had not forced the issue and the international petrochemical firms had continued to transport bulky feedstocks to Europe and Japan while hydrocarbon-rich producers flared their natural gas.⁴

Quite likely, a global social planner would conclude that world welfare would be enhanced by multilateral mechanisms to facilitate the experimentation of foreign firms in locating internationally competitive, world-scale-sized plants in new sites, not by retarding the process. The optimum playing field would be tilted slightly in favor of less-developed countries and economies in transition, not sharply inclined against them (as explored more fully later in this chapter). A global social planner might look with concern at the methods that less-developed countries and economies in transition have employed, and are likely to continue to employ, to improve the functioning of the markets in which international investment is found, but the planner would not likely be critical of the effort itself.

Evidence that “bureaucratic politics” played a key role in some of the most important investment decisions in the automotive, petrochemical, and electronics/computer sectors further undermines the attribution of delay in international investment behavior to some kind of optimal information-gathering behavior (Helleiner 1981). Under perfect competition, bureaucratic politics have no place: a firm behaves as a rational unitary actor, responding, like its rivals, to exogenous price signals. Strategic management literature modifies this picture for imperfectly competitive industries but without changing the outcome. One of the functions of headquarters is to adjudicate among subunits whose managers want a greater share of the firm’s resources to expand and enhance their own activities. Firm decision making may be the outcome of clashes between and bargaining among subunits that are within the hierarchy of the firm and that pursue their own interest or their own particular conception of

4. There is an additional problem with the way in which Dixit and Pindyck (1994) use their model. They take full account of the sensitivity of firms to exit costs and the desire of public authorities at the sites where the firms are located to avoid the pain of adjustment should the firms move elsewhere. But they fail to note that delay in redeploying assets to new production sites may leave resources in those new locales suboptimally employed, creating possible penalties for global welfare as long as the firm postpones the investment decision. The social dimension of exit costs should properly be appraised, but so too should the opportunity costs of leaving resources maldeployed elsewhere. A global social planner would want to take both into account, not just the former.

the firm's interest. But the strategic objective is to maximize the long-term competitive position and long-term profitability of the entire corporation.

The histories of globalization in the three sectors examined in this book do not fit this picture well. Even without the benefit of hindsight, the strategic management of the firms did not energetically search for and try out new courses of action that (on the basis of the evidence available at the time) would probably have been, and ultimately did turn out to be, in the long-term best interest of the firm. Instead, the common reaction was that new low-cost production sites were a threat to managers that had a vested interest in established patterns of operation.

There emerged what Nollen, Abbey, and Newman (1997) call "sibling rivalry" between new and older units in their studies of contemporary FDI in Eastern Europe. In the extreme, Nollen, Abbey, and Newman find that the older units may use intrafirm connections and intrafirm economic transfers to limit or even ruin the prospects for the newcomers. The sectoral studies on the automotive, petrochemical, and electronics/computer sectors did not document sibling rivalry quite as poisonous as Nollen, Abbey, and Newman observe among Swedish-Swiss subsidiaries in the Czech Republic, but Shapiro's (1993, 1994) characterization of the disputes between GM headquarters in Detroit and GM do Brazil do not fall far short. The bureaucratic-politics phenomenon within large international firms in imperfectly competitive industries introduces the possibility of internal rent-seeking behavior into the FDI process. What appears to be a delay in investment intended to gain an optimum acquisition-of-information period along Dixit-Pindyck lines (1994) may instead be the result of efforts by large constituencies within firms to protect their interests.

Follow-the-Leader Behavior by Foreign Investors and Appropriability Problems

Quite apart from the stickiness in undertaking new investments, the rapid follow-the-leader behavior observed in these three sectoral studies, once a major firm has moved, raises new questions about market failure.

Here, the evidence from the sectoral studies falls into a well-researched pattern of "bunching" in FDI, first investigated in a systematic way by Knickerbocker (1973). Knickerbocker examined the FDI behavior of 187 major US manufacturing firms (the Harvard Business School Multi-national Enterprise data base), over 20 years, to assess the extent to which they "bunched" the establishment of their subsidiaries together in 23 countries (15 developed countries, 8 developing countries). The firm sample included 54 industries, including food, paper, chemicals, petroleum, primary metals, fabricated metal products, machinery, electrical equipment, transportation equipment, and instruments.

Knickerbocker found that, of approximately 2,000 foreign subsidiaries, almost one-half were established within three-year clusters, and almost three-fourths were established in seven-year clusters. The results were similar industry by industry and country by country. This clustering was independent of other external events and differentiated from the overall trend of US investment abroad.

Knickerbocker (1973) found that this “bandwagon effect” on the part of the parent firms was, as a general rule, more prevalent in industries with high seller concentration than in industries with low seller concentration. There was, however, an exception to the rule: parent firms in industries with very high seller concentration and a paucity of new entrants were relatively more restrained.

Other investigators have discovered similar patterns for other nations and more recent time periods. Yu and Ito (1988) compared FDI behavior in the relatively concentrated tire industry with FDI in the much more competitively structured textile industry and found that the decision to set up a subsidiary in the former (275 observations for 55 developed and developing countries over 5 years) was clearly related to the prior behavior of rivals. Meanwhile, the decision to set up a subsidiary in the latter (240 observations for 20 developed and developing countries over the same time period) was not. Graham and others have found evidence of action-reaction dynamics in cross-investment among developed countries (Graham 1978, 1996b; Flowers 1976).

These follow-the-leader patterns could indicate appropriability problems for the investors: if making the investment is the only way to evaluate the principal uncertainties and risks involved in moving to a new site, then waiting, observing what happens to those who move first, and following after the ones who appear to make successful investments is a relatively costless way to eliminate risk and uncertainty. Alternatively, a firm could simply match the moves of the one that moves first, exposing the firm to exactly the same risks and uncertainties. The returns that first movers receive, consequently, might not be high enough or last long enough to compensate them for assuming the burden of going first.

An inability to “appropriate” sufficient returns to justify the initial investment means that FDI to new locales will be undersupplied, in comparison to what would be socially optimal on a global basis, and that public-sector support by individual hosts and the world at large would be needed to correct for the market failure.

In the sectoral studies undertaken in chapter 5 there is not sufficient detail about risk assessment, rates of return, and speed of response by rivals, in the aggregate data or even in the micro studies of FDI decisions, to assess whether the benefits that the first movers gained were sufficient to compensate them for the risks they bore. But there is scant support for the idea that successful first movers enjoyed long tranquil

periods of supernormal rents. Instead, what evidence there is suggests that the rewards to parent profits and to managerial fates for risk taking are quite transitory, while the penalties for entrepreneurship gone sour are not.

