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BY SWEDISH MULTINATIONALS**

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1 INTRODUCTION

This paper explores the forms for international resource transfers by Swedish multinational companies (MNCs), particularly to the less developed countries (LDCs), since the mid 1960s.¹ It also suggests some explanations as to why firms choose different forms for such transfers. We concentrate on three organizational choices: majority-owned affiliates, joint ventures or minority ownership and license agreements.² All three involve foreign production. The interrelationship between international trade and production abroad will not be considered explicitly (for such an analysis, see Swedenborg, 1979 and 1982).

The paper is organized in the following way. Section 2 contains a rudimentary theoretical discussion of why firms choose different organizational forms when they go abroad. Section 3 examines to what extent Swedish multinationals choose joint venture agreements and provides some hypotheses regarding the determinants of this choice. Section 4 examines the licensing activities undertaken by Swedish firms. Section 5 presents some qualitative information on the organizational choice obtained from interviews with a sample of Swedish MNCs. It also considers the recent efforts in Sweden to internationalize small and medium-sized enterprises. Section 6 discusses the implications for the home country (i.e., Sweden) of different forms of foreign investment, and, finally, Section 7 summarizes and concludes the study.

2 THE ANALYTICAL FRAMEWORK

Theory suggests that MNCs and international direct investment arise because of shortcomings in arm's-length markets for intangible assets. These assets can be of different kinds and we find them in knowledge, technology, organization, managerial and marketing skills. Given that a firm possesses some intangible asset, and that it has decided to exploit it by foreign production,³ it may do so in several ways. We may think of three such stylized modes for organizing the activity: subsidiary production, joint venture and licensing agreement. The first two involve varying degrees of equity participation and, hence, internalization and control, while the third implies arm's-length transactions in the market for technology and other skills.

The three organizational forms represent different advantages and disadvantages for a firm. If it internalizes the production in a subsidiary, the firm may keep more of the rents from the intangible asset than if it chooses some other form. On the other hand, there may be differences in costs associated with the alternatives. Set-up costs, for instance, are involved in subsidiary production.

One model of the determinants of a firm's organizational choice is given by Teece (1982). There, the choice between different organizational forms is assumed to depend critically upon transaction costs and host country policy. The principal determinants of the transaction costs are the degree to which the technological know-how (i.e., the intangible asset) involved is proprietary, complex and tacit, and the frequency of contemplated transfers. Frequency matters, since set-up costs are involved in subsidiary production, and these can be spread over a large number of transfers.

An illustration of Teece's reasoning is given in Figure 1. The position of the "indifference curves" in that figure will depend on country factors such as the attitudes toward foreign ownership in the host country. Hostility, for instance, would tend to move the schedules away from the origin.

