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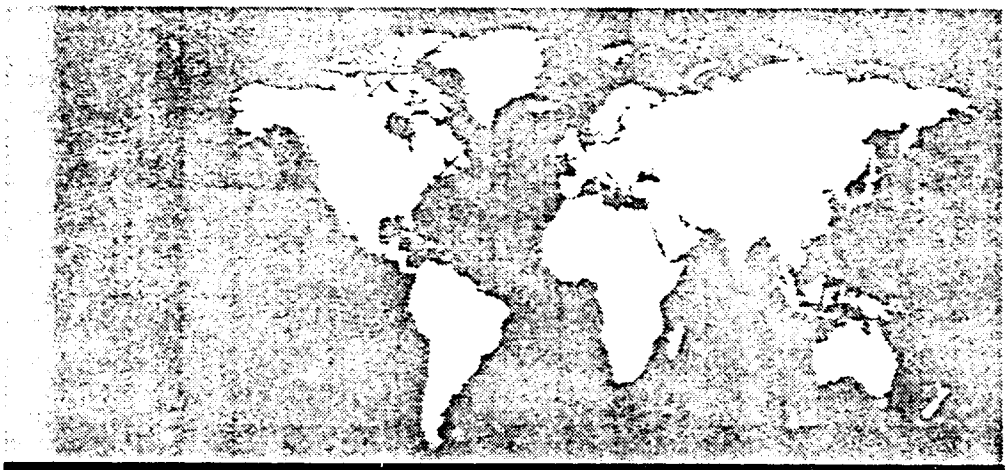

Background Paper

Foreign direct investment, technology transfer and exports of developing countries: Trends and policy implications

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EU	European Union
FDI	Foreign Direct Investment
OEM	Original equipment manufacturer
SEM	Single European Market
TNCs	Transnational corporations
UNCTAD	United Nations Conference on Trade and Development

INTRODUCTION

Transnational corporation (TNCs) dominate the world's pool of technology, controlling between 80 to 85 per cent of global patents. They also dominate international markets in most tradable goods and services. A rather large proportion of world trade (between 33 to 50 per cent) is actually conducted between TNCs affiliates on an intra-firm basis. Therefore, it is widely believed that linkages with TNCs could help developing country enterprises gain access to new technology and markets. Foreign direct investment has traditionally been a prominent mode of establishing such linkages with TNCs. Over time many different forms of external linkages -contractual and internal- have evolved. Moreover, in the recent period, larger enterprises from developing countries have themselves started undertaking direct investment abroad as a strategic policy tool for strengthening their international competitiveness. These linkages have grown in numbers and in terms of their significance with the growing internationalization and global economic integration over the past decade.

This paper discusses different forms of international linkages, summarizes recent trends with special reference to developing countries and raises issues involved in the use of these linkages by them for acquiring technology and obtaining market access for improving the competitiveness of their goods in the world markets. It concludes with implications for policies of developing countries.

TYPES OF EXTERNAL LINKAGES

Foreign Direct Investment (FDI)

FDI has traditionally been the major form of external linkage for enterprises. FDI usually involves the transfer of a package of resources including capital, organization and entrepreneurship, technology and other intangible assets. FDI could take a variety of organizational forms. It could cover anything from a majority-owned subsidiary operation to taking a minority but controlling stake in an enterprise. It could either be a greenfield investment or involve acquisition of an existing unit abroad. Finally, it could be in the form of a joint venture with a local enterprise or be an independent or sole venture of a foreign investor.

In terms of motivations, FDI is classified into broadly four types [Dunning, 1993]. Natural resource-seeking FDI covers investments made by TNCs abroad in order to seek privileged access to supplies of natural resources and raw materials or to exploit abundance of certain raw materials in a particular country. The examples include plantation and mining investments made in resource-rich developing countries (e.g. TNC investments in tea, coffee plantations, iron ore and bauxite mining in India, rubber plantations in Liberia and Malaysia, copper in Chile and Zambia and so on) and industrialized countries such as Australia and Canada. Market-seeking FDIs are investments oriented to domestic markets in certain countries. These may include investments undertaken to obviate host countries tariff and non tariff barriers or those that preclude rivals or potential rivals from gaining new markets. These investments generally take the form of horizontal FDIs and cover by far the most common type of FDI. Efficiency-seeking FDIs include investments made by TNCs to rationalize

production globally according to factor costs in order to maintain their competitiveness. These investments result in globally integrated production where plants participating in rationalization across the world are integrated vertically. Strategic-assets-seeking FDI includes investments made abroad to acquire strategic assets such as brand or trade names, proprietary technology, market access etc. Acquisition of ICL by Fujitsu of Japan, for instance, aimed to improve access to the European market for computers.

It is clear that FDIs with different motivations are accompanied by different asset bundles. Hence, host countries benefit from these FDIs in different manners. The market-seeking FDI, for instance, may bring to its host country access to production technology and help substitute imports. Natural resource-seeking FDI may help a developing host country exploit its natural resources for export. Efficiency-seeking FDI brings to the host country market access for manufactured products in addition to production know-how.

Non-Equity Licensing and other Contractual Modes

Technology and other intangible assets are also transferred across borders under contracts entered into by enterprises without controlling stakes. Considerable volume of technology and knowledge flows across borders through capital goods trade which embody it or under turnkey plant type of arrangements. Disembodied technology could be transferred under a licensing agreement where the licenser provides to the licensee access to designs, drawings, process know-how which may be proprietary held or otherwise in consideration for royalty, licence fee or lump sum amount. The licensing contracts could be of varying durations and may include certain restrictive conditions such as those restricting the sourcing of raw materials and markets for products. These contracts may often be accompanied by rights to use licensers' brand or trade names. In the service sectors, the most common form of non-equity or contractual mode of transfer of knowledge is franchising which generally covers transfer of know-how and the right to use the licenser's trade name.

Market access can also be transferred through arm's length contracts. Subcontracting of production on given specifications by corporations to some enterprises abroad is sometimes resorted to save costs. These subcontracting or OEM (original equipment manufacturer) agreements (some times also referred to as buy back arrangements) are also important channels of technology transfer as product designs and drawings are transferred as part of these agreements by the subcontractor to the subcontractee. A number of Korean enterprises which started by serving as subcontractors or original equipment suppliers to American and west European corporations have since graduated by absorbing the know-how received and have established themselves as major manufacturer-exporters of the same products.

Strategic Alliances

Strategic alliances have emerged to be an important form of inter-enterprise cooperation in the recent period. They include a two way flow of resources unlike in the case of conventional FDI and licensing. Enterprises with complementary assets or technologies sometimes enter into alliances covering cross-licensing or bartering the complementary

resources. The strategic alliances could be in the form of agreements spelling out the terms of transfer of resources and may be accompanied by exchange of equity stakes between partners. Strategic alliances are also entered into between firms for pre-competitive research, for joint development of a product or process to share costs, or for joint marketing of certain products etc.

Because strategic alliances involve a two way transfer of resources, they have largely been confined to enterprises from industrialized countries. Very few developing country enterprises have capabilities strong enough to attract major TNCs to enter into alliances with them for global markets.