Alternatively, the “clustering” of FDI could be indicative of strategic maneuvering within imperfectly competitive oligopolies, in which firms establish an implicit understanding to avoid an excessively intense rivalry. In the extreme, FDI might follow an exchange-of-threat rationale, and matching moves demonstrate that no first mover will be able to steal a march on other members of the oligopoly.

While this latter characterization of firm behavior has received its most direct confirmation by Graham (1978) (and others) with regard to cross-investment between the United States and Europe, it is possible that the dynamics are present in the sectoral studies presented above as well: no investor in the automotive, petrochemical, or electronics/computer industries is allowed to gain an advantage from global sourcing that enhances its position in developed-country markets without finding the other major participants rushing to duplicate such an advantage.

Whether there are appropriability problems or exchange-of-threat dynamics, the common conclusion is that left on its own FDI will be undersupplied. Thus, there is a global public interest in facilitating and increasing FDI in full-scale manufacturing networks.

From the perspective of individual host governments in the developing countries and economies in transition, what is optimal for the foreign firms and for the host economy also diverges. There is a solid theoretical rationale for trying to attract the first investor and for trying to trigger follow-the-leader behavior. The benefits of success have been great—in particular in the automotive, petrochemical, and electronics/computer cases examined here—and the costs of sitting back and waiting for foreign investors to act on their own is substantial.

Second-Best Rationales for Host-Country Intervention

Distinct from the issue of whether there might be justification for host-country actions to compensate for market imperfections is a further question of whether there might be a rationale for intervention on second-best grounds, to offset interventions by authorities elsewhere.

The sectoral studies provide evidence of a growing effort by developed-country governments, beginning during the early period of globalization in the 1970s and extending to the present day, to use locational incentives to slow the exodus of manufacturing plants and attract new investments.

Interacting perversely with firms that are preoccupied with abandoning existing sites and making “irreversible investments” in new locales,

home authorities have used what economic and political tools they could muster to fortify their own positions—with varying degrees of success. In the process, the home authorities have magnified exit costs, subsidized the continuation of existing production, and attracted new investors.⁵

Locational Incentives, Grants, and Subsidies

Between 1977 and 1982, there was a rapid expansion in the use of locational aids and subsidies in Europe and the United States. This process has escalated since then (OECD 1992, 1996a).

In a survey of nine regional incentive programs in Europe in 1981, Yuill and Allen (1981) found that all countries provided capital grants and interest-rate subsidies, four provided tax concessions, and four provided labor-related subsidies. The largest grants were equal to 60 percent of the cost of the project.

In the United States, between 1977 and 1984, the number of states offering a corporate income tax exemption to investors grew by one-third (from 21 to 28), the number of states offering incentives for establishing industrial plants in areas of high unemployment grew by 41 percent (from 17 to 24 states), and the number of states offering state financing aid for expansion of existing plants grew by 25 percent (from 29 to 37 states). Incentive programs “designed to attract new businesses or retain existing ones” grew to more than \$20 billion annually (Council of State Governments 1989; Schweke, Risk, and Dabson 1994).

In 1986, concern about the competition in investment incentives within the developed countries prompted the OECD to launch an aggregate data-collection exercise. The overall level of support for industry (including research and development outlays) peaked in 1991 at \$48 billion. However, the two components most directly involved in attracting or holding manufacturing firms—investment incentives and regional development incentives—have grown steadily, from 285 programs valued at \$11 billion in 1989 to 362 programs valued at \$18 billion in 1993 (the most recent year for which there are data). Grants have been the most widely used instruments: the share of grants in total industrial support from government exceeded 60 percent in 11 countries and 40 percent in 16 countries.

The focus of these programs, moreover, has expanded over time from a predominant concern with keeping companies and jobs in place to attracting new investments, in particular foreign investments. In the mid-1980s, OECD members worried that investment incentives and other industrial support would be confined to indigenously owned companies.

5. In addition to locational incentives, developed countries have used tariff escalation to protect domestic industries and discourage export-oriented investment in processing minerals or timber elsewhere.

Quite to the contrary, far from showing barriers to the participation of nonnationals in such programs, the OECD data record increasing efforts to use grants and tax concessions to attract foreign firms. The most recent OECD surveys show that fully 86 percent of all domestic support programs are available to foreign investors willing to establish domestic affiliates.

In the early 1990s, the OECD began to collect individual country reports from its members. Ireland, for example, reported to the OECD in 1994 that grants are the most commonly used incentive, with 80 percent of foreign start-ups receiving grant aid of up to 60 percent of fixed-asset costs (OECD 1994). New investors may be awarded additional grants that cover up to 100 percent of the costs of training employees; existing firms may receive up to 50 percent of the costs. The state provides office and building sites in industrial parks free of charge, along with capital grants or rent subsidies. Potential investors may be awarded “financial aid” of up to 50 percent of expenditures on feasibility studies. Ordinarily, grants need not be repaid.

Beyond these provisions, “special incentives may be negotiated for very large projects” in Ireland. In general, the corporate tax rate is 10 percent (in comparison to an OECD average of 30 to 35 percent). Boasting of what has been called the “Irish model,” the country calculated that since 1977, these incentive programs have helped bring 1,100 foreign firms, employing 95,000 people, to Ireland, accounting for over half of the nation’s industrial output and three-quarters of its manufactured exports.

Within the European Union, Ireland is considered a lagging region⁶ and thus is allowed to provide greater incentive packages than are countries of the more developed core, such as France. France reported to the OECD in 1996 that the central government provided subsidies of up to 25 percent of a given investment (OECD 1996c). In addition, to foster job creation, it can provide total or partial exemption of an employer’s social security contributions and reimbursement of training costs. Local authorities (regions, departments, and townships) can provide assistance by offering below-market prices for land, water, and electricity and by renting or selling commercial buildings under preferential conditions. They may also grant partial or temporary exemption from the business tax.

Since reunification, Germany has been allowed to provide subsidies to the former East Germany along lines of a “lagging region” and has offered the largest investment incentive packages within the European Union. Germany has not submitted a country study for OECD publication, but, according to the *Financial Times* (8 October 1996), “the amounts of aid Bonn has been prepared to sanction have far exceeded levels

6. Ireland, Portugal, and Greece, as well as large areas of Spain and Italy’s Mezzogiorno, qualify as lagging regions and receive favorable treatment from EU authorities in approving subsidies for investors.

