CHAPTER XI

ASSESSING FDI AND DEVELOPMENT IN THE NEW COMPETITIVE CONTEXT

A. The new competitive context

The development priorities of developing countries include income growth, raising investments and exports, creating more and better employment opportunities, and benefiting from technological progress. Governments are committed to achieving these in a sustainable manner, ensuring that resources are available to future generations. The new international economic environment places considerable pressures on developing countries to upgrade their resources and capabilities if they are to achieve these objectives. In a liberalized policy setting, governments focus increasingly on providing an institutional framework within which private enterprises can thrive.

Foreign direct investment can play an important role in the development process. However, the objectives of TNCs differ from those of host governments: as noted in chapter V, governments seek to spur *national* development, while TNCs seek to enhance their own competitiveness in an *international* context. There can be considerable overlap between the two, but there are also differences. These differences created much suspicion of FDI in the past in developing countries. However, perceptions have changed greatly in recent years. So have the ways in which TNCs operate and organize themselves globally. Both are in response to the new global context: rapid technical progress, shrinking of economic space, improved communication, intensification of competition, new forms of market rivalry, increasingly mobile capital, widespread policy liberalization and more vocal (and influential) stakeholders. Up to now, *WIR99* has focused on FDI in this new context, in particular areas. This chapter draws together the implications of the analysis in the preceding chapters for development and government policy at the national level; the next chapter addresses the responsibilities of TNCs themselves.

A vital part of the new context is the need to improve *competitiveness*, "competitiveness" being defined as the ability to sustain income growth in an open setting. In a liberalizing and globalizing world, growth can be sustained only if countries can create new, higher value-added activities that hold their own in open markets. This requires many things. Central among them is the ability to use new technologies efficiently, furnishing the requisite skills and institutions. Globalization also affects TNCs. The ownership advantages that account for their international activity are changing in line with technical change and shrinking economic space. Rapid innovation and deployment of new technologies in line with logistic and market demands is

more important than ever before. The rising complexity of information flows and the diversity of possible locations mean that TNCs have to organize and manage their activities differently. They also have to change relations with suppliers, buyers and competitors to manage better processes of technical change and innovation. And they have to strike closer links with institutions dealing with science, technology, skills and information. The spread of technology to, and growth of skills in, different countries means that new TNCs are constantly entering the arena to challenge established ones. Many of the entrants are small firms, or previously publicly-owned enterprises that were traditionally confined to home markets; a significant number are enterprises from developing countries.

A striking feature of the new context is how TNCs are shifting increasingly their portfolios of mobile assets across the globe to find the best match with the immobile assets of different locations. In the process, they are also shifting some functions that create their ownership assets like R&D, training and strategic management to different locations within an internationally integrated production and marketing system (the process of "deep integration"). The ability to provide the necessary immobile assets thus becomes a critical part of an FDI – and competitiveness – strategy for developing countries. While a large domestic market remains a powerful magnet for investors, TNCs serving global markets increasingly look for other attributes that can help raise their competitiveness. The opening of markets creates new opportunities and challenges for TNCs and gives them a broader choice of modes with which to access those markets. It also makes them more selective in their choices of potential investment sites.

Apart from primary resources, the most attractive immobile assets for export-oriented TNCs are now world-class infrastructure, skilled and productive labour, innovatory capacities and an agglomeration of efficient suppliers, competitors, support institutions and services. Low-cost unskilled labour remains a source of competitive advantage for countries, but its importance is diminishing; moreover, it does not provide a base for sustainable growth since rising incomes erode the edge it provides. The same applies to natural resources. Natural resources provide a rent for as long as the resource is in demand. But without upgrading the technologies used or establishing downstream industries, the resource may face eventually stagnant prices and the risk of substitution. In both cases, to draw the most dynamic assets of TNCs requires that host countries improve the quality of their immobile assets.

There is no conflict between exploiting static sources of comparative advantage and developing new ones: existing advantages provide the means with which new advantages can be developed. A steady evolution from one to the other is the basis for sustained growth. What is needed is a policy framework to facilitate and accelerate the process: this is the essence of a competitiveness strategy. The need for such strategy does not disappear once growth accelerates or economic development reaches a certain level; it merely changes its form and focus. This is why competitiveness remains a concern of governments in developed countries as much as (if not more than) in developing ones. The starting point for this concern is that providing a level playing field and letting firms respond to market signals is sufficient only to the extent that markets work efficiently. In theory, two sets of conditions justify policy intervention:

- Market failure: markets fail to exploit existing endowments fully, or to develop new competitive advantages, if they do not give the correct signals to economic agents so that they can make proper investment decisions. Many market failures are the result of past policies; here the correct strategy is to remove inefficient interventions. Many are inherent to markets, particularly in developing countries. Where markets are weak and supporting institutions absent, information may not flow efficiently, risky projects may never take place, costly learning may not be undertaken, and externalities and linkages with other agents may result in under-investment. It then becomes necessary for development for governments to strengthen markets and institutions.

- Government capabilities: governments should be able to formulate a development vision, decide on trade-offs between objectives, and design, monitor and implement policies to overcome market failures that beset these objectives. In other words, government failure

must not be more costly than market failure. This condition is often not met. Economic history has many instances of badly designed or implemented policies. This does not rule out the case for intervention. Many strategies have been efficient (some, as in East Asia, dramatically so). Moreover, government skills and capabilities are not static. Governments can learn and their capabilities can be improved with training, information and correct incentives. Policy design must reflect current (and future) government capabilities, and not require interventions that exceed those capabilities. This means that policies must be flexible and constantly monitored. They must also be coherent and consistent in addressing objectives, with coordination between different branches of government and between the government and economic agents.

The need for coherence and coordination means that a strategy for development using FDI can benefit from an overall vision of what the development objectives are and how they can be achieved. Such visions can differ greatly across countries, depending on the nature of the economy and the government. Take the mature East Asian newly industrializing economies. One vision – pursued by Singapore – was to rely heavily on FDI, integrate the relatively small economy into TNC production networks and promote competitiveness by upgrading within these networks. Another, that of the Republic of Korea and Taiwan Province of China, was to develop domestic enterprises and autonomous innovative capabilities, relying on TNCs as arm's-length sources of technology. Yet another, that of the administration of Hong Kong (China), was to leave resource allocation largely to market forces, while providing infrastructure and governance. Strategies can be made, of course, without explicit visions. They can emerge from political and social processes, inter-group and intra-governmental interactions, and other internal or external pressures. In such cases, however, there is a risk that policies are not fully coordinated, signals are unclear, difficult strategic decisions are not taken and responses to changes are slow.

There is no ideal development strategy that uses FDI for all countries at all times. Any good strategy must be context specific, reflecting the level of economic development, the resource base, the specific technological context and the competitive setting. Each must take into account government capabilities. The appropriate strategy for a country with an advanced industrial and skill base and a well-developed administration must differ from one for a country with rudimentary industry, deficient skills and weak administrative structures. With these general considerations in mind, and with competitiveness as the long-term objective, we now turn to the role of FDI in developing countries.

B. FDI in developing countries

1. Introduction

Most developing countries today consider FDI an important resource for development. However, the economic effects of FDI are almost impossible to measure with precision. TNCs represent a complex package of attributes that vary from one host country to another. These are difficult to separate and quantify. Where their entry has large (non-marginal) effects, measurement is even more difficult. There is no precise method of specifying a counter-factual – what would have happened if a TNC had not made a particular investment. Thus, the assessment of the development effects of FDI resorts to one of two general approaches. The first is econometric analysis of the relationships between inward FDI and various measures of economic performance. The second is a qualitative analysis of particular aspects of TNC contribution, without any attempt at calculating a net rate of return.

The conclusions of the econometric analysis of FDI and economic growth remain unclear, especially as regards the causality within the relationship. Some analyses show a positive impact of FDI on growth (see the chapter annex), others a negative impact; yet others have found growth to be a determinant of FDI. Since growth depends on many factors whose effects are difficult to disentangle, and since FDI itself affects several of these factors, an indeterminate conclusion is probably the most sensible. But there is little doubt that fast growth and large FDI inflows go hand in hand in many instances.

The qualitative analysis of FDI, taking its different components separately, is more appealing. *WIR99* has adopted this approach. The purpose has not been so much to analyse the impact of FDI in an abstract sense, but to start from the premise that it offers a mixture of positive and negative effects. The task facing host countries is then to disentangle these effects, and take measures that maximize one and minimize the other.

There is, however, a prior issue, similar to the one posed earlier about competitiveness. If TNCs were to operate in well-functioning markets and were to act as rational profit maximising agents, there would be no need for policy intervention.[1] Their impact would be negative only if markets were distorted. The optimal policy for a government would then be to provide security, the basic rules of the game, public infrastructure and good macroeconomic management, and to place no restrictions whatsoever on the free flow of FDI.

This is justifiable only if the stringent assumptions of well functioning markets are fulfilled. Most analysts would doubt that they are, even in a simplified pragmatic sense – underdevelopment is characterized by an absence of efficient markets and institutions. More importantly, the mere existence of TNCs is itself a manifestation of market failure. Large oligopolistic firms operate across national boundaries precisely because they have firm-specific ownership advantages over other firms, enjoy scale and scope economies, internalize deficient markets for information and skills and have privileged access to finance. All these violate the requirements of perfect competition. It is not clear that the interaction between the efficient internalized markets of TNCs with the deficient ones of host developing countries leads automatically to mutual benefit.

Policies on FDI are needed to counter two sets of market failures. The first arises from information or coordination failures in the investment process, which can lead a country to attract insufficient FDI or the wrong quality of FDI. The second arises when private interests of investors diverge from the economic interests of host countries. This can lead FDI to have negative effects on development, or it may lead to positive but static benefits. Private and social interests may of course diverge for any investment, local or foreign: policies are then needed to remove the divergence for all investors. However, some divergence may be specific to *foreign* investment. FDI may differ from local investment because the locus of decision-making and sources of competitiveness in the former lie abroad, TNCs pursue regional or global competitiveness-enhancing strategies or because the investor has less commitment to the host economy and is relatively mobile. Many countries also feel that foreign ownership has to be controlled on non-economic grounds, for instance, to keep cultural or strategic activities in national hands. Thus, the case for intervening in FDI may have a sound economic basis. Let us consider this case.

2. What FDI offers

FDI comprises a bundle of assets, some proprietary to the investor and others not. The proprietary assets are what the literature terms the “ownership advantages” of TNCs. These give TNCs an edge over other firms (local and foreign) and allow them to overcome the transaction costs of operating across national boundaries. Non-proprietary assets – finance, capital goods, intermediate inputs and the like – can be obtained from the market, at least in part. Proprietary assets can only be obtained from the firms that create them. They can be copied or reproduced by others, but the cost can be very high (particularly in developing countries and where advanced technologies are involved). TNCs are naturally reluctant to sell their most valuable assets to unrelated firms that can become competitors or could leak them to others that have not paid for it.

