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PROMOTING LINKAGES BETWEEN FOREIGN AFFILIATES AND DOMESTIC FIRMS

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(i) Introduction

With the growing importance of FDI in economic life, host countries seek not just more such investment, but are also increasingly interested in its quality, in terms of benefits for sustainable economic development. Perhaps the most important way to tap these benefits is through production linkages between foreign affiliates and domestic firms. Such linkages can take several forms: *backwar*d, *forward* or *horizontal* (table 1). *Backward linkages* exist when foreign affiliates acquire goods or services from domestic firms, and *forward linkages* when foreign affiliates sell goods or services to domestic firms. *Horizontal linkages* involve interactions with domestic firms engaged in competing activities. Linkages, broadly defined, can also involve non-business entities like universities, training centres, research and technology institutes, export promotion agencies and other official or private institutions.

The focus of this paper is on the *backward linkages* of foreign affiliates with domestic firms in host developing countries. These are defined as transactions that go beyond arm's length, one-off relations (as in buying standardized products off the shelf) and involve longer-term relations between firms. In fact, a very large proportion of intra-industry transactions in every country involves linkages in this sense, marked by sustained exchanges of information, technology, skills and other assets. Linkages are of particular significance to developing host economies, because they provide a means of diffusing valuable knowledge throughout the economy – through direct flows to the linked firms as well as spillovers to and from the latter. The benefits provided through linkages with foreign affiliates tend to be of greater competitive significance than those among domestic firms because of the stronger knowledge and skills base of many foreign affiliates are. Linkages with foreign affiliates can therefore be of great importance to the dynamism and competitiveness of the domestic enterprise sector – the bedrock of economic development. Foreign affiliates, in turn, can benefit from backward linkages as they can reduce costs and enhance access to local tangible and intangible assets. Hence there is a substantial mutual interest between foreign affiliates and domestic firms to create and deepen backward linkages.

Linkage promotion is not a new policy issue for developing countries (see, for example, Lall, 1980; UNCTC, 1981), but it deserves renewed attention. To begin with, FDI has become much more important in virtually all developing countries; hence the issue of how to benefit from it has also become more important. Moreover, the economic setting is changing, and with it TNC procurement and supply chain management strategies. Intensified competition, policy liberalization and new organizational practices are leading firms to raise their reliance on external suppliers of goods and services. This opens up new possibilities for greater (and often higher quality) linkages and makes the availability of suppliers a more important factor in attracting FDI. At the same time, it imposes more stringent technological, managerial and scale demands on suppliers (and on their support institutions and infrastructure).

Confronted with this changed landscape, governments need to adapt their policies. This is all the more necessary as the ability of governments to promote efficient linkages is subject to new constraints that reduce their policy space. In particular, some frequently used measures to promote linkages, like local content requirements, are no longer permissible in the context of the WTO or other international agreements. It is still possible to promote linkages, but tools are different from those used in the past. Given the rising significance of linkages for domestic competitiveness, it is important to be aware of these tools. The objective, of course, is not just to create linkages for their own sake, but only when they are economically desirable and they enhance the efficiency of domestic enterprises. It is possible to promote inefficient linkages, for instance, by forcing their formation under protected conditions, such that the linked supplier enterprises never become internationally competitive. This is costly for the host economy, breeding inefficiency and high-cost production structures. More generally, there are trade-offs between deeper linkages and greater dependence of suppliers on buyers.

II. BACKWARD LINKAGES: IMPACT, DETERMINANTS AND TNC EXPERIENCE

A. Why backward linkages matter

Backward linkages are important to both foreign affiliates and domestic (linked) enterprises. Most productive enterprises buy a large proportion of inputs - goods as well as services - from other firms. The ability to source these locally can matter. If foreign affiliates can procure inputs locally, particularly in host economies in which labour costs are low, they can lower production costs (some service inputs, for example, may be very expensive to import). If they can subcontract directly to local suppliers, they can increase their specialization and flexibility, and adapt technologies and products better and faster to local conditions. Technologically advanced suppliers can provide affiliates with access to a pool of external technological and skill resources, feeding into their own innovative efforts. The trend to greater outsourcing and to concentration on core competencies raises the competitive benefits of having efficient support firms close by. This is why strong supplier clusters are of growing importance in the location decisions of firms, particularly for high value activities and functions.

Domestic suppliers can also benefit from linkages with foreign affiliates. First, linkages raise output and employment in linked supplier enterprises. The indirect effects on supplier capabilities are probably more important. Linkages can be powerful channels for diffusing knowledge and skills between firms. Inter-firm linkages nearly always entail an exchange of information, technical knowledge and skills. Strong linkages can promote production efficiency, productivity growth, technological and managerial capabilities and market diversification in supplier firms. They can often promote exports by linked enterprises and, under the right conditions, domestic firms may develop to become global suppliers and/or TNCs in their own right. The strengthening of suppliers can in turn lead to various indirect effects and spillovers for the rest of the host economy. Spillovers can take place through demonstration effects, mobility of trained labour, enterprise spin-offs and competition effects (table 1).

There is another advantage of linkages between foreign affiliates and domestic firms: they increase the local integration and "rooting" of TNCs and make them less footloose. Since backward linkages involve cost and effort by affiliates, stronger linkages make it more difficult for them to divest. Moreover, TNC linkages with SMEs can promote the formation and upgrading of industrial clusters in host economies, an important component of competitiveness (see Altenburg and Meyer-Stamer, 1999).

However, not all linkages are equally beneficial for a host economy; some may be harmful. For instance, firms may strike considerable linkages in protected industries where there is inadequate incentive to invest in technological capabilities. Where such linkages lead to an uncompetitive supplier base, there is a net economic cost to the host economy. This does not mean that there is no scope for promoting infant industries. But there is a difference between judicious, highly selective and temporary protection to foster technological learning (say, in strongly export-oriented regimes) and open-ended protection to firms – domestic or foreign – that deters learning and upgrading.

In sum, backward linkages of foreign affiliates matter for host developing countries because they provide opportunities for production and employment by domestic suppliers. More importantly, they constitute a direct channel for knowledge diffusion that can assist in upgrading domestic suppliers, technological and other capabilities, with spillover effects on the rest of the economy. Such knowledge diffusion is of particular importance for domestic firms that are still catching up with internationally competitive practices. The ability of foreign affiliates' linkages to contribute to domestic supplier development cannot, however, be taken for granted. It depends on the markets in which foreign affiliates operate and therefore the incentive that they have to set up internationally competitive operations. It also depends on the capabilities of domestic firms. Where these are weak, few linkages will occur. Moreover, linkages with large foreign affiliates, like those with all large firms, raise risks - such as the possibility for domestic suppliers of facing anticompetitive practices, unequal bargaining positions and excessive dependence.

B. Linkage determinants

A firm in any location has three options for obtaining inputs. It can import them, produce them locally in-house or procure them locally from other (foreign or domestic) suppliers (figure 1). The extent to which foreign affiliates actually develop linkages with domestic firms differs considerably. Foreign affiliates tend to be in a different position from local firms: they come with international supply chains and with established suppliers that know their technical, quality, scale and cost needs and have the capability to keep up with changing technologies. The decision to *source locally* in a host country depends on the cost, quality, reliability and flexibility of local suppliers relative to suppliers abroad.

While the extent of local linkages generally and those with domestic firms in particular reflects the balance of these benefits and costs in the short term, TNCs may display differences in their sourcing behaviour in similar situations. Apart from differences in firm-level perceptions and strategies, this may reflect the business practice and culture of their home countries. For example, Japanese TNCs, which emphasize close inter-firm collaboration, seem to

Table 1.

Backward linkages and other relationships between foreign affiliates and local enterprises and organizations[a]

Form	Relationship of foreign affiliate to local enterprise			Relationship of foreign affiliate to non-business institution
	Backward (sourcing)	Forward (distribution)	Horizontal (co-operation in production)	
"Pure" market transaction	• "Off-the-shelf" purchases	• "Off-the shelf" Sales		
Short-term linkage	• Once-for-all or intermittent purchases (on contract)	• Once-for-all or Intermittent sales (on contract)		
Longer-term linkage	• Longer-term (contractual) arrangement for the procurement of inputs for further processing • Subcontracting of the production of final or Inter-mediate products	• Longer-term (contractual) relationship with local distributor or end-customer • Outsourcing from Domestic firms to Foreign affiliates	• Joint projects with competing domestic firm	• R&D contracts with local institutions such as universities and research centres • Training programmes for firms by universities • Traineeships for students in firms
Equity relationship	• Joint venture with supplier • Establishment of new supplier-affiliate (by existing foreign affiliate)	• Joint venture with Distributor or end-Customer • Establishment of new Distribution affiliate (by Existing foreign affiliate)	• Horizontal joint venture • Establishment of new affiliate (by existing foreign affiliate) for the production of same goods and services as it produces	• Joint public-private R&D centres/training centres/universities
"Spillover"	• Demonstration effects in unrelated firms - Spillover on processes (incl. Technology) - Spillover on product design - Spillover on formal and on tacit skills (shopfloor and managerial) • Effects due to mobility of trained human resources • Enterprise spin-offs • Competition effects			

Source: UNCtAD.

a The shaded area represents the focus of this paper.

find it more difficult to establish local linkages abroad than United States firms, which are more market-oriented in their procurement. On the other hand, Japanese companies, once they enter into supply relationships with local firms, seem to establish deeper and more long-term relationships than their United States counterparts (Institute of Developing Economies, 1994).

In Central and Eastern Europe, local sourcing has been reported to be significant in various studies. In Poland, a sample of some 30 foreign affiliates responding to a 1997 survey reported that 75 per cent of inputs were then sourced from local firms, compared to 65 per cent at the time of their establishment in the early 1990s (Floyd, 2000). In the Czech Republic, Volkswagen-Skoda in the mid-1990s was sourcing roughly three-quarters of its inputs from suppliers based in the country. Of Skoda's 279 registered suppliers, 174 (62 per cent) were Czech-owned, 19 were Slovak-owned and 86 were foreign affiliates and joint ventures with firms from the United States, United Kingdom, Germany, Italy and France (Skoda Auto, 2001). The degree of local sourcing – again, not necessarily from domestically owned firms – is much related to policies pursued in the preferred destination market of the European Union.