Table 6.1 Developed-country investment incentives

Site	Investor and date	Subsidy	Employment	Subsidy per employee
Automotive sector				
Kentucky, US	Toyota, 1985	\$150 million	3,000	\$50,000
Portugal	Ford, 1991	\$484 million	1,900	\$254,000
S. Carolina, US	BMW, 1992	\$150 million	1,900	\$79,000
Alabama, US	Mercedes Benz, 1996	\$300 million	1,500- 1,700	\$200,000
Petrochemical sector				
Germany	Dow, 1996	\$6.8 billion	2,000	\$3,400,000
Louisiana, US	Shintech, 1997	\$125 million	250	\$500,000
Electronics/computer sector				
New Mexico, US	Intel, 1993	\$289 million	2,400	\$120,000
United Kingdom	Samsung, 1994	\$89 million	3,000	\$30,000
United Kingdom	Siemens, 1995	\$77 million	1,500	\$51,000
United Kingdom	Lucky Goldstar, 1996	\$320 million	6,100	\$48,000

Sources: UNCTAD (1996); *The New York Times* (9 November 1995, 1 September 1996); *Financial Times* (8 October 1996).

previously set by EU states, and forced other European governments to increase their own incentives.”

Comparisons between the United States and other developed countries are extremely difficult because the United States uses tax expenditures at both the federal and the state level for industrial support far more than do other countries. The United States has reported to the OECD only on state-government development policies, indicating that 36 states devoted economic resources to attracting or retaining investments on a discretionary basis (OECD 1995). The report acknowledged that incentive packages in the range of \$50 million to \$70 million were “typical” for such purposes and that the value of such incentive packages had been escalating, “particularly for high-impact, high-visibility projects.” For example, the report cited \$300 million in incentives paid to attract a single automobile plant in 1993.

Thomas (forthcoming 1998) has suggested that local tax expenditures may be as high as state tax expenditures, given the near-universal use of property tax rate abatements by municipal governments. The earlier sectoral study of the automotive industry showed a sharp escalation of state and local investment-incentive packages in the United States: from \$11,000 per job for Nissan in 1980; to \$13,857 per job for Mazda in 1984; to \$26,667 per job for Saturn in 1985; to \$51,000 per job for Subaru/Isuzu in 1986; to \$65,000 per job for BMW in 1992; and to \$200,000 per job for Mercedes in 1996. For the three sectors examined earlier, investment incentive packages have been large, and rising, within the OECD (see table 6.1).

One would have to know the details of the proposed plants in each of these sectors, and the strategies of each of the parent firms, to judge to what extent there might be direct competition between developed countries and developing countries/economies in transition for any given particular investment. However, it is clear that the international companies are making their investment decisions in the context of a bidding war among alternative sites running to tens of thousands of dollars of subsidy, and sometimes hundreds of thousands of dollars of subsidy, per job created.

Impact of Locational Incentives on International Investment Decisions

While the extent to which developed- and developing-country production sites can substitute for each other surely varies by industry, large segments of the automotive, petrochemical, and electronics/computer industries turned out to be quite movable during this initial period of globalization. And the overlap among developed- and developing-country sources of inputs, components, and final products in these industries alone—especially in the automotive and petrochemical sectors—remains large. Still, on the basis of the evidence from these industries, it would be difficult to predict how “contestable” production sites within other manufacturing sectors might be.

But does the increase in locational incentives have any impact whatsoever on which investment sites multinational firms choose? One might wonder at the need to pose the question in such a way, as if such grants, subsidies, tax breaks, and other incentives might not affect the investment decision-making process at all.

But there is a long tradition of assertion that locational incentives offered by developed countries have little impact on firms’ investment decisions (and are not, in any case, trade distorting) whereas export requirements (including incentives) offered by developing countries do have an impact (and are, in all cases, trade distorting).

What evidence has the debate over the impact of incentives on investment decisions produced? In the first extensive empirical survey on this issue, Reuber (1973) reported that 10 of 69 international firms in his sample indicated that incentives had little or no influence on the decision to undertake a particular project or not. The Reuber study noted (1973, 129), “It is evident that incentives are of some importance, particularly those provided via trade policy and tax measures. On the other hand, most firms are acutely aware of the difficulties posed by such incentives and frequently assert that they are reluctant to undertake projects that are heavily dependent for their success upon the incentives provided by the host country.” The Reuber results have subsequently been interpreted

Table 6.2 Use of incentives to influence location

Market orientation of the project	Type of incentive that influenced location	
	Commodity (tariff protection)	Factor (tax holidays, grants, etc.)
Small domestic markets	23 ^a	2
Large world-scale markets	1	15

a. Indicates that for 23 of the 41 projects examined, tariff protection was among the top 3 factors influencing the investment decision.

Source: Wells (1986).

to show that incentives are not, by themselves, significant determinants of where foreign investors choose to locate.

In the second principal empirical survey on this issue, Guisinger (1985) posed a counterfactual question to 30 international firms with regard to 74 investment decisions in some 20 developed and developing countries: if the host government were to offer you no incentives instead of the incentive package you received (or expect to receive for projects in process), would your investment decision have been different? In answer to this question, 50 of the 74 investors in the Guisinger sample reported that in the absence of the incentive package they would have abandoned the project, relocated it to another site, or served the market through exports.

Concurrent interviews with government officials demonstrated that they had considerable knowledge of investment packages offered elsewhere, and they believed that they could not reduce their packages to attract foreign firms without losing substantial FDI. Explicit performance requirements in return for incentive packages were more common in developing than in developed countries, but via careful structuring of such packages “developed countries achieve much the same result using implicit performance requirements ” (Guisinger 1985, 1989)

Wells’s (1986) recasting of the Guisinger (1985) data helps to reconcile the Reuber (1973)/Guisinger findings and clarify the role that incentives play. Wells divided the investment projects in the Guisinger sample into two groups: those whose output was destined exclusively for a small domestic market and whose size did not capture all the economies of scale in production and those whose output was destined for a large world-scale market and whose size did capture all relevant economies of scale. He then separated the locational inducements, following Guisinger’s terminology, into “commodity incentives” (tariff protection) and “factor incentives” (fiscal benefits such as tax holidays and grants).