Of proprietary assets, the most prized is probably technology. But there are others: brand names, skills, and the ability to organize and integrate production across countries or to establish marketing networks. They also include privileged access to the market for non-proprietary assets: TNCs may be able to raise funds, or purchase equipment, on better terms than smaller firms, or firms in developing countries. Taken together, these advantages mean that TNCs can contribute significantly to host developing countries – if the host country can induce them to transfer their advantages in appropriate forms and has the capacity to make good use of them.

The assets that the FDI bundle comprises are:

- Capital: (chapter VI): FDI brings in investible financial resources to host countries. The inflows are more stable, and easier to service, than commercial debt or portfolio investment. In distinction to other sources of capital, TNCs invest in long-term projects, taking risks and repatriating profits only when the projects yield returns.

- Technology (chapter VII): developing countries tend to lag in the use of technology. Many of the technologies deployed (even in mature industries) may be outdated. More importantly, the efficiency with which they use given technologies may often be relatively low. Even if part of their productivity gap is compensated for by lower wages, technical inefficiency and obsolescence can severely handicap the quality of their products and their ability to cope with new market demands. TNCs can bring modern technologies, some not available without FDI, and they can raise the efficiency with which existing technologies are used. They can adapt technologies to local conditions, drawing upon their experience in other developing countries. They may, in some cases, set up local R&D facilities. They can upgrade technologies as innovations emerge and consumption patterns change. Moreover, they can stimulate technical efficiency in local firms, suppliers, clients and competitors, by providing assistance, acting as role models and intensifying competition.

- Market access (chapter VIII): TNCs can provide access to export markets, both for existing activities (that switch from domestic to international markets) and for new activities that exploit the host economy's comparative advantages. The growth of exports itself offers benefits in terms of technological learning, realization of scale economies, competitive stimulus and market intelligence.

- Employment, skills and management techniques (chapter IX): TNCs possess advanced skills and can transfer these by bringing in experts and by setting up state-of-the-art training facilities. (The need for training is often not recognized by local firms.) New management techniques can offer great competitive benefits. Where affiliates are integrated into TNC networks, they can develop capabilities to service the regional or global system in specific tasks across the entire spectrum of corporate functions.

- Environment (chapter X): TNCs often possess clean technologies and modern environmental management systems, and can use them in all countries in which they operate. Some TNCs are in the forefront of adopting high environmental standards at home and abroad.

While TNCs offer the potential for accessing these assets in a package, this does not mean that simply opening up to FDI is the best way of obtaining or benefiting from them. As noted, there are market failures in the investment process and divergences between TNC and national interests. This means that governments may have to intervene in the FDI process to attract or promote (specific types of) FDI, or to regulate and guide it.

The policy issues fall into four groups, taken up below:

- Information and coordination failures in the international investment process.

- Infant industry considerations in the development of local enterprises, which can be jeopardized when inward FDI crowds out these enterprises.

- The static nature of advantages transferred by TNCs where domestic capabilities are low and do not improve over time, or where TNCs fail to invest sufficiently in raising the relevant capabilities.

- Weak bargaining and regulatory capabilities on the part of host country governments, which can result in an unequal distribution of benefits or abuse of market power by TNCs.

The complexity of the FDI package means that there can be trade-offs between different benefits and objectives. For instance, countries may have to choose between investments that offer short as opposed to long-term benefits; the former may lead to static gains but not necessarily to dynamic ones. A large inflow of FDI can add to foreign exchange and investment resources in a host economy, but it may deter the development of local firms or create exchange-rate problems. The desire to generate employment may lead governments to favour labour-intensive, low-technology investments, while that to promote technology development may favour more sophisticated investors. Similarly, the desire to upgrade technology may call for a heavy reliance on technology transfer by TNCs, while the desire to promote local innovation and deepening may require more emphasis on arm's length transfers to indigenous firms. There can be many such trade-offs, and there is no universal answer to how they should be made. As noted, there is no ideal policy on FDI which applies to all countries at all times.

3. Policy issues

a. The international investment process

WIR99 has stressed that the factors affecting the choice of TNC location relate increasingly to efficiency and competitiveness. Resource-based investments apart, the sites that receive most FDI in a liberalizing setting are those that allow TNCs to set up competitive facilities able to withstand global competition and enhance the competitiveness of the corporate system as a whole. This means that the host country will want to provide competitive immobile assets – skills, infrastructure, services, supply networks and institutions – to complement the mobile assets of TNCs. While market size and growth (as well as such factors as transport costs and taste differences) mean that large markets will continue to attract more investment than small ones, few countries can afford to take continued inflows of FDI – especially high quality, export-oriented FDI – for granted. This means that the ultimate draw for FDI is the economic base of the host country; FDI-attracting efforts by themselves cannot compensate for the lack of such a base.

This being said, however, there remains a strong case for proactive policies to attract FDI. Countries may not be able to attract the volume and quality of FDI they desire, and that their economic base merits, for one or more of three principal reasons. These are high transaction costs; deficient information on the potential of the host economy; and insufficient coordination between the needs of TNCs, the assets of a host economy and the potential to improve those assets.

- *High transaction costs*. While most FDI regimes are converging on a common (and reasonably welcoming) set of rules and incentives, there remain large differences in how these rules are implemented. The FDI approval process can take several times longer, and entail costs many times greater, in one country than another with similar policies. After approval, the cost of setting up facilities, operating them, importing and exporting goods, paying taxes, hiring and firing workers and generally dealing with the authorities, can differ enormously.

- Such costs can, other things being equal, affect significantly the competitive position of a host economy. An important part of a competitiveness strategy thus consists of reducing unnecessary, distorting and wasteful business costs. This affects both local and foreign enterprises. However, foreign investors have a much wider set of options before them, and are able to compare transaction costs in different countries. Thus, attracting TNCs requires not just that transaction costs be lowered but also, increasingly, that they be benchmarked against those of competing host countries. One important measure that many countries are taking to ensure that international investors face minimal costs is to set up one-stop promotion agencies able to guide and assist them in getting necessary approvals. However, unless the agencies have the authority needed to negotiate the regulatory system, and unless the rules themselves are simplified, this may not help. On the contrary, there is a risk that a "one-stop shop" becomes "one more stop".

- Despite their size and international exposure, TNCs face *market failures in information*. They collect considerable information on potential sites on their own, as well as from FDI information brokers and other foreign investors. However, their information base is far from perfect, and the decision-making process can be subjective and biased.

- "Prospective investors, even the largest firms, do not always conduct systematic world-wide searches for opportunities. The search for opportunities is a bureaucratic process whose initiation and direction may be swayed by many factors, including imperfect information and skewed risk perceptions. Most companies consider only a small range of potential investment locations. Many other countries are not even on their map." (IFC / FIAS, 1997, p. 49).

  Taking economic fundamentals as given, it may be worthwhile for a country to invest in altering the perception of potential investors by providing better information and improving its image. However, such promotion efforts are highly skill-intensive and potentially expensive. They need to be carefully mounted, and they should be targeted to maximize their impact. Targeting can be general (countries with which there are trade or historic connections, or which lack past connections but are ripe for establishing them), industry-specific (investors in industries in which the host economy has an actual or potential competitive edge), even investor-specific. Note that targeting or information provision is *not* the same as giving financial or fiscal incentives: incentives play a relatively minor role in a good promotion programme, and good long-term investors are not the ones most susceptible to short-term inducements. The experiences of Ireland, Singapore and more recently Costa Rica, suggest that promotion can be quite effective in raising the inflow of investment and its quality.

  Effective promotion should go beyond simply "marketing a country" and into *coordinating the supply of immobile assets with the specific needs of targeted investors*. This addresses potential failures in markets and institutions for skills, technical services or infrastructure in relation to the specific needs of new activities targeted via FDI. A developing country may not be able to meet such needs, particularly in activities with advanced skill and technology requirements. The attraction of FDI in such industries can be greatly helped if the host government discovers the needs of TNCs and meets them. As Costa Rica illustrates, the fact that it was prepared to invest in training to meet Intel's skill needs was a major point in attracting the investment. Singapore goes further and involves TNC managers in designing its on-going training and infrastructure programmes, ensuring that the country remains attractive for future high-technology investments. The information and skill needs of such coordination and targeting exceed those of promotion *per se*, requiring the competent agency to have detailed knowledge of the technologies involved (their skill, logistical, infrastructural, supply and institutional needs), as well as of the strategies of the relevant TNCs.

b. Domestic enterprise development and FDI

The development of domestic enterprises is an important objective of most developing countries. In fact, FDI is attracted to economies with a vibrant domestic enterprise sector. This issue is often discussed in the context of crowding out, which can take one or both of two forms: first, in the product market, by adversely affecting learning and growth by local firms in competing activities; second, in financial markets, by reducing access or raising costs for local firms. Both raise legitimate policy issues.

The first issue reflects "infant industry" considerations though they differ from the usual connotation of protecting new activities against import competition. It takes the form here of fostering incipient learning in domestic *vis-à-vis* foreign firms. FDI can abort or distort the growth of domestic capabilities in competing industries when direct exposure to foreign competition prevents local enterprises from undertaking lengthy and costly learning processes. Foreign affiliates also undergo learning locally, to master and adapt technologies and train employees in

new skills. However, they have much greater resources to undertake this learning, and considerably more experience of how to go about learning in different conditions. In these cases, "crowding out" can be said to occur if potentially competitive local firms cannot compete with affiliates *at a given point in time.*

The infant industry argument for trade protection differs from that for domestic enterprise protection. When trade protection is abolished, consumers benefit from cheaper imports and greater product variety; but some domestic production and employment can be lost. Without local enterprise protection from FDI competition, there is still domestic production, and employment (in addition to consumer benefits); but there can be less indigenous entrepreneurial development (and less variety of such development), particularly in sophisticated activities. The net cost of this is that linkages may be fewer and technological deepening may be constricted. As with all infant industry arguments, crowding out is economically undesirable if three conditions are met. First, infant local enterprises are able to mature to full competitiveness if sheltered against foreign competition through trade and / or FDI. Second, the maturing process does not take so long that the discounted present social costs outweigh the social benefits. Third, even if there are net social costs, there must be external benefits that outweigh them.

Crowding out can impose a long-term cost on the host economy if it holds back the development of domestic capabilities or retards the growth of a local innovative base. This can make technological upgrading and deepening dependent on decisions taken by TNCs, and in some cases hold the host economy at lower technological levels than would otherwise happen. However, it is important to distinguish between crowding out potentially efficient domestic enterprises from affiliates out-competing inefficient local firms that cannot achieve full competitiveness. One of the greatest benefits of FDI can be the injection of new technologies and competition that leads to the exit of inefficient enterprises and the raising of efficiency in others. Without such a process, the economy can lack dynamism and flexibility, and lose competitiveness over time, unless competition between local firms in the domestic market is intense or they face international competition (say, in export markets). TNCs can also *crowd in* local firms if they strike strong linkages with domestic suppliers, subcontractors and institutions (see below).

