

Chapter 6

Research Findings: FDI Impact on Host Country

6.1 Introduction

A perennial question raised in connection with private direct foreign investment concerns the extent to which foreign affiliates are integrated into the local economy. There is neither an easy nor a direct measure of the degree of integration. Here, integration is generally interpreted in terms of linkages the affiliates generate through product sales, purchase of locally produced inputs, machinery, and employment.

Linkages are created because MNCs provide something to a host economy -- demand for an input, supply of an output, a particular skill or resource, that did not exist before¹ (Caves, 1982: 271).

The terms "linkages" can be sub-divided into two types: forward and backward linkages². Forward linkages refer to the sale of the output of the MNCs to domestic firms for use as inputs in their productive processes. Backward linkages refer to purchases by MNCs from domestic supplier firms. Linkages created by MNCs are important for technology transfer, development of human resource, and foreign trade (UNCTD, 1992: 120).

6.2 Employment Creation

Employment is perhaps the most important benefit Malaysia has gained from the FDI. From 13,146 in 1985 and 18,718 in 1988, employment in firms surveyed in this study surged to 33,836 in 1992, an absolute increase of 5,572 and 15,118 in 1988 and 1992 respectively. The absolute increase in industrial employment for the period 1985-1992 is very impressive. According to employment figures in Peninsular Malaysia published by the Department of Statistics, total employment in industrial sectors was 430,262 in 1985, and 545,883 in 1988. Employment figures in this survey thus comprise a 3 and 3.4 per cent respectively, in total employment in Peninsular Malaysia in 1985 and 1988.

The figures show that in 1985 and 1988 about 91.4 per cent of the total employment consisted of general workers³, 6.3 per cent technicians and professionals, and the remainder belonged to managerial groups. In 1992, the percentages of salaried workers and managers had dropped marginally, while the percentages of technicians and professionals had increased significantly (20.1 per cent) (see Table 6.1).

In the 59 firms included in the survey, local employees constituted 99.5 per cent of the work-force in 1985, but this had decreased to 98.9 per cent in 1992. Almost all general workers, particularly production workers, are local employees⁴. At the disaggregated level, the percentage for the local managerial groups tends to be high; this increased by 36 per cent from 1985 to 1988 and by 59 per cent from 1988 to 1992. For technicians and

professionals, the percentage increased by 44 per cent in 1985-1988 and by 114 per cent from 1988 to 1992.

Table 6.1: Distribution of Employment by Category, 1985-1992

	1985	1988	1992
Managerial	304 (2.3%)	433 (2.3%)	728 (2.2%)
Local	266	362	576
Foreign	38	71	152
Technical & Prof.	827 (6.3%)	1175 (6.3%)	2555 (7.6%)
Local	797	1145	2445
Foreign	30	30	110
General Workers	12015 (91.4%)	17110 (91.4%)	30547 (90.2%)
Local	12025	17110	30453
Foreign	0	0	94
Total	13146	18718	33836
Missing cases	5	5	1
Total cases	39	48	59

The detailed employment profile of the manufacturing sector during the period 1985-92 is shown in Table 6.2. From this table, it can be seen that the electrical and electronic sub-sector saw its share of industrial employment increase dramatically, from 34.1 per cent of the total in 1985 to 40.3 per cent in 1988; this further surged to 42 per cent in 1992. In fact, by 1988 and 1992, the electronics sub-sector had emerged as the largest group. Similarly, employment in the food manufacturing, beverages and tobacco, and transport equipment sub-sectors also increased gradually from 5.1 per cent to 12.3 per cent and 1.8 per cent to 3.7 per cent during the 1985-1992 period respectively.

Table 6.2: Employment of Sample Firms by Industry, 1985-1992
(average percentage)

	1985	1988	1992
Food Manufacturing, Beverages & Tobacco (missing cases)	5.1 3	8.4 1	12.3 0
Textile & Textile Products	2.3	1.6	1.2
Wood & Wood Products	0.6	0.6	0.4
Paper, Printing & Publishing	n.a.	n.a.	0.2
Chemical & Chemical Products	4.3	2.9	2.2
Rubber Products	3.9	2.8	1.7
Plastic Products (missing case)	1 1	0.3 1	0.4 1
Non-metallic Mineral Prod.	3.8	3.7	2.7
Basic Metal Products	4.2	2.6	2.5
Fabricated Metal Products	3.1	2.5	2.8
Machinery	36.8	32.4	26.8
Electrical & Electronic Prod. (missing case)	34.1 1	40.3 1	42.0 1
Transport Equipment	1.8	2.0	3.7
Scientific & Measuring Equipment	n.a.	0.1	0.1
Total	13146	18718	33830
missing cases	5	3	1
total cases	39	42	59

Note: n.a.= not applicable.