The results, summarized in table 6.2, show that, for projects oriented exclusively toward a small domestic market, investors consider tariff protection to be highly important but fiscal incentives less so. For projects oriented toward large world-scale markets, investors consider fiscal in-

centives (grants, tax holidays, or reduced tax rates) to be highly important, but not tariff protection. Wells argued that these findings are consistent with surveys showing that special tax treatment in Puerto Rico, for example, has had a significant impact on the locational decisions of international investors that want to supply the United States market. Encarnation and Velic (1998), too, argue that investment incentives play a larger role in the location of export-oriented operations than in the location of other kinds of activities.⁷ Grants, tax holidays, and reduced tax rates do, in short, play a role in multinational corporate choice among locations for investment. (For a detailed examination of the corporate decision-making process at General Motors, for example, see box 6.1,⁸ which provides a case study describing how the General Motors headquarters in Detroit instructed investment negotiators in Europe to compare the “long-term competitiveness” of alternative sites for EU-wide production in the United Kingdom, Belgium, Portugal, and then-East Germany and allow locational incentives and subsidies to be used as a tiebreaker.) The importance of relative tax burdens for the locational decisions of international firms has been demonstrated in recent econometric studies of the relationship between tax policy and the activities of multinational corporations. Hines (1996) has found that differential tax rates exert a “powerful effect on the location and magnitude of foreign direct investment.” Outside the United States, countries with a 1 percent lower tax rate attract up to 3 percent more investment from the United States than they otherwise would; within the United States, states with low tax rates attract significantly greater FDI than high-tax states do. Policies that affect after-tax returns have a strong impact on investment decisions: a 1 percent increase in after-tax returns is associated with 1 percent greater investment (Hines 1996).⁹

7. Michalet (1997) argues that what zero-sum competition there is among alternative investment sites is confined primarily to particular regions, such as the European Union-Eastern Europe-Turkey, Asia, and the Western Hemisphere.

8. There is often a gap in perspective on the corporate decision-making process between business strategists and economists. Starting with assumptions of less than perfect competition, business strategists tend to consider major international corporate decisions to spring from competitive considerations that must endure for long periods of time—through changing economic circumstances, exchange rate relationships, and price fluctuations—with little attention to conditions at the margin at any particular moment in time. Locational grants, subsidies, and tax breaks are not likely, in their view, to play a large role in the choice of production sites. Starting (usually) with assumptions of near-perfect competition, economists consider firm decisions to spring more directly and rapidly from changes in market signals at the margin. Locational grants, subsidies, and tax breaks are likely, in their view, to have an impact in the choice of production sites. The case study in box 6.1 shows a blend of the two perspectives: competitive pressures drive corporate strategists to consider alternative ways to reinforce their long-term market position; locational grants, subsidies, and tax breaks then act as a tiebreaker among closely comparable sites.

9. Hines concludes that “governments compete with each other to offer firms ever-lower

Bond and Guisinger (1985; see also Guisinger 1989, forthcoming 1998) have been able to show, moreover, that changes in fiscal incentives do affect trade patterns, not unlike tariff protection. They found that the substitution of investment incentives for tariffs after Ireland's entry into the European Community left the effective rate of protection to manufacturers unchanged. Similarly, a study at the Federal Reserve Bank of St. Louis that focused on the relationship between fiscal incentives and export promotion has documented a positive correlation between the investment-promotion expenditures of individual states and subsequent exports from those states, even within a large country such as the United States (Coughlin 1988).

Overall, the most recent OECD assessment of locational incentives concludes, "the enormous amounts of support provided under such schemes, in the order of up to US\$100,000 per job created by the investment, call for a policy discussion on their trade- and competition-distorting side-effects" (OECD 1996b, 6).

The escalation of locational subsidies in the developed countries over the past two decades has left the developing countries and economies in transition at a disadvantage along several fronts. With the exception of some oil-exporting states, the developing countries and economies in transition do not, as a rule, have the financial resources to offer grants along the lines of many OECD countries. Instead, the most frequently used investment incentives are tax holidays (in particular, "pioneer status" for firms that are just starting up), investment tax credits, and accelerated depreciation. But the complexities of deploying these tax incentives efficiently, combined with administrative weaknesses in the countries themselves, prevent these tools from being used effectively.

Detailed studies of the use of the tax system to promote investment in Brazil, Mexico, Pakistan, Turkey, Malaysia, and Thailand show, *inter alia*, that tax incentives lead to highly distorted decision making for domestic and foreign firms, because they discriminate between firms that show losses in early years and those that do not and between relatively capital-intensive activities and relatively labor-intensive activities. They also shift tax revenues abroad in cases where there are no tax-sparing agreements between home and host governments and often generate revenue losses for the government that exceed the value of the new activities stimulated (Shah 1995).

tax rates to attract activities that are believed to be beneficial to their economies." In a study of the behavior of 3,000 firms in 14 countries, Cummins, Hassett, and Hubbard (1996) found that tax treatment of corporate income had a significant effect on firms' investment decisions. In particular, when corporate income tax rates fell, the amount of investment increased. Other studies that have failed to find such an effect, they argue, did not examine corporate investment both before and after major changes in tax law. Cummins, Hassett, and Hubbard did not look at the investment behavior of foreign and domestic firms separately.

As a result, there is little support among fiscal experts for more aggressive use of tax breaks and tax incentives to try to stimulate foreign (or domestic) investment in the developing world or economies in transition. Instead, recommendations for fiscal reform highlight a need for greater simplicity in tax structure, adjustment of corporate tax rates so that they are similar to those of the capital exporting countries, nondiscrimination between foreign and domestic investors, and the avoidance of double taxation via tax treaties with capital exporting countries.

At the end of the day, therefore, the difficulties in designing effective incentive structures, the institutional drawbacks to implementing such incentive structures successfully, and the lack of resources to supply up-front grants put less-developed countries and economies in transition at a fundamental disadvantage in trying to compete with the developed countries for international investment.¹⁰

In this context, they are particularly vulnerable to adopting an ill-advised path of least resistance, using rents generated via trade protection or other forms of market exclusivity as an off-budget way to match the locational incentive packages available elsewhere (see box 6.1).

In short, developing countries and economies in transition do not have the resources to compete with the developed countries in the struggle to attract international investment and often are driven to make poor policy choices in the effort to try. This not only results in economic inefficiencies but also generates a perverse political-economic dynamic as well: firms and workers with protected positions utilize what economic and political clout they have to slow down or prevent efforts to liberalize investment and trade flows.

Strategic-Trade Struggles and the Intersection between Trade Protection and Investment Diversion

There is a third rationale that might justify intervention by host governments that are trying to utilize FDI to penetrate international markets—namely, to strengthen or defend one’s position in a strategic-trade battle over the distribution of rents.

On a theoretical level, FDI has all the underpinnings for just such a struggle: barriers to entry and imperfect competition are the necessary conditions for firms to deploy their “intangible assets” outside of the familiar home economy. These intangible assets generate rents, which may emerge in the form of supranormal profits for the investor; most often they are found in the higher wages and desirable activities (attractive “chunks” of inframarginal activities) conducted by the foreign corporation

10. For the self-defeating nature of competition for investment and the disadvantages of poorer countries in such a competition, see Graham (forthcoming 1998).