Local sourcing patterns change over time and as experience grows, suggesting that the nationality of TNCs should become less important in comparison with other TNC-related factors in explaining local linkages. The main factors are the following:

- *Investment motives and strategies.* The propensity of foreign affiliates to forge local linkages is affected by the motive for investing in a host country. Domestic-market- oriented affiliates generally purchase more locally than do export-oriented firms. Domestic suppliers find it easier to serve activities aimed at domestic markets, particularly

where quality and technical requirements are lower (as in protected markets). They also have the advantage of knowing local consumer preferences. On the other hand, cost and quality requirements are much more stringent in export-oriented activities (and host countries also tend to impose fewer controls on sourcing of inputs in export-oriented affiliates). In particular, foreign affiliates that are part of international production systems are likely to be more dependent on global corporate sourcing policies and, thus, less able to choose suppliers freely. While such affiliates (e.g. in the automotive and electronic industries) source large numbers of components, sub-assemblies and services locally, with major opportunities for firms that qualify as suppliers they tend to reduce the number of first-tier suppliers and enter into closer relationships with those that remain.

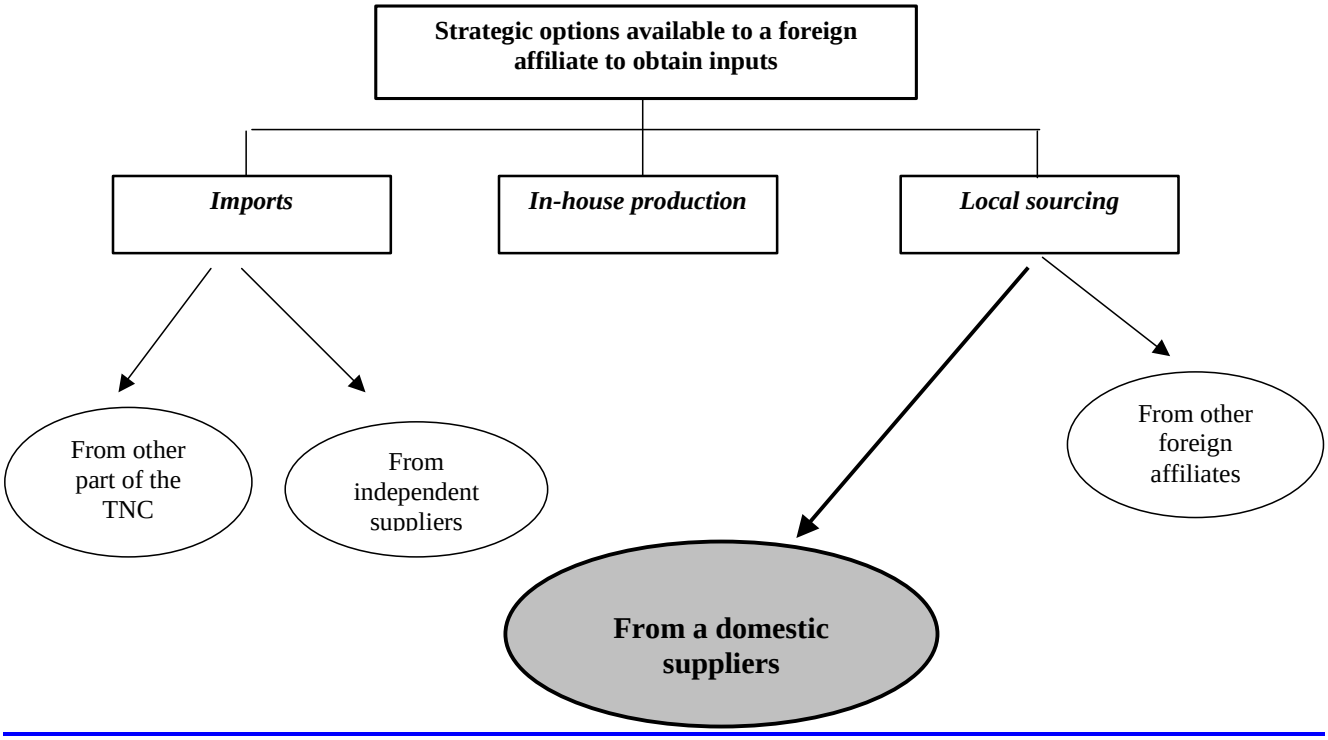
- *Technology and market position.* Linkages reflect the technology used and the market position of TNCs. Foreign affiliates making standardized products with mature, non-proprietary technologies tend to prefer externalized, arm's length procurement: there are many suppliers to choose from, and it is not necessary to develop special capabilities in any supplier. Where products are specialized and technologically advanced, on the other hand, affiliates tend to prefer in-house production or to retain relationships with a few selected suppliers.
- *Role assigned to affiliates.* The degree of autonomy given to affiliates affects sourcing: greater autonomy allows more development of local suppliers. In turn, affiliates with stronger local links are likely to be given more autonomy (Zanfei, 2000). Affiliates considered to be "centres of excellence", with regional or global mandates for complete products, services or technology, tend to be more integrated with local suppliers (Frost et al., 1999; Holm and Pedersen, 2000).
- *Age of foreign affiliates.* Many studies have found that local procurement by foreign affiliates tends to increase over time. The more experience a TNC gathers in a foreign country, the more managers are recruited locally and the more knowledge it gains about local suppliers, the lower the costs of sourcing locally.
- *Mode of establishment.* For similar reasons, affiliates established through M&As are likely to have stronger links with domestic suppliers than those established through greenfield investment (*WIR00;* Scott-Kennel and Enderwick, 2001). The latter take time and effort to develop local linkages while the former have "ready-made" linkages that are likely to be retained if they are efficient. For example, affiliates of Swedish TNCs and affiliates in Central and Eastern European countries have been found to rely more on imports of inputs when established via greenfield investment; in the case of the Swedish TNCs' affiliates, this difference persisted also in the longer-term. If, on the other hand, existing linkages are inefficient, M&As may lead to a switch to foreign suppliers *(WIR00*).
- *Size of affiliate.* Large foreign affiliates have been found to source less locally than small ones: they can internalize their operations better, and local suppliers find it difficult to supply very large volumes.

The linkage potential also varies by industry. It is easier to source externally when the technology is divisible into discrete stages and services than when it is a continuous process. In the *primary sector* the scope for linkages between foreign affiliates and local suppliers is often limited. Production processes tend to be continuous and capital intensive. Still, possibilities exist, for example in mining. The *manufacturing sector* has a broad range of linkage-intensive activities, but there are large variations by industry. Food processing involves high ratios of intermediate inputs to total production and extensive backward linkages between foreign affiliates and domestic suppliers of raw and packaging materials. By contrast, textiles and clothing show relatively low local linkages; the textile industry needs considerable sophistication and size to provide the variety and quality of fabrics needed by foreign affiliates that generally produce clothing for export. Engineering activities offer linkage opportunities because processes are divisible. However, where technical needs are stringent, as in machinery and precision instruments, subcontracting tends to be limited. The *tertiary sector*, led by finance, trading, tourism and utilities, accounts for growing shares of FDI in developing countries. The scope here for dividing production into discrete stages and subcontracting out large parts to independent domestic firms is also limited. Still, some service industries such as retailing and construction offer considerable potential for linkages with physical input supplier. Similarly, foreign hotel operators can make significant local purchases of foodstuffs, furniture and fittings (Dunning, 1993). Increasingly, the services component of some activities is being subcontracted to reduce wage costs.[1] Developing countries like India are making inroads into this market; but, at this time, this subcontracting is primarily international. It may spread locally as services within developing countries are upgraded and telecommunications improve.

[1] "Back office" services by airlines, banks or retailers are good examples.

FIGURE 1

Strategic options for foreign affiliates with regard to obtaining inputs



Source: UNCTAD.

C. Creating and deepening linkages: what companies do

Many TNCs have specialized organizational units and procedures to deal with suppliers and subcontractors. Some even have special supplier development programmes. A global survey of TNCs in the automobile and electronics industries found that 16 out of 18 automotive TNCs had adopted a strategy for global supplier development, while the corresponding data for electronics TNCs was 8 out of 15 (Handfield and Krause, 1999). What matters, however, for the present discussion is not so much the frequency of such efforts. The point is that, whatever some TNCs have done can be emulated by other firms that seek to create and strengthen linkages with local suppliers.

Whether as part of special supplier development programmes or not, efforts to create and deepen linkages involve steps for finding suppliers and ensuring efficient supply through technology transfer, providing training, sharing business information and/or giving financial support. The ultimate objective usually is to expand the number of suppliers that meet the requirements of foreign affiliates in terms of cost, quality and timely delivery, and/ or to help existing suppliers improve their capabilities in one or more areas. For some TNCs, efforts to upgrade supplier activities are part of a corporate strategy taking broader economic and social considerations into account. Activities that foreign affiliates undertake to implement their programmes and achieve their objectives are reviewed briefly below.

1. Finding new local suppliers

In host developing countries and economies in transition, where supply chains are generally not well developed, there is a particular need for efforts to identify potential suppliers. This may be especially important for affiliates that depend on inputs that cannot be imported easily or produced in-house. There are many ways for foreign affiliates to do this, of which the most common ones are as follows:

- *Making public announcements* about the need for suppliers and the requirements that firms must meet on costs and quality, ability to undertake continuous improvement, technological capabilities and delivery. Provision of such information is quite common.
- *Supplier visits and quality audits* are commonly used to evaluate and develop new (as well as existing) suppliers in developed and developing countries. For example, in Northern Ireland, 47 per cent of the affiliates conduct site

visits to audit the quality of suppliers (Crone and Roper, 2001). Regular follow-ups on delivery, inventory performance, quality rating and cost improvements are relatively common.

As noted, efforts in finding new suppliers are likely to be the most frequent in foreign affiliates that are highly dependent on having access to a dynamic base of local suppliers. Factors that affect the behaviour of foreign affiliates in this respect include host country trade policies, the nature of inputs required and the competitive aspects of the supply structure of the foreign affiliates.

2. Transferring technology

To ensure that the inputs procured meet their stringent technical requirements, foreign affiliates often have to provide suppliers not just with specifications but sometimes also with assistance in raising suppliers' technological capabilities. Such assistance tends, for obvious reasons, to be more prominent in developing countries and countries in transition. The extent of technology transfer appears to rise the more affiliates are committed to long-term relationships with suppliers, the greater the technical complementarity between their activities, and the more specialized or custom-made (rather than standardized) are the inputs supplied. Transfers of knowledge are also likely to be positively influenced by the size of affiliates and their export-orientation. TNCs invest in building local capabilities only when the investment can be expected to yield a return in a reasonable period. Where potential suppliers lack the minimum base of skills and know-how needed to absorb technologies and management practices (and support institutions are lacking or weak), TNCs may find it too expensive or risky to try and bring them up to the standards needed. Given minimum levels of capability, moreover, affiliates differentiate their technological relations according to individual suppliers. Primary attention is typically given to a limited number of key suppliers that provide the most complex and strategically important inputs, the production of which requires close interaction between the buyer and supplier. Highly ranked suppliers receive larger and higher value-added orders, along with greater technical assistance and know-how.

