CHAPTER VII

INTEGRATED INTERNATIONAL PRODUCTION AND ITS IMPLICATIONS

The two previous chapters highlighted the growth of complex corporate strategies and organizational forms for transnational corporations (TNCs). They have shown that virtually every function or activity along a TNC's value chain can be performed in various geographical locations in an integrated manner by one or several parts of a transnational enterprise system, depending on what configuration contributes most to the profitability of the entire corporate system. The present chapter looks at the result of these changes: a system of international production, which has important implications for the world economy and for host countries.

A. The characteristics of the system

1. Growth and significance of international production

The growing importance of international production, or the location of value-added activities in a foreign country under the governance of a TNC, is evident from the rapid growth of foreign direct investment (FDI), discussed in chapter I.

The traditional definition of international production, mentioned above, assumes that the foreign and domestic activities of a TNC are quite separate—which is broadly true with respect to the activities of TNCs with stand-alone strategies and structures, even though some linkages (especially ownership) exist—and, therefore, uses only data referring to foreign affiliates for measurement purposes. International production by a TNC pursuing complex integration strategies is, however, more appropriately defined to include value-added activities

in both its domestic (that is, home country) and foreign locations. In the case of such a TNC, functional activities are performed by the TNC and its foreign affiliates in an integrated manner for producing a common final output for one or more parts of the international market. In other words, a TNC's activities in the home and host country are closely interlinked and the *entire* value chain under the common governance of the TNC is international in nature.

Defined in this manner, the significance of integrated international production can be measured in terms of the *total* (domestic and foreign) assets, production or similar variables relating to TNC activities. Data for the United States and Japan show that roughly a quarter or more of these countries' productive assets, nearly a third of output in the case of the United States and about a quarter of sales in the case of Japan, are potentially part of integrated international production (table VII.1). In both countries, and particularly in the United States, the shares of total output and sales undertaken by TNCs are considerably higher in manufacturing. Since the United States and Japan are not the most transnationalized economies among the developed countries—those countries that account for the majority of outward and inward FDI as well as world assets and output—the share of world output potentially subject to integrated international production may well be around one third.

As discussed in chapter V, a good deal of international production takes place through the establishment of stand-alone affiliates or through simple integration strategies. In those circumstances, the production links between national economies are weak. Governance is being exercised by the TNC-parent over its affiliates, but the number of areas covered is limited (typically to exercing overall ownership and control or to the provision of technology), and it is geared either towards global markets or outsourcing at lowest cost rather than integration of production as a whole. In other words, governance is fragmented and corporate activities are not integrated at the behavioural level throughout the value chain. As a result, international production by TNCs has limited implications for interrelationships between countries at the aggregated level. With the adoption by TNCs of complex integration strategies and structures, however, the links grow stronger. Integrated international production will increasingly shape the nature of economic life at the national, regional and global levels.

2. The emergence of an integrated system

Although simpler forms of international production are still prevalent, an integrated system is slowly emerging. It is the sum total of the functions and activities of those TNCs that are pursuing complex corporate strategies, either within each firm or in strategic alliances. In response to new technologies, growth and convergence of demand for final output, the opening of increasing portions of the world economy to trade and FDI and the pressures of competition, these companies are seeking to exploit their competitive advantages throughout the value chain in a wide range of locations. They do this both for functions (for example, cash management) and for activities (production of particular goods or services which they sell to a wide market). Advances in information technology permit and facilitate such integration, while other factors, especially competition, push TNCs in the direction of integrated international production.

At the firm level, integrated international production means that any affiliate operating in any foreign location potentially performs functions for the TNC as a whole or in close interaction with other affiliates on the

Table VII.1. The importance of transnational corporations in the economies of United States and Japan

Item	Assets[a]		Gross product/Sales[b]	
	Total	Manufacturing	Total	Manufacturing
A. United States (Billions of dollars)				
(1) TNC parent firms[c]				
1977	479	..	514[d]	320[d]
1982	934	..	788[d]	423[d]
1989	1 151	..	1 040[d]	590[d]
(2) Foreign affiliates in the United States[c]				
1977	46	..	53	17
1982	153	..	103	47
1989	329	..	226	109
(3) Total (1)+(2)[c]				
1977	525	..	549	337
1982	1 087	..	891	470
1989	1 479	..	1 266	699
(4) Total, all private firms in the United States				
1977	1 824[e]	..	1 534[fg]	465[f]
1982	3 247[e]	..	2 376fg	644f
1989	5 442[e]	..	3 967fg	966f
(5) (3)/(4) (Per cent)				
1977	28.8	..	37.0	72.4[h]
1982	33.5	..	37.5	73.1[h]
1989	27.2	..	31.9	72.4[h]
B. Japan (Billions of yen)[i]				
(1) TNC parent firms[j]				
1980	105	70	185	80
1989	250	126	316	125
(2) Foreign affiliates in Japan[ik]				
1980[j]	11	8	18	12
1989[k]	10	8	17	11
(3) Total (1)+(2)				
1980	116	79	202	92
1989	260	134	332	136
(4) Total, all private firms in Japan				
1980	499	186	820	263
1989	1 061	338	1 308	389
(5) (3)/(4) (Per cent)				
1980	23.1	42.2	24.7	35.1
1989	24.5	39.7	25.4	34.9

Source: UNCTAD, Programme on Transnational Corporations, based on data from the United States Department of Commerce and from the Board of Governors of the Federal Reserve System: Japan, Ministry of International Trade and Industry, *Kaigai Jigyo Katsudo Kihon Chosa: Kaigai Toshi Tokei Soran*, (various issues), *Gaishi-kei Kigyo no Doko* (various issues), and Japan, Ministry of Finance, *Zaisei Kinyu Tokei Geppo* (various issues).

a Figures for the United States relate to net property, plant and equipment. Figures for Japan relate to balance sheet assets.
b Figures for the United States relate to gross product and those for Japan, to sales.
c Figures are slightly overestimated, due to some affiliates of foreign TNCs with FDI of their own being counted as United States (parent) TNCs.
d UNCTAD, Programme on Transnational Corporations estimate.
e Includes the historical cost value of net property, plant and equipment of all United States private businesses. The amount was calculated by applying the ratio of historical cost to current cost of the value of equipment and structures to net property, plant and equipment at current cost. Figure includes the value of land at historical cost which is likely to be overestimated.
f Estimate.
g Excludes banks and private households.
h Differences in methodology for sectoral classification underlying TNC data and data for total manufacturing may result in over- or understatement of the ratio.
i Excludes banking and insurance industries. Data are by financial year ending in March of the following calendar year.
j Data understate the actual values, since the data are based on surveys in which the responses did not cover the whole universe. Also, the number of companies covered and the rate of response are different in the surveys for the two years considered.
k Includes only majority-owned affiliates.

basis of a sophisticated intra-firm division of labour. For example, affiliates have a particular task (such as procurement, component manufacturing, accounting) which they implement for the corporate system as a whole; additions to output resulting from functions performed by affiliates in some host countries are combined with additions from the parent firm and/or affiliates in other countries, to create final products that are assembled in host or home countries, and are for sale in the host country, home country or elsewhere around the world (chapter V). This results in a high degree of interdependence between the processes located in different countries in accordance with firms' strategies aimed at maximizing the profitability of their entire value chains. Integrated international production is also typically organized across a wider geographical area than international production including only limited multi-domestic production or the outsourcing of selected activities. The wider geographical area might be a region or it might be global (chapter V). As discussed in section B below, it is likely to become increasingly global. By no means have all TNCs become, or are becoming, organized—globally or regionally—in a functionally integrated manner. As chapters V and VI showed, however, *each* corporate function *can* potentially be integrated regionally or globally and such integration appears, indeed, to be the most cost-effective method of organization for a growing number of TNCs. More generally, a functionally integrated organization of international production is becoming a benchmark towards which corporations will increasingly move under pressures of competition.