Box 6.1 Trade rents vs. grants and investment subsidies in the competition to attract automotive investors, 1990-96

Investment-incentive packages offered by the developed countries sometimes place direct pressure on developing countries and economies in transition to devise ways to present comparable offers. Less obvious are the cases where developing countries and economies in transition have had to compete indirectly, in the same environment of offer and counteroffer of incentives, often dealing with the same senior executives and the same negotiating teams reporting back to the same parent decision makers, but not necessarily having to “beat out” alternative developed country sites as head-to-head substitutes.

The negotiations in the early 1990s between General Motors and the German government to build an integrated auto assembly plant at Eisenach in the former East Germany and between General Motors and the Hungarian government to build an export-oriented engine plant at Szentgotthard show the impact of indirect competition of the latter kind.

The negotiations with German authorities came first. The General Motors business plan for Europe in 1990-93 included one new assembly plant for 150,000 vehicles (with possible expansion to 200,000), to meet volume projections. GM strategists took four alternative options under consideration: an extension of a Vauxhall plant at Ellsmere Port in the United Kingdom; the reactivation of a mothballed plant at Antwerp in Belgium; a greenfield plant in Axambuja, Portugal; and a quasi-greenfield plant at Eisenach in the former East Germany.

As background for the negotiating team, GM assembled the following internal data on government assistance for investments in the automobile industry: as of 1989, Ford had received 58 percent of a \$200 million investment in Portugal; GM had received 45 percent of a \$119 million investment in Portugal; GM had received 37 percent of a \$124 million investment in Spain; and Chrysler had received 30 percent of a \$599 million investment in Austria. Memos between GM headquarters in Detroit and the GM negotiating team in Germany contained instructions that “the most important thing that should influence the decision is the long-term competitiveness of the facility.” Once the comparison was narrowed sufficiently to be a “wash,” however, subsidies and other special locational advantages “might appropriately be used as a tie-breaker.”

Armed with the incentive comparisons, the GM negotiating team made the pitch for government support at the highest level, to Chancellor Kohl on 5 October 1990. They argued that the German government had hitherto proposed investment subsidies for the Eisenach plant that were only two-thirds of those available elsewhere, that the GM request for an investment grant of \$267 million would be repaid in personal tax, social security, and corporate tax payments within as little as three years of completion of the facility and that if GM’s request were denied the company regretted that it would not be able to participate in the chancellor’s grand plan to rebuild the east. Kohl approved the grant at very near the level requested by General Motors (the Harvard Business School case writers were sworn to secrecy as to the exact amount and required to promise to destroy their notes in case the documentation might subsequently be sought by Brussels).

(continued on next page)

Box 6.1 (continued)

At the same time, General Motors was negotiating with Hungary for a \$300 million engine plant to produce 200,000 engines (1.6 and 1.4 liter) to be exported for use in cars assembled within the European Community. To launch this project, General Motors negotiated a 10-year tax holiday, a \$76 million loan from the European Bank for Reconstruction and Development, and \$37 million equity infusion from the Hungarian State Development Institute. Beyond this, however, the Hungarian government was able to mobilize an investment grant of no more than \$25 million.

Searching for ways to supplement such a comparatively modest investment package, therefore, Hungary entered into agreement with General Motors for the construction of a boutique 15,000 vehicle assembly facility (alongside the full-scale engine plant) protected with a 22.5 percent import duty, plus offering GM the right to sell 2,000 additional vehicles duty free. The package, conveniently “off budget” for the Hungarian negotiators, would generate as much as \$77 million per year in trade rents to be collected by General Motors. (What proportion of the trade rents accrues to GM as extra profits depends upon production costs in the boutique plant.)

The two-part General Motors facility has brought valuable benefits to Hungary: the engine plant capacity was approximately doubled in 1996 (to 460,000 units per year) and became even more firmly embedded in Opel’s greater-European sourcing strategy. The determination of General Motors management to make it a success, combined with what turned out to be a highly motivated Hungarian workforce that was eager to be trained in western production methods, has resulted in the Szentgotthard engine plant winning quality awards in internal competition with GM engine plants in the United Kingdom and Germany. Suzuki has followed General Motors into Hungary, looking for an export platform into the European Union.

As for GM’s boutique assembly plant, however, output peaked at 8 vehicles per hour in comparison to 90 vehicles per hour at GM’s full scale assembly operations elsewhere in Europe. There are no plans to “grow” the plant out of protected infant-industry status. Hungarian authorities boast about the status conveyed by having a “Hungarian Opel.” They have taken credit for the jobs created by the assembly plant (213 jobs in a single shift assembly operation in comparison to 890 workers in three shifts in the engine plant); however, they do not point out that the cost per job created has averaged approximately \$300,000.

Hungarian trade negotiators fear that the labor/ministry/political constituencies, which now have an interest in preserving the “Hungarian Opel” with its 213 jobs, will exercise pressure to slow trade liberalization in the country’s accession process into the European Union. Such protectionist coalitions, including protected foreign investors, have already had an impact on trade-and-accession policy in Poland (for details, see chapter 4).

Sources: Harvard Business School (1993); Klein (1995).

where it carries out production. In addition, they may generate externalities in the form of uncompensated spillovers of benefit to other sectors of the economy where the FDI is located.

Empirically, the studies of FDI in the automotive, petrochemical, and electronics/computer sectors bear this out. The direct operations of the

foreign investors created tens of thousands of jobs (paying higher than average wages and training managers and workers who sometimes move elsewhere); produced billions of dollars of exports; introduced technology that was one-third newer than any other method of technology acquisition; produced a follow-the-leader effect on the investment behavior of rivals in the industry; and brought component companies with them as investors too.

At the same time, the foreign investors trained indigenous suppliers in management, quality control, and mastery of technical processes, and the founders of such indigenous suppliers often came from the ranks of their own managers. In the automotive and electronics/computer industries, they qualified hundreds of local firms to meet OEM and REM standards. They introduced domestic firms as suppliers to other subsidiaries of their parents abroad; many of those domestic firms began to export to arms-length buyers in international markets as well.

In this process of incorporating new host-country production sites into their global/regional/sourcing networks, they brought what this study has identified as an integration effect. That is, they linked the operations within hosts to the cutting edge of technology, best business practices, and quality control standards needed to maintain their competitive position around the globe. They introduced the subsidiary to the major leagues; they required the subsidiary to raise its state of play to championship levels and to maintain the quality of its contribution.