Technology transfer by foreign affiliates to suppliers can be categorized according to the area of technology involved; an affiliate may engage in several simultaneously. The first area of technology transfer relates to *product technology.* Forms of transfer include the following:

- *Provision of proprietary product know-ho*w. The incidence of transfer of proprietary technology is relatively low. When it occurs, such transfers seem to concentrate on a few "preferred suppliers" (Wong, 1992; Yoon, 1994; Handfield et al. 2000).
- *Transfer of product designs and technical specification*s. Such transfers can take the form of detailed technical specifications and designs to enable local suppliers to manufacture the required inputs. Some studies have found this to be the main form of transfer of product-related technology (Wong, 1992; Ismail, 1999).
- *Technical consultations with suppliers to help them master new technologies.* Some affiliates provide advice to local suppliers on product characteristics or parameters. Such technical support activity helps local suppliers in adopting and absorbing new product-related technology.
- *Feedback on product performance to help suppliers improve performanc*e. Such feedback reports often include diagnostic measures. Regular feedback to suppliers has been found to be more frequent in foreign affiliates that have implemented special programmes on supplier development (Crone and Roper, 1999).
- *Collaboration in R&D.* Such buyer-supplier relationships typically require a critical minimum level of research capability of the host countries involved. In some cases, collaboration in R&D may involve local universities or research institutes.

The main forms of transfer of *process technology* are:

- *Provision of machinery and equipment to suppliers.* Foreign affiliates sometimes transfer machine-embodied process technology by providing machinery/ equipment to local suppliers. Such equipment may be related to the manufacturing of the product to be purchased or testing equipment for quality control.
- *Technical support on production planning, quality management, inspection and testing.* Such support includes assisting supplying firms in improving their manufacturing processes, quality control methods, and inspection and testing methods. Affiliates may also advise supplier firms on the selection/use of process equipment/ technologies.
- *Visits to supplier facilities to advise on layout, operations and quality.* Personnel of foreign affiliates visit suppliers' premises in order to provide advice on factory layout, installing machinery, production planning, production problems and quality control. Such visits may take place weekly or monthly or whenever the need arises. Sometimes it may also involve seconding affiliates' engineers to the supplier's factory for a certain number of days (Ismail, 1999).

- *Formation of "cooperation clubs" for interacting with or among suppliers on technical issues.* Such clubs are particularly common in Japanese TNCs and sometimes arrange for activities such as quality control presentations, discussions of case studies on quality improvement, value analysis and cost reduction activities; and also organize workshops on technical guidance and training.
- *Assistance to employees to set up their own firm*s. Employees of foreign affiliates are sometimes given support to start their own business and become suppliers. Having worked in an affiliate, the employee-turned-entrepreneur has a better understanding of the requirements of the affiliate. In addition to procurement guarantees, affiliates provide know-how, equipment and technical assistance to such start-up firms.

Organizational and managerial know-how can be transferred in the following ways :

- *Assistance with inventory management and the use of just-in-time and other system*s. Such assistance is of particular importance where the continuous supply to suit a foreign affiliate's production schedule is vital. This applies, for example, to the automotive industry.
- *Assistance in implementing quality assurance systems* (including ISO certification). Some foreign affiliates provide support to their suppliers in designing and implementing quality assurance systems or total quality control systems. The nature of such systems is often industry-specific.
- *Introduction to new practices such as network management or financial, purchase and marketing techniques.* Foreign affiliates can offer important advice related to various other management-related areas, with important positive effects on supplier performance.

The realization of the full potential benefits derived from technology linkages between foreign affiliates and domestic suppliers also involves the transfer of capacity to understand, use and improve a given technology (Komoda, 1986). It involves adapting the acquired technology, as well as its absorption by the recipients (Baranson and Roark, 1985). Complete absorption at the firm-level involves the recipient gaining the capability to undertake innovative activity independently to improve upon products and production processes (Baranson and Roark, 1985; Narayanan, 1999). The transfer of proprietary technology usually comes with restrictions on its usage. Therefore, efforts on the part of a recipient firm to absorb acquired technologies and to improve upon them further become even more crucial.

3. Providing training

In developing countries and countries in transition, local firms often face financial, skill and institutional constraints in improving human resources. Many are unaware of their skill gaps or of means to remedy them. Given their knowledge of skill needs and training methods, foreign affiliates can play a significant role in helping suppliers to audit their human resources and mount effective upgrading programmes. They can use a number of methods to do so:

- *Training courses in affiliates for suppliers' personnel.* Some foreign affiliates organize training courses for local suppliers' personnel. These can take several forms and can include broad productivity- enhancing areas related to organizational and managerial practices. Since training courses require considerable expenditure and organizational effort, they are likely to be offered only when there is an expectation of high returns to both sides due to a sustained long-term relationship. Courses may also be offered in cooperation with meso-institutions such as industry groups or public sector agencies at the local level as, for example, the Penang Skills Development Centre in Malaysia.
- *Offering access to internal training programmes in affiliates or abroad.* Foreign affiliates that have internal training courses of their own or are part of TNC-systems with internal training courses sometimes also open them up to their suppliers' employees.
- *Sending teams of experts to suppliers to provide in-plant training.* The purpose of such visits can be to provide training on improvements in technology or process management.
- *Promotion of cooperative learning among supplier*s, through associations and clubs. Such events can promote the exchange of business information among suppliers and foreign affiliates.

In addition, informal exchanges between affiliates and suppliers can be a valuable source of ideas and information on human resource development, particularly in more developed host countries in which the gap between suppliers' and affiliates' skill levels is small.

4. Sharing information

A continuous flow of information from buyers is necessary for linked firms to coordinate production and investment plans, reduce transaction costs and optimize delivery. The importance of information rises with accelerating

innovation, rapid market changes and intensifying competition. Foreign affiliates can use the following methods to inform local suppliers:

- *Informal exchanges of information on business plans and future requirements.* Representatives of foreign affiliates visit their local suppliers to inform them about new market developments or future strategies. This kind of information assists domestic suppliers in making decisions on capital investments and business plans to match the needs of their buyers.
- *Provision of annual purchase orders* (confirmed periodically). Information in advance on purchasing orders is likely to be important for most suppliers. It is particularly helpful for just-in-time arrangements, where the strict delivery schedules demanded by foreign affiliates tend to entail additional costs for suppliers, who have to build up higher levels of inventories before receiving purchasing orders in order to avoid late delivery penalties (Sison, 2000).
- *Provision of market information*, particularly on foreign markets. For example, information on global market trends can help SME suppliers diversify their customers and/or markets, thus reducing their dependence on a single large buyer or market. In some cases, foreign affiliates actively assist their vendors in finding new customers in other parts of the TNCs' network.
- *Encouraging suppliers to join business associations*, participate in fairs and facilitate networking. These can provide a framework for foreign affiliates to communicate with a large number of suppliers, giving information on different aspects of their activities.

Sharing of information with their suppliers is a common feature of linkage programmes that some TNCs implement. This is an essential element for the matching of capacities of suppliers with the requirements from foreign affiliates buyers. Foreign affiliates that have implemented supplier development programmes tend to be the most active in terms of providing market- and technology-related information to their suppliers (Crone and Roper, 1999).

5. Extending financial support

Finance is a necessary part of all linkages between affiliates and suppliers. The primary financial linkage is pricing, but it can also include financial assistance from buyers to suppliers. In developing countries, the shortage of finance is often a major constraint for local firms. Studies suggest however, that there is relatively low incidence of financial support to suppliers by foreign investors (Lall, 1980; Halbach, 1989; Battat et al., 1996, Carrillo, 2001). In this respect, foreign affiliates may not be all that different from other buyer firms. When it does occur, financial support appears to take place in the case of suppliers with whom affiliates have established close cooperation. Foreign affiliates with relatively strong financial positions can help domestic suppliers in various ways:

- *Providing special or favourable pricing for suppliers' product*s. Under normal circumstances, buying firms have an interest in fixing prices at a level below arm's length prices, as a trade-off for long-term security and stability. Foreign affiliates are no exception. Some foreign affiliates stipulate future price reductions in line with anticipated technical progress. At the same time, affiliates may sometimes offer preferential prices to new suppliers to help them get established (UNCTC, 1981).
- *Helping suppliers' cash flow* through advance purchases and payments, prompt settlements and provision of foreign exchange. Advance payments or purchases can help the liquidity situation of suppliers, particularly during financial crises. This could also be helpful in addressing exchange rate fluctuations that might affect suppliers, notably if they are sourcing inputs from overseas to meet the buyers' requirements.
- *Longer-term assistance* through the provision of capital; guarantees for bank loans; the establishment of funds for working capital or other supplier needs; infrastructure financing; sharing of the costs of specific projects with suppliers; and leasing. When the procurement of new equipment necessary to produce the stipulated amount and quality of goods is too costly for a domestic supplier, a foreign affiliate can buy the equipment and lease it to its supplier.

In general, finance can be a serious bottleneck for the development of the productive capacities of suppliers, or for funding their current operational costs. The financial and cash flow situation of suppliers can be improved and strengthened if there is a commitment on the part of the financially stronger buyer-partners to provide short-term and/or long-term support through various channels. In practice, in the context of backward linkages, foreign affiliates provide finance to their suppliers relatively infrequently, suggesting that the tangible benefits for themselves that they perceive from such support are often lower than their expected costs. However, a number of them are involved in supporting suppliers in various ways, raising the possibility that the extent of such assistance could be increased.

D. Conclusions on TNC actions

The evidence, scattered as it is, suggests that a number of TNCs take various steps to develop linkages between their foreign affiliates and suppliers in host developing countries or economies in transition. Some affiliates provide assistance in a broad range of areas, whereas others may only support suppliers on an ad hoc basis, if at all. The most intense relationships are those affecting the technological status of suppliers and their ability to meet the scale, quality and cost needs of the buyer. Meanwhile, it is clear that it has become more difficult for domestic firms in host developing countries to qualify as suppliers to foreign affiliates, in particular to affiliates that are a part of integrated international production systems. In such cases, TNCs tend to focus their supplier development efforts on key suppliers providing the most important inputs. On the other hand, when TNCs have a strong self-interest in developing their supplier base in a host country, foreign affiliates can extend considerable support to enhance the competitiveness of their domestic suppliers.

The development, management and evaluation of supplier relations are a necessary part of supply chain management by any enterprise. TNCs transfer this function, with its range of search, evaluation, interaction and other functions, to their affiliates in most host economies. As more effective supply chain management becomes essential to their competitiveness and dynamism, TNCs seek broader, more efficient and responsive supplier networks wherever they locate. As they shift more facilities, and a larger variety of functions abroad, the range of potential linkages increases. With technical progress and its rising information intensity, the technological and skill content of many linkages becomes higher. With the rationalization of production across regions, they also have greater scale requirements.