These changes are particularly noticeable in the case of those service functions that have become tradable over transnational computer-communication networks. As a result, the production process of services can not only be split into parts that can be relocated elsewhere but it can also be organized on a real-time network basis, and shifted from one time zone to another. Financial markets are already operating on that basis, allowing a 24-hour trading day moving from east to west. In other industries, individual firms are also beginning to take advantage of this possibility by shifting tasks to different time zones when need arises; for example, at the end of the day a law firm in New York can fax work that needs to be done (for example, data entry and analysis) to a partner firm in Hong Kong and receive the results back the next morning. An increasing number of corporate service functions may well be undertaken in a similar way in the future, and in a much more systematic manner. Functions such as research and development, cash-flow management and data-processing could be performed on a continuing basis by TNCs and their affiliates in different time zones. This would be the equivalent of 24-hour shift-based manufacturing; however, instead of bringing in new shifts of employees to a stationary work place in order to continue production, the materials of production would be sent via computer-communication networks to another set of employees, located in another time zone in another country.

Complex integration by TNCs is deepening the links between national economies and strengthening international economic integration (box VII.1). With shallow integration, international trade results from the division of labour between independent producers in different countries (figure VII.1.a) This integration involves a limited number of relationships that are relatively simple in nature. The main interaction takes place in the international market, where buyers and sellers respond to market prices. The market is governed by a multilateral framework of rules and regulations such as those of GATT, and/or, in some cases, by regional arrangements (for example, the European Community).

International production through FDI and non-equity arrangements deepens integration between countries, because it involves the building of relationships around the FDI package (figure VII.1.b). Even in its simpler

Box VII.1. What is international economic integration?

International integration entails the combination of geographically distinct elements into a larger whole. In the economic field, integration can be seen as proceeding at the microeconomic or macroeconomic levels.

At the microeconomic level, integration describes a process of enterprise expansion through the inclusion of previously distinct activities and geographical units in two or more countries under common governance. Such firm-level integration can involve complementary activities along the same value chain (vertical integration), parallel activities across different value chains (horizontal integration) or expansion in to multiple value chains (diversification). The linkages necessary to establish a more integrated structure have traditionally been pursued through the expansion of ownership relations (mergers and acquisitions or "greenfield" investments); however, various non-equity linkages (such as strategic alliances) are being used increasingly to integrate the activities of independent firms.

At the macroeconomic level, economic integration refers to the elimination of barriers to the flow of goods, services and factors of production between different nation states and the corresponding creation of international linkages of varying intensity and geographical scope. Such cross-national integration can take several forms. The elimination of tariff and non-tariff barriers to trade creates a free trade area (or customs union) among participating countries which can lead to intensified trade linkages. A common market expands the potential linkages to include factors of production and some degree of policy harmonization. Finally, full economic and monetary union implies a more comprehensive harmonization of economic policies and requires the establishment of supra-national institutions to govern the new entity.

In its widest possible sense, economic integration would describe the evolution of a global economy. At least since the gold standard, economists have debated the benefits of this possibility. However, the most prominent examples of integration among countries, such as the European Economic Community established in 1958, have been created at the regional level. The prosperity of Western Europe between the late 1950s and early 1970s was widely attributed to intensified economic links between member countries, particularly through trade. Other countries tried to imitate the success of Western Europe by establishing free trade zones (such as the Latin American Free Trade Association established in 1960), customs or economic unions (such as the West African Customs Union established in 1959) or by introducing other types of institutional arrangements (such as those within the Council for Mutual Economic Assistance). Although those arrangements were commonly referred to as "regional integration", they failed to produce any significant or lasting results. But even when they are successful, there remains considerable uncertainty as to whether these regional blocks represent a stepping stone or an obstacle to global integration.

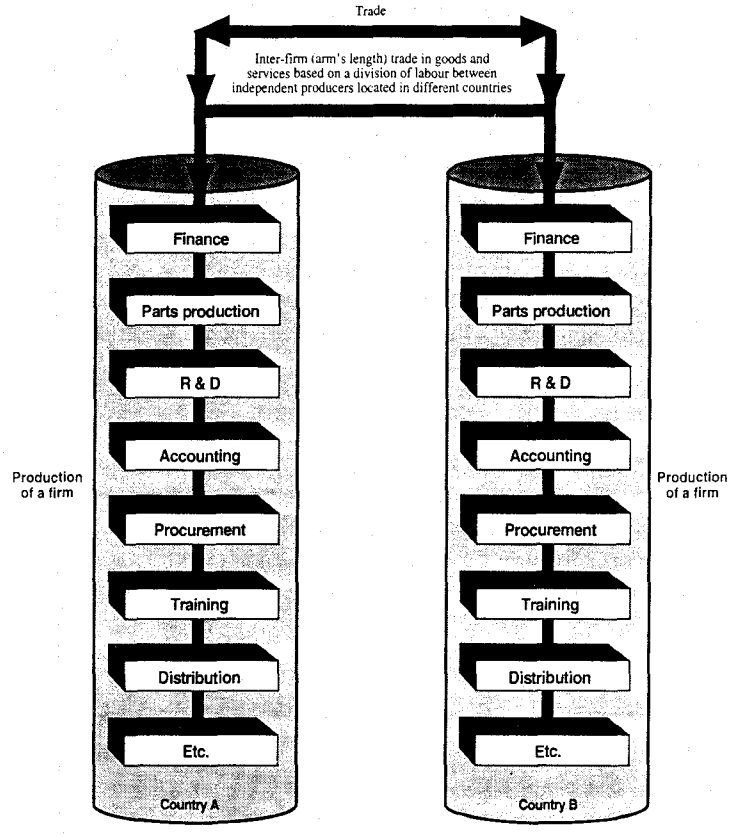
To accommodate different experiences with integration, it is useful to distinguish between "formal" from "real" integration. The former refers to legislative commitments at the Government level, including to the elimination of barriers to the flow of goods and factors of production. But what matters is real integration—actually increased trade and greater flows of capital, people, technology, services etc. This is where integration at the macroeconomic level links up with integration at the microeconomic level.

In fact, real integration between countries can take place without elaborate intergovernmental agreements. One example is the United States and Canada; already prior to the United States—Canada Free Trade Agreement (1989), extensive trade and FDI in the automotive and other industries had produced significant interlinkages across the two countries. Another example is the close relations now emerging among East Asian countries. In both these cases, international integration has been, to a significant extent, the product of corporate linkages crossing national boundaries at the production level.