The strategic determination of the parent to tie the operations of the subsidiary to the parent's fate in international markets may constitute an FDI version of the phenomenon Richardson and Rindal (1996) and Richardson and Khripounova (1997) have found for companies that are "globally engaged." These authors discovered that a firm's commitment to link itself with international markets brings a set of challenges which, when met and mastered, sets it apart from firms that do not make such a commitment. The globally engaged firm shows better performance in terms of management, marketing, and technology; it is more flexible, agile, and responsive to threats and opportunities; it generates higher profits and pays higher wages and benefits than other firms; it grows faster and provides (surprisingly) greater stability for workers, managers, and suppliers.

Beyond the integration effect, the foreign investors' decision to establish full-scale export facilities in each of these sectors—automotive, petrochemical, and electronics/computer—frequently led to the clustering of related activities nearby, which themselves also carried economies of scale, economies of scope, opportunities for pooling and specialization, and probabilities of technological/human-resource spillovers.

To what extent do these clustered activities constitute "poles" of economic geography, replete with "thick externalities"? Specialists in the field of economic geography and strategic-trade theory will wish for more detailed studies of externalities and of agglomeration effects of

scale, scope, and specialization, using case study analysis such as Borrus, Doner, Ernst, Rasiah, Linden, Peres Nuñez, Shapiro, etc. and using statistical analysis such as Aitken, Blomstrom, Haddad, Hanson, Harrison, etc. summarized in the previous chapter.

But just as Krugman (1991, 22) was impressed by Alfred Chandler's account of one or two great companies laying the basis for regional industrial centers with one or two great investment decisions in the United States (accompanied by follow-the-leader effects), so future economic geographers are likely to tie the establishment of industrial complexes around Sao Paulo, Minas Gerais, Monterrey, Matamoros, Surabaya, Jubail, and Penang to one or two investment decisions on the part of the multinational investment community (accompanied by follow-the-leader effects).

And practitioners in the construction of new economic geography in Russia, Ukraine, Romania, China, and Vietnam and in the reconfigured economic geography of India, Argentina, and the Philippines will want to understand the dynamics not just of the firms themselves but of the contending regions where the automotive, petrochemical, and electronics/computer industries (*inter alia*) of the future may come to be located.

As they do, they will note that there are two additional policy tools, besides locational incentives, that are increasingly being deployed in the struggle to attract international investment, capture rents, and fix the location of great industrial complexes.

These two additional policy tools are antidumping regulations and rules of origin. Each could be considered an important tool for hosts on the second-best grounds of the previous section. But they are even more appropriate to be considered here as an element of the strategic-trade struggle because of the central role they are likely to play as administrative protection turns trade wars into investment wars.

The analysis here adds a new dimension to the understanding of strategic-trade competition that is of special importance for developing countries and economies in transition. Strategic-trade theory, in general, draws on a stylized model in which all actors have comparable resources and comparable production sites and in which the public sector determines where investments become located. Rules of origin and antidumping regulations, however, are being deployed not simply to shift rents among comparable production sites but to cancel out and offset the structure of production that international comparative advantage would otherwise dictate. This has particularly ominous implications for countries that hope to use international investment to propel their growth along the path of comparative advantage.

Rules of Origin

Rules of origin determine which products enjoy the benefits of a preferential trading agreement as a function of how much domestic content is

embodied in the product (Krueger 1992; Krishna and Krueger 1995). Their rationale is based in negotiating strategy: they prevent free riders from enjoying access to the liberalized internal market in a particular region without having to take comparable liberalizing measures themselves. They are also used as protectionist devices, to limit competition from sources outside the preferential trading area. Finally, they serve as investment-forcing measures, because they require companies that want to enjoy access to the preferential area to undertake production locally to meet the required domestic-content levels.

The simplest method that has traditionally been used to determine origin is a “change of tariff heading rule,” which allows goods with local processing sufficient to move its classification from one Standard Industrial Trade Classification (SITC) code to another to qualify as a domestic product. The further rules of origin depart from this change of tariff heading standard and require greater levels of domestic content for a product to qualify as domestic, the more protectionist the impact and the greater the diversion of investment needed to meet the standard.

As the sectoral examination of the electronics/computer sector showed, the United States and European Union have imitated each other in utilizing rules of origin, along with other restrictive policies, to protect local industries and to shift FDI into member states (Skud 1996).

The use of rules of origin as protectionist devices first came to prominence, in fact, not in the electronics/computer sector, but in the automotive sector. After the United States-Canada Free Trade Agreement adopted a 50 percent local content requirement for automobiles, the United Kingdom and France proposed an 80 percent local content rule for the Nissan Bluebird to qualify as an EC product. In the end, they backed down in the face of Italian and German opposition and decided to rely on quantitative restrictions to protect against Japanese imports (Jensen-Moran 1996a, 1996b).

The use of rules of origin to divert investment soon came to focus on “high value added” activities associated with electronics/computers and other office equipment. As indicated earlier, in 1989, the European Union abruptly changed the rule of origin to require that “diffusion” (wafer fabrication) for semiconductors be done within Europe to avoid the high, 14 percent semiconductor tariff. Whereas US companies performed most of their diffusion operations in the United States prior to the decision, 7 of the largest 10 US producers built fabrication facilities in Europe following the rule change. Citing the need to comply with the new rule of origin, for example, Intel invested \$400 million in Ireland for wafer fabrication and semiconductor assembly. The European Union has adopted high domestic-content rules of origin in other industries such as photocopiers, as well, and the European Union has also entertained proposals for even tighter requirements for printed circuit boards and telecom switching equipment.

A similar mix of protectionism and investment shifting was evident in the US effort in NAFTA to prevent “screwdriver” assembly operations from being set up within the borders of Canada, the United States, and Mexico that could utilize low-cost inputs from outside. For automobiles, electronic products (printers, copiers, television tubes), textiles, telecommunications, machine tools, forklift trucks, fabricated metals, household appliances, furniture, and tobacco products, NAFTA rules of origin require that a substantial portion of inputs originate in NAFTA countries.

In some sectors, the principal target for protection and/or investment shifting was another developed country. In automobiles, raising the domestic content rule from 50 percent in the United States-Canada Free Trade Agreement to 62.5 percent in NAFTA required Japanese and European firms to replace imports from their home countries. But the impact cannot be confined to developed countries: flows of parts and supplies from production sites in developing countries and economies in transition are certain to be affected as well.