III: POLICIES TO STRENGTHEN LINKAGES

A. The role of government policy

Governments can encourage the creation and deepening of backward linkages by lowering the costs and raising the rewards of linkage formation for both TNCs and local firms. The objective is, as stated earlier, not to create linkages for their own sake, but rather to stimulate linkages that raise the efficiency of production and contribute to the diffusion of knowledge and skills from TNCs to the local enterprise sector. This section reviews the policy measures taken in different countries to promote linkages, with a view to establishing a "menu" of instruments that countries can use for this purpose, in this important area at the intersection of enterprise development and FDI policies. The focus of the policy discussion is narrow: it is limited to the relationship between foreign affiliates and local firms. This is not to minimize the importance of other policy areas: for example, without foreign affiliates (and, hence, a policy to attract FDI) and domestic firms (and, hence, a policy that promotes their growth and competitiveness), the preconditions for linkages do not exist. Indeed, the more policy measures aimed at promoting linkages are consistent with, and embedded in, a broad range of policies that facilitate enterprise development, the higher the chances for linkage-promotion policies to succeed.

Care must be taken, however, when drawing lessons from the experience of different countries. A certain strategy may work only in a specific historical, cultural, institutional or political context, making it difficult to transpose it to a different setting. In other words, many linkage promotion measures are context-specific, and the role of the enterprise and industry determinants needs to be taken into account.

Given this caveat, there are nevertheless important lessons to be learned from the policy experience of different countries. Many of the problems of linkage creation are generic. Market failures tend to occur across countries – even though the exact nature and incidence of such failures can vary by level of development and the specific national context. Governments have to make a broad strategic choice on the level at which they tackle such failures. Some can be addressed at a broad level – for instance, by encouraging information exchange or skill creation. Others are better addressed at more specific sectoral or activity levels, by targeting linkage policies to industries in which TNCs are most active. Still others can be geared to particular geographical locations, such as dynamic clusters of interest to foreign investors.

B. Trade and investment measures influencing linkages

Many host country policies affect the operations of foreign affiliates in various ways. Some of them can – often indirectly and incidentally, but also, at times, through deliberate use for this purpose – encourage linkages. The focus of this section is specifically on various trade and investment measures of relevance to linkages.

- High *tariffs* on imports required by foreign affiliates could in theory lead to an increase in local sourcing of needed inputs by affecting their relative costs from different sources. However, import-substitution policies of this kind have been generally discontinued.

- *Rules of origin* determine the national origin of a product for the purpose (among others) of granting preferential treatment. Rules of origin based on the level of domestic value added or local content, and implemented as part of preferential trade arrangements, can have important effects on FDI and linkage creation in the preference-receiving countries (UNCTAD, 1999). In general, these effects are the more significant, the higher the preferential margin and the lower the administrative costs associated with origin compliance. On the other hand, excessively stringent rules tied to a minor preferential margin have limited impact. In the case of the Japanese automobile manufacturer Suzuki's investment in Hungary, for example, rules of origin under the Association Agreement with the European Community were a factor in the firm's decision to locate there, create local linkages and increase local value added, so as to enjoy duty-free access for car exports to the European Union. However, while rules of origin can lead to a relocation of activities to developing host countries, they do not necessarily lead to more or deeper linkages with local (let alone domestic) firms in those countries.[2]

- Traditionally, the most prominent tool to encourage foreign affiliates to link up with local firms has been *local content requirement*s, either mandatory or in return for incentives. Local content requirements – like rules of origin – do however not necessarily lead to linkages, as foreign affiliates can decide to internalize production within their host country operations. Although it is not clear how widely local content requirements have been used in the past, they (together with other trade-related investment measures (TRIMs) are now being phased out as a result of changes in host countries' economic strategies (from protectionist to open strategies) and of international commitments, in particular the 1995 WTO TRIMs Agreement. Only a limited number of countries have requested an extension of the transition period for the TRIMs they had notified under Article 5.1 of the Agreement. In any case, the experience with local content requirements is mixed.

There are other *host country operational measures* (UNCTAD, 2001a) that can lead to linkages, even though this may not be among their principal objectives. In particular:

- *Joint venture requirements* can lead to higher levels of local sourcing, reflecting the greater familiarity of joint venture partners with local suppliers. But, again, the evidence is mixed: some studies concluded that even voluntary joint ventures are not more likely to strike linkages than wholly owned affiliates (Moran, 1998; Driffield and Mohd Noor, 1999).

- *Export performance requirements* may not always lead to a substantial increase in linkages; but where they lead to linkages, these tend to have a higher quality – precisely because export markets are more exacting and hence foreign affiliates need to upgrade suppliers where this is needed. Such requirements seem to have played a role in pushing TNCs when automotive and electronics industry firms incorporated production facilities in developing countries and economies in transition into their international sourcing strategies, creating new patterns of international production (Moran, 1998, p.50). Foreign affiliates in these industries, in turn, formed strong backward linkages with domestic suppliers, who received a continuous flow of technical and managerial improvements and benefited from economics of agglomeration, scale and scope (Moran, 1998, chapter V). It is difficult, however, to generalize, on the basis of these industry experiences, that export-performance requirements invariably produce favourable outcomes as regards linkages to domestic suppliers in host countries.

Countries can also offer *incentives* to foreign affiliates to encourage the creation of linkages (provided that relevant international obligations are observed). Direct and targeted measures are tax exemptions for affiliates from corporate income tax, value-added tax or sales tax. In some cases, affiliates are allowed to treat the costs related to linkages formation as tax-deductible expenses.

It is difficult to isolate the impact of incentive measures on linkage formation from that of other measures that usually form part of an incentive package, or from the impact of economic conditions in a host economy. Some studies have found that incentives can be important in developing subcontracting relations; on the other hand, if local suppliers are not able to meet the needs of foreign investors efficiently, incentives alone are unlikely to have an impact on linkages. Furthermore, special attention needs to be given to avoid granting incentives in situations in which linkages would be forged even in the absence of incentives, which would then simply result in windfall gains for foreign

[2] Mexico, for instance, has attracted new FDI in electronics, especially television sets from firms wishing to have preferential access to NAFTA's two northern partners; but the impact on the share of local suppliers appears to have been negligible so far; the bulk of parts and components, especially sophisticated ones, are produced by foreign affiliates (Carrillo, 2001). This suggests that, where local supply capacity is weak, foreign affiliates are likely to meet local content provisions contained in rules of origin either through internalized production or host country-based foreign-owned suppliers rather than domestic ones.

affiliates. In any event, the use of incentives must be compatible with the TRIMs Agreement and the Agreement on Subsidies and Countervailing Measures. Incentives are also covered by the Agreement on Subsidies to the extent that they fall within the definition of a subsidy contained in the Agreement.

Issues pertaining to performance requirements and incentives often arise in the context of concrete negotiations between governments and TNCs, especially of large FDI projects. *Contractual arrangements* with foreign investors can offer host governments an opportunity to encourage the formation of local linkages by including this element in their award procedures. For example, when Volkswagen bought Skoda (Czech Republic) in 1991, one of the best-effort commitments it made was to rely increasingly on domestic suppliers.

Finally, thought could be given to the possibility that *home countries* encourage their TNCs through fiscal, financial and other incentives to forge local linkages in developing countries. Some developed countries give support in the form of loans, government-sponsored insurance and equity financing for FDI in developing countries and economies in transition (UNCTAD, 2001b). In some cases, such assistance is limited to SMEs. So far, however, the development of linkages between foreign affiliates and local firms does not appear to have been emphasized in these programmes, although there is progress in this direction.[3]

C. Specific measures to assist the creation and deepening of linkages

The discussion so far has dealt with certain broad policy measures that can influence the behaviour of foreign affiliates in terms of linkage development. Beyond these, there are two basic (mutually not exclusive) approaches that can be pursued. One involves encouraging linkages in general, regardless of the industries involved. This is a broad approach – it basically seeks to make the regulatory framework more conducive for linkage formation. The discussion below provides a menu of policy measures that can be considered under this approach. The other approach, discussed in section D below, goes further in that it involves the establishment of a specific linkage promotion programme dedicated to increasing and deepening linkages between foreign affiliates and domestic firms.

The linkage process is affected by a host country's overall policy environment, including its economic and institutional framework, the availability of human resources, infrastructure and the degree of political and macroeconomic stability. Moreover, it is evident that the volume and nature of inward FDI determine the potential for linkage formation; for this reason, targeting foreign investors with linkage potential can be a part of a general FDI targeting strategy and hence an element in linkage promotion. But perhaps the single most important host country factor influencing linkage formation is the availability of local suppliers with competitive costs and quality. This is, of course, related to a country's level of development. The technological and managerial capabilities of domestic firms also determine to a large extent the ability of a host economy to absorb and benefit from the knowledge that linkages can transfer. In particular, the tendency for foreign affiliates to source the most sophisticated and complex parts and components either internally or from a preferred (foreign-owned) supplier within or outside a host country depends essentially on the capabilities of local companies.

The process of linkage formation is also affected by the availability of supporting meso-institutions. Public and private providers of financial, technological and training support often play key roles in the process of fostering the development of viable suppliers. Without this kind of institutional support, domestic firms may be unable to get a required quality certificate, training or capital needed to become competitive. Moreover, the costs incurred for foreign affiliates may simply be too high for them to get engaged in supplier development activities.

1. Information and matchmaking

The first set of policy measures to help domestic firms link up with foreign affiliates involves the provision of information and matchmaking. Such efforts may be needed to help overcome information failures as regards linkage opportunities. The most prominent ones are:

- *Provision of information.* Governments can act as facilitators by gathering and disseminating information on linkage opportunities and by guaranteeing the accuracy of the information provided. The information may include details about prices paid for particular components, qualities and even the products and processes used. It may consist simply of a list of inputs and materials available locally. Or it may include the names, locations and profiles of the supplier firms and some company information, along with data on the characteristics and structure of supplier

[3] The Government of the United Kingdom published, in December 2000, a White Paper on International Development, which noted that "[e]ven with good policies in place, it can be difficult for some developing countries to stimulate domestic investment and attract foreign investment". One of the measures the Government of United Kingdom announced to deal with this situation is that it would establish a "Business Linkages Challenge Fund" that "will support enterprises in developing countries to form linkages with domestic and international partners. It will facilitate knowledge transfer and improve access to the information and markets necessary to compete in a global economy" (United Kingdom, 2000, pp. 61-62).

industries. The information can be made available through simple hand-outs or brochures, but the recent tendency in most programmes is to use electronic databases. Of course, the more detailed and complex the data, the more useful they are to users – but the higher the cost of providing the information.[4] Information can also be provided through public announcements, linkage-information seminars and missions, and by international exhibitions. Instead of direct intervention, governments can support information exchanges by private institutions; some are promoted by international organizations like UNIDO. It must be recognized, however, that maintaining a reliable, up-to-date broad-based database is difficult and costly and that, unless it fulfils these criteria, its usefulness may be limited.