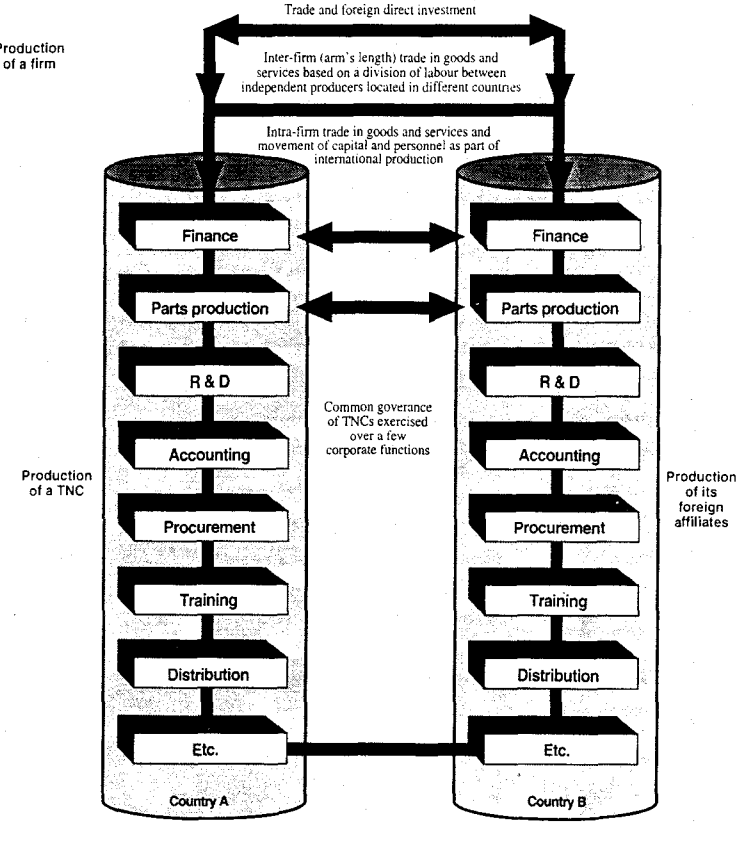
Thus, as integration moves from shallow trade-based linkages to deep international production-based linkages under the common governance of TNCs, the traditional division between integration at the corporate and country levels begins to break down. Because TNCs are internalizing activities spanning national boundaries, they encroach on areas over which sovereignty and responsibilities have traditionally been reserved for national Governments. This raises new issues of direct concern to the formation of national laws and regulations. Consequently, deeper international integration is likely to depend upon the interplay of decisions and actions at the corporate and national levels.

Figure VII.1. Economic integration

(a) Shallow integration as a result of trade



(b) Deep integration as a result of international production by transnational corporations



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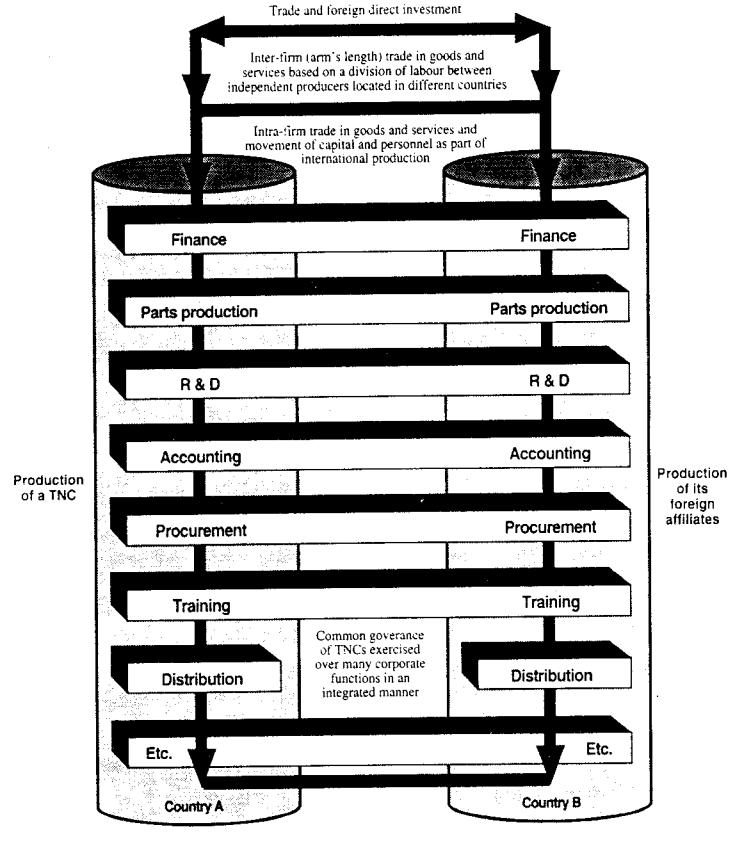
(Figure VII.1, cont'd.)

(c) Deep integration as a result of functionally integrated international production by transnational corporations



forms, such as stand-alone structures and outsourcing, links between parent firms and foreign affiliates are established through ownership, management, transfer of technology and skills, and sharing of profits. Integrated international production is deep integration *par excellence*, extending these links to many more areas along the value chain. The result is a dense network of production relationships between parent TNCs and affiliates, and among affiliates (figure VII.1.c). Those relationships have implications for trade as well, since they involve intra-firm trade in goods and services and intra-firm flows of resources. Regulatory frameworks for this type of integration are as yet partial—mostly regional. As integrated international production grows, however, pressures for formal arrangements relating to FDI and international production are likely to increase.

As discussed in chapter VI, the nature of governance by TNCs is changing, as a result of the sharing of authority within and among TNCs owing to a shift to network-type arrangements. Networks involve a movement away from hierarchical linkages towards combinations of horizontal and vertical linkages, with resources flowing in both directions between parent firms and their foreign affiliates and among affiliates, and between parents or affiliates and unrelated firms. Networks also involve changes in reporting systems, in resource flows and incentives within firms.

The changes described above result in stronger linkages between countries, through increased exchanges or flows of goods, services and resources, with an increasing share of those flows taking place within the

organizational structures of TNCs. At the same time, the composition of these exchanges is undergoing changes in the direction of greater specialization, reflecting the role of TNCs' integrated production strategies. Taken together, these qualitative and quantitative changes suggest that TNCs, with their functionally integrated production activities, are increasingly shaping the international economic system and relationships between national economies. To the extent that more and more international production is reorganized into an *integrated* international production *system*, a growing part of the world economy is undergoing fundamental structural change in the direction of deep integration of economic activities. Value-added activities are becoming more closely interlinked across national boundaries, with TNCs playing the key role as integrators.

3. Intra-firm resource flows

Relatively little data are available on intra-firm flows of resources, but those that do exist show a slow trend towards greater functional integration of TNC activities. For example, data on research-and-development spending and patent fees suggest a growing role of TNCs in international flows of technology. Some TNCs have established cross-border networks for research and development, so a small but growing proportion of their innovations takes place in host countries (TCMD, 1992a, chap. VI). Data for the United States on receipts and payments of royalties and licence fees indicate that, during the 1980s, more than 70 per cent of all receipts and 50 per cent of all payments represented intra-TNC transactions (Young and Steigerwald, 1990, p. 29).

Statistics on the intra-firm trade of United States TNCs also reveal growing cross-border integration. In manufacturing, the share of intra-firm transactions in foreign sales (sales by foreign affiliates, both in host countries and elsewhere) rose between 1977 and 1989 (table VII.2).[1] This growth was marked in transportation equipment, a category that consists largely of motor vehicles. In services, the share of intra-firm trade in-

Table VII.2. Integration index[a] for United States non-bank transnational corporations, by sector and host region, 1977, 1982 and 1989
(Percentage share)

Sector/country	*1977*	*1982*	*1989*
Total	32	24	29
Total, excluding petroleum	25	28	32
Sector			
Primary	42	18	15
Manufacturing	30	32	36
Transportation equipment	45	52	55
Services	8	14	14
Region			
Latin America and the Caribbean	29	26	35
Mexico	20	27	67
Asia and the Pacific	51	35	43
Developed countries	23	22	27
Canada	42	31	38
European Community[b]	24	22	26

Sources: UNCTAD, Programme on Transnational Corporations, based on United States Department of Commerce (1981), tables III.H.1, III.H.2, III.H.6, III.T.1, III.T.2; (1985), tables II.P.1, II.P.2, III.E.1, III.E.2, III.E.6; and (1992a), tables II.Q.1, II.Q.2, III.F.2, III.F.3, III.F.9.

a The integration index is calculated as the value of intra-firm international trade as a share of the value of all sales by the majority-owned foreign affiliates of United States-based TNCs.

b Includes 9 member countries for 1977, 10 member countries for 1982 and 12 member countries for 1989.

trade increased between 1977 and 1982, then remained unchanged. The level of the integration index is much lower in this sector than in the goods sectors, because many services are largely non-tradable. The main exception to the trend of a growing share of intra-firm transactions was petroleum, which was subject to substantial changes in ownership and distribution methods during the period 1977-1982.