On the other hand, textile, wood, chemical, non-metallic mineral, non-ferrous metal, and machinery subsectors experienced a decline in their employment share over the same period. This may be attributed to the steady upgrading in technology utilisation

for each subsector during the period concerned.

Based on the result reviewed, it can be concluded that FDI is an important creator of employment in the manufacturing of the Malaysian economy. It is hoped that more and more people will be employed as FDI continues to flow in significant amounts into Malaysia.

6.3 Foreign Direct Investment and Product Sales

Initially, foreign investments in the Malaysian manufacturing sector were geared towards the domestic market. In the early 1970s, the government started to encourage greater export of manufactured goods. Export-oriented foreign investments were particularly encouraged through numerous incentives.

An indication of the extent to which foreign firms in our survey have increased their exports can be obtained from figures on mean sales or the number of companies exporting their products. Firms that sold over 50 per cent of their products outside Malaysia are considered as export-oriented investments in this study. These investments constituted only 23.1 per cent of the total samples in 1985, but this figure surged to 35.6 per cent in 1988 and 42.4 per cent in 1992.

The recent surge of export-oriented FDI (since the mid-1980s) cannot be explained without reference to the push factors in Japan and the NICs. In particular, currency appreciation (in Japanese Yen and Korean Won in particular) and rising labour

costs have led many firms in these countries to look for new production sites. Furthermore, the long-standing, export-promoting policies of Malaysia and Singapore, a marked shift in Indonesian policy and a gradual shift to export orientation in Thailand, have all made ASEAN a very attractive production site for them to reimport or export to third countries. These forces have all combined to produce a boom in export-oriented investment in Southeast Asia in general, and in Malaysia in particular (Pangestu, 1991: 57-59).

From Table 6.3, it can be seen that in 1985, affiliates sold an overwhelming share of their production in Malaysia (73.0%), suggesting that production in Malaysia takes place to maintain existing markets. However, the share of production sold in the Malaysian market decreased from 63.8 per cent in 1988 to 58.2 per cent in 1992. Within the export shares, export to third countries significantly increased over the period between 1985 and 1992.

While affiliates of overseas companies show high export figures which satisfied the government's export-oriented policy preference, they had few forward linkages (Rasiah, 1993: 144).

Interestingly, we found that under the third countries, ASEAN was the most important region for selling the production of overseas affiliates in Malaysia, followed by EC and US. This shows the advantages of the international division of labour. Nevertheless, share of production sold in the Asian region (excluding ASEAN) has decreased over time.

At the 2-digit International Standard Industrial Code (ISIC)

level, products from all the sectors sold in the Malaysian market had declined over the period, particularly in two sectors, namely chemicals, petroleum and coal, rubber, plastic products (industrial code 35) and fabricated, machinery, electrical and electronic, transport equipment, scientific and measuring

**Table 6.3: Sales of Production by Type of Investment
and Market Destination, 1985-1992**
(average percentage)

	1985	1988	1992
-----	-----	-----	-----
Local Market	76.9	64.4	57.6
Export-oriented	23.1	35.6	42.4
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Local Market	73.0	63.8	58.2
Home Country	11.6	18.2	18.0
Third Country	15.4	18.2	23.8
ASEAN	5.0	5.6	10.9
Asian	4.3	4.1	3.5
EC	1.9	2.8	3.2
US	3.4	5.4	4.6
Others	0.8	0.7	1.5
-----	-----	-----	-----
Missing Cases	1	0	0
Total Cases	39	45	59
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equipment products (industrial code 38). Respondents from industrial code 31 (food manufacturing and beverages and tobacco), concentrated relatively more on the domestic market than the other sectors did. Table 6.4 clearly shows that manufactured goods in industrial code 31 did not involve in reverse imports, i.e., sell back to their home countries. In 1985, reverse imports did not exist in industrial code 35. However, the share of production sold back to home countries increased sharply to 11.1 per cent in 1988, before decreasing

moderately to 6.8 per cent in 1992. Industrial code 38 and "others" sectors display a high ratio of goods for third countries.