The second form of crowding out reflects an uneven playing field for domestic firms because of a segmentation in local factor markets: TNCs may have privileged access to such factors as finance (which may give them a special advantage especially *vis-à-vis* local SMEs) and skilled personnel because of their reputation and size (especially in small economies). They can thus raise entry costs for local firms, or simply deprive them of the best factor inputs.

Both forms of crowding out raise legitimate policy concerns. Most governments wish to promote local enterprises, particularly in complex and dynamic industrial activities. Many feel that deepening capabilities in local firms yields greater benefits than receiving the same technologies from TNCs: knowledge is not "exported" to parent companies and exploited abroad, linkages with local suppliers are stronger, there is more interaction with local institutions, and so on. The few developing countries that have developed advanced indigenous technological capabilities have restricted foreign entry (some in general, others in specific activities). Without building such capabilities, countries may languish at the bottom of the technology ladder. The possession of a strong indigenous technology base is vital not just for building the competitiveness of local enterprises – it is also important for attracting high technology FDI and for R&D investments by TNCs. As noted below, the level of local capabilities determines the benefits of spillovers from foreign presence.

At the same time, there are risks in generally restricting FDI to promote local enterprises. For one thing, it is very difficult in practice to draw the distinction between crowding out and legitimate competition. If policy makers cannot do this efficiently and flexibly, they may prop up uneconomic local firms for long periods, at heavy cost to domestic consumers and economic growth. For another, the context is itself changing. The danger of technological lags if TNCs are kept out in sophisticated activities is much greater now than, say, three decades ago. So is the risk of being unable to enter export markets for activities with high product differentiation and

internationally integrated production processes. The evidence produced earlier (chapter VII) showed how few countries had a significant international presence of domestic firms in complex manufacturing activities. There is another implication of the changing context. Since most developing countries are liberalizing their trade regimes in any case, FDI may provide an effective way to develop industry, since TNCs face lower learning costs than local enterprises and may be better able to deal with restrictions in export markets.

The right balance of policies between regulating foreign entry and permitting competition depends on the context. Only a few countries have built impressive domestic capabilities and world-class innovative systems while restricting the access of TNCs. Many others have restricted foreign entry, but have not succeeded in promoting competitive domestic enterprises in high-technology manufacturing activities. Success clearly depends on a number of things apart from sheltering learning. The most important are the competitive climate in which learning takes place and the availability of complementary inputs. If firms face intense competition, both locally and in international markets (say, through export activity), they have an incentive to invest in constant learning and upgrading. If they have access to ample human (particularly technical and managerial) resources, a strong science and technology infrastructure, and efficient suppliers, consultants and institutions, they are able to learn. Without a competitive setting and responsive factor markets, however, learning is likely to be stunted. Since many high-technology industries have significant economies of scale and scope, the size of the domestic market is also important. In sum, the infant enterprise argument remains valid, and can provide a case for policy intervention to promote local capability development. Obviously, interventions have to be carefully and selectively applied, monitored and reversed where necessary.

As far as access to factor markets is concerned, TNCs can crowd in as well as crowd out domestic firms. Crowding in can take place when foreign entry increases business opportunities and local linkages, raises investible resources or makes factor markets more efficient. Such stimulating effects are most likely when FDI concentrates in industries that are undeveloped in host countries. Where local firms are well developed, however, but face difficulties in raising capital or other resources because of TNC entry, there can be harmful crowding out.

Similar considerations apply to mergers and acquisitions of local firms by TNCs, a common form of foreign entry in Latin America, and more recently in Asian countries affected by the financial crisis. (Thailand is a good example.) Some M&As that entail a simple change of ownership akin to portfolio investment can be of dubious developmental value. If they involve only a change of ownership without adding to productive capacity or productivity, they can just increase the foreign exchange drain on the host economy once the investment has been made. Some take-overs lead to asset stripping, and large M&A inflows can become large outflows when the investments are liquidated, giving rise to exchange rate volatility and discouraging productive investment. Many countries, including developed ones, are concerned about the adverse impact on employment, though this may be part of a rationalization effort that can raise productivity. M&As can have anti-competitive effects if they reduce the number of competitors in the domestic market.

On the other hand, M&As may yield significant economic benefits. Where the investor makes a long-term commitment to the acquired firm and invests in upgrading and restructuring its technology and management, the impact is very similar to a green-field investment. In Thailand, for instance, a number of M&As in the automobile industry are leading to restructuring and increased competitiveness, with a surge in commercial vehicle exports. FDI can play an important role in modernizing privatized utilities such as telecommunications and public utilities, as in many instances in Latin America. Foreign acquisitions can prevent viable assets of local firms from being wiped out; this can be particularly important in economies in transition and financially-distressed developing countries.

The benefits of M&As (including in the context of privatization) depend on the circumstances of the country and the conditions under which enterprises are acquired and

subsequently operated. Several countries feel the need to control M&As and the subsequent operation of acquired assets, particularly for reasons of competition policy. The correct policy is not blanket prohibition of M&As; this would involve a loss of large potential benefits in terms of foreign exchange, productivity and export growth. However, there may be value in monitoring M&As, instituting effective competition policies, and placing limits on them when the macroeconomic situation justifies this.

This raises a related question: the effects of FDI on market structure in host countries. There has been a long-standing concern that the entry of large TNCs raises concentration levels within an economy and thus leads to the abuse of market power. The risk is, as noted, certainly present. TNCs tend to congregate in highly concentrated industries. Whether this leads to the abuse of market power is not clear. The correlation between foreign presence and concentration may owe more to the nature of TNC ownership advantages than to deliberate anti-competitive behaviour. In small economies, the efficient deployment of modern scale-intensive technologies is bound to lead to highly concentrated market structures. If these economies have liberal trade regimes, the danger of anti-competitive behaviour in such structures is largely mitigated. However, it remains true that effective competition policy becomes more and more important in a world in which large transnational firms can easily dominate an industry in a host country – we take up competition policy below.

c. Static versus dynamic effects

Many important issues concerning the benefits of FDI to technology, skills and competitiveness revolve around their static or dynamic nature. Most analysts agree that TNCs can be efficient vehicles for the transfer of technologies and skills suited to *existing* factor endowments in host economies. They provide technology at very different levels of scale and complexity in different locations, depending on market orientation and size, labour skills, technical capabilities and supplier networks. Where the trade regime in host (and home) countries is conducive (and infrastructure adequate), they can use endowments effectively to expand exports from host countries. This can create new capabilities in the host economies and can have beneficial spillover effects. In low-technology assembly activities, the skills and linkage benefits may be low; in high-technology activities, however, they may be considerable. Unless they operate in highly protected regimes, pay unduly low wages (as in some EPZs in low-skill assembly), or benefit from expensive infrastructure while paying no taxes, there is a strong presumption that FDI contributes positively to using host country resources efficiently and productively. This constitutes one major step up the development ladder, and it can apply to each host country depending on where it is located on that ladder.

In this context, one of the main benefits of TNCs to export growth is not simply their ability to provide the technology and skills to complement local resources or labour, but to provide access to foreign markets. TNCs are increasingly important players in world trade. They have large internal (intra-firm) markets, access to which is available only to affiliates: these comprise some of the most dynamic and technology-intensive products in world trade. They also control (or have access to) large markets in unrelated parties. They have established brand names and distribution channels, with supply facilities spread over several national locations. They can influence the granting of trade privileges in their home (or in third) markets. All these factors mean that they enjoy considerable advantages in creating an initial export base for new entrants.

The development impact of FDI depends, however, on more than the static exploitation of factor endowments. It also depends, to a greater extent, on the *dynamics* of the transfer of technology and skills by TNCs: how much upgrading of local capabilities takes place over time, how far local linkages deepen, and how closely affiliates integrate themselves in the local learning system. As noted, sustainable growth is more the outcome of dynamic sequences than the static ones, though there need be no necessary conflict between the two. However, TNCs may simply exploit the existing advantages of a host economy and move on as those advantages erode. Static advantages may not automatically transmute into dynamic advantages. This possibility

looms particularly large where a host economy's main advantage is low-cost unskilled labour and the main TNC export activity is low-technology assembly.

The extent to which TNCs dynamically upgrade their technology and skill transfer and raise local capabilities and linkages depends on the interaction of four factors. These are the trade and competition policy regime; government policies on the operations of foreign affiliates; the corporate strategies and resources of TNCs; and the state of development and responsiveness of local factor markets, firms and institutions.

The *trade and competition policy regime* in a host economy provides the incentives for enterprises, local and foreign, to invest in developing local capabilities. In general, the more competitive and outward-oriented the regime, the more dynamic is the upgrading process. A highly protected regime, or one with stringent constraints on local entry and exit, discourages technological upgrading, isolating the economy from international trends. This is not to say that completely free trade is the best setting. Infant industry considerations deem that some protection of new activities can promote technological learning and deepening. However, even protected infants must be subjected to the rigours of international competition fairly quickly – otherwise they will never grow up. This applies to foreign affiliates as well as to local firms, though, as noted, their learning processes are likely to differ. A strongly export-oriented setting with appropriate incentives (e.g. tax-free profits on exports) provides the best setting for rapid technological upgrading.

The second factor concerns *policies on the operations of foreign affiliates*: local-content requirements, incentives for local training or R&D, pressures to diffuse technologies and so on. Most host countries have used such policies. The results have often been poor when they were not integrated into a wider strategy for upgrading capabilities. However, where countries used them as part of a coherent strategy, as in the mature newly-industrializing economies, the results were often highly beneficial: foreign affiliates enhanced the technology content of their activities and of their linkages to local firms, which were supported in raising their efficiency and competitiveness. Much of the effort needed by the foreign affiliates to upgrade local capabilities involves extra cost and effort; they will not necessarily undertake this effort unless it is cost effective and suits their long-term objectives. For the host economy, it is worth doing so only if it leads to efficient outcomes. If upgrading is forced beyond this limit it will not survive in a competitive and open environment. The use of performance requirements is now being constricted by international rules such as those contained in the TRIMs Agreement. While there are good reasons for pressing for greater market orientation and level playing fields, it is important to retain policies to correct for market failures –including information flows, linkages, cluster formation and learning.

The third factor is *TNC strategies.* Firms differ between themselves, in their *corporate strategies* in the extent to which they assign responsibility to different affiliates and decide their position in the corporate network. As noted in chapter V, TNCs are changing their strategies in response to technological change and policy liberalization, and much of this is outside the scope of influence of developing host countries. Nevertheless, host country governments can influence aspects of TNC location decisions by such measures as targeting investors, inducing upgrading by specific tools and incentives and improving local factors and institutions (below). This requires them to have a clear understanding of TNC strategies and their evolution; they cannot formulate their own effective strategies otherwise. Indeed, foreign affiliates themselves can become allies in this respect, e.g. when they seek global product mandates (which, for example, may involve an upgrading of local R&D).