Growth in the share of intra-firm trade was marked within the Western Hemisphere, and especially with respect to Mexico, suggesting that regional integration was increasing even before the opening of negotiations on the North American Free Trade Agreement. Indeed, the links between the United States and Mexico, particularly in the automotive industry, are a good example of deep integration through cross-border production by TNCs. Manufactured exports from Mexico have increased steadily since the mid-1980s, a period when FDI also increased, partly because of the debt-equity conversion programme. Exports of transport equipment and parts (with automobiles and auto parts accounting for nearly 50 per cent of the total) were a powerful impetus. They represented 24 per cent of total manufactured exports from Mexico in 1985 and 31 per cent in 1990 (UNCTC, 1992a). Beginning in 1982, United States automobile TNCs invested heavily in Mexico. Their new plants were equipped with highly productive and capital-intensive technology, and were geared strongly to exports—in contrast to the long history of United States TNCs producing for the domestic market in Mexico. By 1987, exports ranged from 48 per cent of total sales in the case of General Motors to 68 per cent for Ford and 82 per cent for Chrysler. Ford and Chrysler export exclusively to North America while General Motors has a more diversified export pattern. The vast majority of exports were intra-firm exports—100 per cent in the case of Ford, and 80 per cent for General Motors and Chrysler (UNCTC, 1991a).

Data on intra-firm trade capture only part of the integration occurring within TNC networks, since they measure only visible flows between parent TNCs and their foreign affiliates and among affiliates controlled by the same parent. Trade between either parent firms or their affiliates and enterprises linked through non-equity arrangements is not properly measured, though it is a further indicator of the integration of international production. Evidence suggests that the incidence of non-equity arrangements has been rising and that they are an integral part of TNC production strategies. In addition, trade data do not reveal many resource flows, that include a significant service component. These include for instance, the exchange of managerial, legal and accounting services between parent firms and their affiliates, as well as among affiliates.

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As the above discussion suggests, fundamental changes in the structure of the world economy are likely if more and more international production by TNCs becomes integrated in nature. Economic interrelationships between countries will multiply, involving various production activities falling under the governance of one TNC or another. Transfers of resources and trade, particularly intra-firm trade, will increase. The resulting division of labour among countries should be greater and more specialized than would be the case with international trade alone or TNC activities of a stand-alone or outsourcing type. Among others, since complex integration strategies involve functional integration of value added through services as well as goods-producing activities, the international division of labour in the production of services will increase. An evolution of international

production towards integrated international production will therefore lead the global economy towards a new structure with deeper, closer and more complex economic interrelationships among countries.

B. The geographic structure of integrated international production

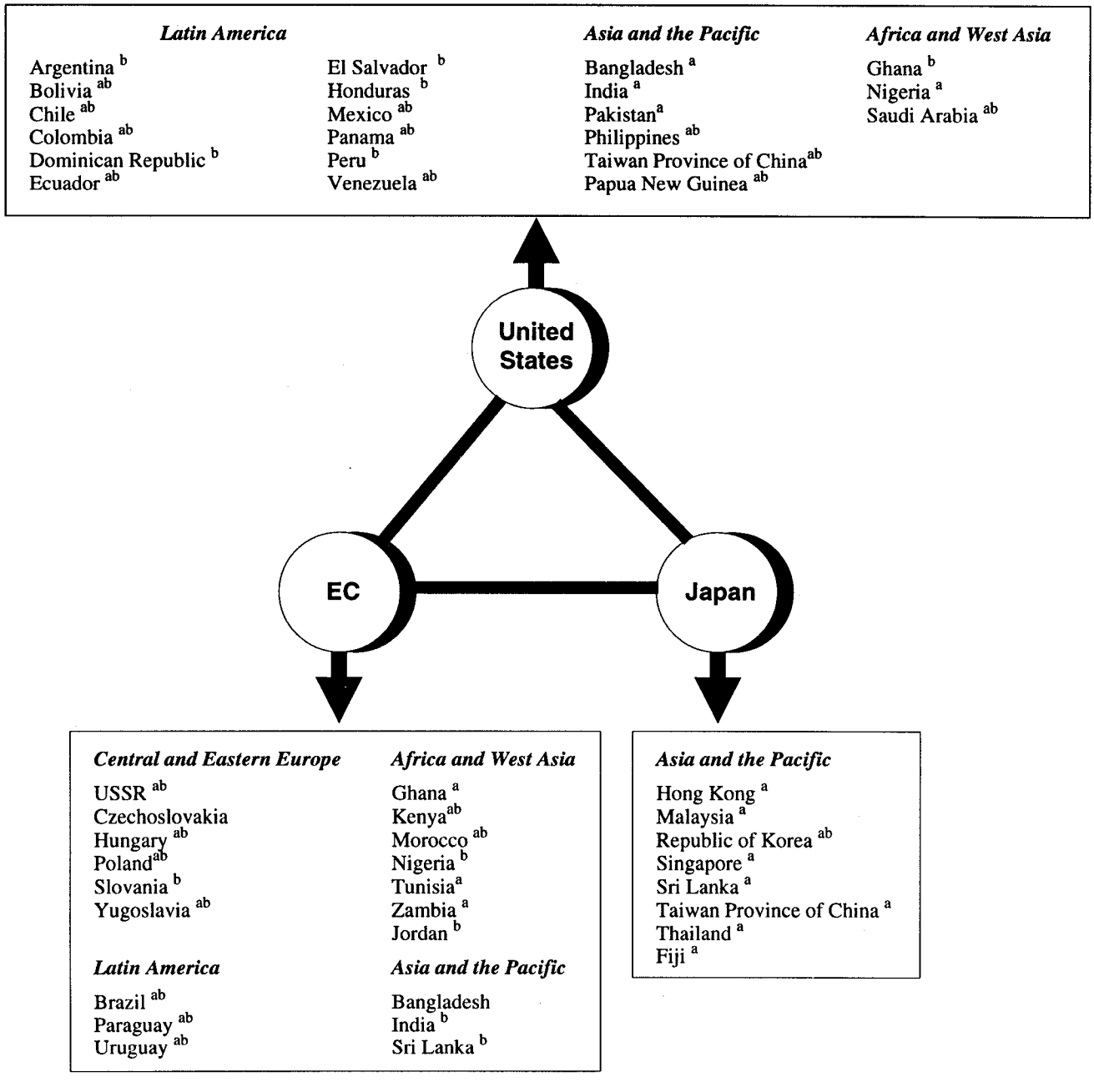
Traditionally, the patterns of international economic integration were determined largely by the patterns of trade. Integrated international production by TNCs is an additional factor of integration, and its structure is shaped by the pattern of FDI. The fusion of the two both reinforces and alters the existing pattern of international economic linkages.