As indicated in the section on electronics/computers, many of the domestic-content rules in NAFTA were aimed specifically at diverting imports and investment from developing-country sites and, in particular, at forcing investment in North America at the expense of Asian production locales. In telecommunications, the requirement that 9 out of 10 printed circuit boards be packaged in North America disadvantaged AT&T, Fujitsu, and Ericsson operations in Asia and led them to shift investment to North America. Similarly, in color television, the requirement that the major component in the set (the television tube) be of North American origin caused Hitachi, Mitsubishi, Zenith, Sony, and Samsung to initiate or to expand tube production within NAFTA borders. As for copying machines, the special rule of origin (equivalent to 80 percent value added) was instrumental in forcing Canon to build a \$100 million-plus copier facility in the United States rather than in Malaysia or China, where the parent judged that costs would be lower.

As for regional trading restrictions elsewhere, in the EU association agreements with countries in Eastern and Central Europe, the relatively restrictive rules of origin have distorted trade and investment patterns in comparison to what international comparative advantage would dictate. The 60 percent domestic content in the automotive sector has forced the General Motors engine plant in Hungary to use high cost German steel as an input, preventing utilization of Hungarian or Polish steel instead, for example, let alone steel of Russian, Turkish, or other origin (Klein 1995). The near 100 percent domestic-content requirement in textiles and apparel has forced the German partner in the Brinkmann-Prochnik joint venture in Poland to load a truck with cotton fabrics, thread, buttons, and even labels in Germany; transport it to Lodz for stitching into trench coats; and reimport it for sale in the European Union—rather than allow the Polish partner to source from cheaper supplies locally or develop new

suppliers in Belarus, Ukraine, Romania, or Bulgaria (Harvard Business School 1994).

Mercosur, likewise, has deployed a regime for rules of origin that has stimulated strong rates of internal investment. However, it has had a distortionary impact equivalent to relatively high tariff walls that has limited imports from nonmember countries in Latin America and elsewhere (Yeats 1997).

In the multilateral “harmonization exercise” for rules of origin within the WTO, as well as in regional negotiations to extend NAFTA into a Free Trade Area of the Americas, or to enlarge Mercosur, or to incorporate East and Central European states into the European Union, the central choice will be to maintain (or even deepen) the beggar-thy-neighbor thrust of current origin regimes or to reduce regional domestic-content provisions on a multilateral basis.

Host countries in the developing world and economies in transition not only have a high stake in an outcome dictated by others, but could themselves be instrumental in building higher or lower walls among regions. Their interest in widening the access for products incorporated in the global sourcing patterns of international investors along lines of comparative advantage should lead them to advocate the latter.

The thrust toward protecting local industries and diverting investment via rules of origin with high domestic-content reinforces, and interacts perversely with, a second tool that accomplishes the same objectives, namely, antidumping regulations. One might think that with an overall reduction in tariff levels, rules of origin might be of diminishing importance. But rules of origin ensure that only products that meet stringent domestic-content requirements will be exempted from the threat of antidumping prosecution, even as external tariffs decline.

Antidumping Regulations

Antidumping regulations do have a legitimate role in trade policy. That role is to prevent international price discrimination with a predatory objective of driving out competition and monopolizing foreign markets.

Selling abroad at a price lower than in domestic markets is *prima facie* evidence of the presence of trade restriction in the home market; otherwise, arbitrage and the reimport of domestic goods sold more cheaply abroad would force the price levels together. Such trade protection provides home-country producers with rents to use in trying to drive foreign producers out of business in a predatory manner.

In the past two decades, however, the legal test for dumping in the United States and the European Union has shifted from price discrimination to selling below “the fair cost of production,” with the latter defined as average total cost plus a markup for overhead and profit. Because firms

will be driven toward marginal cost (or average variable cost) in pricing their output under competitive conditions, this use of average cost to characterize “fairness” imposes an inefficient standard as the definition of dumping (Boltuck and Litan 1991; Deardorff 1989).

The standard based on average cost plus markup for overhead and profit also enshrines discrimination against external producers: local firms are allowed to respond to competitive conditions by pricing near marginal cost when market circumstances dictate. But foreign firms are not allowed to match this behavior without being found guilty of dumping. In short, two firms, one domestic and one foreign, can be pursuing exactly the same practices, pricing their output at exactly the same level, and the domestic firm can go about its business freely while the foreigner can be taken to court and found guilty because of the way that dumping is defined.

Antidumping actions are filled with a rhetoric about “unfair behavior” being perpetrated by foreigners. In contrast to such emotion-laden characterization, however, a review by the OECD of antidumping cases in Australia, Canada, the European Union, and the United States found that 90 percent of the import sales judged to be unfair according to contemporary antidumping standards would have been legal under corresponding domestic competition standards; that is, they would be considered perfectly fair if undertaken by a domestic firm making a domestic sale (Finger 1997).

The investment-diversion impact of antidumping regulations takes place in two ways: first, indirectly, by generating an obstacle or an uncertainty that retards a firm’s investment in potential export operations and second, directly, by causing the redeployment of production to the market protected by antidumping regulations. The easiest way to avoid antidumping liability is to slip in under the umbrella of domestic competition law, establishing operations within the market where a firm hopes to sell its products rather than exporting to that market from abroad.

Overall, between 1985 and 1994 there were 450 antidumping investigations by the United States, 428 by Australia, 240 by the European Union, 203 by Canada, and 270 by all other countries together, with duties being levied in 70 to 80 percent of the cases for the United States and the European Union.

The inefficient, discriminatory, and investment-diverting nature of antidumping regulations is exacerbated when those regulations are applied against products from the economies in transition. The presumption for antidumping purposes is that prices are distorted in the former communist/socialist economies and that these economies do not have market forces strong enough to generate accurate information even on average costs of production. The developed countries, therefore, use “surrogate” countries to simulate “constructed costs” based on prices for inputs such

as labor, raw materials, energy, and capital in the surrogate rather than the true exporting economy. Whatever comparative advantage the economy in transition might have from lower input costs and/or greater efficiency than in the surrogate is thereby lost.¹¹

Producers in the countries chosen as surrogates are then petitioned to provide detailed information on their costs, which they often refuse to do (because such information is not infrequently used subsequently to prepare antidumping actions against them). The antidumping adjudication agencies then collect the best information available, much of which is supplied by lawyers for the petitioners, to make their determinations.

The choice of surrogate countries is both arbitrary and impossible to anticipate, leaving any firm (domestic or foreign) that wishes to consider investing in an export facility in a given economy in transition without any way to know how vulnerable such a facility might be to future antidumping actions. In two petrochemical cases (low-density polyethylene and polyvinyl chloride) Sweden was used as the surrogate country even though antitrust cases had shown cartel behavior to be particularly strong in Sweden and prices there were “the highest possible prices of reference” (Messerlin 1990a) Likewise, in a third petrochemical case (sodium carbonate), Austria was chosen despite its status as a highly protected market dominated by a single seller (a Belgium firm, Solvay), which was the main petitioner in the antidumping case, a drawback subsequently recognized by the EC Commission in its review of the case (Olechowski 1993).