Outward Foreign Direct Investment by Developing Country Enterprises

Traditionally, FDI flows have originated in the industrialized countries. However, since the late 1970s, FDI outflows from some developing countries have taken place and have indeed grown rapidly. Developing country enterprises have increasingly used FDI abroad as a means of acquiring technology, market access and for strengthening their international competitiveness through international rationalization of production. FDI made by developing countries can also be classified into four broad types according to motivations. Market-seeking FDI is undertaken to obviate trade barriers in the host countries. The initial round of FDI from developing countries comprised mostly market seeking FDI made in other developing countries. Trade-supporting FDI is undertaken in major markets to create marketing networks and to provide after-sales services. Since international competitiveness is increasingly determined by non-price factors such as the ability to provide after sales services, an increasing number of developing country enterprises have set up trade supporting affiliates in the industrialized countries in the recent period to support their operations. Efficiency- seeking FDI is undertaken to exploit the availability of cheaper raw materials or factors of production in other countries. Exporters from East Asian newly industrializing economies such as the Republic of Korea, Taiwan Province and Hong Kong, that have been affected by rising domestic wages and currency appreciations are increasingly relocating labour-intensive production in neighbouring developing countries with cheap labour. Finally, some developing country enterprises have set up subsidiaries in major centres of knowledge creation in their fields to benefit from knowledge spillovers e.g. investments made by Korean micro-electronic firms and Indian software companies in Silicon Valley [Kumar, 1995a,b]. Sometimes developing country enterprises also engage in acquisitions of established corporations in industrialized countries to get access to technology, brand names, and markets as do TNCs from industrialized countries. These could be classified as strategic asset- seeking FDIs.

TRENDS AND PATTERNS IN EXTERNAL LINKAGES OF DEVELOPING COUNTRIES

FDI versus Licensing as Means of Transfer of Technology

The theory of international operations of firms as evolved over time with contributions from Hymer (1960), Caves (1971), Buckley and Casson (1976), and Dunning (1981),

among others, considers FDI and arm's length contracts as alternative modes of foreign production. A firm exploits the revenue productivity of its intangible assets (ownership advantages) e.g. knowledge, technology, brand names etc., abroad through FDI or within the firm (internally) if the market transactions are difficult to set up and govern. In other cases, contracts are used to license the intangible assets. Thus the choice between FDI and licensing is determined by the transaction or governance costs. The higher the transaction costs, the higher the incentive to internalize the transaction (internalization incentives) and the likelihood of FDI being chosen as a mode of foreign production. The transaction costs are generally high for market transactions because of market failures due to their 'public good like' nature, difficulty in making a convincing disclosure and buyer's uncertainty, problems with codification of knowledge, and risk of dissipation of brand goodwill. It must be pointed out, however, that external markets for all intangible assets are not subject to the same degree of market failure, and hence transaction costs vary. Some intangible assets such as proprietary process technologies can be profitably licensed at arm's length [Kumar, 1994b, ch. 3]. Product technologies and those process technologies that cannot be codified easily or embodied in capital goods because of a high tacit component are more difficult to license. Therefore, the relative importance of licensing as a channel of technology or knowledge transfers varies across industries [Caves, 1974; Dunning, 1981]. Kumar (1987a) found FDI to predominate the advertising and human skill-intensive industries in an analysis of determinants of FDI and licensing across 49 Indian manufacturing industries. Licensing was important in industries where knowledge could be embodied in capital goods and those with relatively simpler technologies.

In addition the characteristics of intangible assets or technology transferred as predicted by theory, a number of other factors may affect the choice between FDI and licensing in practice. For instance, licensing is preferred when FDI is not profitable or possible. This could be because of the small size of the market or government restrictions on FDI. Licensing is encouraged when the licenser lacks experience in managing manufacturing plants abroad. Licensing may also be preferred when an industry's technology is changing rapidly because the lead time required to license an established producer is usually less than that required to start a subsidiary from scratch [Caves, 1982, 205; Davidson and Mcfetridge, 1985].

The literature has debated the relative merits of FDI versus licensing for technology transfer. FDI brings technology as a part of a package of associated skills and capital and hence may appear better in so far as it supplements domestic savings. The continued stake of the foreign technology supplier in the enterprise may oblige him to keep it updated with technology and encourage sharing other resources of the organization such as market access. On the other hand, FDI may hamper absorption and diffusion of technology within the host economy and result in continued technological dependence. Enterprises importing technology under licensing have greater freedom to absorb and indigenize the technology imported and consequently to become technologically independent. Empirical studies have found some evidence of enterprises importing technology under licence to be spending more on R&D than their foreign-controlled counterparts, holding other factors constant [see, for instance, Kumar (1987b) for a study of 43 Indian manufacturing industries]. It is evident that Japan and the Republic of Korea acquired much of their technology from abroad under contractual

means without controlling equity stakes. That allowed Japanese and Korean enterprises to absorb, adapt and improvise technology for their own exporting effort [see Amsden, 1989; Westphal et al. 1979]. An important prerequisite for licensing to contribute to the building up of local capabilities, however, is the presence of certain absorptive capacity, and technological entrepreneurship within the country.

Finally, imported technology, whether brought in as a part of FDI or under licensing enjoys an edge over the locally developed ones because of its commercial attractions such as access to internationally-known brand names, proven nature and hence lower risk of failures, and availability of associated financing and bilateral official credits etc. [Kumar, 1990]. Therefore, an over liberal policy towards technology imports may discourage local efforts to develop technology thus hampering local technological-capability building. The in-house technological effort of enterprises is crucial for sustaining long term competitiveness. An empirical study of Indian enterprises showed that their export performance was significantly influenced by their own technological effort in medium and low technology sectors [Kumar and Siddharthan, 1994].

Relative Importance of FDI and Licensing as Channels of Technology Transfer

In the period since the mid-1960s, a growing proportion of international transfer of disembodied technology has taken place under arm's length contracts or licensing arrangements. This was because the maturing and standardization of a wide range of technologies led to a widening of technology markets as alternative sources emerged and competition increased. A large number of host governments evolved foreign investment codes during the 1960s and 1970s and started restricting FDI inflows in an effort to reduce repatriation of dividends and/or to protect domestic enterprises. Thus arm's length licensing emerged as an alternative channel of international technology transfer. This trend towards the rising importance of arm's length contracts as an alternative to FDI continued until the mid-1980s. It is evident from the distribution of technology payments by major technology-exporting countries reported in Table 1. The share of technology payments received by US corporations from their affiliates in their total technology receipts (those in which they retained a controlling stake), for instance, declined steadily from 71.36 per cent in 1975 to 68.97 per cent in 1985. But since the mid-1980s, the share of receipts from affiliates has constantly improved from nearly 69 per cent to nearly 80 per cent in 1992. The relative importance of receipts from affiliates in total receipts of technology payments varies across countries presumably because of the different definitions of controlling interest. However, the trend towards the increasing importance of affiliate receipts in the more recent period is visible for both the UK and Germany. The explanation for the decline in the importance of contractual or non-equity modes of technology transfer can be explained in terms of a number of factors. These include liberalization of foreign investment policy regimes world-wide since the mid-1980s which removed the restrictions on FDI vis-à-vis licensing. The emergence of new core technologies viz., microelectronics, biotechnologies and new materials also contributed to this trend. These technologies are still evolving and are closely held. Because of their pervasive application in a wide range of sectors, they are seen by their owners as key instruments of technological competitiveness. This has prompted a wave of technological protectionism in the industrialized countries. Hence, companies owning them are wary of transferring their to unaffiliated parties.