- *Matchmaking.* Matchmaking implies a more active government role and focusing on the specific capabilities and needs of individual buyers and suppliers and working closely with them to reach supply arrangements. It can take many forms: facilitating one-to-one TNC-supplier encounters and negotiations, acting as honest broker in negotiations, supporting supplier audits, providing advice on subcontracting deals, sponsoring fairs, exhibitions, missions and conferences. Governments can also organize meetings to bring suppliers and buyers in particular industries together, to enable them to show their products, make contacts and initiate deals. They can try to establish the input needs of foreign affiliates and identify parts and components for local supply. They can monitor linkages and act as trouble-shooters when problems arise. The most common types of matchmaking activity consist of arranging individual meetings and visits to plants. The "Meet the Buyer" Programme in the Czech Republic arranges meetings between foreign investors and potential Czech suppliers as part of CzechInvest support measures (Czech Republic, 2001).

Many linkage-promotion efforts put emphasis on overcoming the information gap. In many countries such institutions as chambers of commerce or industry associations can be valuable sources of information for foreign affiliates that are newcomers in these countries.

2. Technology upgrading

The technological upgrading of local supplier firms is a priority for host countries, and several governments have adopted measures to encourage technology transfer from buyer firms to supplier firms and to strengthen technological cooperation between the two. These measures may be general or focus particularly on suppliers to large firms, including foreign affiliates. Often, they are part of comprehensive programmes to promote backward. They are, moreover, implemented against the background of increasingly open policy frameworks for FDI and also growing pressure — including through the TRIPS agreement — to strengthen intellectual property regimes.

Against this background, some measures that are specifically relevant to encouraging technology transfer from foreign affiliates to their local suppliers include:

- *Technology transfer as a performance requirement.* Technology transfer requirements are used by governments (unless they have entered specific treaty obligations to the contrary), sometimes in conjunction with the provision of an incentive (e.g. tax incentive), to induce the transfer of technologies from TNCs, not only to their foreign affiliates and joint venture partners, but *also* to local firms that are subcontractors of foreign affiliates. The Republic of Korea used technology transfer requirements to domestic firms in the 1960s (Kim, 1999) but subsequently discontinued their application in 1989, as the measure did not produce the expected result. More recently, agreements in China's automobile and autoparts industries stipulated a certain degree of transfer of technology (Xia and Lu, 2001). However, such arrangements may be phased out in the light of China's accession to WTO.
- *Partnerships with foreign affiliates.* Some governments use foreign affiliates as partners in technology upgrading programmes. Singapore's Local Industry Upgrading Programme gives responsibility to managers seconded by affiliates to the Economic Development Board to identify potential suppliers, and evaluate their capabilities and design programmes to remedy their weaknesses. Foreign affiliates participating in the programme then transfer technology and skills to suppliers to upgrade the capabilities of the latter. The Government provides organizational and financial support.

The ultimate aim of encouraging technology transfer, including to suppliers, is to strengthen the innovatory capacity of firms in developing countries. In this regard, *incentives to encourage innovation in domestic firms and R&D cooperation* play a critical role. Some governments offer incentives to firms (foreign and domestic) for R&D cooperation with other firms or research institutes. This creates another – and potentially valuable – form of backward linkages (which may also include direct input by suppliers). Some governments give similar incentives to universities and research institutes to cooperate in R&D with firms (again, both domestic and foreign).

[4] Governments may charge a fee for the use of the information services.

Besides the measures implemented by host country governments, *home countries* too, can take measures to encourage technology transfer by foreign affiliates to local suppliers in host countries. Some international agreements, including TRIPS, encourage technology transfer from home to host countries. To the extent measures to that effect are successful *and* foreign affiliates establish technology linkages with domestic firms, they contribute to a strengthening of the technological capacities of domestic host country firms. Home country incentives can be useful in this respect – building for example on the provisions of the TRIPS Agreement.[5]

In conclusion, the experience of firms and of selected countries suggests that the most successful technological linkage measures are two-pronged, directed at both suppliers and buyers. Policies aimed only at inducing or encouraging foreign affiliates to transfer technology have generally not been very effective. Those addressing only local supplier firms have done better, but comprehensive policies addressing both sides of the equation have turned out best. Partnerships with foreign affiliates in upgrading supplier capabilities have been particularly effective.

3. Training

Developing countries and countries in transition attach a high priority to human resource development (particularly in SMEs). Policy instruments in this area range from measures that form part of broad-based policies for SME development and/or comprehensive supplier development programmes, to programmes or measures targeting learning interrelationships between supplier- and client-enterprises in particular industries. Government training programmes that are targeted solely at SMEs or local suppliers – implemented by several countries, including, with considerable success by a few developing countries – not involving buyers, can strengthen training and skills-development interaction between foreign affiliates and their domestic suppliers. But the measures considered here are those that are related more specifically to the promotion of training and educational assistance for suppliers' employees by (or involving) buyer (or potential) buyer firms, including especially foreign affiliates. However, only a few countries provide fiscal or financial incentives to firms (including foreign affiliates) for this purpose. In Malaysia and Hungary, training costs can be subsidized.

On the whole, however, the main focus of the measures pursued by host countries for strengthening inter-firm linkages in the area of training and skills is on assisting buyer and supplier linkages in general, and although few of them specifically and exclusively target foreign affiliates and their domestic suppliers, they are also of direct relevance to linkages between them. Host country measures include:

- *Promoting supplier associations.* Supplier associations established with government support can help build training linkages. For instance, the "Source Wales" Programme of the Welsh Development Agency uses a supplier association as a forum to exchange skills and techniques between clients and suppliers, with major customers or consultants hired by the programme, acting as tutors for SMEs (Morgan, 1997).
- *Support for private sector training programmes.* Government agencies may assist large firms, including foreign affiliates, to undertake training targeted at SMEs. Public support for training linkages between affiliates and suppliers can also be provided at the local level. The Penang Skills Development Centre in Penang plays an important role in putting together training courses contributed by TNCs to upgrade skills in the supplier workforce (Intel, 2001).
- *Collaboration with international agencies.* International agencies can participate in training efforts for suppliers in host countries. The UNIDO partnership programme, in its first phase aimed at the automotive component industry in western India, began in 1999 as a collaborative effort of the Government of India, Fiat and non-governmental institutions and groups within.

Experience with some programmes suggests that the returns to well-conceived initiatives to promote learning and skills development among local suppliers can be high. Best practice involves mobilizing the cooperation of buyer enterprises to overcome resource and organizational constraints, and staff targeted for training, and periodic evaluation of training programmes and follow-up. Furthermore, in many cases, governments can rely on external partners for the provision of the required training.

[5] One of the Agreement's objectives is that "the protection and enforcement of intellectual property rights should contribute to the transfer and dissemination of technology" (Article 7). In addition, some clauses refer specifically to the promotion of transfer of technology to LDCs. The Agreement recognizes the special needs and requirements of its least developed members by providing for assistance to them by the developed country members on the issue of technology transfer. More specifically, Article 66(2) requires developed country members to "provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least developed country members in order to enable them to create a sound and viable technological base". Further, Article 67 states that, "in order to facilitate the implementation of this Agreement, developed country Members shall provide, on request and on mutually agreed terms and conditions, technical and financial cooperation in favour of developing and least developed country Members".

4. Finance

Financial relationships range from the pricing of a supplier's product to the provision of long-term finance. While possibilities for Governments to help suppliers in pricing negotiations in a market-based economy are limited, there may be a need for *legal protection* against unfair contractual arrangements and other unfair business practices. Competition policy has an important role to play here. A government can also sponsor legal assistance systems for suppliers negotiating contracts with large firms and provide suppliers with information on benchmark prices and alternative business opportunities, or encourage business associations to do so.

In developing and transition countries, where shortage of finance is a major constraint facing domestic suppliers (in particular SMEs), the challenge is mainly to encourage the provision of financial support by foreign affiliates to their domestic suppliers, since the former are generally likely to be in a better financial position than the latter. Such support, when it occurs, can directly increase financial resources available to suppliers, contribute to reducing the cost of finance for them, and/or reduce the uncertainty surrounding the sustainability of financial flows. It can be encouraged by various government measures (which, as in other areas, do not necessarily have to distinguish between foreign affiliates and domestic firms):

Short-term finance

- Governments can encourage a shortening of payment delays through tax measures. In the Republic of Korea, for example, tax reductions of up to 10 per cent of the total corporation or income tax are offered to encourage prompt payments to suppliers.
- Governments can limit payment delays through legislation. In India, the Interest on Delayed Payments to Small Scale and Ancillary Industrial Undertakings Act of 1993 stipulates that payment to subcontractors should be made within 30 days.
- Governments can make arrangements to guarantee the recovery of delayed payments. The Government of Hungary has two non-refundable facilities (the Economic Development and the Small and the Medium-sized Enterprises Development Targeted Allocations) to re-finance borrowings by subcontractors.
- Governments can offer indirect financing to suppliers channelled through their buyers. In Mexico, for example, a State-owned development bank operates an "AAA Trust Fund" that provides the most creditworthy large firms (categorized as "triple A") with funds to finance preferential credit lines to their suppliers.

Medium- to long-term finance

- Governments can offer tax credits or reductions and other fiscal benefits to firms providing long-term funds to suppliers. An example is the Fundo Fiat in Brazil (Borges Lemos *et al*., 2000).
- Governments can co-finance supplier development programmes along with the private sector. This is the case with the Penang Skills Development Centre, the UNIDO programme for upgrading automotive component manufacturers in India, and the Government of India's co-financing and subsidization of subcontracting exchanges.
- Governments may take a direct role in providing finance to local firms to improve their capacities. For example, the Government of Hungary provides firms that are suppliers to large firms (a good number of which are foreign affiliates) financial support for new investments, the re- financing of loans and improving operating capabilities. This is done on a cost-sharing basis, with half the costs covered by the firms. From 2000, consultants working for first-tier suppliers providing support for leasing by SMEs can also apply for financial assistance.
- *Mandatory transfer of funds from foreign affiliates to local suppliers.* Although such a scheme has not yet been tried in practice, in theory, it could emulate the mechanisms of the Foster Father Business Partner programme in Indonesia (initiated in 1992), while avoiding its shortcomings.[6]

Finally, as in the case of other linkage areas, *home country governments* can take measures to encourage financial support by their TNCs to local suppliers in developing countries. Examples include:

- *Two-step loans.* Credit lines may be provided to foreign affiliates or local banks for loans to local suppliers. For instance, the Japan Bank for International Cooperation offers credit lines to local state-owned banks in host

[6] The latter "strongly encouraged" all large firms to allocate 1-5 per cent of their profits to small enterprises. One of its weak points was that it did not link the use of those resources to improvements in the production and supplying capabilities and economic efficiency of supplier SMEs benefiting from the scheme. Another shortcoming was that most of the beneficiaries of the scheme were selected by the authorities, without sufficient consideration of their potential as suppliers to large firms. Due to a lack of tangible benefits for them, foreign affiliates showed little interest in participating, making the scheme non-enforceable (Altenburg, 2000, p. 50; Kian Wie, 1994, pp. 106-107; Swisscontact, 1996, p. 10-11).

countries for loans to local firms including suppliers to Japanese affiliates. Additionally, during the Asian financial crisis, as part of emergency measures, the Bank authorized Japanese affiliates in Thailand to use its loans for working capital so that they could also extend financial assistance to crisis-hit local suppliers in the form of advance purchases and advance payments. (Under normal circumstances, loans by this bank can be used for the purchase of machinery and equipment only.)