While all countries participate in FDI flows, there is a tendency for FDI to be concentrated, first of all among the Triad members and then in clusters around each Triad member: the majority of outflows as well as inflows take place to and from the developed countries of the Triad (European Community, Japan and the United States), and the majority of FDI inflows to many developing as well as Central and Eastern European countries originate in a single Triad member, usually in the same or a proximate geographical area, or with other close ties to the host countries in the cluster (UNCTC, 1991a; TCMD, 1992a). The concentration of FDI among the members of the Triad, as documented in chapter II of the present volume (and UNCTC, 1991a) reflects a variety of factors, including the competitive strength of Triad members as outward investors, the effect of high-income levels and large market-size on FDI and, more recently, the strategic responses of TNCs to regional integration movements in Europe and North America.

The clustering of host economies around each Triad member became more pronounced in the mid-1980s. That pattern was consistent with the emerging strategies of TNCs in the Triad to build regional core networks of foreign affiliates centred on their home countries. By the early 1990s (figure VII.2), the United States had become the dominant investor in most Latin American countries, as well as in a few Asian and Pacific countries. The European Community emerged as the dominant investor in an increased number of countries in Central and Eastern Europe, as well as in several countries in other regions. In terms of FDI stocks, Japan accounts for the majority of FDI only in the Republic of Korea, although on the basis of recent inward flow data, it now accounts for the majority of new investments in Fiji, Singapore, Taiwan Province of China and Thailand.

There is also a distinct pattern of FDI from the perspective of home countries, confirmed by an empirical analysis of recent data on outward FDI stock from ten major home countries. Since these ten countries accounted for 88 per cent of world-wide FDI stocks in 1990, the results provide a reasonable approximation of global patterns. They show considerable regional concentration in outward FDI. Intraregional shares of FDI are high in all three major investing regions, and especially so in Europe (table VII.3). To be sure, comparisons among these shares need to be interpreted carefully, since the three investing regions vary greatly in terms of opportunities they offer for intra- and inter-regional investment. For example, from the viewpoint of the United States, North America is a very modest FDI target, since Canada is the only country besides the United States included in this region.

Figure VII.2. Foreign-direct-investment clusters of Triad members, 1990
(Economies in which a Triad member dominates inward foreign-direct-investment stocks and/or flows)



Source: UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a In terms of average inward FDI flow, 1988-1990.
b In terms of inward FDI stock for 1990.

A better way to assess the regional concentration of FDI is to compare the share of FDI in regional host countries with the share of those countries in FDI world-wide. For most of the ten investing countries, the share of FDI directed to host countries within their own respective region is higher than that of those partners in world FDI as a whole. This is confirmed from an analysis of FDI intensities, based on the "gravity" coefficient frequently used in the analysis of international trade (table VII.4).[2] The intensity ratio for FDI indicates how important a given country or region is with respect to FDI from a given home country or region, as compared with how important it is with respect to all global investment. For example, the share of North America (in this case, essentially Canada) in the outward FDI stock of the United States is two times that of Canada's share in world-wide FDI stock, indicating its much greater importance as a recipient of United States FDI than as a recipient of FDI in general. As table VII.4 shows, each home country's or region's most intense outward FDI links are with countries in their own or in proximate geographic regions, and in regions with which they have close historical ties. North America's FDI intensities are highest for destinations in North America and Latin America; Europe's intensities are highest for Europe and Africa; and those of East Asia (including Japan and Australia) are highest for FDI in East and South-East Asia and the Pacific.

How does the geographical pattern of FDI compare to the pattern of trade linkages? This is a particularly important question because FDI and trade are closely linked in several ways. Foreign direct investment sometimes

Table VII.3. Shares of outward foreign-direct-investment stocks of 10 major investor countries by host region, 1990
(Percentage)

Country/region	*Host region*							
	North America	*Latin America*	*Europe*	*Africa*	*West Asia*	*South Asia*	*East Asia* [a]	*World* [b]
North America	24	16	44	1	1	0	14	100
Canada	61	10	21	0	0	0	7	100
United States	17	18	48	1	1	0	15	100
Europe	34	6	49	2	1	1	8	100
France	33	3	59	1	2	0	2	100
Germany	28	6	59	2	0	0	5	100
Italy	11	12	69	1	4	0	3	100
Netherlands	29	6	53	1	0	4	7	100
Sweden	20	3	77	0	0	0	0	100
United Kingdom	47	7	27	4	0	0	15	100
East Asia	42	13	21	2	1	0	22	100
Australia	23	8	39	0	0	0	29	100
Japan	44	13	19	2	1	0	21	100
10-country total	32	11	41	2	1	0	13	100

Source: Based on UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a Including, also, South-East Asia and the Pacific.
b Including the 10 countries shown only.

follows trade, sometimes precedes it, and the two can be substitutes for each other as well as complements, depending upon the conditions that prevail. It is thus important to know whether the two work in the same direction as far as their integrating impact is concerned. For example, there is an overlap between the clustering of host countries with respect to FDI from the Triad and the increasingly regional clustering of trade relationships (UNCTC, 1991a, pp. 72-74). In almost all instances in which a host country was linked to one or more Triad countries in terms of inward FDI stocks in 1988, the relevant home Triad member was also one of the major trading partners of the host country.

An analysis of data for the ten countries considered earlier suggests that international trade is even more regionally concentrated than FDI. That pattern emerges from a comparison of shares of regional and other partners in international trade (table VII.5) with their shares in FDI (table VII.3) and even more clearly, from a comparison of trade intensities (table VII.6) with FDI intensities (table VII.4). For example, North America's trade intensities with North America and Latin America are each more than twice as high as its FDI intensities with those two regions.

Although there is a positive association between bilateral investment and trade intensities, in general, the difference between a region's intraregional and extraregional intensities does not tend to be as great in the case of investment as in the case of trade. Trade linkages are also more intense than investment linkages in the case

Table VII.4. Intensity ratios[a] for foreign direct investment of 10 major investor countries, by host region, 1990

Investor country/region	*Host region*						
	North America	*Latin America*	*Europe*	*Africa*	*West Asia*	*South Asia*	*East Asia*[b]
North America	2.03	1.12	0.84	0.49	0.85	0.32	0.80
Canada	2.23	0.80	0.49	0.13	0.14	0.30	0.53
United States	1.99	1.15	0.88	0.53	0.94	0.32	0.84
Europe	0.97	0.53	1.30	1.13	0.80	1.77	0.55
France	1.00	0.23	1.56	0.33	2.55	0.00	0.14
Germany	0.82	0.52	1.55	1.00	0.16	0.46	0.38
Italy	0.33	1.04	1.76	0.66	4.11	0.00	0.26
Netherlands	0.86	0.54	1.42	0.54	0.00	7.97	0.48
Sweden	0.61	0.31	1.90	0.00	0.00	0.00	0.00
United Kingdom	1.32	0.56	0.79	2.11	0.31	0.72	1.01
East Asia	1.28	1.09	0.50	1.11	1.13	0.28	1.95
Australia	0.70	0.68	0.93	0.17	0.00	0.00	3.06
Japan	1.34	1.13	0.46	1.20	1.23	0.31	1.94

Source: Based on UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a Intensity ratio: share of host region in outward investment stock of a given country, divided by share of host region in world-wide FDI stock, excluding FDI stock in the investor country.

b Including South-East Asia and the Pacific.