Among the third countries, ASEAN was the most important region for foreign firms in all kind of industries in Malaysia, with the exception of industry code 38 in 1985 and 1988. This was followed closely by Asian countries. Exports to the US and the EC were important in industrial code 38. Substantial exports of electrical and electronic goods in industrial code 38 might be attributed to GSP offered by developed countries to Malaysia. To understand the impact of the withdrawal of GSP on their investments in Malaysia, the opinion of two respondents who export substantially to US was sought. The two respondents opined that "the impact is definitely there". First, an extra 5 per cent duty taxes for the products sold in US will have to be paid. Nevertheless, the impact is felt to be not substantial enough to encourage them to pull out from this country and invest back in the US. Production costs, particularly labour costs, are their main concern. Malaysia is still a good place for their investments since she provides plenty of low-cost unskilled and skilled labour.

With respect to classification by investing country, sales to Japan (so-called reverse imports) are the highest among investing countries. They reached a high of 34.9 per cent (mean percentage) in 1988, but declined moderately to 28.3 per cent in 1992. Nevertheless, the percentages of goods produced for third countries by Japanese companies reached a high of 34.8 per cent

Table 6.4: Distribution of Product Sales by Industry Subsectors
(mean percentage)

	Industry 31			Industry 35			Industry 38			Others*		
	1985	1988	1992	1985	1988	1992	1985	1988	1992	1985	1988	1992
Local Market	88.8	84.2	83.3	95.9	85.2	79.1	64.8	53.2	46.3	60	54	55.9
Investing Country	0	0	0	0	11.1	6.8	15.9	24.3	24	21	22	23.3
Other Countries	11.2	15.8	16.7	4.1	3.7	14.1	19.3	22.9	29.7	19	24	20.8
ASEAN	5.8	7.2	8.8	4.1	3.7	4.4	4	4.5	12.4	9.4	12.4	11.6
Asian	5.2	7	6.7	0	0	1.3	5.6	4.6	4	4.2	5.6	1.1
EC	0	1.2	1.2	0	0	0	3	3.4	4.8	1.6	3.2	1.8
US	0.2	0.3	0.3	0	0	0.8	5.9	9.6	7	1.2	1	3
Others	0	0.2	0.2	0	0	0	0.9	0.9	1.6	2.6	1.8	3.1
(missing case)	1											

Note: *Exclude industries 31, 35 and 38.

For the classification of the industry at 2-digit ISIC, refer to Table 4.2 in Chapter 4.

in 1992. On the other hand, the share of NICs and EC reverse imports was low. The former ranged around 7 to 9 per cent between 1985 and 1992 and the latter ranged from 0.5 per cent in 1985 to 1.3 per cent in 1992 (see Table 6.5).

Table 6.5: Distribution of Product Sales by Investing Country, 1985-92
(mean percentage)

	Japan			NICs			EC			Others		
	85	88	92	85	88	92	85	88	92	85	88	92
Local market	61.8	40.0	37.0	78.6	75.8	78.3	87.0	84.7	81.4	63.2	61.5	63.5
Home country	16.4	34.9	28.3	7.6	8.6	6.8	0.5	0.7	1.3	22.5	23.5	23.0
Third country	21.8	25.1	34.7	13.8	15.6	14.9	12.5	14.6	17.3	14.3	15.0	13.5
Missing cases	0	0	0	1	0	0	0	0	0	0	0	0
Total cases	9	14	26	9	10	12	11	11	11	10	10	10

Japanese investments are export-oriented in kind. These investments are specifically concentrated in industry code 38 (fabricated, machinery manufacturing, electrical and electronic, transport equipment, and scientific and measuring equipment). They also exist in rubber and basic metal sub-sectors. It should be noted that only three Australian firms were involved in the survey. However, two of the Australian investments were export-oriented type.