- *Using official development assistance (ODA).* ODA resources can be used to fund (together with firms and host governments) supplier development programmes in a host economy. In Mexico, for example, the Tijuana Development Council manages and coordinates the *Fondo Tijuana* (with resources from the Inter-American Development Bank) to finance local suppliers in the electronics cluster. The five-year budget (2000-2005) of the *Fondo* has $2.7 million for technical cooperation and $12 million for a venture capital fund.

Governments have also an important role to play in countries that do not have a well-functioning capital market. One of the things they can do is to encourage foreign affiliates to extend financial support to their domestic suppliers through measures to influence the regulatory framework for financial linkages or through the provision of co-financing or guarantees in financial arrangements between foreign affiliates and local suppliers. However, direct financial participation can be costly for governments, and the benefits derived from it need to be assessed carefully relative to its costs.

D. Specific government linkage promotion programmes

The above review has highlighted various measures to bring suppliers and foreign affiliates together and to strengthen their linkages, regardless of the industries involved. Some countries have taken a more proactive approach by setting up specific linkage promotion programmes dedicated to increasing and deepening linkages between foreign affiliates and domestic firms. These programmes combine several of these specific measures and typically focus on a limited number of industries and firms. Targeting is almost inevitable when governments allocate scarce resources for industrial development, and it is economically justifiable when different activities offer varying scope for technological learning, skill building or spillover benefits. Governments use various means for selecting targets for linkage creation. Sometimes, these programmes are organized at the national level. In other cases, they are part of sub-national strategies. These latter programmes are characterized by a cluster approach, some running in parallel to nation-wide linkage efforts, others being stand-alone initiatives.

Not surprisingly, most specific linkage programmes are in countries with a significant FDI presence and a strong local supplier base. Most of these countries have institutions for SME development and FDI promotion, as well as the skills and financial resources to staff and fund linkage programmes. Common objectives of such programmes are to increase domestic production and employment; improve the current account; make TNCs more rooted in the local economy; and, above all, upgrade the capabilities of domestic enterprises. Moreover, three elements are common to the special national-level linkage programmes:

- the provision of market and business information;
- matchmaking by such means as trade fairs or data bases;
- support to local enterprises through provision of managerial and technical assistance, training, audits and, occasionally, by financial assistance or incentives.

The relative weight assigned to each of these elements depends upon the objectives of the individual programme. It also depends on the level of enterprise development, the involvement of the private sector in determining the needs of firms and the financial and human resources available for the programmes. Programmes aiming mainly at facilitating the establishment of linkages tend to emphasise matchmaking between domestic firms and foreign affiliates. Those aiming mainly at upgrading the technological capabilities of domestic firms place a stronger emphasis on technical and other support to domestic firms with supplier potential. This often includes strategic decisions on the activities to be covered in the programme. The earliest programmes, dating from the mid-1980s, were undertaken in Ireland, Singapore and Malaysia. The Thai linkage programme started in 1992. Programmes in the Czech Republic and Hungary date from the mid-1990s and that in Costa Rica began in 2000.

Linkage programmes can be located in different agencies. Some come under the auspices of foreign investment promotion agencies as in Thailand and the Republic. Others are integral parts of economic development agencies such as the Economic Development Board of Singapore, Enterprise Ireland, the Malaysian Ministry of International Trade and Industry and its operational arm, the Malaysian Industrial Development Authority; and the Ministry of Economic Affairs of Hungary. Yet others are part of regional development strategies as in the north-eastern England, Scottish and Welsh programmes in the United Kingdom.

In most instances, as in Ireland, Wales, Singapore or Thailand, the public agency liaises with the private sector, via a joint steering committee or through consultations. The north-eastern England programme has an interesting variation. It involves the local and national government, the business community and trade unions; interaction with regional universities is especially well established.

Funding sources for linkage programmes are mixed. In most special national and cluster- and network-development programmes, the bulk of funding is provided by the government agency concerned. In some programmes, staff is seconded from within the agency, but not provided with financial resources (e.g. the BUILD programme in Thailand). Other programmes have succeeded in raising considerable finance from international and domestic public sources (Czech Republic, Mexico, Costa Rica).

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It is difficult to make a full evaluation of government linkage programmes. Each takes place in a specific economic environment, and it is not possible to ascribe the establishment or deepening of linkages to any particular measure. There are always many other factors that may influence the process.

In general, the effectiveness of a linkage programme is largely context specific, predicated on the economic environment and institutional setting. If local firms have well-functioning linkages among themselves, it is more likely that they will actively engage in a linkage programme. Similarly, active programme implementation may be helped by the presence of effective domestic and international chambers of commerce, or other groups representing enterprises (the case of Thailand, for example), or a strong involvement of the Government (the cases of Costa Rica, Malaysia and the United Kingdom). Assessments of the programmes in Singapore and Thailand have found these to have been successful in that they have contributed to an increased number of linkages, higher productivity, more local value added, and/ or improved capabilities and productivity of local suppliers.

More generally, the main ingredients of successful linkages programmes could be:

- Strong political commitment. Programmes pursued at the sub-national level may have more impact, particularly in large countries, since they allow for a focused approach and a bundling of resources, and are more amenable to close interaction among stakeholders.
- Clear delineation of the lines of responsibility, with coherence among goals and measures. Some linkage programmes, notably in the newer generation of cluster-oriented programmes, tend to have conflicting or overlapping lines of authority, with overall policy responsibility and implementation situated in different ministries and agencies. Such a situation calls for special efforts to coordinate.
- Effective public-private partnerships. Linkages will only be sustained if they are technically viable and commercially profitable for the firms involved. Suppliers can induce governments to assist them by encouraging local sourcing by affiliates. Foreign affiliates and their parent companies can help the government identify the scope for local sourcing and give advice on programmes needed. To be convincing and generate mutual trust, linkage programmes need to be staffed by professionals with the appropriate skills and background.

Finally, the more linkage promotion programmes are embedded in policies that facilitate enterprise development in general, the higher is the likelihood that they will succeed. It is vital to have well-functioning institutions to channel two-way flows of information between governments and stakeholders and to provide industrial services. At the political level, institutions also comprise business associations of various kinds, as well as representatives of trade unions and possibly of other local interest groups.

Annex 1. The Czech Republic's National Supplier Development Programme

It is one of the strategic goals of the foreign investment promotion agency of the Czech Republic, CzechInvest, to support the country's supplier base and to link it to foreign affiliates. It is also a way to convince potential foreign investors to locate in the Czech Republic. It is in this context that the agency introduced its Supplier Development Programme in 1999, designed to improve links between Czech suppliers of components and services and foreign affiliates operating in the Czech Republic. It has three objectives: to promote modern industrial technology, to heed environmental protection considerations and to raise qualifications of the local labour force.

In January 2001, the Supplier Development Programme introduced a new "Twinning Programme", co-funded by the EU and the Government of the Czech Republic. This two-year subprogramme focuses specifically on the electronics and electro-technical industry. For a local supplier to qualify for the Twinning Programme, annual revenues must exceed $2 million. If the Programme proves to be successful, the Supplier Development Programme is expected to

extend its coverage to other industries for the 2003-2005 period. At the end of the Twinning Programme, CzechInvest plans to prepare a detailed evaluation and send the information to the Government.

The Supplier Development Programme currently consists of three elements:

- *Collection and distribution of information* regarding the products and capabilities of potential Czech component suppliers, so as to enable foreign manufacturers to short-list and contact potential new suppliers. The profiles of potential suppliers are available through CzechInvest's website; it currently covers 1,000 firms .
- *Matchmaking*, comprising three elements: First, *"Meet-the-Buyer" events* between foreign investors and potential Czech suppliers. The sessions focus on identifying the type of components and services that foreign investors are considering subcontracting. Such meetings are on offer to incoming manufacturing affiliates as part of CzechInvest's standard package of support. Second, *seminars and exhibitions* are organized with and for Czech suppliers and foreign affiliates. Third, the *matchmaking programme* takes the form of concrete proposals to potential foreign investors, indicating potential suppliers in the Czech Republic.[7]
- *Upgrading of selected Czech supplier*s. Since 2000, CzechInvest has organized *upgrading programmes* for selected Czech suppliers that meet predefined criteria in high-technology industries, such as electronics, or for selected engineering firms supplying to a wide range of industries (e.g. machine spare parts producers, plastic form producers and packaging firms). The selected firms produce an upgrading plan, tailored to their individual capacities and requirements. Progress is monitored with quantifiable performance benchmarks that compare Czech companies with their competitors from the EU. The upgrading process usually includes consultancy and training support in such areas as the utilization of technology, general management operations, ISO certification and organizational change. A second component is training in a wide range of areas, including finance, management, quality assurance and marketing.[8] The costs of training are shared evenly by the Government of the Czech Republic and the EU. Assistance and advice currently cover financial restructuring and productivity improvement. As a means of providing assistance to accessing finance, results of the training programme are to be presented to private sector bankers with the aim of promoting the financing of the trained electronics suppliers. These programmes aim to improve the selected suppliers' financial, production and inventory management, as well as their capacity to undertake purchasing and quality control.

Initially, the Government of the Czech Republic had financed the operational costs of the programme (about $3 million for a three-year period), with co-funding from the EU's Phare programme. The Government plans to continue the Supplier Development Programme during the EU accession negotiations, and expects that it would subsequently qualify for the EU's Structural Fund programmes. The Ministry of Labour has indicated to CzechInvest that it would contribute funds to support the development of investment in areas with high rates of unemployment. CzechInvest periodically evaluates the progress made by the suppliers.