The fourth factor, the state and responsiveness of *local factor markets, firms and institutions*, is probably the most important one. TNCs upgrade their affiliates where it is cost-efficient to do so. Moreover, since firms in most industries prefer their suppliers to be nearby, they will deepen local linkages if the suppliers can respond to new demands efficiently. Both depend upon the efficacy and development of local skills and technological capabilities, supplier networks and support institutions. Without improvements in factor markets, TNCs can improve the skills and

capabilities of their employees, but only to a limited extent. They cannot compensate for weaknesses in the local education, training and technology system. In the absence of rising skills and capabilities generally, it would be too costly for them to import advanced technologies and complex, linkage-intensive operations.

Education, training and technology markets have well-known "public good" characteristics. Individuals may invest too little in their own education because of myopia, risk aversion, lack of information or lack of finance. Institutions may not provide the right kinds of skills, or may be absent altogether. Other firms may under-invest in training and knowledge creation. SMEs may not receive adequate technical, training and marketing support, and so on. Raising local skills and capabilities requires widespread policy support. Some are pure public goods that only governments can provide. Others need governments to catalyse private provision (including by TNCs themselves) and to regulate its quality and delivery. Whatever the nature of such improvements, there is no doubt that they are critical to realizing the dynamic benefits of foreign (and domestic) investment.

At the same time, there are risks that TNCs inhibit technological development in a host economy. TNCs are highly efficient in transferring the results of innovation performed in developed countries, but less so in transferring the innovation process itself. While there are some notable exceptions, foreign affiliates tend to do relatively little R&D apart from that needed for local absorption and adaptation. This is may be acceptable for countries at low levels of industrial development, but can become a constraint on capability building as countries approach maturity and need to develop autonomous innovative capabilities. Once host countries build strong local capabilities, TNCs again contribute positively by setting up R&D facilities. However, at the intermediate stage, the entry of large TNCs with ready-made technology can inhibit local technology development, especially when local competitors are too far behind to gain from their presence. Their technology spillovers may, in other words, be negative. This is far more likely to be the case with semi-industrial host economies that lack the industrial depth and institutions of developed countries.

However, where a host economy adopts a proactive strategy to develop local skills and technology institutions, it may be able to induce TNCs to invest in local R&D even if there is little research capability in local firms. As with many other aspects of FDI strategy, the best example here is Singapore, which has the third highest ratio of enterprise-financed R&D to GDP in the developing world, with most of it coming from foreign affiliates.

The appropriate policy response, as before, is not to rule out FDI but to selectively channel it so that local learning is protected and promoted. In countries that do not have technological ambitions for local firms, it is possible to induce advanced TNC technological activity by building skills and institutions. As before, there are no general pescriptions – FDI strategy is an art not a science.

d. Bargaining and regulation

In some cases, the outcome of FDI depends significantly on how well a host economy bargains with international investors. However, the capacity of developing host countries to negotiate with TNCs is often limited. The skills and information available to TNCs tend to be of better quality. With growing competition for TNC resources, the need of many developing countries for the assets of TNCs is often more acute than the need of TNCs for the locational advantages offered by a specific country. In many cases, particularly in export-oriented investment projects where natural resources are not a prime consideration, TNCs have several alternative locations. Host countries may also have alternative foreign investors, but they are often unaware of them.

It is therefore a distinct possibility that, where the outcome of an FDI project depends on astute bargaining, developing host countries may do rather poorly compared to TNCs. The risk is particularly great for major resource-extraction projects and the privatization of large public

utilities and industrial companies. Considerable bargaining also takes place in manufacturing projects where incentives, grants and so on are negotiated on a case-by-case basis. (There is intense and prolonged bargaining for large manufacturing investments in developed countries.) Though the general trend is towards non-discretionary incentives, considerable scope for bargaining still exists.

The need for regulation is growing in importance. The capacity of host developing countries to regulate enterprises in terms of competition or environment policy is emerging as the most active policy-making area. With liberalization and globalization, there are fewer tools left to ensure competitive conduct by foreign and local firms. An effective competition policy is therefore an absolute necessity. However, most developing countries lack effective competition policy. Some, in fact, are not aware of the need for such policy. Mounting a competition policy is a complex task, with needs for specialized skills and expertise that are often scarce in developing countries. It is important for host countries to start the process of developing these, especially in the presence of large TNCs with significant market power.

Similar concerns arise with respect to the environment. Many developing host countries have only limited regulations on the environment and lack the capacity to enforce effectively what regulations they have. TNCs are often accused of exploiting these to evade tougher controls in the developed world; some host countries are accused of using lax enforcement to attract FDI in pollution intensive activities. The evidence on the propensity of TNCs to locate their investments in order to evade environmental regulations is, however, not conclusive. Some firms may well do so. Others enforce uniformly strict standards in all their affiliates and even require their local suppliers to observe those standards. TNCs are under growing pressure to conform to high environmental standards from home country environmental regulations, consumers, environment groups and other "drivers" in the developed and developing world. Many thus see environment management not only as necessary but also as commercially desirable. However, it is up to host governments to ensure that other TNCs and domestic firms follow the example set by "green" TNCs.

Another important regulation problem is that of transfer pricing to evade taxes or restrictions on profit remission. TNCs can use transfer pricing over large volumes of trade and service transactions. The problem is not restricted to dealings between affiliates, and may also arise in joint ventures. However, it may well be that the deliberate abuse of transfer pricing has declined as tax rates have fallen and remittances have been liberalized in much of the developing world. Double-taxation treaties between host and home countries also lower the risk of transfer-pricing abuses. However, this does not mean that the problem has disappeared. It remains a widespread concern among developed and developing countries, and tackling it needs considerable expertise and information. Developing country tax authorities are generally ill equipped to do this, and can benefit greatly from technical assistance and information from developed-country governments.

4. Policy-making capacity

Managing FDI policy effectively (in the context of a broader competitiveness strategy) is a demanding task. A passive *laissez faire* approach is unlikely to be sufficient because of deficiencies in markets and existing institutions. Such an approach may not attract sufficient FDI, extract all the benefits it offers, or see it operate by best-practices standards. However, the performance of any approach depends critically on the ability of the government to "deliver". If administrative capabilities are not appropriate to the skill, information, negotiation and implementation abilities needed, it may be better to minimize market interventions and simply reduce obstacles in the way of FDI, minimize business costs and leave resource allocations to the market.

A *laissez faire* FDI strategy may yield benefits, particularly in a host country that has under-performed in terms of competitiveness and investment attraction because of past policies. A strong signal to the investment community that the economy is open for business can attract

FDI into areas of existing comparative advantage. However, there are two problems. First, if attractive locational assets are limited, or their use is held back by poor infrastructure or non-economic risk, there will be little FDI response. Second, even if FDI comes, its benefits are likely to be static and will run out when existing advantages are used up. To ensure that FDI is sustained over time and enters new activities necessarily requires policy intervention, both to target investors and to raise the quality of local factors. Needless to say, for the great majority of countries the form of intervention has to be different from traditional patterns of heavy inward-orientation and market-unfriendly policies – it has to be aimed at competitiveness.

As noted repeatedly, there is no ideal universal strategy on FDI. Any strategy has to suit the particular conditions of a country at a particular time, and evolve as its needs change and its competitive position in the world alters. Increasingly, it has also to take into account that international investment agreements set parameters for domestic policy making; governments of developing countries need to be careful, therefore, that such agreements do leave them the policy space they require to pursue their development strategies (box XI.1). Making effective strategy requires above all a development vision, coherence and coordination. It also requires the ability to decide on trade-offs between different objectives of development. In a typical structure of policy making, this requires the strategy-making body to be placed near the head of government, so that a strategic view of national needs and priorities can be formed and enforced.

Box XI.1. Flexibility in international investment agreements

Appropriate national policies are necessary if FDI is to contribute to development as much as possible. Indeed, national policies and rules are the principal means by which development objectives and strategies are given effect. International investment agreements (IIAs) are also increasingly important. By clarifying the rights and obligations of the parties involved in international investment relations and by providing mechanisms for the settlement of investment disputes, these agreements help establish a favourable investment climate. However, care must be taken that IIAs not only do not impede development but support it. The challenge here is how to ensure that countries at different levels of development and with different development strategies benefit from IIAs in promoting their growth and development. One way to achieve this is by allowing participating countries to retain a certain flexibility in order to give effect to their national development policies and strategies. The issue is particularly important given the proliferation of IIAs (see chapter IV).

Most IIAs – and particularly BITs – have as their main objective the intensification of economic cooperation and the creation of favourable conditions for investment, with a view towards promoting and protecting FDI. In the case of agreements that involve developing countries, in particular, the promotion of economic and social development is an essential goal. To respond to the concerns of developing countries, IIAs need therefore to be designed from the start with development considerations in mind. One of the challenges facing countries is therefore to ensure that IIAs serve adequately, in addition to the specific objectives of each instrument, the development needs of developing countries. A major issue that arises in this respect is that the countries covered by IIAs are often at widely disparate levels of economic and technological development and differ from one another in many other important respects (economic asymmetry). At the same time, the parties to an agreement are formally equal (legal symmetry). While it is widely recognized that IIAs need to take into account the interests and concerns of all participating parties, the asymmetries among them require special attention to ensure that the aim of development is actually achieved. A way to deal with these asymmetries is to allow a degree of flexibility in IIAs as they apply to developing countries participating in them.

Flexibility in IIAs may be approached from four main angles:

- *Objectives*. Examples of preambles that refer to development as an objective can be found in a number of IIAs. They may refer broadly to development as an overall objective or outline specific development objectives. Sometimes there is a general recognition of the special needs of developing and/or least developed countries requiring flexibility in the operation of obligations under the agreement, especially as regards the operation of their national laws.

- *Substantive provisions*. It is clear that the contents of IIAs is the principal means by which their development orientation is given effect. Countries parties to an IIA make choices as to the types of issues they wish to include and those they wish to keep outside the scope of an agreement, to

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(Box XI.1, concluded)

be dealt with in specialized instruments (e.g. double-taxation treaties) or as a matter of national law and policy. Even when they decide to include certain issues, countries may wish to retain some flexiblity regarding the commitments they made. They may therefore use formulations that allow them some discretion to pursue their national policies while keeping in line with the broad principles of the agreement. Development concerns can also serve to determine the extent to which the contents of an IIA reflect a balance of rights and responsibilities for all actors concerned. Recent IIAs often contain provisions dealing with protection, liberalization and promotion of foreign investment; they may also include provisions dealing with other concerns, e.g. the proper functioning of markets, transfer of technology and various elements of what is considered to be good corporate citizenship. Agreements have sought to formulate these issues more or less flexibly in order to accommodate development concerns.

- *Overall structure.* The development orientation of international agreements needs to be reflected in their structure. The structure is important because it reflects, and thereby determines, the overall design of the relationships between the parties. Sometimes the entire agreement is informed by the aim of development. The economic asymmetry of the parties to an agreement can also be recognized by distinguishing explicitly between rights and obligations of developed and developing countries and, even more importantly, by allowing countries to assume gradually certain obligations, e.g. by identifying specific activities or measures in relation to which they are prepared to assume certain obligations.