6.4 FDI and Purchase of Input and Machinery

Generally, when overseas production takes place, capital and equipment, raw materials, and parts are sourced from the

investing countries in the short run. Over the medium to long run, local procurement ratios rise. As local production replaces imports, exports from the investor's home country decline. With this in mind, the respondents were questioned about the purchase of inputs⁵, capital and equipment in the past, i.e. 1985, 1988 and 1992.

On the issue of inputs utilised in the survey, a substantial share of inputs utilised were purchased from outside the Malaysian market. For instance, on the average in 1985, about 44 per cent of investing firms' inputs were sourced from the local market, while the portion from investing countries comprised about 30 per cent; the other 26 per cent was from third countries. This scenario did not change very much over the years surveyed. However, the shares purchased from home countries were higher than from third countries (see Tables 6.6 and 6.7).

Table 6.6: Inputs Purchased by Market Destination, 1985-1992
(mean percentage)

	1985	1988	1992
Local Market	44.1	44.1	44.4
Home Country	30.1	27.0	29.5
Third Country	25.8	28.9	26.1
ASEAN	5.6	6.9	8.7
Asian	12.7	11.5	8.3
EC	2.5	2.1	4.0
US	3.4	3.0	1.9
Others	1.7	4.3	2.7
Missing Cases	4	6	4
Total Cases	39	45	59

Similarly, the companies in this study reflect the dependency on imports of capital and equipment in 1985, 1988 and 1992. Nevertheless, this trend of dependence decreases marginally over time. Again, investing countries are more important than third countries in the supply of capital and equipment.

Table 6.7: Machinery Purchased by Market Destination, 1985-1992
(mean percentage)

	1985	1988	1992
Local Market	38.6	41.0	41.0
Home Country	34.4	34.8	35.7
Third Country	30.0	24.2	25.3
ASEAN	0.5	0.5	1.2
Asian	6.9	4.2	5.3
EC	12.1	8.9	11.4
US	7.3	6.7	2.5
Others	3.3	3.9	4.9
Missing Cases	7	7	5
Total Cases	39	45	59

In the discussion of product sales to third countries, it is observed that the ASEAN region was the main destination. However, for purchase of inputs, the Asian region ranked first. EC on the other hand, was the main exporter of capital and equipment. The ASEAN region's supply is negligible compared to other regions in this aspect (see Tables 6.6 and 6.7).

There was a tendency for Japanese companies to source their inputs and machinery from Japan. For the case of NICs, about one-quarter of the inputs and machinery were imported from the home country, and EC imported about one-third from their

countries. However, in the case of the EC, imports of machinery from their home countries is lesser than the purchase of inputs. They depend more on third countries to supply machinery. Similarly, countries classified under "others" relied heavily upon third countries to supply both items (see Table 6.8). This pattern is a reflection of the limited development of supporting industries in the survey. Consequently, there are only a few backward linkages created by FDI.

Table 6.8: Distribution of Inputs, Machineries Purchased by Investing Country, 1985-1992
(mean percentage)

	Japan			NICs			EC			Others		
	85	88	92	85	88	92	85	88	92	85	88	92
Inputs												
Local market	29.9	34.5	38.2	51.9	47.3	51.8	53.4	58.4	58.2	40.9	38.9	36.2
Home country	59.8	45.3	43.7	25.6	23.9	21.4	23.9	19.6	19.3	15.5	15.5	15.9
Third country	10.4	20.2	18.2	22.5	28.8	26.8	22.7	22.0	22.6	43.6	45.6	47.9
Missing cases	1	2	2	2	1	1	2	1	0	0	0	0
Total cases	9	14	26	9	10	12	11	11	11	10	10	10
Machineries												
Local market	42.6	38.4	36.1	49.7	59.2	59.2	50.6	49.0	58.4	17.8	21.6	13.5
Home country	56.1	60.8	52.6	39.6	27.6	28.5	18.1	5.4	7.1	25.3	36.3	36.0
Third country	1.3	0.7	11.2	10.7	13.2	12.3	31.3	45.6	34.5	56.9	42.1	50.5
Missing cases	1	3	4	2	1	0	3	3	1	1	0	0
Total cases	9	14	26	9	10	12	11	11	11	10	10	10

With few forward and backward linkages created by FDI, the question is "should we discourage particular activities in

Malaysia in order to achieve "unbalanced growth" as proposed by Hirschman"? To answer this question, first of all we should find out the reasons why foreign affiliates tend to import from outside the country.