Table 1
Composition of Technology Receipts, (royalty etc.), 1975-1992

Years	United States			United Kingdom			Germany		
	Total receipts $ million	from affiliates (percent)	from unaffiliated licensees (percent)	Total receipts, million pounds	from affiliates (percent)	from unaffiliated licensees (per cent)	total receipts million DM	from affiliates (percent)	from un-affiliated licensees (percent)
1975	2643	1886 (71.36)	757 (28.64)						
1980	4998	3693 (73.89)	1305 (26.11)						
1985	6121	4222 (68.97)	1899 (31.03)	969	500 (51.60)	469 (48.40)	1693	1559 (92.08)	134 (7.91)
1988	10968	8455 (77.09)	2513 (22.91)	1098	656 (59.74)	442 (40.25)	1898	1769 (93.20)	129 (6.79)
1990	15507	12062 (77.78)	3445 (22.22)	1420	1001 (70.5)	419 (29.5)	2434	2271 (93.30)	163 (6.69)
1992	20238	16109 (79.6)	4129 (20.4)	1990	1518 (76.3)	472 (23.7)	2419	** 2281 (94.3)	138 (5.7)

Sources: Compiled on the basis of United Nations TCMD (1993); US Department of Commerce, *Survey of Current Business*, and *Monthly Report of the Deutsche Bundesbank*, various issues; UNCTAD (1994).
* Belongs to 1986. ** Belongs to 1991.

FDI Inflows to Developing Countries: Recent Trends and Implications

The growing internationalization of the world economy over the past decade has resulted in the dramatic expansion of different forms of external linkages. The magnitude of annual global FDI inflows has expanded dramatically since the mid-1980s from nearly $50 billion to a peak of over $200 billion in 1990. It subsequently declined to about $150 billion level a year in 1992 but then has recovered to the $200 million level in 1994 (Table 2). Several factors contributed to this dramatic expansion of FDI flows in the late 1980s. The formation of a Single European Market (SEM) in the European Union (EU) has led to an unprecedented level of intra-EU FDI flows and mergers and acquisitions [Kumar, 1994c]. This resulted in a sharp rise in FDI outflows from a few European countries. Second, Japanese corporations expanded their overseas production in the face of the sharp appreciation of the yen following the Plaza Accord in 1985. Japanese corporations also increasingly located production in the EU countries to overcome increasing protectionist barriers and to exploit the benefits of regional integration by becoming insiders. Third, developing countries world-wide liberalized their investment codes in an effort to attract greater volumes of FDI in line with structural adjustment programmes. Fourth, economic reforms in the central and east European countries opened totally new markets for FDI. Fifth, debt-equity conversions in Latin America created new opportunities for FDI. Large-scale privatization of public sector enterprises in different parts of the world also led to considerable FDI flows. For instance, FDI from privatization has accounted for nearly 60 per cent of all FDI inflows received by central and eastern European countries between 1989-93. The proportion for the Latin American and Caribbean countries is 17 per cent and for Sub-Saharan African countries, 11 per cent [Sader, 1994]. Finally, the East Asian newly industrializing countries emerged as significant outward investors in the late 1980s. The decline in the magnitude

of FDI flows in the early 1990s is explained in terms of completion of restructuring of EU businesses in anticipation of the SEM plan and the recession in major industrial countries including Japan. Recovery in the Western nations over the past couple of years has contributed to a gradual recovery of global FDI inflows.

Table 2
Distribution of FDI Inflows, 1981-1994
(Billions of dollars)

Destination	Annual Average					
	1981-85	1987-91	1990	1992	1993	1994
All countries	55 (100)	174 (100)	209 (100)	157 (100)	183 (100)	204 (100)
Developed Countries	42 (82)	143 (82)	177 (85)	100 (64)	107 (58)	117 (57)
Developing Countries	13 (23)	30 (17)	32 (15)	52 (33)	71 (39)	80 (39)
memo: Least Developed Countries	0.2 (0.4)	0.6 (0.4)		0.4* (0.3)	0.5 (0.3)	0.6 (0.3)

Note: Figures in parentheses are percentages. * Annual average for 1991-1993.

Source: Compiled from UNCTAD (1995a,b).

The inter-country distribution of FDI inflows is highly uneven. The bulk of FDI inflows are directed to the industrialized countries. In the early 1980s, developing countries accounted for 25 per cent of annual inflows on average. The rising magnitude of FDI in the late 1980s was accompanied by a decline in the share of developing countries in total inflows of FDI to just 15 per cent in 1990 (Table 2). The share of developing countries has recovered in the post-1990 period. This confirms the impression that the spurt in annual FDI flows during the late 1980s was in response to the restructuring provoked by the SEM plan.

Although the share of developing countries in global FDI flows has fluctuated over the past decade, the absolute magnitude of FDI inflows has continued to rise over the period and has become the most important source of private resources from abroad. The increasing magnitude of FDI inflows in developing countries tends to be a cause of optimism among them over prospects of receiving greater volumes of FDI inflows and associated multiple benefits such as technology transfer, market access and organizational skills especially in the current scenario of drying up of flows of soft credits to developing countries.

A closer scrutiny of patterns of FDI flows, however, shows that FDI and its benefits are unevenly distributed across developing countries. Table 3 shows that the top ten recipient countries account for the bulk of all FDI inflows in the developing countries. Over the years, the concentration of FDI inflows in a handful of countries has increased with the top ten countries accounting for 81 per cent of developing countries' inflow in 1993 as compared with 66 per cent in the 1970s and 1980s. The least developed

countries, on the other hand, continue to receive a negligible share of global FDI flows. Their share in global FDI inflows actually declined from a meagre 0.4 per cent during the 1980s to 0.3 per cent during the 1990s (Table 2).

Therefore, the recent growth in magnitudes of FDI inflows to developing countries has benefited only a few countries. This is despite the fact that a large number of developing countries have liberalized their FDI policy regimes since the late 1970s in order to attract greater magnitudes of FDI as a part of structural adjustment programmes. The direction of FDI flows is determined more by the growth potential and level of prosperity of the host economies than by liberalization of government policy and incentives. Empirical studies by Root and Ahmed (1979) and Schneider and Frey (1985) have found the inter-country distribution of FDI flows to be determined favourably by *per capita* income, growth rate, extent of urbanization, availability of infrastructure, and adversely by political uncertainty and balance of payment problems. Contractor (1990) in an empirical study of 46 countries did not find liberalization to be an important factor in influencing the pattern of FDI inflows. The foreign investors' response was found to be strongly influenced by the size and growth of the host economy rather than by changes in the government's FDI policies. Another study by Wheeler and Mody (1992) covering 42 countries for the period 1982 and 1988 emphasized the importance of the quality of infrastructure, level of industrialization and market size in attracting US FDI.