- *Modalities of implementation.* Implementation mechanisms depend on the particular characteristics of an agreement, including whether it is a stand-alone agreement (e.g. BITs), or forms part of a larger body of commitments (e.g. WTO GATS and TRIMs). The implementation process can be responsive to development objectives by providing for various exceptions or temporal derogations from the obligations of an agreement when it comes to developing countries to reflect their special situation. Moreover, it may be necessary to put in place special arrangements for technical and financial assistance, including for instance for the purpose of promoting investment and technology flows to developing countries through appropriate home-country measures.

In short, like all other international agreements, IIAs at whatever level typically contain obligations that, by their very nature, reduce to some extent the policy-making autonomy of the participating parties. At the same time, such agreements need to recognize the differences of the parties involved where these differences are indeed substantial, as between developed and developing countries. More specifically, if IIAs do not allow developing countries to pursue the paramount objective of advancing their development — indeed, make a positive contribution to this objective — they run the risk of being of little interest to them. This underlines the importance of designing, from the start, IIAs in a manner that allows their parties a certain degree of flexibility in pursuing their development objectives. At the same time, of course, there is the question of what degree of flexibility would be consistent with the aims and functions of an IIA. In other words, there is a need to balance flexibility and commitments. In this respect, flexibility needs to be linked to other basic concepts such as transparency, stability and predictability of national regulations, in order to avoid connotations of arbitrariness or excessive discretion in dealing with foreign investment.

Source: UNCTAD, 1999d.

The traditional structure of departments and ministries is not suited to forming such views or to ensuring that strategies cutting across traditional lines of authority are implemented. For instance, an investment promotion body located at a relatively low level in, say, the commerce ministry, cannot assure prospective investors that the infrastructure, skills or trade procedures they need will be provided if they meet specified conditions (e.g. to set up technologically-advanced facilities). The experience of Singapore, where the Economic Development Board has the authority to negotiate and deliver on all aspects related to FDI (including incentives and grants) suggests that effective FDI strategy needs such a centrally-located body, perhaps a council that brings together key policy makers and representative of business (apart from other stakeholders). Most agencies are not, however, structured in this way. Besides, they mainly seek to attract FDI or facilitate the investment process, rather than formulate broader strategy.

Moreover, the FDI promotion body needs highly skilled personnel with an intimate understanding of the private sector and world markets. Many government promotion agencies do not have such personnel, particularly as far as marketing is concerned. Some mixture of private and public sector skills is necessary, with a quasi-government status and considerable autonomy and some economic authority. Some marketing and promotion activities can also be subcontracted to the private sector, as in Indonesia and the United Kingdom. Experience suggests that investment promotion works best when it targets export-oriented FDI; domestic-market oriented investors need less attracting and persuasion. However, it is worth reiterating that no amount of promotion can overcome underlying structural and economic deficiencies.

* * *

Finally, to return to the new context: what is different today in the FDI scene from that of three decades ago? Perhaps the most important change is technological: the world is more closely knit, using different means of organization, communication and production, and is more subject to rapid change than ever before because of constant and pervasive technical change. The leaders in the innovation process are TNCs. Countries are responding to the technological challenge, and to past development experience, by liberalizing their economies. However, the spread of technological benefits is uneven, and the activities of TNCs do not necessarily reduce this unevenness – they may even exacerbate it. Part of the reason for this is that many countries lack the capabilities and institutions to cope with a rapidly globalizing world economy. The past 30 years show striking – and growing – differences between countries in their ability to compete and grow. They also show how markets by themselves are not enough to promote sustained and rapid growth: policies matter, as do the institutions that formulate and implement them. There is an important role for government policies, but not in the earlier mould of widespread intervention behind high protective barriers. Rather, in a globalizing world economy, governments increasingly need to address the challenge of development in an open environment. FDI can play a role in meeting this challenge. Indeed, expectations are high, perhaps too high, as to what FDI can do. But it seems clear that if TNCs contribute to development — and do so significantly and visibly - the relationship that has emerged between TNCs and host country governments (particularly in developing countries) over the past 15-20 years can develop further with benefits for all concerned.

Note

1 There may still be a case for policy intervention if TNCs, because of their sheer size or market power, distort markets.

Annex to chapter XI
The impact of FDI on growth: an econometric test

Introduction

The phenomenon of economic growth is complex, and the lines of causation frequently go both from supposed causes to growth and from growth to the supposed causes. Furthermore, the various factors that are thought to explain growth are themselves interrelated. These problems face all studies attempting to throw light on whether, in what way, and to what extent a particular factor or group of factors affect growth. They similarly apply to study of the impact of FDI on growth. Capital formation may be affected by FDI inflows, because they are a source of financing. Inward FDI may increase host country productivity and exports, and productivity growth may affect exports. Host country institutional characteristics, such as the legal system, enforcement of property rights, and the extent of corruption, that have been suggested as explanations for differences in growth rates, are likely to influence also the extent of inward FDI and capital formation.

The search for explanations of growth has been pursued in several different ways. Many of the earlier studies, such as those of Kuznets, traced the long-term growth of countries, mostly those that were, at that time, developed. Few developing countries at that time had data extending over long periods for even a few of the standard aggregate measures commonly used in research. After World War II there came a worldwide expansion and international standardization of national accounting systems, eventually covering almost every country. The United Nations International Comparison Programme (ICP) began in the 1970s to provide real income and price comparisons across countries, including developing countries. These were the raw material for a series of papers by Summers and Heston and the accompanying Penn World Tables that underlay a large outpouring of studies of economic growth, especially growth in developing countries.

Studies of economic growth of this later generation proceeded in two ways. For the most part, they examined growth over a whole period covered by whatever version of the tables was available at the time. They asked what combination of initial country characteristics, such as *per capita* income and various institutional factors, and later developments, such as capital formation, education of the labour force and openness to trade or flows of FDI, explained the growth of aggregate real income or *per capita* income. One problem with the interpretation of these studies is the difficulty of disentangling the direction or directions of causation. Was one economy growing more rapidly than another because the level of capital formation was higher or was the rate of capital formation higher because the economy was growing faster? An alternative method is to break the long period up into shorter ones and hope that the timing of developments in growth and its presumed determinants reveals something about the direction of influence. This is attempted here, but the method does suffer from the problem that precedence in time does not necessarily distinguish causes from effects, and the problem that some influences may be swift in their results while others take long and uncertain lengths of time to operate. What is fairly certain, without any necessary implications as to causation, is that high growth rates and large inflows of FDI tend to go together. That is explicit in studies of the post- World War II years as a whole and in studies of shorter periods.

1. Overview of previous studies

a. Long-term cross-section studies

The few long-period cross-section growth studies that included FDI as a variable tended to find some positive relationship. For example, one study reported a significant relationship between inflows of FDI as a percentage of GDP and the growth of *per capita* GDP across all developed countries for the period 1960-1985 (Blomström, Lipsey, and Zejan, 1994). It suggested

that although the gap in technology and productivity between foreign-owned firms and locally-owned ones is larger in poorer countries than in richer ones, that does not necessarily mean that the poorer countries gain the most from inward FDI. It argued that " the least developed countries may learn little from the multinationals, because local firms are too far behind in their technological levels to be either imitators or suppliers to the multinationals" (pp. 250-251). And it found, in confirmation of this supposition, that inflows of FDI were significant as determinants of growth for the upper half of the distribution of developing countries, by *per capita* income, but not in the lower half.

A similar conclusion was reached in a study for 69 developing countries of growth in *per capita* GDP from 1970 to 1989 (Borensztein, De Gregorio and Lee, 1995). The FDI variable in that study was the inflow of FDI to these countries from the presumably more advanced ones that made up the OECD. FDI itself was a marginally significant positive influence on growth, but FDI interacting with a measure of average educational attainment was a stronger and more consistent influence. The higher the level of education of the labour force, the greater the gain in growth from a given inflow of FDI. An interaction between FDI and education was also found in a paper on FDI in China that concluded that "Education becomes even more effective when it is associated with foreign knowledge ... the interaction between school enrolment rates and foreign investment is significantly positive, suggesting mutual reinforcement between domestic human capital and foreign knowledge that accompanies the investment." However, "the coefficient on foreign investment becomes negative when the interaction term is introduced, implying that much of the power of foreign knowledge may come through the local base of human capital" (Mody and Wang, 1997, p. 309).

Another mechanism through which the influence of FDI can take effect is through the impact of inward FDI on domestic capital formation. As is evident from box VI.3, FDI appears to increase investment in one-to-one ratio or encourages capital formation by domestic firms, so that "a one-dollar increase in the net inflow of FDI is associated with an increase in total investment in the host economy of more than one dollar" (Borensztein, De Gregorio and Lee, 1995, p. 3). This does not, of course, mean that cases of FDI crowding out local capital formation can be ruled out.

Very few long-period cross-section studies have included a measure of FDI as a potential source of growth (Blomström, Lipsey, and Zejan , 1994; and Borensztein, De Gregorio, and Lee, 1995). Reflecting this, a comprehensive review of variables used in such studies did not include FDI (Levine and Renelt, 1992). However, some of the variables identified in these studies as factors of growth are typically under the influence of FDI. For example, relatively "robust" relations were found between investment ratios (investment/GDP) and growth and between investment ratios and trade ratios. But, both investment ratios and trade ratios could be affected by FDI flows, and thus, indirectly form a channel for an effect of FDI on growth. Another example refers to the effects on growth of knowledge spillovers (Eaton and Kortum, 1994 and 1995 and Coe and Helpman, 1995). FDI is also a plausible vehicle for these knowledge spillovers, by itself (through R&D, for example) and through its relation to the intensity of trade.

The relation of FDI to trade is more generally a possible connection that may obscure the relationship of FDI to growth in quantitative studies including both variables. There is a great deal of evidence that foreign-owned firms in most countries trade more with their parent countries, but also trade more in general, than locally-owned firms. A summary of the evidence shows that "MNEs or their affiliates generally enjoy a larger share of home or host country exports and imports than they do of output ... this is partly explained by their being concentrated in trade-intensive sectors, and partly because their trading propensity in any given sector tends to be greater than that of uninational or indigenous firms" (Dunning 1993, p. 386). It is likely, therefore, that high foreign ownership, or a large inflow of FDI, will increase the importance of trade for a host country, thus affecting growth indirectly.

b. Time series studies

Time series studies focused initially on the impact of FDI on domestic investors. In an early example, relating to Canada, some regression coefficients, taken at face value, implied that "$1.00 of direct investment 'led to' $3.00 of capital formation" (Lubitz 1966, pp. 97-98). A later study of FDI into Canada, with somewhat different methods, a slightly longer time span, and annual rather than quarterly data, found a positive direct effect on capital formation greater than the amount of the FDI (Van Loo, 1977). That is, there was some complementary effect on fixed investment by domestic firms. However, when indirect effects through impacts on other variables, such as exports (negative), imports (positive), and consumption (negative), operating through the accelerator, were added, the addition to total capital formation was much smaller, a little over half the inflow. The offsetting negative effects on domestic investment are quite model-specific, and involve accepting plausible, but statistically insignificant, coefficients.