To provide a better picture regarding foreign companies importing a substantial amount of inputs and machinery from outside the country, instead of "Made in Malaysia" equipment or inputs, the selected firms were asked to give reason(s) for the said problems.

Inavailability of locally produced inputs was cited as the principal reason to source inputs outside Malaysia. Many firms identified this factor together with inferior quality. Some opined that local prices are uncompetitive. Some respondents even mentioned that they are just following the parent company's strategy in purchasing machinery, or their parent company exports "used" machinery from other subsidiaries or headquarters into the Malaysian plant. One of the respondents said that it was their purchaser's requirement to purchase the inputs from a specific country.

The few forward and backward linkages created, to some extent revealed the shortcomings of FDI. According to trade statistics published by the Ministry of Finance, the proportion of manufactured imports in total imports in 1986 was 14.5 per cent. In 1989, this had increased to 16.4 per cent and 16.0 per cent in 1992. Manufactured exports, as a percentage of the total exports, on the other hand, increased marginally from 7.3 percent in 1986

to 8.4 per cent in 1989 and 8.5 per cent in 1992. However, the growth rate in manufactured exports over the period 1986-1992 (8.03% per annum) was far lower than the growth rate in manufactured imports over the same period (15.77% per annum). In value terms, the value of manufactured exports increased from RM2,587 million in 1986 to RM8,811 million in 1992, while the

**Reasons Given for Dependence on
Imported Inputs and Machinery**
(no. of respondents)

Input	not available	not competitive	not up to quality specifications	others
Japan	20	3	13	0
NIC	6	1	4	3
EC	7	1	6	0
Others	8	2	4	0
Industry 31	4	1	3	0
Industry 35	10	0	5	1
Industry 38	23	5	14	2
Others	4	1	5	0
Machinery				
Japan	17	2	6	1
NIC	6	1	1	3
EC	6	0	0	2
Others	9	0	4	0
Industry 31	5	1	1	1
Industry 35	7	0	2	0
Industry 38	17	1	7	4
Others	9	1	1	1

Note: For the classification of 2-digit industry subsectors, refer to Table 5.8.

the value of manufactured imports increased from RM4,419 million in 1986 to RM16,275 in 1992. From these comparisons, it can be

seen that during the period 1986-1992, although Malaysia was industrialising rapidly in terms of the share of manufacturing to GDP, its imports of manufactured goods rose more rapidly than its exports of manufactured goods (in both absolute or percentage terms).

At this juncture, it is rather difficult to conclude that foreign investments are bad from the angle of few linkages created. High import content is expected because domestic inputs are not available, are more expensive, and to some extent, are not up to specified quality. This is normal, and one can expect a high import content at initial stages of new investment projects. Increasing the utilisation of domestic inputs will depend primarily on increasing the efficiency of domestic producers. On the other hand, the main benefit from foreign investments is labour absorption. Besides, the host country government also tends to gain from foreign investments in terms of technology transfer.

6.5 Technology Transfer

A number of studies on technology transfer have been done by Sekiguchi (1983), Nathabhol et al. (1986) and Osman Rani et al. (1986). Ch'ng et al. (1986: 16) lists three components of technology that can be transferred:

- (i) Physical assets, such as plant, machinery, and equipment;
- (ii) Information, both technical and commercial, relating to such matters as process know-how, choice of technology,

engineering design and plant construction, organisation and operating method, quality control, and market characteristics.

(iii) Human skills, especially those possessed by specialised professionals and engineers.

Figure 6.1 shows these distinct components in a graphical form. In principle, the transfer of technology can manifest itself in many channels, the more important ones being:

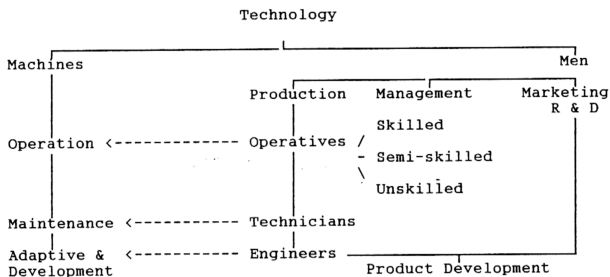
- o direct employment of foreign experts;
- o training of local staff;
- o purchase of machinery and equipment;
- o foreign direct investment;
- o turn-key arrangements;
- o licensing and management agreements; and
- o technical assistance contracts

It should be borne in mind that physical transfer of technology from a home country to the host country is different from transferring technology from one set of people to another.