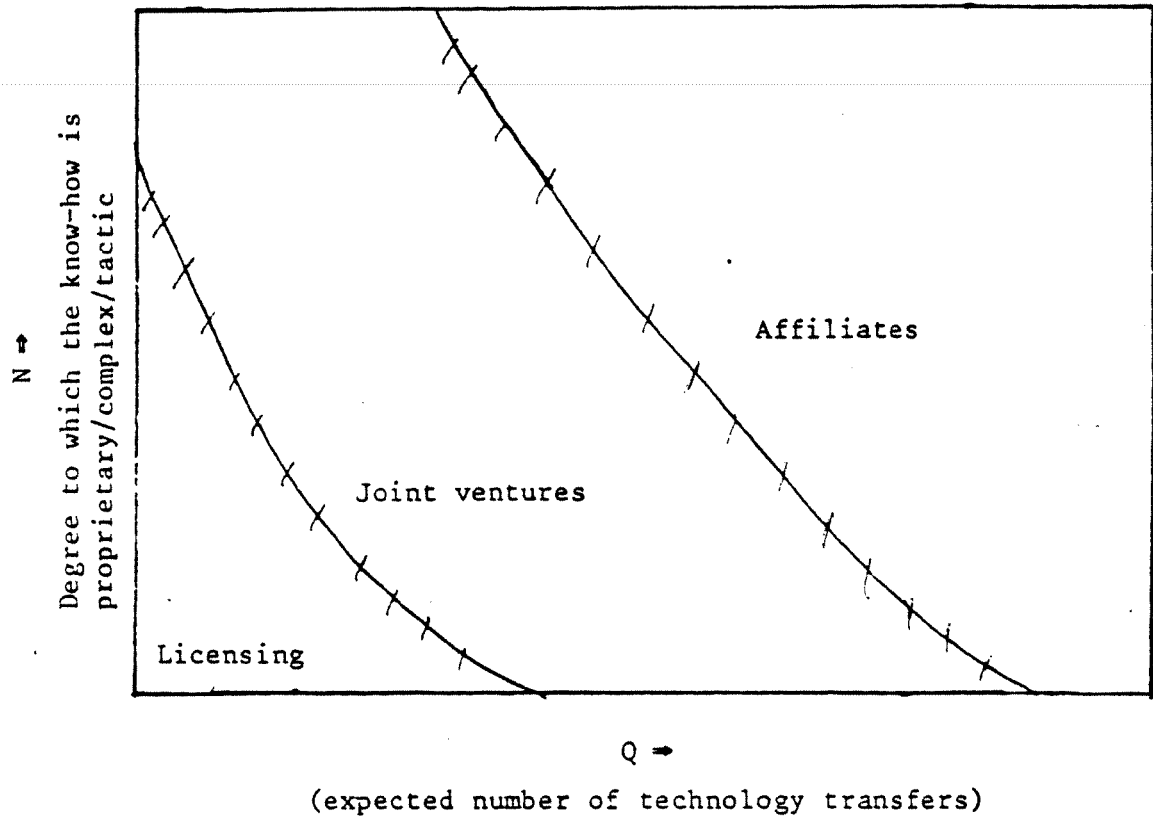
The three forms of resource transfers are thus located along a continuum and can usefully be analysed within what Caves (1982) calls the "transactional model of MNCs". Basically, as Caves notes in summarizing the theory, MNCs exist because technology and other skills can be transferred more efficiently within the (multinational) firm than between independent firms. By internalizing the transfer, information and transaction costs can be lowered and the firm can capture the entire rent on its asset. This establishes the case for majority-owned affiliates.

Joint ventures and minority ownership can be explained within the same model, if the participating firms each contribute some (firm-specific) asset or skill for which arm's-length contracts cannot easily be worked out. For example, one firm may supply knowledge of a new product or process, while other firms may have a competitive advantage in supplying complementary products, in having a lower opportunity cost of capital or providing established sales outlets. Local firms may have superior knowledge of local marketing or production conditions.

A second reason for equity sharing is sharing the risk by pooling financial resources when the project is risky and/or big relative to the size of the investing firm because the minimum efficient scale is large. Both factors are particularly common in the extractive industries.

A third and, in practice, probably important reason is government policy requiring different forms of equity sharing. Many host countries, especially in LDCs require local ownership participation with the objective to be more fully in control of their own economies. Governments in the industrial countries often have similar

Figure 1 Determining efficient boundaries for horizontal foreign direct investment



Source: Teece, 1982.

requirements for some industries, e.g., defense related industries or industries selling mainly to the government, such as telecommunications.

Several hypotheses flow even from this brief account of the underlying theory. Since complementary and firm-specific knowledge should be relatively more abundant in firms from industrial countries than in firms from the LDCs, MNCs should have a higher propensity to acquire or enter into joint ventures with the former than with the latter. Holding other things constant, joint ventures should therefore constitute a higher proportion of total direct investment in the industrial countries than in the LDCs. Admittedly, LDC firms may supply knowledge of "the local ropes" in their own countries, but such knowledge is probably not highly proprietary. Joint ventures may also be chosen when the project is not sufficiently important to the investing firm (because the product or the market is marginal) to warrant purchasing the partner firm.