Table VII.5. Shares of two-way trade (exports plus imports) of 10 major investor countries, by partner region, 1990
(Percentage)

Country/region	Partner region							
	North America	*Latin America*	*Europe*	*Africa*	*West Asia*	*South Asia*	*East Asia* [a]	*World* [b]
North America	30	11	25	3	4	1	30	100
Canada	70	3	12	1	1	0	12	100
United States	19	13	25	3	4	1	35	100
Europe	9	2	72	4	3	1	9	100
France	8	3	71	6	3	1	8	100
Germany	8	2	74	3	3	1	10	100
Italy	7	2	75	6	4	1	7	100
Netherlands	6	2	76	2	3	0	5	100
Sweden	10	2	76	1	2	1	9	100
United Kingdom	14	2	64	3	4	1	11	100
East Asia	29	3	21	2	7	1	35	100
Australia	20	1	22	1	4	1	49	100
Japan	31	4	21	2	8	1	33	100
10-country total	18	5	51	3	4	1	19	100

Source: Based on UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a Including, also, South-East Asia and the Pacific.
b Including the 10 countries shown only.

of unusually *close interregional* relationships, such as those between North America and Latin America, Europe and Africa, and East Asia and North America. More distant interregional relationships, on the other hand, tend to be associated with smaller trade intensities than FDI intensities.

A further comparison of FDI and trade intensities for the three main regional groups of investors is provided in figure VII.3. The comparison uses a logarithmic transformation of the intensity measure, and its value is distributed around zero.[3] An average level of bilateral intensity (the case where the partner's share in a particular country's investment or trade is the same as the partner's global share) appears with the value of 0; positive (negative) values indicate stronger (weaker) relationships. The figure shows that North America's linkages are strongest with North America and Latin America, and somewhat stronger than average (through trade) with Asia. European investor countries are most closely linked to Europe and Africa, and somewhat weakly linked to West Asia (mainly through trade, which reflects purchases of oil) and South Asia (mainly through investment, reflecting former colonial ties). East Asia (including Japan and Australia) has relatively intense links with East and South-East Asia and the Pacific and North America, and (mainly through energy trade) with West Asia. In the case of every intraregional relationship, and nearly every close interregional relationship, however, trade intensity

is greater than FDI intensity. On the other hand, if close interregional relationships and those with West Asia are excluded, interregional FDI intensity is greater than trade intensity in the majority of cases.

Thus, despite a shared tendency towards regional concentration, the geographical scope of international production through FDI is more idiosyncratic and less dependent on regional factors than is trade. The ties of FDI are less closely bound to the investor's home region than are those of international trade. In some cases, FDI induced by long-standing political or historical ties can span widely-separated regions. For example, Japan has relatively intense FDI links with Peru, as does the United Kingdom with Kenya and Ghana. Trade links are usually weaker across such wide distances, except in the case of oil trade with West Asia. In sum and on the whole, FDI appears to be better than trade at spanning different regional blocs.

The difference between the geographical concentrations of FDI and trade is an interesting finding, and its causes and implications need to be carefully investigated. One possible explanation is that firms tend to resort more to FDI when impediments to trade are relatively high. This may be the case either because of natural barriers (e.g., high transport costs due to geographical distance) or policy barriers (e.g., a firm faces discriminatory protection because a country offers preferential treatment within its trading bloc). It may also reflect the fact that locational endowments influencing FDI are relatively widely dispersed while, at the same time, transaction costs positively linked to distance are less important for FDI than for trade.

Table VII.6. Intensity ratios[a] for two-way trade (exports plus imports) of 10 major investor countries by partner country/region

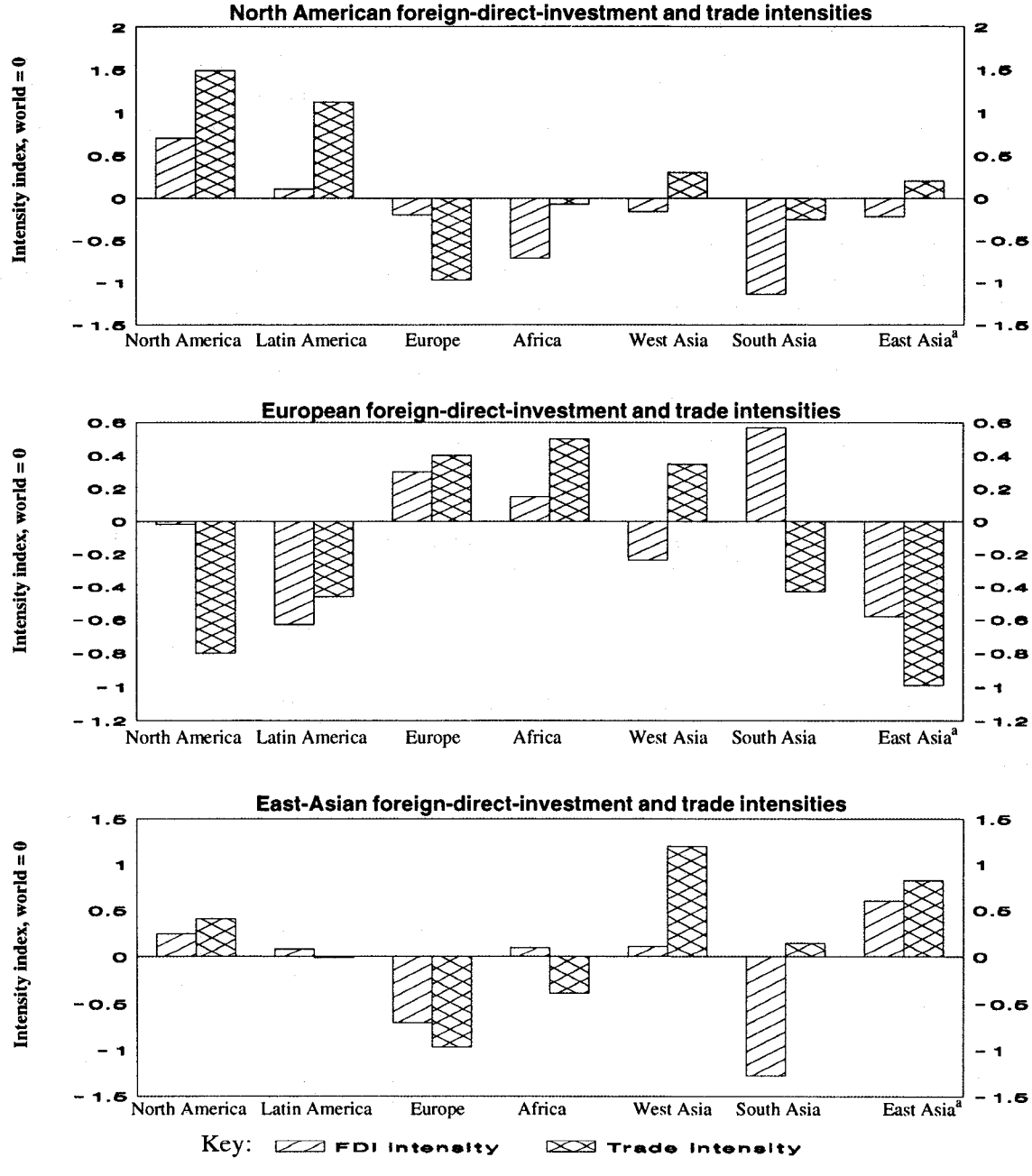
Country/region	*Partner region*						
	North America	*Latin America*	*Europe*	*Africa*	*West Asia*	*South Asia*	*East Asia*[b]
North America	4.53	3.03	0.37	0.92	1.33	0.76	1.20
Canada	4.90	0.78	0.23	0.35	0.38	0.31	0.54
United States	4.43	3.64	0.41	1.07	1.59	0.89	1.38
Europe	0.46	0.63	1.49	1.57	1.43	0.65	0.37
France	0.42	0.76	1.46	2.57	1.40	0.53	0.33
Germany	0.39	0.64	1.60	1.06	1.20	0.58	0.40
Italy	0.40	0.71	1.52	2.61	1.85	0.56	0.30
Netherlands	0.33	0.52	1.51	1.00	1.44	0.36	0.24
Sweden	0.54	0.59	1.48	0.46	0.86	0.54	0.40
United Kingdom	0.73	0.51	1.31	1.21	1.68	1.16	0.49
East Asia	1.54	0.99	0.38	0.68	3.31	1.16	2.27
Australia	1.15	0.37	0.42	0.42	1.76	1.34	2.36
Japan	1.60	1.08	0.38	0.72	3.54	1.13	2.25