In most cases, the physical transfer is a necessary first step, but of more importance is the transfer of information and skills to the people of the recipient country. The latter transfer is considered more important because once the information and skills are acquired, it will reside in human beings. Nevertheless, if the capacity to absorb the new skills and knowledge does not exist, then only physical transfer of technology will take place. But, if the pool of indigenous

trained (or at least trainable) manpower is large, then the greater the pace and scope of the second step in the transfer process (Ch'ng, 1986: 17).

Figure 6.1: Schematic Framework of Technology Transfer



Source: Ch'ng (1986: 15).

6.6 Employment of Foreign Expertise

From this survey, overseas employees, accounted for 0.5, 0.5 and 1.1 per cent of total employees in 1985, 1988 and 1992 respectively. People with professional, technical as well as managerial skills constituted only 0.77 per cent in total employment in 1992. Nevertheless, for 1985 and 1988, the figures remained at 0.5 per cent. These figures seem very negligible, but if foreign employees are considered in terms of their employment status, a different story emerges. Table 6.1 presents results showing the number of foreign expatriate managers to total local managerial staff employed. Data in the table clearly indicate

that the figures increased rapidly by 87 per cent from 1985 to 1988 and by 114 per cent from 1988 to 1992. This does not show a trend towards indigenisation of management among the multinational enterprises studied compared to the increase in establishment operation (FDI projects in the survey increased at about 23 per cent during the said period). If the ratio of foreign managers to local managers is calculated, the ratio surged from 0.143 in 1985 to 0.264 in 1992.

In terms of people, most other MNCs in the survey had more managerial appointments held by the locals than did the Japanese firms. This shows that Japanese companies have a tendency to retain a higher proportion of expatriates at the managerial level than other multinational affiliates (see Table 6.9).

In terms of technicians and professionals, this study found the presence of this category very extensive in Japanese firms, followed by countries classified as "other". The existence of technicians and professionals in EC companies was rare, and did not exist in NIC companies.

Nevertheless, the manufactured products in Malaysia, in particular the technology they embody and the upgrading that has taken place are a good reflection of the technical expertise that Malaysia has acquired. A Japanese MNC, for example in Sungai Way Free Trade Zone, which initially produce consumer goods in 1972 now employ more than 5,000 employees. Its products have diversified from consumer goods into investment goods. The most important development in this company was their efforts to

**Table 6.9: Employment of Foreign Expatriate
(person)**

	1985	1988	1992	Total
Manager:				
Japan	19	47	104	170
NICs	2	2	5	9
EC	11	15	21	47
Others	6	7	22	152
Technical and Professional:				
Japan	24	28	80	122
NICs	0	0	0	0
EC	2	1	2	5
Others	4	1	28	33

establish its own R&D centre at the Shah Alam Industrial Estate in 1991. As recent as 1992, its local technicians and professional staff rose from 70 in 1988 to 300 in 1992. Some of its 300 technicians and professional staff are engaged in R&D for air-conditioner as well as their related products. A Singaporean food manufacturing firm increased its local technicians and professional staff from 141 in 1988 to more than 300 in 1992. Other examples can be cited. A semiconductor company (Singapore-based MNC) started with simple testing on integrated circuits (ICs), but later it progressed into manufacturing high-tech products, namely micro switches, transformers and lenses for cameras.

6.7 Training of Local Staff

Investments in human capital, such as schooling and on-the-job training, have important positive effects on the productivity of workers. However, firms investing in training their workers would suffer a capital loss if the workers were lured away by other firms. Thus, firms have no incentive to put any of the investment costs into training their workers.

From the survey, 84.5 per cent of the total sample provided training for their staff⁶. But in terms of percentage cost to total expenditure, the money spent on training local staff was very marginal. In a comparison of Japanese, NIC and EC companies, Japanese respondents displayed a high ratio cost of training, i.e., 4.8 per cent, followed by NICs (2.4%) and EC (1.5 per cent) (see Table 6.10).