Furthermore, small firms or firms in industries characterized by large average plant size should have a relatively high propensity to choose equity sharing and licensing. Finally, host government policy should make local equity participation relatively more common in the LDCs than it otherwise would have been. The same is true of certain industries.

In sum, the choice between different forms of foreign involvement by multinationals is expected to depend on a number of identifiable firm, industry and country characteristics. In subsequent sections we will analyze such characteristics in order to suggest some explanations as to why Swedish firms use different organizational forms abroad.

3 MAJORITY OWNERSHIP VS. JOINT VENTURES

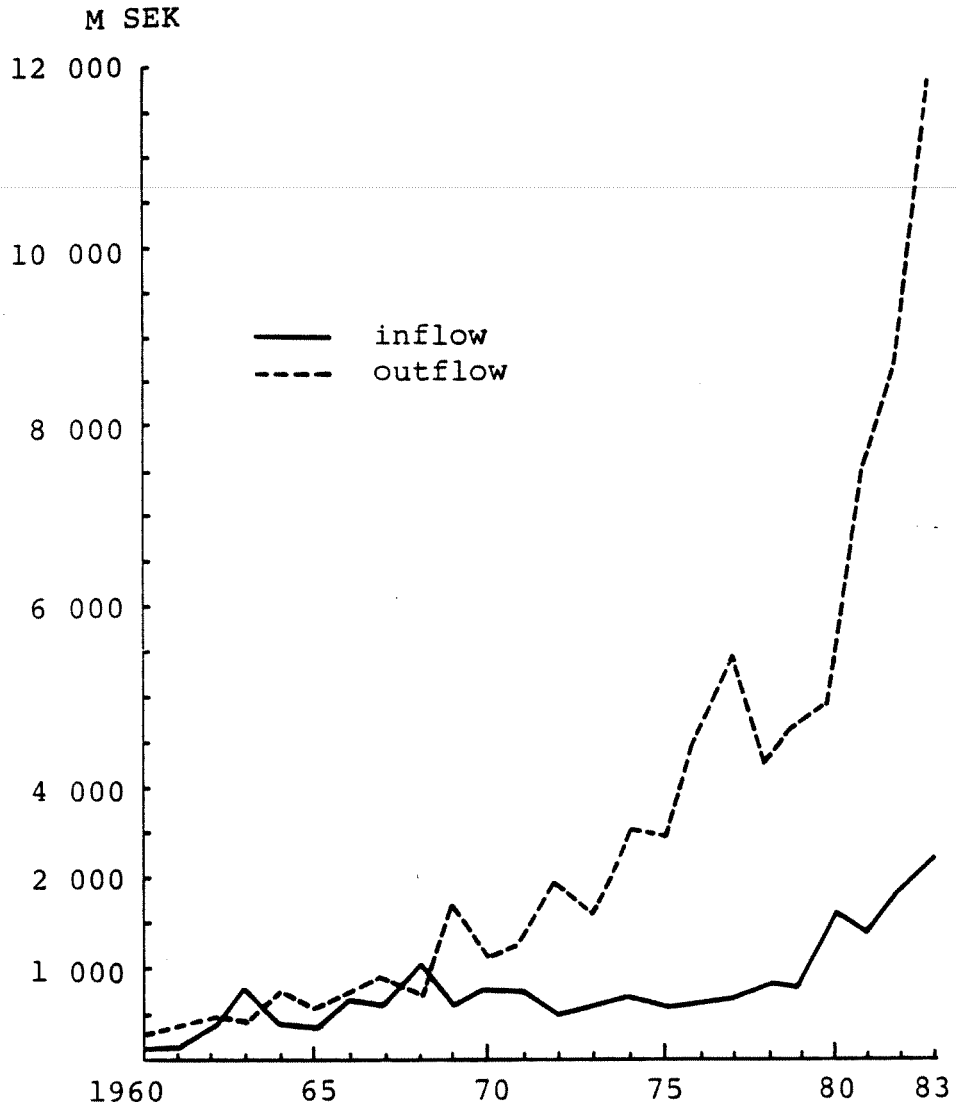
Sweden is a highly industrialized country which has relied heavily on international exchange for its economic development. In relation to the size of the economy, the country is a significant foreign investor. Sweden ranks as the ninth largest foreign investor in the world in absolute terms and as the fifth most multinational country, if foreign investment is related to GNP (Swedenborg, 1982, p. 7). It would rank even higher if the comparison were limited to the manufacturing sector, since foreign investment by Swedish multinationals is relatively concentrated to manufacturing.