Table 3
Average Annual Inflows of Foreign Direct Investment to the 10 Largest Recipients Among Developing Countries
(Millions of dollars and percentage)

Host Country	1970-1980	Host Country	1981-1991	Host	1992	Host Country	1993
Brazil	1390	Singapore	2287	China	11156	China	27515
Mexico	743	Mexico	2148	Singapore	5635	Singapore	6830
Singapore	386	China	2080	Mexico	5366	Argentina	6350
Malaysia	381	Brazil	1663	Malaysia	4469	Mexico	4901
Nigeria	219	Malaysia	1374	Argentina	4179	Malaysia	4351
Egypt	205	Hong Kong	1278	Thailand	2116	Indonesia	2004
Indonesia	194	Argentina	874	Hong Kong	1918	Thailand	1715
Hong Kong	162	Thailand	850	Indonesia	1774	Hong Kong	1667
Argentina	121	Egypt	821	Brazil	1454	Taiwan	917
Algeria	120	Taiwan	650	Nigeria	879	Nigeria	900
Share in total flows to developing countries	67%		66%		76%		81%

Sources: Compiled from UNCTAD (1993, 1994, and 1995a).

The open market policies or incentives, such as tax breaks, were found to be of limited value in determining the investment decisions of US TNCs.

It is often argued that FDI flows are less burdensome for the host economy than commercial borrowings and are self-servicing as the repayments become due only when

enterprises start making profits. The experience, however, shows that FDI inflows carry a substantial servicing burden in the form of profit remittances that tends to grow with time. This fact is clear from Table 4 compiled from data presented in the World Bank's World Debt Tables. The table shows that till 1986 (till 1988 in the case of severely indebted low income countries as a group) FDI inflows in developing countries were not even enough to offset the profit remittances. Hence, FDI inflows net of profit remittances were actually negative. In the subsequent years, net transfers have turned positive because of rapid growth in magnitude of FDI inflows. The relationship between FDI inflows and profit remittances is characterized by a time lag due to the gestation period in normal business activity. Hence, the effect of increased magnitude of FDI inflows over the past few years is yet to be reflected in profit remittances. A World Bank study on India concluded that FDI 'is unlikely to provide a substantial increase in foreign exchange, particularly once repatriations are taken into account' [World Bank, 1989:57].

Table 4
FDI Inflows to Developing Countries and Their Servicing, 1970-1994
(In US$ millions)

	All Developing Countries			Severely Indebted Low Income Countries		
Year	FDI Inflows*	Profit Remittances	FDI Inflow net of profit remittances	FDI Inflows*	Profit Remittances	FDI Inflow net of profit remittances
1970	2268	6473	-4205	55	697	-642
1980	5256	24021	-18765	52	2137	-2085
1986	10142	11387	-1245	697	488	209
1987	14567	12519	2048	1044	1425	-381
1988	21182	13393	7789	571	801	-230
1989	25687	17288	8399	2256	485	1771
1990	26712	17839	8873	1071	706	365
1991	36810	18550	18260	1101	576	525
1992	47076	21230	25846	1309	620	689
1993	66614	23317	43297	1376	633	743
1994 (projected)	77918	25366	52552	1589	654	935

* The World Bank figures of FDI inflows to developing countries are not comparable to those from UNCTAD in other tables because of different origins of data.

Source: Computed from World Bank (1994, 1995), *World Debt Tables: External Finance for Developing Countries, 1993-94 and 1994-95*, Volume I. Washington DC: the Bank.

Therefore, FDI inflows can hardly be justified as a means of compensating for the falling flows of soft credits to developing countries not only because of their substantial servicing burden but also because the countries needing them most such as those facing economic crises are unlikely to receive larger magnitudes of FDI inflows in view of the observed trends and their determinants as noted earlier. FDI inflows also vary greatly in terms of bringing associated benefits such as technology and market access. Not all FDI flows

benefit their host countries in the same manner. Some FDI flows in high technology sectors or those of an export-oriented nature may benefit their host countries more than those in soft technology consumer goods sectors oriented to local markets. An increasing proportion of FDI flows to developing countries over the last decade has gone into acquisition of existing enterprises, privatization and debt-equity conversions rather than in new green field projects. Therefore, the quality of FDI inflows is an important consideration. The high quality FDI inflows are even more unevenly distributed across countries. For instance, export-oriented FDIs that help their hosts expand their manufactured exports are concentrated in certain countries as shown in Table 4.

Among other trends discernible in FDI flows, one is of changing sectoral distribution. One of the features of recent growth of FDI flows has been the internationalization of service sectors. As a result, the share of services has gone up in total FDI stocks in both developed as well as developing countries (Table 5). Another trend relates to organizational form of FDI contracts. The importance of minority owned affiliates increased in the 1970s and early 1980s. Since the mid 1980s, it has declined much as has arm's length licensing (vis-à-vis FDI) and for the same reasons. Majority owned affiliates have regained their supremacy in the 1990s as one of the main organizational forms of FDI.

Table 5
Sectoral Distribution of Outward FDI Stock
for the Largest Developed Home Countries*, 1970-1990
(Percentages)

Sectors	1970	1975	1980	1985	1990
Primary	22.7	25.3	18.5	18.5	11.2
Secondary	45.2	45.0	43.8	38.7	38.7
Tertiary	31.4	27.7	37.7	42.8	50.1
Total	100.0	100.0	100.0	100.0	100.0

* USA, UK, Germany, Japan, France, Canada, Italy, Australia, Netherlands, together accounting for 90 per cent of outward FDI stock in 1990.

Source: Extracted from UNCTAD (1993) Table III.1.

Trends in Strategic Alliances

Strategic alliances have grown over the past decade as an important mode of inter-enterprise cooperation. However, they have been restricted to the major industrial countries and to high technology sectors. An analysis of trends on the basis of the MERIT's CATI data base covering nearly 4,000 strategic alliances entered into by major corporations over the 1980s all over the world shows that 75 per cent of these relate to new technologies (Table 6). The alliances covered in the data base include interfirm agreements that contain some arrangements for transferring technology or research between independent partners which are not connected through majority ownership such as joint research pacts, second-sourcing, and licensing agreements and research corporations [Hagedoorn and Schakenraad, 1991]. The share of new technologies is even

higher among alliances oriented to technology sharing, joint R&D, and other innovation-related pacts and shows a rising trend from the early 1980s to the second half of that decade. It is evident that over 80 per cent of the technology-oriented strategic alliances concerned the new technologies. As the bulk of innovative and productive activity in new technologies is concentrated in the industrialized countries, most of the alliances are also concentrated in these countries. Table 7 shows the international distribution of strategic technology alliances. As many as 95 per cent of these alliances are entered into between enterprises from the industrialized countries, with the US, Europe and Japan (viz. the 'triad' countries) alone accounting for a nearly 92 per cent share. The alliances between triad and newly industrializing countries account for 2.3 per cent of the alliances and enterprises from all other developing countries share only 1.5 per cent. Furthermore, the share of developing countries in alliances in biotechnology, new materials, and information technology is a fraction of a per cent. Finally, a much smaller proportion of strategic technology alliances entered into by developing country enterprises concern the core technologies. Table 8 shows that whereas the share of core technologies in strategic alliances within the developed economies was 73 per cent, only 23 per cent of those entered into by developing country enterprises were in core technologies.