Source: Based on UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a Intensity ratio: share of partner region in total trade of a given country, divided by share of partner region in world-wide trade excluding trade with the given country.

b Including, also, South-East Asia and the Pacific.

Figure VII.3. Foreign-direct-investment and trade intensities, logarithmic measures, North America, Europe and East Asia [a]



Source: Based on UNCTAD, Programme on Transnational Corporations, foreign-direct-investment database.

a Including, also, South-East Asia and the Pacific.

Be that as it may, the importance of FDI as an agent of integration assumes greater importance with the increasing integration of international production. As discussed in chapters V and VI, many TNCs organize complex integrated production along regional lines. They put their functionally integrated affiliates in several host countries within a single region, and choose non-affiliated companies in the same region as suppliers and subcontractors. Final assembly occurs in countries within the region, which may also be the main market for the product. And, in some cases, regional headquarters may be set up to manage regionally-oriented networks. At the same time, it is important not to overlook the global impact of FDI on integration, as TNCs integrate across regions as well. Furthermore, in any given firm pursuing complex integration strategies, some functions may be organized nationally, some regionally and others globally, thus creating layers of integrated production with varying geographical scope.

As an international production system emerges and is accompanied by increasing intra-firm trade, international trade will also be more widely dispersed. It then becomes an additional force for cross-regional or global integration. In other words, the increasing significance of intra-firm trade in functionally integrated international production, based on the profitability of the entire value chain, widens the geographic scope of trade, as compared with arm's-length trade that is based on the profitability of each separate transaction. Thus, trade as well as FDI may be less subject to regional pressures. The potential links between countries within an integrated international production system are likely to be increasingly global in nature.

C. Implications for host countries

The potential scope of the integrated international production system is global in nature because, in spite of strong tendencies towards regionalization, a significant amount of FDI is interregional and is likely to become more so with the growing importance of complex TNC strategies. The extent to which particular host countries become part of this system depends upon the interaction of their location-specific advantages with the changing firm-specific advantages that TNCs enjoy in the context of integrating their functional activities on a world-wide basis. Some of the implications for host countries, in terms of attracting TNC activities as well as benefiting from their impact on development, are discussed below.

1. Location of economic activities

According to widely accepted theory, TNCs go to a particular economy because of its locational advantages, plus the advantages the company can achieve through internalizing cross-border transactions (Dunning, 1993). The main locational advantages include market size and growth, availability of skilled (and low-cost) labour, natural resources, infrastructure, a favourable policy environment and proximity and access to other large markets (UNCTC, 1992). Integrated international production implies changes in the nature of the ownership, internalization and location advantages of TNCs.

- Ownership advantages, traditionally considered at least implicitly to emanate from the parent firm, are increasingly becoming firm-wide ownership advantages, reflecting capabilities emanating either from the corporate system as a whole or any part thereof. Internationally-based competitive advantages are generally considered to be developed through cross-national economies of scale, economies of scope and organizational learning (Ghoshal, 1987, pp. 425-440). Those competitive advantages can be gained by firms integrating the activities in their value chain on a world-wide basis. Chapter VI gave examples of affiliates becoming a source of ownership advantages for the firm as a whole.

- To the extent that the above changes cause ownership-specific advantages to become more idiosyncratic or related to the coordination of interrelated activities, the development of internationally-based ownership advantages is accompanied by an increase in the scope of economies of common governance. Thus, there are benefits to firms from internalizing some of their transactions. But, if some ownership advantages can be exploited through markets, then strategic alliances and other interfirm arrangements are likely to grow. In practice, there seems to be an increase in both intrafirm and interfirm transactions.

- As the entire value chain comes to be included in integrated international production, there is a wider range of corporate activities that can be located in host economies. In principle, this gives them a better chance of matching their locational advantages with the needs of TNCs. Attracting FDI may become easier if specific functional activities rather than entire production processes are involved, since the range of skills required will be narrower. At the same time, as TNCs increasingly embody a complex package of attributes in their international production activities, they require a differentiated package of other locational advantages from host economies. Infrastructural support, low factor costs and technological sophistication and adaptability of the workforce are major considerations in the location of foreign affiliates in a country as part of an integrated production system. For countries with financial constraints, such a package of attributes may be easier to develop within specific regions of host countries, suggesting that an integrated international production system involves not only the unbundling of FDI and TNC activities by function, but also of countries by specific locales.

In sum, the emergence of an integrated international production system alters the factors influencing FDI and the location of economic activities abroad. Ownership advantages are becoming system-wide in nature, and exploited through either intra-firm or inter-firm mechanisms, depending upon the nature and costs of the transactions involved. The result is a broader range of opportunities for host countries to attract TNC activities, but also higher requirements in terms of human resources and infrastructure as well as open frameworks for trade and investment.

One factor facilitating the development of an integrated system is the emergence of a global labour force.[4] The availability of skilled labour and professionals in numerous locations around the world, capable of accomplishing work of similar high quality, has enabled TNCs to go to wherever they can perform most economically and efficiently.

It is usually developed countries, however, that are best suited to participate in integrated international production. The newly industrializing and larger developing economies are also likely to succeed in establishing linkages to the emerging system by attracting FDI as part of TNCs' complex strategies, since they offer various

levels of labour skills, favourable policy environments, efficient transportation and communications networks and, often, access to a large and growing regional economy. Their increasing role as home countries to TNCs with a potential for establishing their own corporate integrated production systems also strengthens the prospects of their integration into the global economy. However, there is nothing, in principle, to exclude any developing economy from participating in the emerging international production system. One way to do this would be to develop various locational advantages that are a precondition for attracting FDI in higher-value-added activities. Another would be to emphasize or develop specific locational advantages for particular corporate functions of TNCs. Developing countries could also encourage their firms to participate more in interfirm arrangements linking national firms with TNCs for outsourcing by the latter.

It must be recognized, however, that the emerging integrated international production system has left many developing countries so far virtually untouched. Developing appropriate locational advantages takes time. This need not necessarily be a matter of concern to countries not yet in a position to attract integrated production. As emphasized earlier, traditional forms of FDI are still important. Thus, developing countries could attract stand-alone affiliates of TNCs which continue to pursue market-oriented or simple-integration strategies, or natural resource FDI. Given the differentiation that prevails as regards their attributes as host countries (even among the more advanced developing economies), the locational advantages that developing countries offer are likely to differ considerably and the types of investments they can receive are, therefore, likely to differ as well.