Institutionally, CzechInvest is linked to other parts of the Government, notably the Ministry of Industry, one of the SME promotion agencies, an export development agency and a technical university. Suppliers and foreign affiliates, industry associations (such as the Confederation of Industry and Transportation, the Chamber of Commerce, the Electro-technical Industry Association) and others represent the private sector. Service providers, including the standards institute, quality centres, the technical university, training centres and financial institutions (banks, venture capital funds) are also engaged in the CzechInvest schemes. For instance, the Czech Export Bank is prepared to finance exports of the Czech electronics industry, and the Czech Guarantee Bank envisages providing soft loans to suppliers.

CzechInvest's strategy for 2000-2004 now covers support to domestic investment as well. This ties in well with its mission to promote linkages. Other adaptations in the programme are an increasing attention to training and financial assistance. Moreover, similar to many of the other linkage programmes, the creation of clusters and supply-chain management are receiving more attention.

Source: UNCTAD, based largely on information provided by CzechInvest.

[7] When CzechInvest receives a request from an investor, it identifies potential suppliers from the database and provides their data to the investor, together with a one-page questionnaire. As a follow-up, if the investor is interested in any of the potential suppliers, CzechInvest introduces the foreign investor to the potential supplier and negotiates a deal on behalf of the investor.

[8] The trainers are drawn from Sheffield Hallam University in the United Kingdom. The training programme has 60 candidate companies, of which 20 had to be selected by October 2001 for full training. The others will have access to low-cost training in specific areas.

Annex 2. Hungary's Integrators' Subcontracting Programme[9]

In 1998, the Ministry of Economic Affairs of the Government of Hungary introduced the Subcontractors Target Programme. It was subsequently relaunched as the Integrators' Subcontracting Programme and designated as one of the central programmes within a national development plan.[10] The promotion of supplier links is partly driven by the need to prepare local industry for competition within the European Union before the country becomes a full member.

The Programme initially aimed at promoting direct linkages between final assemblers and local SMEs, regardless of ownership. Currently, its focus is on promoting links between first tier suppliers – called "integrators" – and their second-and third-tier suppliers (Hungary, 2001). Most of the first-tier firms in the priority industries are foreign-owned, and roughly 80 per cent of the second-tier supplier firms are fully Hungarian-owned. Thus, the programme is de facto a programme promoting linkages between foreign affiliates and domestic firms. Originally, the programme focused on the automobile industry, electronics and rubber and plastics; it subsequently added textiles, furniture, building materials, services and retail trade to the list of priority industries.

The Integrators' Subcontracting Programme gives priority to relatively advanced supplier firms: half of the resources are provided to firms that are already suppliers to foreign affiliates, and another 40 per cent to firms that are very close to that status. Specifically, the following types of services are available:

- *Access to a national subcontracting database and related information services,* managed jointly by the Ministry of Economic Affairs and the Hungarian Investment and Trade Development Agency. The database contains screened data on 1,500 potential and existing subcontracting enterprises in the machinery, vehicles, electronics, and rubber and plastics industries. The data are collected by Supplier Information Centres whose tasks are to inform participating firms about the Programme, collect information on buyer needs, identify potential and existing subcontractors, and help subcontractors logistically and in improving their management.
- *Education, training, consultancy service*s. The main areas for training and education are: strategic business management and management training; quality assurance (with special emphasis on the introduction of a new version of ISO 9000); the implications of, and conditions for, accession to the European Union; logistics; and e-business and e-commerce.[11]
- *Promotion of the international presence of Hungarian firms.* These activities organize or catalyze business contacts and meetings between potential suppliers and buyers and facilitate Hungarian participation in relevant international fairs and exhibitions.
- *Financial support and grants from the Ministry of Economic Affair*s. The Ministry of Economic Affairs offers grants to existing and potential subcontractors. In 2001, two additional sources of finance were introduced: a grant covering up to 30 per cent of the costs of quality management and insurance, expansion of production or product range, development of logistics and informatics; and a grant covering up to 50 per cent of the costs involved in cluster development. The Government also financially supports supplier audits, covering up to 75 per cent of the cost, with a ceiling of HUF 400,000.[12]

Moreover, innovation centres, as well as universities and research institutes indirectly support the Integrators' Subcontracting Programme by coordinating relevant aspects of research and development.

The Integrators' Subcontracting Programme – and its precursors – have reached a fairly extensive network of firms. In mid-1999, the programme covered 1,438 supplier firms, representing 110,000 employees (14 per cent of the total employment in manufacturing). The value of deals contracted and signed through the then National Subcontracting Information Network reached HUF 1.4 billion ($6 million) in 1999. The duration of contracts varied between 6 and 12 months. Between 1998 and 2000, a number of key foreign affiliates (e.g. Opel, Audi, Suzuki, Ford, General Electric, Nokia and Electrolux) signed 76 supplier contracts under the programme. The value of 21 of the contracts publicly

[9] Based on information provided by the Ministry of Economic Affairs of Hungary.

[10] "The primary objective of the…subprogram[s] is to loosen up the current dual structure of the Hungarian economy, and to continue to strengthen Hungarian SMEs' links to multinational companies with a foothold in Hungary in terms of production, innovation and information" Hungary, Ministry of Economic Affairs, 2001, p. 1.

[11] The latter is provided by the Hungarian Investment and Trade Development Agency with a view to preparing Hungarian suppliers for Internet-based bidding for international contracts.

[12] In 1999, 28 supplier firms applied for such audits, of which 27 received assistance, for a total value of HUF 5.4 million. Another 61 firms applied for assistance, of which 31 firms received assistance, for the value of HUF 84.9 million.

announced was HUF 5.9 billion ($24.5 million) per annum.[13] According to latest estimates, the share of Hungarian firms among the suppliers to foreign affiliates increased from 16 per cent in 1999 to 21 per cent in 2000 (Peredi, 2000).

Annex 3. Ireland's National Linkage Programme

Since the mid-1980s, Enterprise Ireland has been operating various linkage programmes designed to improve the integration of foreign enterprise into the Irish economy. The current National Linkage Programme (NLP) was introduced in 1998. Enterprise Ireland is a government organization, established in 1985 under the Ministry of Finance.[14] Its enterprise development activities take place in the context of Ireland's current National Development Plan (2000- 2006) (Ireland, Ministry of Finance, 2000). Its core mission is "to work in partnership with client companies to develop a sustainable competitive advantage, leading to a significant increase in profitable sales, exports and employment" (Enterprise Ireland, 2001, p.1). Accordingly, the agency works in partnership with private industry and other institutions, notably universities. It pursues two tasks: first, to support Irish enterprises to build capacity, innovate and create new partnerships; second, to assist international investors to source and identify key suppliers in Ireland.

With a staff of about 15 people, the NLP functions primarily as a brokerage service with the aim of promoting local sourcing by foreign affiliates in Ireland. Under its linkage programme, NLP representatives initially visited foreign affiliates to determine their sourcing requirements and made efforts to match these with the production profiles of local suppliers. However, local suppliers encountered a variety of difficulties in terms of capabilities and capacities to meet the standards set by foreign affiliates. The programme hence increasingly turned to capacity building.

The NLP was focused primarily on potential suppliers to TNCs in the electronics industry, engineering and, more recently, the healthcare industry. "Realistic" supply opportunities were identified in metal and plastic components, while such industries as printing and packaging, automation equipment, electronics manufacture assembly and system testing equipment, were also explored to determine whether local sourcing could potentially increase.

The NLP closely cooperates with foreign affiliates, as well as with their parent companies, to identify specific parts and components that may be supplied domestically and to identify the domestic firms that show the greatest potential. A key criterion used for selecting companies to participate in the supplier development programme is the attitude of the management teams of local firms, which should be "forward thinking, ambitious, and dynamic" (Crone, 2001, p. 2).

With the carefully selected local firms, the NLP works to resolve operational problems, making use of available assistance programmes. The agency helps suppliers design support programmes, conducts development activities and assists suppliers entering into subcontracting arrangements with foreign affiliates. A wide range of services is currently offered to potential suppliers.[15] Recently, and in response to the growing need for suppliers to become sub-assemblers, the NLP is also actively promoting a restructuring of local industry by "marrying" supplier companies, rather than focusing on single-component providers to the foreign affiliates.

As each company has its own distinctive ambitions, capabilities and needs, the agency aims at delivering solutions tailored to the individual circumstances of each enterprise. A "Development Adviser" is the company's main contact point in Enterprise Ireland. This professional staff member helps suppliers to assess their needs and capabilities, formulate an agreed "growth plan" and identify the range of services and resources needed to execute the plan.

Under a "Networks/Value Adding Partnerships" scheme (which seeks to help small companies overcome limitations imposed by their size), eight networks were set up in industries, ranging from cheese making to mould making, with a view to undertaking joint research and development, marketing and procurement-related activities. Reportedly, this scheme resulted in additional sales of Irish £16.7 million for participating companies in 1997 (Ireland, Ministry of Finance, 2000, p. 230).

To support SMEs more generally, the National Plan has allocated Irish £128 million to support marketing capabilities focussed on SMEs, as these often fail to undertake market development on their own, due to a lack of expertise, financial resources and the perceived risks involved. The supplier development programme has focused on 70 to 80 firms, ranging from small specialist suppliers to firms of up to 150 employees. Activities include (Ireland, Minister for Finance, 2000, p. 139 f):

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[13] The value of the other contracts was kept confidential.

[14] Originally, the programme was implemented by the Industrial Development Authority.

[15] Services are offered in business planning and information, research, development and design; production and operations; marketing and business development; human resource development and finance.

- market information and research on market trends, competition, logistics, market strategy options, product development and design upgrading of skills;
- sectoral and company promotional activities, such as trade fairs, advertising, literature and public relations;
- training in areas including that of supply chain management.

Enterprise Ireland also runs a sophisticated electronic database, covering supplier firms in 20 industries, called the supplier search facility (Enterprise Ireland, 2001). Searches can be run by industry, by company or by product. The industries covered include aerospace, agricultural machinery, automotive components, electronics and engineering sub-supply, pharmaceuticals, textiles and clothing and other consumer products, natural resource-based industries (such as the foodstuffs, timber) and services (such as print and packaging, process control and instrumentation and telecommunications). Any firm in Ireland is eligible for inclusion. The site covers approximately 750 supplier companies.

Between 1985 and 1987, an estimated 250 foreign affiliates have been actively involved in the linkage programme. During that period, affiliates operating in Ireland increased their local purchases of raw materials fourfold, from Irish £438 million to £1,831 million, and more than doubled their purchases of services from Irish £980 million to over £2 billion. In the electronics industry alone, the value of inputs sourced locally rose from 12 to 20 per cent over the same period. On average, suppliers saw their sales increase by 83 per cent, productivity by 36 per cent and employment by 33 per cent.[16] Several have become successful international subcontractors; some of the larger domestic supplier companies involved in the NLP have subsequently been acquired by foreign TNCs.