Table 6
Distribution of Strategic Alliances, 1980-89

Technology/ Sector	Technology/ R&D innovation Oriented Alliances		Marketing/ Production Oriented Alliances		All Alliances
	1980-84 (%)	1985-89 (%)	1980-84 (%)	1985-84 (%)	1980-89 (%)
Biotechnology	222 (27.82)	456 (27.74)	30 (5.61)	78 (9.56)	786 (20.72)
New Materials	58 (7.27)	224 (13.62)	55 (10.28)	80 (9.80)	417 (10.99)
Information Technology	324 (40.60)	658 (40.02)	280 (52.34)	389 (47.67)	1651 (43.53)
Other Technology	194 (24.31)	306 (18.61)	170 (31.77)	269 (32.96)	939 (24.75)
All Technologies	798 (100)	1644 (100)	535 (100)	816 (100)	3793 (100)

Source: Compiled from Hagedoorn and Schakenraad (1991), part 2, Appendix III and IV, pp. 72-5

Table 7
International Distribution of Strategic Technology Alliances, 1980-1989

Fields of Technology	Number of alliances	% for developed economies	% for Triad*	% for Triad-NICs	% for Triad-LCDs	Other
Biotechnology	846	99.1	94.1	0.4	0.1	0.5
New Materials	430	96.5	93.5	2.3	1.2	-
Computer	199	98.0	96.0	1.5	0.5	-
Industrial Automation	281	96.1	95.0	2.1	1.8	-
Microelectronics	387	95.9	95.1	3.6	-	0.5
Software	346	99.1	96.2	0.6	0.3	-
Telecommunication	368	97.5	92.1	1.6	0.3	0.5
Misc. Info. Tech.	148	93.3	92.6	5.4	0.7	0.7
Automation	205	84.9	82.9	9.8	5.4	-
Aviation	228	96.9	94.3	0.9	1.3	0.9
Chemical	410	87.6	80.0	3.9	7.1	1.5
Food and Beverages	42	90.5	76.2	9.5	-	-
Heavy Electricals	141	96.5	92.2	1.4	2.1	-
Machine Tools/ Instruments	95	100.0	100.0	-	-	-
Others	66	90.9	77.3	1.5	4.5	3.0
Total	4192	95.7	91.9	2.3	1.5	0.5

* US, Japan and Europe.

Source: Freeman and Hagedoorn (1992).

Table 8
Shares of Core Technologies in Strategic Technology Alliances and Technology Transfer Agreements, 1980-89

Region	Share of Core Technologies in Strategic Technology Alliances, %	Share of Core Technologies in Technology Transfer Agreements, %
Triad	73.5	61.4
Developed Economies	73.0	60.9
Triad - NICs	53.6	52.4
Triad - LDCs	23.4	38.5

Source: Freeman and Hagedoorn [1992].

Outward FDI by Developing Country Enterprises

FDI flows originating in developing countries have evolved over time not only in terms of increasing magnitudes but also in terms of their motivations. In the initial round, developing country FDI outflows were generally destined to other developing countries, seeking markets and essentially horizontal in nature. Since the mid-1980s, FDI from developing countries has grown rapidly into sizeable magnitudes (Table 9). It has been argued that this period also marks the beginning of a change in motivation of these flows [Kumar, 1995b]. In the more recent period developing country enterprises have increasingly used FDI as a strategic tool for promoting their competitiveness abroad. This transformation has been prompted by recent global trends towards the emergence of regional trading blocs and rising protectionist tendencies in the industrialized countries. Moreover, the international competitiveness of a few East Asian newly industrializing economies e.g. the Republic of Korea, Hong Kong, Taiwan Province has been affected by currency appreciation, rising domestic wages and the exhaustion of MFA quotas. Enterprises from affected countries have responded by moving production abroad to maintain their international competitiveness. The developing country governments have also recognized the strategic role of outward FDI in strengthening competitiveness abroad by liberalizing the policy regimes as well as providing financing and other incentives.

Table 9
Stock of Outward Foreign Direct Investments made by Select Asian Countries, 1980-1993
($ million)

Country	1980	1985	1990	1993
Republic of Korea	142	487	2172	5632
Taiwan Province	101	215	3075	5619**
Hong Kong	1800*	9441	18930	n.a.
Singapore	652	1320	4277	6236
China	39	131	2488	7402**
India	149	180	290	707

** Belongs to 1992. * Lall (1984).

Source: Kumar (1995b).

An indication of a change in motivation of developing country FDIs since the mid 1980s is given by their changing geographical distribution. Table 10 shows the increasing concentration of FDI from developing countries in the industrialized countries. The early outflows of FDI from developing countries had been concentrated in developing countries as is clear from the rather small share of industrialized countries in outward FDI stock for most of developing home countries. The increasing concentration of developing country FDI in industrialized countries, which are the principal markets for their goods in the more recent period, tends to suggest an increasing orientation of these investments towards strengthening international competitiveness away from their market-seeking orientation in the early years.

Table 10

Industrialized Countries' Share in Outward FDI Stock of Developing Countries, 1980/1991

Home Country	**Industrialized Countries' share** (Percentage)	
	1980	**1991**
China	34	71
Hong Kong	8	18
India	11	19
Singapore	9	21
Republic of Korea	32	56

Source: Kumar (1995b).

The trend of increasing attention paid by developing country enterprises to industrialized countries over the years, however, does not diminish the importance of these enterprises as sources of FDI for developing countries. Except for a couple of countries, the bulk of FDI from developing countries is still concentrated in other developing countries. Despite their relatively small overall magnitude, FDI inflows originating in developing countries hold an important place in a number of developing countries. Table 11, for instance, shows that FDI flows from developing countries accounted for 65 per cent of inward FDI stock in China in 1990, nearly 50 per cent in Sri Lanka, 41 per cent in Malaysia, 37 per cent in Paraguay, and was approaching 30 per cent in Indonesia, Chile, and Taiwan Province. The East Asian developing countries were responsible for 50.6 per cent of all FDI approvals in 1990-1991 in Indonesia and 44.6 and 25.6 per cent of FDI approvals in Thailand in 1990 and 1991 respectively [Wells, 1993]. Furthermore, 46 per cent of all FDI projects approved in Indonesia between 1990-1991 and originating in East Asian countries were of export-oriented nature compared with 30 per cent in the case of FDI projects originating in industrialized countries other than Japan.