One of the local financial controllers mentioned that before the Japanese took over ownership of the company, the Canadian employers seldom sent their staff for courses or training abroad. However, when the Japanese took over the business, the picture was reversed.

Regard the data gathered on labour-costs training, it is inconclusive to suggest that foreign firms are reluctant to transfer their technical know-how and skills to local staff. According to the respondents, there were some drawbacks which hampered technology transfer from MNCs to the recipient country.

**Table 6.10 : Expenditure on Training Local Staff
and R&D by Home Country
(average percentage)**

Country	Training Local Staff	R&D
Japan	4.8	2.7 [*]
NICs	2.4	4.3
EC	1.5	1.9
Others	6.2	7.7

Note: ^{*}As mentioned earlier, one of the Japanese firms has its own R&D centre at Shah Alam. Thus, the value here excludes the expenditure on R&D in that particular firm.

Among these drawbacks are:

- (i) The recent flood of foreign investment projects have resulted in job-hopping among production operators, technicians and engineers, which has prevented them from imparting know-how. Job-hopping also prevented some MNCs from fully transferring know-how to their local staff for fear of losing them to their competitors.
- (ii) Local institutions in Malaysia use Bahasa Malaysia as a medium of instruction. Subsequently, most production operators read or speak no English at all. The technicians and engineers also lack proficiency in English. This hampers their ability to absorb new technology fully and slows down the process of technology transfer.
- (iii) Some Japanese MNC executives said that it was rather difficult to apply or make people in Malaysia understand

the Japanese style of management due to the cultural gap.

6.8 Research and Development

Generally, people believe that foreign companies are reluctant to conduct R&D in recipient countries. One of the most popular reasons cited was R&D activities were conducted in parent companies. In addition, this study found that the majority of the respondents did not carry out R&D activities for the following reasons:

- o The size of the domestic market is too small.
- o The product range is too static, standardised or simple.
- o They have no manpower to develop the activity.
- o Such activities are conducted by other subsidiaries outside the Malaysian region.

Only 34.5 per cent of the total number of firms are actively engaged in R&D compared to about 85 per cent active in training local staff. Nevertheless, in terms of cost considerations, either within the home countries or industry subsector, the expenditure on R&D was much higher⁷.

From Table 6.11, we found that industry 38 (fabricated, machinery, electrical and electronic, transport equipment, and scientific and measuring equipment products) spent a substantial amount of expenditure on training local staff as well as R&D. Further insights into this specific industry were studied by home countries' consideration (see Table 6.12). Time and again, the Japanese top the list as the most active investors in training

their staff (excluding countries classified as "other"). Nevertheless, the expenditure on R&D seemed to be high from NICS, and the figure from the Japanese respondents was quite low. However, it cannot be concluded that Japanese firms pay less attention to R&D activities in Malaysia, since one of the Japanese firms in this particular industry had set up its own R&D centre in Shah Alam (but the cost is not shown here).

Table 6.11: Expenditure on Training Local Staff and R&D by Industry Subsector
(average percentage)

Industry ¹	Training Local Staff	R&D
Industry 31	0.5	0.5
Industry 35	1.4	2.5
Industry 38 ²	5.3	4.5
Other industries	2.4	4.0

Note: ¹Same as Table 5.8.

²Same as Table 6.10.

Table 6.12: Expenditure on Training Local Staff and R&D by Home Country and Industry Subsector 38
(average percentage)

Country	Training Local Staff	R&D
Japan	7.1	0.5 [*]
NICs	4.0	9.0
EC	2.2	5.0
Others	8.8	4.0

Note: Same as Table 6.10.

6.9 Purchase of Capital and Equipment

By examining the mean value on imports of capital and equipment in fabricated, machinery, electrical and electronic, transport equipment, and scientific and measuring equipment sub-sector (industry 38), which constituted one element of technology transfer, the data revealed that the importance of Japan as a technology supplier to Selangor state's industrialisation activities is prominent. By 1985, on the average, the Japanese subsidiaries imported 76.5 per cent of machinery from their own country. The value increased to about 83 per cent in 1988, before decreasing to 69.4 per cent in 1992. NICs came close to Japan in this respect (excluding countries classified as "other") (see Tables 6.10, 6.13 and 6.14).