Surveys aimed at evaluating the impact of the NLP have been undertaken by the National Policy and Advisory Board for Enterprise, Trade, Investment, Science, Technology and Innovation (Forfas) since 1996. For the electronics industry, it was concluded that, by the mid-1990s, a ceiling of around 20 per cent of material input purchases from within Ireland had been reached. It was unlikely that this industry would grow much beyond its current size level because of a lack of indigenous capability in technologically complex subsectors (Crone, 2001).

Some observers found that the demand for the agency's brokering services has diminished over time. Recent inward investors tend to be better equipped in terms of procurement staff, many having recruited staff with knowledge of local sourcing opportunities. In response, the resources devoted to the NLP have recently been scaled down, and some activities previously undertaken by the NLP are now provided in a more targeted fashion by the International Business Linkages Department of Enterprise Ireland with a staff of eight people.

In summary, the combination of programmes provided by Enterprise Ireland has contributed to the emergence of suppliers of high-quality goods and services, delivering to affiliates as well as to other buyers. Some lessons that were drawn from the Irish case are that:

- Matchmaking requires accompanying measures to upgrade the capabilities of potential and existing suppliers; the need for matchmaking as such may diminish over time as the composition of affiliates and their motivations for locating in a given country, or their local knowledge, changes.
- Supplier development efforts should be selective, in order to achieve the best outcomes from limited resources. For example, efforts should focus on those SMEs that have the greatest potential for growth. The NLP normally ignored the smallest firms because they were considered unlikely to grow to a size that is large enough to enable them to win business with foreign affiliates (Crone, 2001).
- Close collaboration with foreign affiliates and their parent TNCs is crucial.
- Close coordination and collaboration amongst the various government agencies involved in assisting local suppliers are important elements.

Source: UNCTAD, based on the Enterprise Ireland website and information provided by Enterprise Ireland, as well as Crone, 2000 and 2001.

References

Altenburg, Tilman (2000). "Linkages and spillovers between transnational corporations and small and medium-sized enterprises in developing countries: opportunities and policies", in UNCTAD, *TNC-SME Linkages for*

[16] Data provided by Enterprise Ireland.

Development: Issues-Experiences-Best Practices (New York and Geneva: United Nations), United Nations publication, UNCTAD/ITE/TEB/1, pp. 3-61.

_____ and Jörg Meyer-Stamer (1999). "How to promote clusters: policy experiences from Latin America", *World Development*, 27, 9, pp. 1693-1713.

Baranson, Jack and Robin Roark (1985). "Trends in North-South transfer of high technology", in Nathan Rosenberg and Claudio Frischtak, eds., *International Technology Transfer: Concepts, Measures, and Comparisons* (New York: Praeger), pp. 24-52.

Battat, Joseph, Isaiah Frank and Xiaofaug Sheu (1996) "Suppliers to multinationals: linkage programs to strengthen local companies in developing countries", Foreign Investment Advisory Services (FIAS), Occasional Paper 6 (Washington, D.C.: The World Bank).

Borges Lemos, Mauro, Clelio Campolina Diniz, et al. (2000). "Arranjos e sistemas produtivos locais e as novas políticas de desenvolvimento industrial e tecnológico" (Belo Horizonte: CEDEPLAR, Faculty of Economics, Universidad Federal de Minas Gerais), mimeo.

Carrillo, Jorge (2001). "Foreign direct investment and local linkages: experiences and the role of policies. The case of the Mexican television industry in Tijuana", case study prepared for UNCTAD (Geneva: UNCTAD), mimeo.

Crone, Mike (2000). "Local sourcing by multinational enterprise plants: evidence from the UK regions and its policy implications", Working Paper Series 48 (Belfast: Northern Ireland Economic Research Centre - NIERC).

_____ (2001). "The Irish national linkages programme", study prepared for UNCTAD (Geneva: UNCTAD), February 2001.

_____ and Stephen Roper (1999). "Knowledge transfers from multinational plants in Northern Ireland: local learning in the supply chain", NIERC Report Series, No. 15, (Belfast: Northern Ireland Economic Research Centre- NIERC).

Czech Republic (2001). "Suppliers", http://www.czechinvest.org, mimeo.

Driffield, Nigel and Abd Halim Mohd Noor (1999). "Foreign direct investment and local input linkages in Malaysia", *Transnational Corporation*s, 8,3, pp. 1-24.

Dunning, John H. (1993). *Multinational Enterprises and the Global Economy* (Harlow: Addison-Wesley).

Enterprise Ireland (2001). http://www.enterprise-ireland.gov.ire.

Floyd, David (2000). "FDI through cross-border acquisitions and greenfield sites, their impact on development and policy implications for the Polish economy", paper presented at the UNCTAD and OeNB Seminar on FDI and Privatization in Central and Eastern Europe (Vienna, 2-3 March), mimeo.

Frost, Tony, Julian Birkinshaw and Scott Ensign (1999). "Centers of excellence in multinational corporations", Paper submitted to the *Strategic Management Journa*l, October, mimeo.

Halbach, Axel J. (1989). "Multinational enterprise and subcontracting in the third world: a study of inter-industrial linkages", Working Paper 58, Multinational Enterprise Programme (Geneva: ILO).

Handfield, Robert B., and Daniel R. Krause (1999). "Think globally, source locally", *Supply Chain Management Revie*w, Winter 1999, pp. 36-49.

_____, Thomas V. Scannel and Robert M. Monczka (2000). "Avoid pitfalls in supplier development", *Sloan Management Revie*w, 41, 2, pp. 37-49.

Holm, Ulf and Torben Pedersen (2000). *The Emergence and Impact of MNC Centers of Excellence: A Subsidiary Perspective* (Houndmills: Macmillan).

Hungary (2001a). "Összefoglaló a Beszállítói Célprogram eredményeiröl – 1999", summary of the results of the Subcontractors Target Programme in 1999 (Budapest: Hungarian Enterprise Development Fund), mimeo.

_____, Ministry of Economic Affairs (2001). "The Széchenyi Plan"; information available on the Internet: http://www.gm.hu/kulfold/english/economy/szechenyi.htm.

Institute of Developing Economies (1994*). The Role of Japanese Direct Investment in Developing Countries: India, Indonesia, Taiwan* (Tokyo), March.

Intel (2001). "Intel's linkages to suppliers in Malaysia", case study prepared for UNCTAD (Geneva: UNCTAD), mimeo.

Ireland, Ministry of Finance (2000). "National Development Plan 2000-2006", http://www.irlgov.ie/finance/ndpindex.htm.

Ismail, M. N. (1999). "Foreign firms and national technological upgrading: the electronics industry in Malaysia", in Jomo K.S., Greg Felker and Rajah Rasiah, eds., *Industrial Technology Development in Malaysia: Industry and firm studies* (London and New York: Routledge), pp. 21-37.

Kian Wie, Thee (1994). "Indonesia", in Saha Dhevan Meyanathan, ed., *Industrial Structures and the Development of Small and Medium Enterprise Linkages: Examples from Asia* (Washington, D.C.: World Bank), pp. 95-120.

Kim, June-Dong (1999). "Inward FDI Regime and Some Evidence of Spillover Effects in Korea", KIEP Working Paper 99-09 (Seoul: Korea Institute for International Economic Policy), mimeo.

Komoda, F. (1986). "Japanese studies on technology transfer to developing countries, *Developing* Economies, 24, 3, pp. 459-462.

Lall, Sanjaya (1980). "Vertical inter-firm linkages in LDCs: an empirical study", *Oxford Bulletin of Economics and Statistic*s, 42, pp. 203-226.

Moran, Theodore H. (1998). *Foreign Direct Investment and Development: The New Policy Agenda for Developing Countries and Economies in Transition* (Washington, D.C.: Institute for International Economics).

Morgan, K. (1997). "The learning region: institutions, innovations and regional renewal", *Regional Studies*, 31, pp. 491-504.

Narayanan, S. (1999). "Factors favouring technology transfer to supporting firms in electronics: empirical data from Malaysia", *Asia-Pacific Development Journa*l, 6, 1, pp. 55-72.

Peredi, Ágnes, (2000). "Erösödö hazai beszállítók" [Strengthening local suppliers], *Népszabadsá*g, 2 April, 57, 77, p. 3.

Scott-Kennel, Joanna and Peter Enderwick (2001). "The degree of linkage of foreign direct investment in New Zealand industry" (Wellington: Victoria University of Wellington), mimeo.

Sison, Gerardo Roberto D. (2000). "TNCs and SMEs relationship", Paper submitted to the Expert Meeting on the Relationships between SMEs and TNCs to Ensure the Competitiveness of SMEs (Geneva: UNCTAD), mimeo.

Skoda Auto (2001). Information available on the Internet at: http://www.skoda-auto.com/company/index.htm.

Swisscontact (1996). "Small and medium enterprise promotion in Indonesia", project document (Zurich: Swisscontact), mimeo.

UNCTAD (United Nations Conference on Trade and Development) (1999). *Investment-related Trade Measures.* UNCTAD Series on issues in international investment agreements (New York and Geneva: United Nations), United Nations publication, Sales No. E.99.II.D.12.

_____ (2001a). *Host Country Operational Measure*s. UNCTAD Series on issues in international investment agreements, (New York and Geneva: United Nations), United Nations publication, Sales No.01.II.D.18.

_____ (2001b). "Home country measures", note by the UNCTAD Secretariat, TD/B/COM.2/EM.8/2, April 6, 2001.

UNCTC (United Nations Centre on Transnational Corporations) (1981). *Transnational Corporation Linkages in Developing Countries. The Case of Backward Linkages via Subcontracting* (New York: United Nations), United Nations publication, Sales No.81.II.A.4.

United Kingdom (2000). "Eliminating world poverty: making globalisation work for the poor. White Paper on international development", presented to Parliament by the Secretary of State for International Development by Command of Her Majesty (London: HMSO).

WIR (World Investment Report) (2000). *World Investment Report: Cross-border Mergers and Acquisitions and Development* (New York and Geneva: United Nations), United Nations publication, Sales No. E.00.II.D.20.

Wong, P. K. (1992). "Technological development through subcontracting linkages: evidence from Singapore", *Scandinavian International Business Revie*w, 1, 3, pp. 28-40.

Xia, Youfu and Lu Yuebing (2001). "FDI and host country linkages: assessing the effectiveness and development impact of the policy measures: The case of the automobile industry in China", paper prepared for UNCTAD (Geneva: UNCTAD), mimeo.

Yoon, Heon-Deok (1994). "An evaluation of the contribution of transnational corporations to the development of backward linkages in the Korean electrical and electronics industries", *Public Enterprise*, 14, 3-4, pp. 379-403.

Zanfei, Antonello (2000). "Transnational firms and the changing organisation of innovative activities", *Cambridge* Journal *of Economics*, 24, pp. 515-542.