A considerable volume of literature in the early 1980s analysed the relative characteristics of FDI from developing countries from a host country's point of view and had brought out a number of positive features. These included more appropriate scale of operations and technology for the host economy compared with those by foreign enterprises originating in industrialized countries, better utilization of capacity, greater use of local raw materials and skills, and lower consumption of foreign exchange per unit of output. These positive features resulted from the changes made by developing country investing enterprises to the technology imported from abroad to adapt them to the developing country environment and conditions [see among others, Lall et al. 1993; Wells, 1983; Agarwal, 1995]. Wells (1993) found that the differences between developing country and industrialized country based enterprises in Indonesia tended to narrow over time as the former moved increasingly into export-oriented manufacturing.

The emergence of developing country enterprises as outward investors is an important development of the past one and a half decade. It widens the options of developing countries looking for FDI inflows and technology at least in standardized and mature industries. Developing countries are becoming sources for not only domestic market oriented FDI but also for export-oriented ventures. The least developing countries may find it easier to attract FDI originating in developing countries than from industrialized countries.

Table 11
Share of FDI Originating in Developing Countries in FDI stock in Host Countries, 1980-1990

Country	1980	1990
ALADI		
Argentina	4.5	5.9[b]
Bolivia	15.1	17.3
Brazil	10.0	7.3
Colombia	17.0	9.4
Ecuador	27.8	25.5
Chile	12.8	29.1
Mexico	0.5	5.6
Paraguay		37.0[d]
Peru	15.5	22.9
Uruguay	7.1[e]	26.2[b]
Venezuela	17.4	12.5
Central America		
El Salvador	25.:	24.6
Guatemala	52.3	
Honduras		7.6[b]
Panama	4.3	6.7[b]
Newly Industrializing Economies		
Hong Kong		16.9[b]
Republic of Korea	8.2	5.8[d]
Singapore	11.5	5.4[b]
Taiwan, Province of China	36.8	27.7[d]
South-East Asia		
Indonesia	22.9	27.9[d]
Malaysia	41.4[i]	40.8
Philippines	8.0	9.4[j]
Thailand	20.3	22.8
China	41.5[k]	65.0[jj]
Viet Nam		16.1[b]
South Asia		
Bangladesh	2.1	13.4[j]
Pakistan	19.5	27.2[d]
Sri Lanka	45.2	49.1

a 1976; b 1999; c 1984; d 1988; e 1978; f 1986; g 1977; i 1981; j 1987; k 1982

Source: Compiled from UNCTC, 1992. *World Investment Directory, Volume 1 :Asia and the Pacific;* and UNCTAD, 1994. *World Investment Directory, Volume 4: Latin America and the Caribbean.*

INTERNATIONAL LINKAGES AND EXPANSION OF MANUFACTURED EXPORTS

A substantial volume of theoretical and empirical literature has debated the role of TNCs in the expansion of manufactured exports from developing countries. TNCs appear to have played an important role in the rapid growth of manufactured exports from Asian newly industrializing countries viz., Taiwan Province, Singapore, Hong Kong, Malaysia. However, the contribution of TNCs to the expansion of exports varies a great deal across countries. That is because countries differ in the extent of export-oriented FDI and subcontracting of production attracted from TNCs. These phenomena are analysed in the framework of the theory of the new international division of labour proposed by three German economists in the late 1970s [Froble, Heinrichs, and Kreye, 1980].

TNCs and the New International Division of Labour

TNCs relocate certain types of manufacturing operations away from their home bases, especially to developing countries, to make use of the abundant supply of low wage labour. Such relocation is made possible by design advances and standardization that allow the subdivision of production process and the carrying out of fragmented operations with minimal skills. The relocation of production is further facilitated by improved communication and transportation facilities. Thus fragmented production processes are rationalized across the world according to the most desirable combinations of capital and labour. The rationalization of production on the most economical bases helps TNCs to continue to grow in terms of turnover and profits, even during years of recession in the industrialized countries and the world [Frobel, Heinrichs and Kreye, 1980]. As the production is transferred only partially, the production units in home and host countries are integrated vertically resulting in trade in intermediate goods between them. The rising importance of intra-industry and intra-firm trade in global trade is, in fact, a reflection of this phenomenon of the new international division of labour. Alliances with TNCs, therefore, could help developing countries to attract this relocated production and hence could prove instrumental in their export efforts. The alliances with TNCs could include international subcontracting arrangements and export-oriented FDI.

After gathering momentum in the 1970s, the relocation of production slowed down somewhat in the 1980s and 1990s with the evolution of flexible manufacturing systems and other developments in computer integrated manufacturing. These advances brought down the proportion of wages in manufacturing cost further and hence eroded the incentive to relocate.

International Subcontracting and Export-Oriented FDI

The relocation of production is attempted sometimes through subcontracting to unaffiliated enterprises and sometimes by affiliates set up abroad to undertake production meant for exports. Arm's length international subcontracting and export-oriented FDI are, therefore, two principal alternative means of expanding manufactured exports for developing countries. Subcontracting of production abroad entails the

transfer of knowledge, designs, drawings, specifications and quality control. Because of this, the relative importance of arm's length subcontracting and export-oriented FDI varies a great deal across industrial sectors depending upon the governance or transaction costs involved. In cases where the transaction costs are high, for instance, because of a closely held novel technology or knowledge, the subcontractor may prefer overseas production by means of a subsidiary (i.e. FDI) rather than arm's length subcontracting (subcontracting) to avoid the risk of losing a trade secret, e.g. in microchip fabrication. In a more standardized product, such as leather goods or textiles, contracts are generally fairly easy to govern. Hence, subcontracting to unaffiliated parties is fairly common. In an econometric analysis, Siddharthan and Kumar (1990) found intra-firm trade between US TNCs and their affiliates abroad to be predominant in R&D and skill-intensive industries. In these knowledge- or technology-intensive industries, therefore, export-oriented FDI would be a principal means for developing countries to tap the market access via TNCs. Here again the relative contribution of non-equity subcontracting and export-oriented FDI to the expansion of exports varies across countries depending upon the host government policy, availability and quality of local entrepreneurship and resources. In the case of East Asian countries, for instance, subcontracting arrangements or OEM contracts have played quite an important role in their export expansion.

Because of their potential in expanding manufactured exports and transferring knowledge to host countries, most countries compete among themselves to attract such investments with the help of a number of policy instruments. A large number of export processing zones have been set up in different countries in an effort to attract TNCs to set up export-oriented units by providing subsidized infrastructure and a more liberal policy environment. But TNCs have been highly selective about the location of export-oriented FDIs. The extent of export-orientation of majority-owned affiliates of US TNCs, for instance, varies a great deal across their host countries as shown below.

Table 12 summarizes trends in the export orientation of majority-owned affiliates of US TNCs over the 1977-1992 period. It is evident that the average export-orientation of US affiliates on a global basis declined from 38.21 per cent in 1977 to 32.30 per cent in 1989 and then recovered marginally to 34.09 per cent. Most of the decline has been in exports destined for the US. Exports to third countries have in fact registered some increase. The decline in the average export orientation has been sharper for affiliates in developing countries, viz. from 56.38 per cent in 1977 to 36.50 per cent in 1992. Here again, most of the decline is with respect to exports to the US. Apparently, exports to the US or the home countries are of different nature from those to third countries. The evolution of flexible manufacturing systems seem to have adversely affected the exports to the US.