2. Impact on development and competitiveness

In the emerging international system, it is increasingly firms—TNCs and their affiliates, rather than arm's-length transactions—that determine a country's participation in the international division of labour. As a result, the growth potential of developing countries will depend to a large extent on their ability to participate in integrated international production and on the nature of their participation. As mentioned earlier, TNCs have been focusing primarily on the three regions of the Triad. Many developing countries have been only partially integrated into the evolving system. However, links to the system are being established in those countries also through interfirm arrangements. To the extent that an integrated international production system creates the primary impulses for global economic growth and development, both the role of TNCs and of countries and regions in determining the impact of this system on developing countries needs to be evaluated.

As mentioned earlier, the expansion of integrated international production implies an increase in cross-border intra-firm flows of resources. It is not clear, however, whether and to what extent flows of foreign capital would increase significantly, especially to host developing countries. Larger FDI may take place because of technology and capital upgrading, but the trend towards functional integration, as well as outsourcing in accordance with overall efficiency, may result in a reduction in the size of affiliate operations and smaller FDI, depending upon the nature of the changes that it involves. In some highly competitive global industries, disinvestment may occur if a TNC fails to keep up with global best practice. More generally, what is taking place is a reorganization of FDI as international production becomes more integrated, with possible implications for the rate of growth and the stability of FDI flows to different host countries.

Integrated international production also implies that competitive conditions in one market increasingly determine the activities of foreign affiliates in all countries, as all of a firm's operations are potentially affected. As such globally-integrated strategies grow in importance, developing countries may increase their leverage with TNCs. However, specialization allows a host country to benefit from the international division of labour, provided it does not specialize so much that it is vulnerable to technical change.

Growth in the integration of production also involves increased flows of goods, services, technology and management know-how, within and between firms. This process is enhanced by applications of information technology throughout the value-added chain which allow the spread of flexible production technologies and new management and research-and-development practices. Increasingly sophisticated work is being parcelled out to distant locations with capable labour forces (box VII.2). Examples in developing countries include the building of steam turbines by Siemens and the production of tapes, chemicals and electrical parts by 3M in India; computer assembly and the design of memory boards by Hewlett-Packard in Mexico; the processing of medical insurance claims by Metropolitan Life in Ireland; and the design and manufacture of electronic pagers by Motorola in Singapore.[5] Moreover, the shift of activities, even to developing countries with low wages, is often accompanied by a shift to more efficient management methods, better technology and heavy investment. Furthermore, foreign affiliates are increasingly likely to buy components from independently owned firms. It has been estimated that at least half of the value of goods shipped from the foreign affiliates of United States TNCs was actually added at independently-owned plants.[6]

Those trends suggest that host countries are likely to improve their productive efficiency and competitiveness. However, they may be less likely to build up their domestic technological capability. Integrated international production by TNCs can mean that host countries receive only a segment of an industry; the possibilities for the transfer of technology and skills may then be narrower than in the case of free-standing affiliates or simple integration. On the other hand, since non-equity forms of TNC participation are available, developing countries with the necessary skills and absorptive capacity will benefit from the transfer of technology.

Box VII.2. Finding a niche: computers and software in India

The tendency for companies to put high-value functions in places where the best and cheapest production capabilities exist is illustrated by the number of computer and software foreign affiliates that are located in India, many of them in Bangalore. Through wholly-owned export operations or joint ventures, Texas Instruments Inc., Motorola Inc., Hewlett-Packard Co., Apple Computer Inc., Sun Microsystems Inc. and Intel Corporation have all set up operations there. Dell Computer Corporation is planning to establish a plant to manufacture computer motherboards for export, and IBM has formed a joint venture with India's biggest industrial firm, the Tata Group (Brauchli, 1993).

Locally-controlled companies are also winning increasingly complex orders for supplying software to foreign clients. Infosys, an Indian software group, provides Holiday Inn with hotel reservation software connecting directly with the computer centre of the Holiday Inn Hotel chain in the United States. Other customers of Infosys include General Electric, Digital Electric and Reebok (United Kingdom). Satellite technology facilitates instantaneous communication with clients (Wagstyl, 1993).

Bangalore is a major research and engineering centre, with some of India's top science, engineering and business schools, as well as high-tech State-sponsored industries and research laboratories. There is thus a concentration of engineers and scientists working in or around the city, and all of them are fluent in English. Bangalore's attractions are completed by its relatively low salaries, reflecting the abundance of labour of all skills.

Those developments make it more important than ever for developing countries to build up their own human and physical infrastructure. In addition to providing the basis for industrialization and development of the domestic economy, it would allow national enterprises to join up with TNCs on a more equal basis. It would raise the quality and sophistication of the FDI a host country could attract, and would strengthen the prospects for technology acquisition. It would also enable host developing countries to build up supplier capabilities that are sometimes a precondition for the location of TNC activities and which, moreover, add to the economic and technological spillovers from foreign affiliates. The building up of such capabilities has been an essential feature of developing countries, including those in Asia and Latin America, that have succeeded in restructuring both their international and domestic production sectors towards higher- value-added activities.

Positive effects on local technological capabilities improve the growth performance of the host economy on a wider basis. The implications for employment, however, may be less favourable. The productivity-boosting technologies and cost-reducing organizational changes that propel deeper integration of TNC activities may be accompanied by little or no growth of employment in the industries concerned, in home as well as host countries. The conflict between efficiency and equity would require domestic action, such as education and training programmes, for absorbing labour into more efficient domestic firms and foreign affiliates, as well as increased domestic investment and social security.

At present, only a few developing countries have attracted sizeable shares of FDI related to functionally integrated TNC activities. For those countries, foreign affiliates linked to TNCs' value chains are a good way to retain competitiveness in industries based on new and costly technologies. Another option is to encourage outward FDI by their own firms, especially in developed countries. This ensures that developing countries will tap into technological developments in advanced host countries. The extent of technological benefits to a home country from such investments is likely to rise with the complexity of the activities in which FDI takes place, the domestic technological capabilities of the firms concerned and the sophistication of industry and technology in the host country (TCMD, 1993c, pp. 71-73).

Other developing countries that do not offer the locational advantages required by regionally or globally integrated firms, such as a skilled labour force, an open trading and investment environment, a developed communication and transport infrastructure and networks of local suppliers on which TNCs can draw, risk being further marginalized. Those countries need to consider how to formulate and coordinate policies so as to maximize the benefits to them from the emerging integrated international production system as well as from FDI in more traditional organizational forms which they may be in a better position to obtain. Issues relevant to the formulation of appropriate policies are discussed in chapter XI.

Notes

1 A slightly different index of integration was developed by Kobrin, 1991.

2 This intensity measure is based on the "gravity index", frequently used in the analysis of international trade. It may be expressed formally as follows:

$$q_{ab} = (I_{ab} / I_{a*}) / (I_{*b} / W),$$

where q_{ab} = intensity of country 'a''s investment in or trade with country 'b';

I_{ab} = investment by 'a' in 'b' or trade between 'a' and 'b';

W = world investment or trade, excluding investment in or trade of country 'a';

* = summation across all partners.

3 The logarithmic measure transforms the measure in note 2 as follows:

$$Q_{ab} = \ln (q_{ab}),$$

where Q_{ab} = logarithmic measure of intensity of 'a''s investment in, or trade with 'b'.

4 Brian O'Reilly, "Your new global labor force", *Fortune* (December 1992), p. 52.

5 O'Reilly, op. cit.

6 Ibid.