Although international investment by Swedish firms has a long history, Sweden's position as a relatively sizeable net foreign investor has been strongly accentuated since the late 1960s. From that time the flow of foreign investment into Sweden has practically stagnated (in real terms), while Swedish investment abroad has continued unabatedly (see Figure 2). While employment in Swedish manufacturing affiliates abroad in the period 1965-78 increased from 16 to 26 per cent of domestic manufacturing employment, foreign manufacturing employment in Sweden grew from 3 to 6 per cent (Table 1).

Sweden's position as a significant net foreign investor can be traced back to two main factors. First, as an industrialized, high income country, it is relatively well endowed with capital, especially "human capital". Its industry, therefore, is technologically advanced, and technological know-how is an important factor at the bottom of the foreign investment process.

Second, the small size of the Swedish market forces Swedish firms to export at an early stage of growth in order to reap economies of large scale production. It also compels them to produce abroad, when that is the more profitable way of serving foreign

Figure 2 Outward and inward direct investment in Sweden
1960-82. Current prices



Source: Bank of Sweden.

Note: The data refer to permissions granted by the Bank of Sweden for direct investment. Actual investment follows such permissions with roughly a one-year lag.

Table 1 MNC manufacturing employment in Sweden and abroad 1960-78

	1960	1965	1970	1974	1978
All manufacturing in Sweden	880 260	938 915	921 780	929 200	874 230
Swedish MNC		325 980	395 990	431 740	416 235
In % of Swedish manufacturing		35	43	46	48
Foreign affiliates of Swedish MNCs (majority owned)	105 510	147 810	182 650	219 620	227 825
In % of Swedish manufacturing	12	16	20	24	26
Foreign MNCs in Sweden		28 290	41 850	50 000	51 000
In % of Swedish manufacturing		3	4	5	6

Source: Swedish MNCs from Swedenborg (1982); Foreign MNCs from Samuelsson (1977) and SCB, 1981.

markets, in order to reap economies of large firm size. (Economies of firm size are related to the large fixed cost of investment in R&D, advertising and a sales and distribution network.) Thus, small Swedish firms are more export oriented and more prone to invest abroad than are U.S. firms of comparable size (Swedenborg, 1979, Ch. 6).

The small Swedish market may also explain the relatively modest involvement of foreign firms in the Swedish economy. Production on an efficient scale in most industries in Sweden requires firms to have substantial exports. But in those industries where Sweden has a strong comparative advantage, favoring Sweden as a production location, Swedish MNCs are particularly strong, leaving little

room for foreign-based MNCs (Samuelsson, 1977, pp. 102-103). The incentive to produce in Sweden mainly for import substitution, on the other hand, is reduced by Sweden's free-trade policy.