Imputed costs of production of electric motors in Bulgaria, the Czech Republic, Hungary, Poland, and Romania have been calculated by the European Union by measuring the costs of production of electric motors in Sweden (Hindley 1993). The costs of steel plate from Romania have been derived by the US Commerce Department by reviewing the costs of production of steel plate in Finland (the Finnish producer’s reward for cooperating was to find itself the subject of a subsequent antidumping review). The costs of manhole covers from China were first estimated on the basis of costs of production of manhole covers in Belgium, Canada, France, and Japan, with a resulting 11 percent antidumping duty. Three years later, the surrogate production site chosen to construct costs for the same Chinese manhole covers was redesignated as the Philippines (which does not export manhole covers to the United States), using imaginary raw materials from the United States, Britain, and Japan imported into the Philippines, then hypothetically exported back to the United States as manhole covers, with a resulting 97 percent antidumping duty (Down the Commerce Dept.’s Manhole, *The Washington Post*, 25 December 1990). With the arbitrary surrogate-country test,

11. Only a comparative advantage from using factors of production less intensively remains (Horlick and Shuman 1984).

an investor that wants to construct an export platform in an economy in transition cannot predict what liability the subsidiary may later encounter in prosecution for dumping.

Under such circumstances, the exports from the economies in transition have been easy targets. From 1980-90, the European Community imposed antidumping duties or negotiated “price undertakings” in 77 percent of the cases brought against exporters in Eastern Europe (Eymann and Schuknecht 1993).¹² From 1990-93, US antidumping actions brought against states of the former Soviet Union (Russia, Ukraine, Tajikistan, and Kazakhstan) were uniformly successful, with antidumping margins above 100 percent assessed in every case (Wagnon 1995; Michalopoulos and Tarr 1994).

Given the faulty microeconomics of the contemporary test for dumping, no investor in any sector can have confidence in its ability to engage in normal business practices in pricing products for export without ending up in court. Like rules of origin, antidumping regulations severely limit the possibility of using FDI (or indigenous investment, for that matter) to penetrate international markets.

In addition to the direct impact of antidumping regulations on trade flows, there are indirect, more subtle, effects. One might suppose that antidumping laws affect trade only when a petition is filed, dumping is proved, injury is demonstrated, and antidumping duties are imposed. But studies demonstrate that

- the mere existence of antidumping laws can stifle exports from countries that might be the target of such laws even in periods when no petitions are actually filed (Staiger and Wolak 1994);
- there are substantial “investigation effects” from antidumping petitions that prevent foreign exporters from aggressively pursuing market share;
- antidumping petitions withdrawn before a final determination can have as restrictive an impact on subsequent trade flows as would be the case if a “guilty” determination had been made and penalties imposed; and
- antidumping actions that are in fact rejected still have a substantial impact on exports from the named country (Prusa 1992, 1994, 1997).

The number of antidumping investigations initiated by industrialized countries rose precipitously during the late 1980s and early 1990s and

12. In the 1990s, the European Union has successfully initiated antidumping cases involving five commodities against Russia, Ukraine, Kazakhstan, and Belarus, although it is not known what percentage of all cases this represents (Michalopoulos and Tarr 1994).

Table 6.3 Antidumping investigations initiated, 1988-96

	1988-90	1991-93	1994-96
Industrial countries	289	539	310
Developing countries	31	118	246

Sources: GATT (1997); Finger (1997).

leveled off thereafter. Antidumping initiations by developing countries, in contrast, have surged (see table 6.3).

As in the case of rules of origin, the challenge for the developing countries and economies in transition that want to utilize FDI in penetrating international markets is to join ranks with multinational investors in unraveling these growing barriers to global sourcing along lines of comparative advantage. Their increase in use of antidumping regulations is a major step in the wrong direction.

Policy Implications for Using Foreign Investors to Penetrate International Markets: The Dilemmas of Passivism, Escalation, and Playing for a Draw

This chapter began by asking how well markets function in allocating production sites to serve international markets. It found indications of several possible kinds of market failure that suggest that FDI in world-scale export facilities is likely to be undersupplied. Furthermore, there is a role for would-be host governments to expend resources to trigger investor response on domestic welfare grounds and for multilateral policies to encourage and support the spread of such investment on global-welfare grounds. The stakes in attracting export-oriented investment, moreover, turn out to be much larger than conventional calculations suggest: the rewards are much greater, and the opportunity costs of waiting passively for such investment to arrive on its own are much higher.

Among the principal obstacles to effective market functioning, the imperfectly competitive nature of the industries and problems of information asymmetry and appropriability are not the only hindrances to optimal investment flows. The use of locational incentives by public authorities eager to maintain old production sites or attract investment to new ones provides a second-best justification for intervention to correct for distortions.

Finally, the competition for the particularly lucrative, externality-filled chunks of economic activity associated with FDI has all the characteristics of a strategic-trade battle to capture rents. In this context, the array of investment-shifting/rent-capturing devices deployed by the developed

countries is more dangerous than commonly assumed. As this chapter shows, these devices cannot be excused as a mere nuisance. They are not simply a mild safety valve to be used to release economic and political pressure while the great processes of liberalization rolls ahead. Instead, they are highly disruptive to the proper functioning of markets and introduce serious distortions.

This leaves authorities in the developing countries and economies in transition with a dilemma of major proportions. On the one hand, there are multiple justifications for intervention, high rewards for success, and weighty penalties for passivity. On the other hand, joining in the struggle to attract investment with the policy tools already in play—locational subsidies (or trade rents from protected operations to substitute for grants), tight regional rules of origin, and antidumping actions—is quite unlikely to improve, and quite likely to harm, the ability of their countries to utilize FDI to penetrate international markets.

For developing countries and economies in transition to adopt a strategy of matching the interventions of the developed world would be to engage in a battle they cannot win, and whose outcome they may worsen.

The strategic-trade framework helps to identify the only effective way out of this dilemma. The internal dynamics of competition for rents is quite predictable. In particular, there is an endemic drive to search for advantage, with matching moves on the part of others and escalation the logical result, unless there is a common effort to establish a cease-fire and draw back.

The less-developed countries and economies in transition have a vital self-interest not to participate in the same myopic set of actions (expanding their own antidumping actions, tightening rules of origin in their own regions, engaging in the locational incentive race, etc.) that undermines the ability of all economies to develop along lines of international comparative advantage. Instead, their long-term self-interest requires that they support, participate in, and even lead such a cease-fire and draw-back.