Long-period analyses of growth face endogeneity problems, particularly uncertainty about the direction of causation between growth and investment ratios. In an attempt to avoid some of these problems, in one analysis, the period since 1970 was broken into five-year sub-periods (Blomström, Lipsey, and Zejan 1994). The main conclusion was that there was more evidence that high growth led to high subsequent investment ratios than for the opposite relationship. In equations including (among others) contemporary or previous period fixed investment as a right-hand side variable, FDI appeared as a positive and significant influence on a country's rate of growth. However, the level and significance of the FDI coefficient fell when the following period's investment was included, suggesting that FDI in one period may have affected host country capital formation in the following period (table XI.A.1). When the equations were formulated so as to eliminate the cross-section influences by dividing each variable by its long-period average, the influence of the FDI variable disappeared. In other words, the influence of FDI was evident only in the cross-section; higher FDI in a period did not have any visible influence on growth in that period in a given country, although across countries, those with higher ratios of FDI to GDP were also those that grew faster.

If the effect of FDI over time were mainly to raise the level of capital formation, it might be concealed in an equation that included both variables. While this is a possibility, the simple correlations found between FDI inflows and fixed investment do not make it seem likely. In combined cross-section and time series data, FDI inflow in period (t) was most closely correlated with fixed investment in time t (r = .31), next with investment in period t+1, and less with investment in period t-1. However, when the cross-section variation is removed, the correlation in period (t) is reduced almost by half and that with later investment is cut by two thirds (Blomström, Lipsey, and Zejan 1994). Thus one should not expect too much from the time series effects of FDI on growth from effects on fixed investment.

2. Regression analyses

As a step towards adding to the understanding the relationship between FDI and growth for developing countries, an examination was conducted of changes over five-year intervals. This duration should be long enough to remove purely cyclical effects, but short enough to permit observation of the sequence of events. The idea is, as noted, to search for the impact of events taking place in one period on outcomes in the following period or periods. The data used cover many developing countries - over 100 in some calculations - and, for the most part, five periods between 1970 and 1995. All these countries and periods are examined together, in addition to changes over time in each country relative to that country's average over all periods. The reason for making the calculation in this manner for measuring time series effects, is that some of the apparent impacts of various factors on growth could arise from long-term characteristics of countries that are not taken into account in the equations. Comparisons with country averages should remove any influence of these long-term country characteristics and reveal the determinants of changes in the rate of growth over time within individual countries.

The basic model explored here relates a country's growth in a five-year period, t, measured by the change in real *per capita* GDP, to several frequently proposed sources of growth. These include the share of investment expenditures in GDP(INV), measured in real terms at each period's current international prices, the inward flow of FDI as a per cent of nominal GDP(FDI), past growth in real *per capita* GDP(ROG), the level of schooling at the beginning of a period (SCH), and changes in the labour force participation rate (PART). In some calculations, two other variables are added. One is the change in the country's price level, relative to the world price level, and the other is the country's *per capita* real income relative to that of the United States in the initial year of a period.

One difficulty in interpreting most growth equations is that, as mentionned earlier, the dependent and independent variables interact in both directions: high growth rates induce high investment rates at least as much as high investment rates induce high rates of growth in *per capita* GDP. To reduce such ambiguities (although without the expectation of completely eliminating them), those independent variables most clearly subject to this two-way interaction are introduced in lagged form. That is, only the observations for period t-1 enter the equations for growth in period t.

The fullest version of the model used is:

ROG(t) = f[ROG(t-1), INV(t-1), FDI(t-1), SCH(t), PART(t), PR(t), RGDP / US(t)],

where the variables are those described above.

Since the variables used are likely to be highly interrelated, it is advisable to examine the nature of these relationships. One way to do this is to test the time series characteristics of the plausible variables in the Granger-Sims causality framework (Granger, 1969; Sims, 1972). The first step in this direction is to ask whether FDI inflows are themselves the result of contemporary or past growth in *per capita* output. The two variables are modestly correlated on a current basis (r =.18) (Blomström, Lipsey, and Zejan, 1994, p.22). Further, the test is made on whether including growth in *per capita* output adds any predictive power to equations relating current to past inflows of FDI. The results of equations relating FDI inflows to past inflows (annex table XI.A.1) confirm that there is strong serial correlation in FDI inflows. The geographical pattern of inflows in the previous five-year period is a significant predictor of current inflows. The pooled equation implies that the current period's ratio of FDI to GDP will be equal to that of the preceding period, although most of the individual period equations imply a current rate around half of the previous one. Adding another past period does little to improve the prediction. Therefore further calculations are confined to using a single period lag of FDI flows.

When past growth in *per capita* GDP is added to the equations for current period FDI inflows, there is a substantial improvement in the prediction in the first three periods, and the lagged growth coefficients are statistically significant (table XI.A.2). In the last two periods, and in all five periods taken together, the lagged growth coefficients are not statistically significant and reduce the degree of explanation. Thus, given past levels of FDI inflows, past income growth adds something, sometimes, to the explanation of current FDI flows, but not always, and not when all the periods together are examined.

Current growth in a period is always positively and significantly related to FDI inflows in the same period, even when past FDI flows are taken into account. If current and past growth are both included in the equation, it is the current growth that is the significant influence. Thus only equivocal evidence exists that past growth induces current FDI inflows, but there is much stronger evidence that the growth rate and FDI inflows coincide in time.

One possible link between FDI and growth is through investment, if high levels of investment both attracted subsequent FDI and stimulated growth. Current FDI inflows are correlated with current investment ratios and the relationship is stronger than between FDI and any other of the usual supposed determinants of growth (Blomström, Lipsey and Zejan, 1994,

p.22). That connection is explored further by adding the past investment ratio (the ratio of investment to GDP) to equations with past FDI ratios (table XI.A.3). The results are similar to those for *per capita* GDP growth. There is a significant coefficient in only one period, and an improvement over equations with only past FDI in the degree of explanation in only two periods. Past investment ratios are significant in the pooled equation, having a positive impact on current FDI inflows.

The investment ratio itself is strongly correlated with its past level. If the addition of past FDI flows added to the explanation of current period investment, that would be a possible avenue of influence of FDI on *per capita* income growth. The results do not lend any support to this possibility (table XI.A.4). Past FDI flows are never a significant positive influence on the current period's investment ratio.

Since the ratio of trade to GDP is another possible candidate for a variable that might influence, or be influenced by, FDI, a corresponding test is performed for this ratio. The trade ratio, indeed, is strongly correlated over time; one period's level almost entirely explains the next period's level (table XI.A.5). Adding the preceding period's FDI flow to the equation adds little to the degree of explanation despite the close association that is expected to exist between FDI with trade. The only exception was that the trade ratio in 1990 was positively and significantly related to FDI inflows in 1986-1990.

While there is no association between past FDI and current trade ratios, there is some evidence that the trade ratio at the beginning of a period is associated with current FDI flows (table XI.A.6). The relationship is erratic, but in the three individual period equations with significant coefficients for trade ratios, the coefficients are positive, suggesting that economies that trade more, relative to their GDP, attract more FDI. The pooled equation points strongly in the same direction, with both past FDI and the initial level of the trade ratio in a period positively affecting current FDI. The inclusion of the initial trade ratio variable does not consistently improve the estimates of FDI flows, perhaps because both trade ratios and FDI are so strongly correlated with their own past values. They are so strongly correlated over time that the addition of country dummy variables makes both past FDI flows and trade ratios insignificant. The equations do suggest that if there are any positive effects of high trade ratios on growth, they might be associated with the encouragement of FDI inflows.

Real *per capita* GDP growth is much less correlated over time than FDI flows. In a regression pooling data for six periods, only four per cent of the variation is explained by past growth rates (table XI.A.7) while the corresponding equation for FDI inflows explained over three-quarters of the variation. The regressions did explain more and more of the variance over time but the highest levels, with two lags, were below 20 per cent. In only two periods was the second lagged term statistically significant, but it was significant in the pooled regression.

Adding past investment ratios to the equation predicting growth in *per capita* GDP from past growth improves the equation somewhat in every period except one, and in the pooled regression. The investment coefficient is significant in only two periods but it is also a positive factor in the pooled equation (annex table XI.A.8). Adding past inflows of FDI instead of the investment ratio adds to the explanatory power of the equations in every period. The coefficient for lagged FDI inflow is positive but it is significant only in the last period. When both lagged investment and lagged FDI are incorporated into the equation for all periods, both have positive coefficients but neither one is significant. Thus there is at least some evidence for a positive effect of inward FDI on subsequent growth without a strong indication that it is the past growth that is inducing the FDI. However, the apparent effect could come from the contemporaneous correlation between FDI inflows and investment ratios.

If country dummy variables are added to the first of the pooled equations in table XI.A.8, in which the lagged investment ratio is the determinant of growth being tested, the positive influence of the investment ratio on subsequent growth disappears; the coefficient, in fact, turns negative, as do those for past rates of growth.

When the country dummies are added to the second pooled equation, using past FDI inflows as an independent variable, the coefficient for FDI is not much affected, but remains insignificant. However, in the pooled equation including both the investment ratio and the FDI ratio, only the FDI ratio appears as a positive, although not significant, influence on subsequent growth. The coefficients from that equation, omitting those for the country dummy variables and the intercept, are as follows:

Variable	Coefficient	t
GDPC(t-1)	-.033	0.50
GDPC(t-2)	-.014	0.23
INV(t-1)	-11.36	3.52
FDI(t-1)	239	1.59

Deviations of the FDI ratio from its average were the only apparent positive influence on changes over time in the rate of growth. A high investment ratio and a high growth rate in one period, relative to their averages over all periods, seem to be associated with lower growth in the following period, an indication that the past growth and investment ratio coefficients reflect cyclical swings rather than long-term influences.

The variables examined so far are added to a variety of other possible influences on the rate of growth, to test whether the apparent positive influence of FDI might come from its association with other factors favourable to growth. These include such familiar ones as the change in the labour force participation rate and a measure of the schooling level at the beginning of each five-year period (table XI.A.9). The degree of explanation is poor through 1985 and then it improves. The equations are significant in the last two periods and for all periods combined. The introduction of several independent variables in addition to past growth does improve the predictions over those from past growth alone (table XI.A.7) in most periods, but less than 10 per cent of differences in growth are explained until 1985. The contributions of the added variables are not consistent across periods. The lagged investment ratio is significant in only one period and the lagged FDI ratio not at all, although the FDI ratio comes close, as a positive influence, in the pooled equation. The coefficient for the participation rate is significant at times, but it is erratic in sign. Rapid growth is positively associated with past rapid growth and marginally with past FDI inflows and past investment ratios.