Traditionally, Swedish MNCs have relied heavily on majority-owned subsidiaries (see Table 2). In 1965, 89 per cent of the manufacturing affiliates abroad were majority-owned, and 11 per cent were joint ventures (50 per cent ownership or less). Between 1965 and 1974 joint ventures grew in importance, and by 1974 they made up 19 per cent of the total number of affiliates. Between 1974 and 1978 this share remained roughly constant, however. The employment figures seem to follow the same route, although here the data are more shaky.⁴

Swedish MNCs thus seem to have a strong and unswerving preference for majority ownership. Equally noteworthy is that they hold a relatively high ownership share in firms which are not subsidiaries. Table 3 shows that in one half of the minority-owned manufacturing firms abroad the Swedish stake was 40-50 per cent of the equity. In one third of them it was exactly 50 per cent. From the point of view of ownership control, the latter firms fall into a grey zone, since they are neither subsidiaries of the investing firm nor minority interests.

A preference for majority ownership is also revealed by the importance of acquisitions. Table 4 shows that Swedish MNC growth abroad in the 1970s came entirely through acquisitions, and that acquisitions were much more important in the 1970s than in the 1960s. To the extent, therefore, that foreign firms have controlled some assets required for foreign investment, Swedish firms seem to have preferred to purchase these firms rather than enter into joint venture agreements with them.

Finally, it is worth noting that Swedish multinationals have a lower proportion of foreign investment in the form of joint ventures than U.S. multinationals (see Lipsey, 1982, p. 27, for the U.S. figures). This contradicts the notion that the large U.S. firms

Table 2 Foreign affiliates of Swedish manufacturing firms 1965-78

	Number of firms				Employment			
	1965	1970	1974	1978	1965	1970	1974	1978
Majority owned:								
Manufacturing affiliates	329	428	481	570	147 810	182 650	219 620	227 825
Sales affiliates	464	674	892	1 054	22 440	36 130	49 665	53 695
Other affiliates	n.a.	n.a.	64	68	n.a.	n.a.	15 520	19 690
Total	793	1 102	1 437	1 692	171 030	222 445	284 805	301 210
Minority owned:^a								
Manufacturing firms	39	72	114	129	24 030	55 690	74 423	69 915
Non-manufacturing firms	n.a.	n.a.	33	43	n.a.	n.a.	3 995	7 385
Total	n.a.	n.a.	147	172	n.a.	n.a.	78 418	77 300
Joint ventures in per cent of all manufacturing associates	11	14	19	18	14	23	25	23

^a The columns for number of firms and employment are not comparable because of missing information on employment. See footnote 4.

Source: Swedenborg (1982).

Table 3 Minority-owned affiliates by Swedish ownership share

Equity share	Percentage of firms in 1978
10 - 19	23
20 - 29	36
30 - 39	28
40 - 49	36
50	48
Total	171

Source: Swedenborg (1982).

Table 4 Majority-owned affiliate growth through "green ventures" and acquisitions respectively

	% change in employment	
	1960-70	1970-78
All majority-owned affiliates	73	25
of which:		
existing	12	-12
"green ventures"	29	9
acquisitions	32	28

Source: Swedenborg (1982).

are the least tolerant to sharing ownership (see, e.g., Vernon, 1977, p. 33). However, this difference may well be explained by U.S. firms having a higher overall propensity than Swedish firms to invest in industries and countries where equity sharing is more common (resource extraction and LDCs). (For a comparison of the country and industry pattern of U.S. and Swedish direct investment, see Swedenborg, 1979, Ch. 3.)

Firm, industry and country determinants

Can the choice between alternate forms of foreign investment be explained by the kind of factors suggested in section by the transaction model of the MNC? In this section we will look for differences between industries, firms and countries in the propensity to invest in minority-owned relative to majority-owned firms abroad.

Table 5 shows the relative importance of joint ventures in different industries as measured by number of firms. It shows that equity sharing is most common in the pulp and paper industry and in the electrical machinery industry.

However, comparing number of firms can be highly misleading, since it does not take into account differences in size between firms. Ideally, the propensity to invest in minority-owned affiliates relative to majority-owned should be based on some size measure such as sales, value added, employment or capital. Such size measures are only available for a smaller group of minority-owned firms because of data incompleteness. Although this information cannot be used for aggregate description, it can be used to describe the structure of minority-owned firms.