Table 12
Trends in Export Orientation of Majority-Owned Affiliates of US TNCs Abroad, 1977-1992

	All countries			Developing countries		
Year	Exports to the USA (% of sales)	Exports to Third Countries (% of sales)	Total Exports (% of sales)	Exports to the USA (% of sales)	Exports to Third Countries (% of sales)	Total Exports (% of sales)
1977	18.46	19.75	38.21	40.62	15.77	56.38
1982	10.51	24.03	34.55	18.73	23.64	42.37
1989	11.25	21.05	32.30	19.66	15.29	34.95
1990	10.39	22.89	33.28	22.72	17.99	40.71
1992	10.05	24.04	34.09	23.04	13.46	36.50

Source: Own computations from US Department of Commerce Surveys data on US Direct Investment Abroad, respective years.

Table 13
Export Orientation of Majority-Owned Affiliates of US TNCs Abroad

	1992			1989			1982		
Country or Region	Total Sales (million $)	Total Exports (% sales)	Exports to the USA (% sales)	Total Sales	Total Exports (% sales)	Exports to the USA (% sales)	Total Sales	Total Exports (% sales)	Exports to the USA (% sales)
Central and Latin America									
Argentina	7628	13.48	1.56	4057	26.03	3.67	5104	17.07	3.37
Brazil	27741	54.83	45.56	30588	13.35	7.13	26045	8.93	1.99
Chile	3471	30.05	5.85	1981	21.35	6.16	1303		
Colombia	5149	19.05	9.94	3895	17.59	9.63	4401	3.91	2.09
Ecuador	611			578	41.52	33.56	803		
Peru	1279			1122			1828	28.72	22.43
Venezuela	4322	2.15	0.42	2677	1.61	0.82	7240	1.05	0.26
Costa Rica	1506	25.5o	4.12	723	55.19	10.93			
Guatema'a	808	15.97	3.22	672					
Mexico	30165	27.42	24.73	16437	31.92	26.56	11269	10.28	6.87
Panama	2003	56.42	7.54	1825	62.52	18.90	3044	54.60	8.28
Bahamas	1196	58.28	18.39	1529	56.12	8.11	5921	88.04	16.01
Barbados	1648	86.47	67.54	832	73.32	46.63			
Bermuda	15927	85.05	40.36	10821	94.77	56.80	20088	93.27	27.80
Dominican Republic	997			578	42.56	39.10			
Jamaica	1023			1138	69.24	31.55	1036	37.16	35.62
Netherlands Antilles	1761	92.62	74.73	2740	93.18	75.11	7046	93.56	58.86
UK Islands	1457	68.02	39.33	667	87.71	56.37	683	86.53	49.19
Africa and the Middle East									
Nigeria	2934		74.44	2250		60.00	4458		
South Africa	3113	9.25	0.80	2653	10.25	0.57	7841	5.59	0.42
Israel	1739			1042	41.07	17.56	589		
Saudi Arabia	894	11.86	1.79	3400			9517		
Asia									
China	1353			257	5.45	0.39			
Hong Kong	21864	53.72	20.76	16408	56.14	21.65	7516	59.53	24.67
India	330			323			618	7.77	0.32
Indonesia	7964	76.87	17.18	6120	43.91	13.35	12543	66.08	38.07
Korea, Republic of	3956	22.80	13.30	2463	31.99	24.16	604	44.04	38.41
Malaysia	8791	55.23	31.04	5419	49.53	23.75	4319	47.37	26.65
Philippines	4081	23.30	8.77	2905	24.96	11.77	3596		
Singapore	34288	56.10	23.46	15102	73.69	38.08	14114	82.04	13.87
Taiwan Province	9086	21.22	10.97	6773	39.97	27.49	1867	49.87	38.94
Thailand	7490			5456	31.80	15.63	2590	17.49	1.06

Source: GLOB-TED data base created at UNC/INTECH as a part of the research project on Foreign Direct Investment, Technology and Export-Orientation in Developing Countries.

The trends suggest that export-oriented investment for sourcing the EU market by European TNCs are increasingly concentrated within Europe. Initially, relatively cheaper wage locations with the EU e.g. Spain, Greece and Portugal attracted considerable investments in labour-intensive industries by German, British and French companies. The rising wages in Spain, Portugal and Greece have motivated companies to explore other locations in neighbouring countries having preferential and special access to the EU market for moving production. The Mediterranean countries (viz., Turkey, Malta and Cyprus) and east European countries (viz. Hungary, the Czech Republic, Slovakia, Poland, Bulgaria, Romania) have concluded agreements with the EU granting them free access for their industrial exports to the EU market and eventual full membership. With this prospect, these countries are increasingly seen as extensions of western Europe by EU enterprises who find them attractive for shifting their labour-intensive parts of manufacturing in view of their abundant cheap and skilled labour, besides the advantage of geographical proximity (backyard effect), cultural and climatic similarity with western Europe, compared with developing countries [Kumar, 1994c].

A continuous appreciation of the yen since the Plaza Accord in 1985 has led to a considerable relocation of production by Japanese corporations abroad. However, the bulk of these investments have been concentrated in East and South-East Asian countries. The appreciation of currencies in East Asian countries and rising wages in East and South-East Asian countries offer prospects for other developing countries to share export-oriented FDI from Japanese (and indeed East Asian) corporations.

Table 13 shows the average export orientation of majority-owned affiliates in developing host countries of US FDI. The proportion of exports in the turnover of affiliates varies widely across countries. Generally, affiliates in small island economies in the South and Central America, East and South-East Asian countries, and a few natural resource rich economies in Africa have a high share of exports in their sales. The growing integration of Mexico with the US, culminating in the NAFTA agreement, has resulted in a rise in the share of exports from affiliates to the US from 6.87 per cent in 1982 to 24.73 per cent in 1992. It is clear that special trading relations are becoming important determinants of relocation of production.

An empirical analysis of determinants of export-oriented FDI (US market bound) made by US TNCs across countries in 1982 by Kumar (1994a) indicated that countries with a pool of low cost labour enjoy an advantage over others in attracting export oriented production by TNCs holding other factors constant. Countries with established industrial infrastructure and capability, are preferred for export-oriented production by US TNCs. Availability of natural resources also makes a country attractive for specific types of export-oriented FDI. Export processing zones appear to have helped a number of developing countries attract relocated production. The overall international orientation of the host economy or other aspects of government policy such as incentives and performance requirements do not appear to have significant influence on the location of export-oriented production.

In view of the special nature of export-oriented FDIs, a special targeting of them is recommended. The recent period has seen a proliferation of special trading arrangements between countries and regional trading blocks all over the world.