If, again, country dummy variables are added to these growth equations, eliminating the effects of cross-sectional differences among countries from the coefficients for the other variables, the coefficient for past growth, investment ratios, and schooling all turn negative, and that for the participation rate becomes insignificant. The only variable not strongly affected is the positive coefficient for FDI inflows, although it remains insignificant. Although the variables for changes in relative prices and for initial *per capita* real income relative to the United States were not consistently important contributors to explaining growth in the individual periods, the price variable is significant in the pooled regression. The pooled regression including both price and relative income (table XI.A.10) is a slight improvement over that in table XI.A.9. Past income growth, past inflows of direct investment, past investment ratios, and current changes in the participation rate and in prices are all positive influences on the rate of growth. However, only the price coefficient is significant. The addition of country dummy variables to the pooled regression for all periods (table XI.A.10) again points to the positive influence of changes over time in the FDI ratio. The coefficients for the independent variables, aside from the country dummy variables and the intercept, are:

Variable	Coefficient	t
GDPC(t-1)	-.169	2.20
GDPC(t-2)	-.097	1.45
INV(t-1)	-4.82	1.37
FDI(t-1)	230.9	1.48

Participation rate(t)	-.400	1.11
Schooling(t)	-5.65	3.97
Price(t)	.094	1.28
RGDPC / US(t)	-8.74	3.44

With these additional variables added, past deviations from average levels of past growth, the investment ratio, and the level of schooling are all negatively related to the current growth rate, but only the first and last are significant. Above average inflows of FDI into a country remain a positive, but not significant, influence on subsequent growth, and large gaps in real *per capita* income relative to the United States also produce faster than average growth.

As was mentioned earlier, it has been hypothesized, and sometimes confirmed, that inward FDI can act in concert with the host country's education level. A cross-product term, for the interaction between the initial schooling level in a period and the inflow of FDI, is not significant in individual period equations, but does produce some gain in the degree of explanation in the pooled regression (table XI.A.11). Past income growth is no longer statistically significant there, but the interaction between inward FDI and schooling is. The contemporary price change and participation rate are both positive contributors to the rate of growth, while the past investment rate does not appear to be significant.

The same equation with country dummy variables added, isolating the effects of changes in the variables over time, shows a positive and significant influence for the combination of FDI inflow with schooling, the first clear evidence found in this exercise for the effect of FDI inflows:

Variable	Coefficient	t
GDPC(t-1)	-.057	0.79
GDP(t-2)	-.049	0.72
INV(t-1)	-8.89	2.62
FDI(t-1)x Schooling(t)	8.75	2.26
Participation rate(t)	-0.14	0.38
Price(t)	.202	3.02
GDPC / US(t)	-8.82	3.49

The other positive influences on the rate of growth relative to the country's average rate, aside from the FDI-Schooling interaction term, are the change in prices during the period relative to the long-term average change and the size of the gap between the country and the United States. The lower the income relative to the United States, or the larger the gap, the greater the gain in *per capita* income. The coefficient for the past investment ratio is again negative, presumably reflecting cyclical fluctuations around the country averages.

Conclusions

Few studies of long-term growth have incorporated FDI into their sets of explanatory variables. Those that have attempted to do so have generally found that rapid growth and high ratios of FDI to GDP have gone together.

One problem in assessing the impact of FDI on growth is that FDI is often associated with other growth-promoting factors. These include the ratio of investment to GDP and the degree of openness of the economy. Some studies have pointed to the role of knowledge spillovers, another factor likely to be associated with FDI, across countries and over time. Time series studies have found some evidence for an effect of FDI in increasing investment in the host country. Short-period studies have found FDI to be related to growth and to investment ratios across countries.

Some of these relationships were explored here more fully to try to establish whether any consistent influence of FDI on growth can be found when other possible influences on growth are taken into account. Since FDI flows and other explanatory variables are frequently correlated with each other within a period, and also with the rate of growth, the focus was on searching for effects of FDI flows in a period on the subsequent period's rate of growth. And since some of the possible variables are strongly correlated over time, the time series aspects of these relationships was also examined. That was done by including country dummy variables in the equations. The equations with country dummy variables exclude the influence of average (over the period) differences among countries and reflect only changes over time within each country.

After testing for possible evidence that past growth or past levels of other included variables determined the flow of FDI, it was found that only two had significant effects. A high trade ratio, defined as the ratio of exports and imports to GDP, did appear to encourage the subsequent inflow of FDI, in all periods combined and in some individual periods. And high investment ratios seemed to have a similar effect over all periods, but not in most individual periods.

When both the past FDI ratio and the past investment ratio are, included, along with past growth, in an equation explaining current growth in real *per capita* income, neither seems to have a significant effect. When country dummy variables were included in this equation, FDI, but not investment, contributed positively to the growth rate. The coefficient for the past investment ratio was negative.

As other explanatory variables are added to the growth equations, the degree of explanation, as measured by the coefficient of determination, or R squared, rises gradually. However, it never gets beyond 13 per cent in pooled equations for all periods combined without country dummy terms. The degree of explanation for recent individual periods is higher, reaching over 20 per cent in 1986-1990 and over 30 per cent in 1991-1995.

In general, the ratio of FDI inflow to GDP in a period is the most consistently positive influence on subsequent growth in *per capita* real income, although it is rarely statistically significant except when combined with the level of schooling. In the combined cross-section and time-series pooled equations, several other factors contribute to more rapid growth. They include, in various versions, high past growth rates, high past investment ratios, increases in the participation rate (the ratio of the labour force to the population), and increases in the price variable (relative increases in the price levels for products heavily weighted in the country's GDP), and low initial *per capita* income relative to the United States. The past investment ratio fades as a factor when some of the others are introduced.

Once country dummies are introduced into the pooled equations to eliminate the influence of long-term cross-country differences in growth and other variables, past growth and past investment ratios no longer appear as significant positive influences on growth**.** Their positive influence is absorbed by the country dummy variables. When the widest set of variables is included, the only ones that appear to increase rates of growth are the FDI inflow combined with the schooling level, and the degree to which a country is below the United States in *per capita* income at the beginning of a period. The lower the initial GDP *per capita* in a period, the faster the subsequent growth. That is not the usual catch-up variable that appears in many growth studies to represent the initial level of development of a country, because a country's average economic distance from the United States over all periods combined has been removed from the variable. The coefficient therefore probably represents the effects for a country of being below or above its long-term status at the beginning of a particular period.

The effect of past inflows of FDI on the rate of growth of a country in a period remains elusive, partly because FDI is intertwined with investment ratios and trade ratios. The coefficients for the FDI variable are consistently positive in sign from equation to equation, at least when the periods are pooled, but few of them are significant. The most favourable indications of a positive influence on growth are for the combination of FDI and schooling. That positive influence is visible in both the time series-cross section combination and in the pure time series relationship to growth.

Tables

Table XI.A.1. Equations relating FDI inflows to past FDI inflows, five one-year periods, 1971 - 1995

	Coefficients					
Period	FDI (t-1)	FDI (t-2)	Constant term	$\bar{R}^2$	F probability	Number of observations
1971-1975	.530		14.3	.179	.001	56
	(3.60)		(0.97)			
1976-1980	.056		51.2	.009	.542	70
	(.61)		(4.41)			
1981-1985	.554		19.0	.268	.000	74
	(5.26)		(1.64)			
1986-1990	1.23		18.8	.953	.000	93
	(43.04)		(1.69)			
1991-1995	.568		61.3	.359	.000	96
	(7.35)		(4.65)			
All periods	1.054		8.2	.764	.000	389
	(35.49)		(1.23)			
1976-1980	.282	-.099	34.3	.105	.021	55
	(2.85)	(-0.84)	(3.1)			
1981-1985	.546	.094	7.0	.378	.000	66
	(6.28)	(1.48)	(0.72)			
1986-1990	1.36	-.103	14.3	.601	.000	73
	(9.27)	(-0.67)	(0.96)			
1991-1995	.489	.080	60.0	.325	.000	84
	(4.12)	(0.45)	(4.16)			
All periods	0.847	-0.0014	23.1	.359	.000	194
	(10.484)	(-0.059)	2.963			

Table XI.A.2. Equations relating FDI inflows to past FDI inflows and past and present growth in per capita GDP, five-year periods, 1971 - 1995

	Coefficients						
Period	FDI (t-1)	GDPC(t-1)	GDPC(t)	Constant term	$\bar{R}^2$	F probability	Number of observations
1971-1975	.483	0.132		-.136	.233	.000	54
	(3.35)	(2.02)		(-1.77)			
1976-1980	-.003	0.102		-.059	.036	.115	67
	-(.03)	(2.10)		(-1.06)			
1981-1985	.499	.109		-0.108	.488	.000	70
	(5.99)	(2.62)		(-2.35)			
1986-1990	.913	-.063		.085	.431	.000	83
	(7.95)	(1.35)		(1.89)			
1991-1995	.422	.023		.045	.281	.000	71
	(4.66)	(0.29)		(0.53)			
All periods	0.425	.036		-.000	.225	.000	345
	(9.128)	(1.487)		(-0.007)			
1971-1975	.491		.109	-.107	.231	.001	54
	(3.41)		(1.99)	(-1.68)			
1976-1980	.018		.139	-.101	.053	.066	67
	(0.19)		(2.37)	(-1.50)			
1981-1985	.561		.098	-.083	.476	.000	71
	(7.26)		(2.35)	(-2.06)			
1986-1990	1.321		.172	-.166	.715	.000	73
	(11.56)		(2.92)	(-2.68)			
1991-1995	.497		.103	-.046	.339	.000	92
	(6.12)		(1.97)	(-0.80)			
All periods	.545		.131	-.104	.331	.000	357
	(11.34)		(5.06)	(-3.68)			
All periods	.405	.014	.119	-.102	.275	.000	332
	(8.84)	(0.53)	(4.67)	(-2.97)			

Table XI.A.3. Equations relating FDI inflows to past FDI inflows and past ratios of fixed capital formation to GDP, five-year periods, 1971 - 1995

	Coefficients					
Period	FDI (t-1)	INV(t-1)	Constant term	$\bar{R}^2$	F probability	Number of observations
1971-1975	.520	.399	.012	.172	.003	54
	(3.27)	(0.21)	(0.47)			
1976-1980	-.001	2.53	.198	.036	.114	67
	(-0.01)	(2.10)	(0.96)			
1981-1985	.551	1.49	-0.011	.455	.000	70
	(6.73)	(1.57)	(-0.67)			
1986-1990	.808	1.53	.006	.430	.000	83
	(6.75)	(1.26)	(0.35)			
1991-1995	.400	1.33	.053	.285	.000	71
	(4.19)	(0.67)	(2.00)			
All periods	.401	1.82	.015	.238	.000	345
	(8.53)	(2.81)	(1.51)			

Table XI.A.4. Equations relating investment ratios to past ratios and past FDI inflows, five-year periods, 1971 - 1990[a]

	Coefficients					
Period	INV (t-1)	FDI(t-1)	Constant term	$\bar{R}^2$	F probability	Number of observations
1971-1975	1.105	-7.96	1.43	.827	.000	54
	(15.29)	(-1.33)	(1.47)			
1976-1980	.799	-3.17	3.88	.763	.000	69
	(14.79)	(-0.73)	(4.25)			
1981-1985	.801	5.09	1.11	.759	.000	73
	(14.11)	(1.05)	(1.16)			
1986-1990	.913	-3.44	.676	.865	.000	70
	(19.50)	(-0.72)	(0.99)			
All periods	.854	-0.64	2.15	.764	.000	266
	(28.26)	(-0.24)	(4.51)			

[a] 1991-1995 could not be included because investment ratios corresponding to those for earlier periods were not available.