This pattern can be attributed to the heavy involvement of the Japanese in electronics and transport sectors in our survey. These industries are considered high-tech. Since Malaysia receives much of her know-how and skills from abroad for its industrialisation, the capability to supply machinery and equipment for high-tech industries is low at this juncture. A major concern, voiced by respondents regarding substantial imports of machinery was that it was "not available locally". Some Japanese also commented that the equipment was "not up to specified quality". Few respondents opined that it was the strategy of their parent companies to transfer the "used" machinery from other affiliates' operation into Malaysia. Generally, people believed that the existence of high foreign equity shares has resulted in dormant domestic partners and this

Table 6.13: Distribution of Inputs Purchased by Industry Subsectors
(mean percentage)

	Industry 31			Industry 35			Industry 38			Others*		
	1985	1988	1992	1985	1988	1992	1985	1988	1992	1985	1988	1992
Local Market	63.2	63.5	55.8	37	48	37.7	38.5	35.9	42.7	58.8	57.8	51.4
Investing Country	14.4	12.7	18.8	45	35.8	35.5	36	32.9	33.1	0	0	16
Other Countries	22.4	23.8	25.3	18	16.2	26.8	25.5	31.2	24.2	41.2	42.2	32.6
ASEAN	12.7	12.7	15.2	8	7.5	5	3.5	5.5	8.2	5	5	10.1
Asian	0.3	0.5	0.7	8	3.7	4.2	13.8	13.3	8.5	28.3	29.3	18
EC	1.4	2.3	3	2	2.2	12.7	5.2	4.8	2.4	2.5	2.5	2
US	1.7	1.3	1.3	0	0	2.3	5.2	4.8	2.4	0	0	0
Others	6.3	7.2	5.3	0	2.8	2.6	0.2	3.7	2.3	5.5	5.5	2.5
(missing case)	1	0	0	2	3	2	0	2	1	1	1	0

Note: *Exclude industries 31, 35 and 38.

For the classification of the industry at 2-digit ISIC, refer to Table 4.2 in Chapter 4.

Table 6.14: Distribution of Machinery Purchased by Industry Subsectors
(mean percentage)

	Industry 31			Industry 35			Industry 38			Others*		
	1985	1988	1992	1985	1988	1992	1985	1988	1992	1985	1988	1992
Local Market	45	65.8	69.5	41	57.9	46.8	31.4	30.9	37.4	36	30	25.8
Investing Country	20	1.7	1.7	8	7.1	21.6	55.4	62.7	48.7	3.6	2	33.6
Other Countries	35	32.5	28.8	51	35	31.5	12.1	5.4	13.9	60.4	68	40.6

Note: *Exclude industries 31, 35 and 38.

For the classification of the industry at 2-digit ISIC, refer to Table 4.2 in Chapter 4.

has made it more difficult to transfer technology. This phenomenon was supported by strong gamma value (0.578) in expatriate employment. The inputs as well as machinery purchased according to their ownership, on the other hand, did not reveal significant relationships (Gamma value for the former was -0.22 and the latter -0.05).

Notes

1. Caves described such linkages as "many cells" of an input-output table of a developing country that are empty and the presence of MNCs can fill in these cells, thereby improving the ability of the remaining cells to add to output.
2. The terms "forward" and "backward" linkages are the main discussion of the pattern of industrial development throughout 'unbalanced growth' as proposed by Albert Hirschman.
3. In the survey, the employment categories are divided into three types: managerial, technician and professional, and general worker. Thus, general workers are those employees other than the manager, technician, technical supervisor, and professionals. Professionals include engineers, accountants, and consultants.
4. Among the respondents, only 2 firms had foreign employees as production workers in 1992.
5. Under the inputs purchase, the term "input", includes intermediate input as well as raw materials. It is

rather difficult to separate the two items since certain inputs should be considered as intermediate inputs, but the respondents viewed them as raw materials. To avoid the inconsistency, the term "input" to mean both.

6. The term "training" in the survey refers to in-house training, course attendance domestically and at the parent company or other subsidiaries. On-the-job training is excluded because companies believe that it is their responsibility to provide basic training to their staff to run their day-to-day operations. Thus, training labour costs do not take into account investment costs payable for on-the-job training.
7. Also expressed in terms of percentage cost to total expenditure.