Preferential access to an important market or a major trading block by a country could be an important attraction for export-oriented FDI. This is illustrated by the recent success of Mediterranean and eastern European countries in attracting export-oriented investments from TNCs of various industrialized countries for supplying the EU market aiming at taking advantage of these countries' preferential access to the Union and of Mexico in attracting export-oriented FDI by US TNCs following its free trade agreement with the US as shown above. A more detailed attempt to analyse the determinants of export-oriented FDI by US and Japanese TNCs currently in progress at UNU/INTECH hopes to separate the role of structural, policy, and industry factors, among others.

CONCLUDING REMARKS AND POLICY IMPLICATIONS

In the foregoing, we have discussed different forms of linkages forged by enterprises to acquire technology and other intangible assets and to obtain market access. FDI continues to remain a principal form of overseas alliance, although a variety of non-equity and contractual links have proliferated in recent years. FDI inflows to developing countries have expanded at a rapid pace since the mid-1980s. However, the bulk of the increase has been confined to a handful of relatively faster growing developing countries. Liberalization of policies and investment incentives have failed to mobilize increased inflows of FDI to the least developed countries. FDI inflows also have a substantial and rising servicing burden on a host country's balance of payment. FDI inflows can, therefore, hardly be relied upon as sources of technology and capital for most developing countries especially those facing economic crises.

The quality of FDI flows can vary a great deal. Not all FDI inflows bring to their host countries access to new technology and market access. For instance, only export-oriented FDI, and not FDI in general, provide market access to their host countries. In recent years an increasing proportion of FDI inflows to developing countries has gone into acquisition of existing public or private enterprises in host countries rather than in new greenfield projects. In the absence of any direction from host governments, FDI inflows to developing countries with sizeable domestic markets tend to predominate (host) market seeking ventures in advertising- and marketing-intensive industries because of rather high costs of governance of arm's length contracts in these industries. Selective policies may direct them in accordance with the national priority and hence improve the quality of FDI inflows to a country. A number of developing countries e.g. the Republic of Korea, Malaysia, Indonesia, China, have succeeded in channelling FDI into export-oriented (and high technology) sectors through various policy instruments. A policy towards FDI that is clear in its expectations from FDI inflow and is armed with necessary instruments to channel them in that direction may be more effective in achieving national developmental objectives than one that attempts to maximize the magnitude of FDI inflows.

Export-oriented FDIs are a special type of FDI undertaken by TNCs as a part of global rationalization of production to take advantage of international differences in factor prices and special trading relations. These FDIs are even more unevenly spread across developing countries. The competition in attracting these flows is quite intense. The trends suggest that relocation of production abroad, especially in developing countries, for feeding the home markets by US TNCs has declined over time as the relative

attraction of cheap labour diminished with the evolution of flexible manufacturing systems. European TNCs have increasingly concentrated their export-oriented FDI in neighbouring countries with special and preferential access to the EU namely Mediterranean and east European countries. The relocation of production of Japanese TNCs prompted by continuous appreciation of the currency has concentrated in the East and South-East Asian countries. Rising wages in these countries and currency appreciations in East Asian countries hold the prospect of flow of export-oriented FDI from Japan and other East Asian countries to other developing countries. Regional economic integration among poorer developing countries could strengthen their locational advantages as hosts for FDI especially of export-oriented type, by increasing the effective market size besides bringing them all other economies of regional integration. Developing countries in different regions have initiated a number of regional economic cooperation schemes and preferential trading arrangements. But these schemes have been slow in becoming effective.

Non-equity forms of external linkages, such as licensing of know-how, subcontracting of production e.g. buy-back arrangements, could be employed fruitfully by developing country enterprises for acquiring technology and for accessing markets in a large number of sectors. Because they are unaccompanied by a controlling stake for the licenser or contractor, it is often possible for a licensee or subcontractee to build up capability over time and to graduate to pursue an autonomous path of expansion. Non-equity links have played an important role in the acquisition of technological capability and the rapid expansion of manufactured exports in some East Asian countries, such as Japan, the Republic of Korea, Taiwan Province. To make these links contribute to building their capability, however, the importing enterprises need to complement them with further technological efforts in absorption, assimilation, adaptation and constant updating of the knowledge imported.

An over liberal policy towards technology imports, whether under licensing or as a part of FDI, may discourage local technological effort. A too restrictive technology import policy, on the other hand, may make local enterprises complacent about the need for constant updating. Therefore, technology import policies of developing countries have to strike a delicate balance between protecting local technological efforts and sustaining a constant pressure to innovate. This balance has to take into account the level of existing technological capabilities in the country. Technology import policies generally need to be complemented by policies supporting further technological efforts of enterprises on absorption, adaptation and updating of technologies acquired as well as the further generation of technology and skills. Developing countries can learn, in this respect, from industrialized countries as well as from newly industrializing countries which encourage technological effort of enterprises by various institutional means. These include provision of technological infrastructure, subsidization of enterprise R&D, protection and support to innovative enterprises, design engineering and consultancy organizations and national champions.

More recently enterprises from some developing countries have also increasingly used their own outward investments abroad as a means of establishing international linkages. The initial round of developing country FDI flows generally focused on horizontal expansion in other, and generally, lesser developed countries. Since the mid-1980s, these

FDI flows have increased rapidly and also show signs of change in their motivation. There is a greater focus on trade supporting FDI in industrialized countries in an effort to gain market access in the face of increasing protectionist barriers. Outward FDI has also been undertaken to improve price competitiveness of goods by relocating production in lesser developed countries to take advantage of relatively cheaper labour or raw materials. Insofar as overseas investments of developing country enterprises contribute to increasing market access for the investing enterprises, their home governments may allow such investments. These investment proposals may be selectively assisted with financing, coverage of non-commercial risks, and avoidance of double taxation of income.

The increasing ability of some developing country enterprises to invest abroad provides an alternative source of FDI flows, including the export-oriented type, for relatively lesser developed countries that have been marginalized by FDI flows originating in the industrialized countries. Developing country enterprises are able to provide FDI and technology in a wide range of industries that are maturing. FDI inflows originating in developing countries have a number of desirable features and may bring in technologies that are more appropriate and adapted to market size and factor proportions in developing host countries. Inter-developing country FDI flows also provide an avenue to developing country enterprises for technological upgrading and relocating certain labour-intensive industries in which their competitive advantage has been eroded due to rising wages in other developing countries with cheaper labour [see Cooper, 1995, for an empirical analysis of a typology of growth paths adopted by developing countries].

Unlike TNCs from the industrialized countries, however, few, if any, enterprises from developing countries enjoy captive information networks. Hence, FDI flows between developing countries may be constrained by the lack of information on investment opportunities in different parts of the world. There is consequently scope for institutional intermediation at the international level. On the part of receiving countries, a specific targeting of developing country FDI may be desirable. It is evident that certain countries e.g. Costa Rica and Colombia besides the South-East Asian countries have recognized the potential of attracting export-oriented FDI from East Asia and have begun to tap them [Wells, 1993]. The efforts at regional economic cooperation among developing countries would also facilitate inter-developing country FDI flows and technology transfers.

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