Table XI.A.5. Equations relating trade ratios[a] to past trade ratios and past FDI inflows, five-year periods, 1965 - 1995

	Coefficients					
Period	TR (t-1)	FDI(t-1)	Constant term	$\bar{R}^2$	F probability	Number of observations
1965	.868		8.01	.842	.000	74
	(19.78)		(2.90)			
1970	.910		5.48	.918	.000	83
	(30.40)		(2.65)			
1975	1.076		5.26	.891	.000	86
	(26.41)		(1.88)			
1980	1.213		-5.47	.871	.000	91
	(24.64)		(1.39)			
1985	.797		8.50	.871	.000	108
	(26.87)		(2.77)			
1990	1.047		2.57	.868	.000	108
	(26.48)		(0.73)			
1995	.916		12.40	.841	.000	100
	(22.91)		(3.32)			
All periods	0.942		7.14	.844	.000	645
	(58.97)		(5.36)			
1970	.863	-13.66	9.31	.917	.000	54
	(21.1)	(0.67)	(3.84)			
1975	1.125	-23.39	4.69	.908	.000	69
	(24.82)	(1.55)	(1.60)			
1980	1.259	29.73	-11.02	.901	.000	72
	(22.61)	(1.14)	(2.67)			
1985	.804	6.51	7.53	.870	.000	89
	(19.53)	(0.31)	(2.17)			
1990	.972	46.6	5.10	.875	.000	98
	(18.46)	(2.20)	(1.39)			
1995	.924	-1.81	11.09	.857	.000	87
	(20.72)	(0.10)	(2.94)			
All periods	0.943	17.041	6.45	.846	.000	382
	(37.92)	(1.54)	(3.58)			

[a] (Exports + imports) / GDP.

Table XI.A.6. Equations relating FDI inflows to past inflows and to trade ratios, five-year periods, 1971 - 1995

	Coefficients					
Period	FDI (t-1)	TR (t)	Constant term	$\bar{R}^2$	F probability	Number of observations
1971-1975	.430 (2.54)	0.41 (1.06)	-1.79 (0.08)	.172	.003	54
1976-1980	-.031 (0.33)	0.93 (3.79)	-8.24 (0.43)	.161	.001	68
1981-1985	.327 (3.07)	0.75 (4.49)	-27.18 (1.84)	.422	.000	73
1986-1990	.957 (8.47)	0.73 (2.83)	-19.28 (0.98)	.634	.000	89
1991-1995	.764 (5.20)	-.027 (0.10)	50.65 (2.48)	.326	.000	91
All periods	0.519 (3.89)	.652 (4.37)	-5.51 (0.74)	.349	.000	375

Note: The equation for all periods has been corrected for heteroskedasticity.

Table XI.A.7. Equations relating real per capita growth to past growth, five-year periods, 1965 - 1995

	Coefficients					
Period	GDPC(t-1)	GDPC(t-2)	Constant term	$\bar{R}^2$	F probability	Number of observations
1966-1970	.134 (1.27)		1.013 (8.40)	.007	.208	95
1971-1975	.074 (0.55)		1.053 (6.61)	-.007	.586	96
1976-1980	.144 (1.44)		.972 (8.42)	.011	.153	100
1981-1985	.168 (2.24)		.789 (9.08)	.039	.028	101
1986-1990	.294 (2.68)		.754 (6.90)	.071	.009	82
1991-1995	.374 (3.42)		.685 (5.90)	.119	.001	80
All periods	.200 (4.73)		.869 (18.29)	.037	.000	554
1971-1975	.065 (0.48)	.171 (1.23)	.872 (4.17)	-.001	.382	95
1976-1980	.122 (1.21)	.267 (2.02)	.690 (3.67)	.039	.059	96
1981-1985	.169 (2.23)	.033 (0.44)	.753 (6.62)	.035	.067	100
1986-1990	.275 (2.53)	.212 (2.78)	.525 (4.50)	.189	.000	80
1991-1995	.382 (3.12)	.184 (1.56)	.504 (3.30)	.148	.001	76
All periods	0.185 (3.92)	0.147 (3.11)	0.710 (10.55)	.061	.001	447

Table XI.A.8. Equations relating real per capita growth to past growth, past investment ratio and past FDI, five-year periods, 1971 - 1995

Period	Coefficients					$\bar{R}^2$	Numbers of F probability	observations
	GDPC(t-1)	GDPC(t-2)	INV(t-1)	FDI(t-1)	Constant term			
1971-1975	-.059	.074	8.83		1.017	.056	.042	95
	(0.42)	(0.53)	(2.54)		(4.82)			
1976-1980	.114	.258	0.48		.702	.029	.130	96
	(1.01)	(1.78)	(0.15)		(3.42)			
1981-1985	.132	-.036	4.34		.806	.059	.032	100
	(1.71)	(0.44)	(1.87)		(6.96)			
1986-1990	.238	.183	2.83		.554	.192	.000	80
	(2.10)	(2.28)	(1.13)		(4.65)			
1991-1995	.230	.097	9.77		.618	.261	.000	76
	(1.88)	(0.86)	(3.49)		(4.23)			
All periods[a]	.147	0.104	3.48		0.751	.073	.000	447
	(2.67)	(1.95)	(2.44)		(11.21)			
1971-1975	.242	.189		285	.642	.034	.200	53
	(1.49)	(1.04)		(0.80)	(2.42)			
1976-1980	.112	.234		-142	.745	.043	.124	67
	(1.12)	(1.92)		(0.70)	(4.54)			
1981-1985	.254	.040		143	.620	.075	.039	73
	(2.31)	(0.46)		(0.63)	(4.22)			
1986-1990	.196	.319		57	.486	.219	.000	68
	(1.62)	(3.09)		(0.21)	(3.43)			
1991-1995	.288	.264		483	.495	.228	.000	72
	(2.28)	(2.27)		(2.19)	(3.22)			
All periods	.218	.145		161	.664	.099	.000	333
	(4.02)	(2.81)		(1.39)	(9.10)			
All periods	.215	.130	1.50	132	.665	.100	.000	333
	(3.97)	(2.42)	(1.07)	(1.11)	(9.11)			

[a] Corrected for heteroskedasticity.

Table XI.A.9. Equations relating real per capita growth to past growth and other past variables, five-year periods, 1971 - 1995

Item	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	All periods	
						Without country dummies [a]	With country dummies
GDP (t-1)	.117	.188	.203	.077	.169	.138	-.216
	(0.68)	(1.50)	(1.62)	(0.60)	(1.17)	(2.10)	(2.83)
GDP (-2)	.048	. 282	.016	.265	.182	.101	-.098
	(0.27)	(2.13)	(0.15)	(2.45)	(1.45)	(1.70)	(1.47)
INV (t-1)	11.74	-6.59	1.09	1.09	6.92	.759	-7.75
	(2.22)	(1.94)	(0.31)	(0.30)	(1.79)	(.39)	(2.21)
FDI (t-1)	-87.8	160.9	146.6	174.1	344.0	248.1	217.2
	(0.22)	(0.68)	(0.50)	(0.50)	(1.35)	(1.75)	(1.35)
Participation rate (t)	1.29	0.74	-0.70	1.58	-1.31	.733	-.015
	(1.98)	(1.48)	(0.87)	(2.47)	(2.35)	(1.85)	(0.04)
Schooling (t)	-1.79	0.41	0.72	-1.02	1.44	-.237	-7.16
	(0.80)	(0.27)	(0.63)	(0.97)	(1.48)	(0.39)	(5.32)
Contant term	-0.49	-0.08	1.37	-0.92	1.89	.043	1.70
	(0.72)	(0.15)	(1.78)	(1.42)	(3.18)	(0.11)	(3.80)
$\bar{R}^2$	.133	.079	.007	.200	.355	.091	.262
F probability	.056	.099	.390	.006	.000	.000	.000
Number of observations	50	63	66	59	60	298	298

[a] Corrected for heteroskedasticity.

Table XI.A.10. Pooled equation relating per capita growth to past growth and other variables including price level and income relative to the United States

Item	1971-1995 [a]
GDP (t-1)	0.121
	(1.70)
GDP (t-2)	.069
	(1.19)
INV (t-1)	1.05
	(0.52)
FDI (t-1)	275.5
	(1.85)
Participation rate (t)	.611
	(1.53)
Schooling (t)	.458
	(0.59)
Price (t)	.133
	(2.50)
GDPC/US (t)	-1.09
	(0.85)
Constant term	.037
	(0.10)
R^2	.126
F probability	.000
Number of observations	295

[a] Corrected for heteroskedasticity.

Table XI.A.11. Equations relating per capita growth to past growth and other variables including FDI-schooling cross product, five-year periods, 1971 - 1995

	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	All periods[a]
GDP (t-1)	1.09	.177	.222	.074	.248	.117
	(0.65)	(1.45)	(1.85)	(0.61)	(1.71)	(1.71)
GDP (t-2)	.31	.272	.026	.246	.204	.080
	(0.18)	(2.03)	(0.25)	(2.39)	(1.60)	(1.40)
INV (t-1)	10.57	-6.41	2.29	-.889	.012	1.25
	(2.19)	(2.04)	(0.73)	(0.28)	(3.33)	(0.66)
FDI*schooling (t-1)	-6.08	1.22	2.32	5.16	-1.69	8.43
	(0.80)	(0.18)	(0.31)	(0.91)	(0.04)	(2.89)
Participation rate (t)	1.51	.841	-.437	1.41	-.919	.769
	(1.89)	(1.87)	(0.74)	(2.44)	(1.70)	(2.04)
Price (t)						.132
						(2.75)
GDPC/US (t)						1.35
						(1.25)
Constant term	-.33	-.155	1.07	.746	1.39	-.121
	(0.52)	(0.32)	(1.85)	(1.27)	(2.40)	(0.33)
R^2	.150	.107	.025	.224	.325	.130
F probability	.027	.042	.261	.002	.000	.000
Number of observations	52	63	66	62	61	301

[a] Corrected for heteroskedasticity.