Thus, Table 6 shows the industry patterns based on various size measures of joint ventures for which these data are available. (The table covers some 65 per cent of all minority-owned manufacturing firms in 1974.) Evidently, the relative importance of joint ventures depends on which measure is used. Employment

**Table 5 Swedish joint-ventures in different industries in 1974 and 1978.
Number of ventures in per cent of all manufacturing associates**

Industry	1974	1978
Food, drink, tobacco	n.a.	11
Textiles, apparel, leather and leather products	n.a.	4
Pulp and paper	29	47
Paper products, printing and publishing	13	20
Chemicals, rubber, plastic products	8	7
Primary and fabricated metals	15	10
Machinery (except electrical)	12	19
Electrical machinery	14	24
Transportation equipment	12	12
Other manufacturing	12	12
All industries	19	18

Source: IUI.

Table 6 Swedish joint ventures in different industries. Employment, equity, Swedish stake in joint ventures in 1974 and total assets in majority-owned affiliates in 1978
(Percentage distribution)

Industry	Joint ventures			Swedish stake	Majority-owned manuf. affiliate total assets
	Number of firms	Employment	Equity		
Pulp and paper	5	16	11	9	6
Paper products, printing and publishing	5	3	2	3	5
Chemicals, rubber, plastic products	6	1	3	5	7
Mining and primary metals	10	13	33	31	0
Fabricated metals	9	1	1	1	14
Machinery (except electrical)	14	8	10	7	37
Electrical machinery	11	30	23	23	15
Transportation equipment	6	23	14	18	11
Other manufacturing	7	5	3	3	5
Total	73	100	100	100	100
Number and million SEK, resp.	73	74 420	3 055	1 015	47 256
Non-manufacturing, number and million SEK, resp.	33	3 995	230	85	

Note: The table only includes joint-ventures for which information on all variables are available.

Source: Swedenborg (1982).

and the size of equity, for example, give different results because of industry differences in capital intensity. Nonetheless, the relative importance of minority interests in paper and pulp, mining and electrical machinery again stand out, as does, in this comparison, transportation equipment.

Industry differences in the propensity to invest in minority-owned firms relative to majority-owned ones is revealed by comparing the pattern of investment (measured, e.g., by equity) in the former with the last column showing the pattern of investment (measured by total assets) in the latter. The comparison shows that the same four industries as above have a relatively higher share of joint ventures than of majority-owned affiliates, i.e., they have a high propensity to share equity.

The differing propensities are readily explainable within the analytical framework set out above. Both the mining and primary metal industry and the paper and pulp industry are characterized by very large minimum efficient scale of production, where pooling of financial and other resources would be called for. This tends to make joint ventures the preferred mode of foreign investment. The same parent companies are often involved in subsequent stages of processing, i.e., in paper products and metal manufacturing, also. However, here the preferred mode of foreign investment is majority-owned affiliates.

The story behind the electrical machinery industry is a different one and, perhaps, less clear-cut. Joint ventures in this industry mainly emanate from two large firms. There is a simple and straightforward explanation for the relatively large minority interests only in the case of one of them, namely, a large MNC in the telecommunication industry. It is clear that this firm has abandoned majority control in its foreign affiliates only when it has been pressured to do so by host country policy. This firm accounted for some 20 per cent of joint venture employment in the industry in 1974 but as much as some 80 per cent in 1978. This particular firm represents an example of MNC response to

host government regulation in developed and developing countries alike.

Minority interests in the transportation industry can be traced to the two Swedish automobile producers. The relatively high propensity to share equity in this industry may, in part, be due to large minimum efficient plant size and, in part, due to LDC pressure to produce locally and also share control in the affiliate. The joint ventures of the smaller of the two companies are mainly in Europe, while those of the larger firm are mainly in LDCs.

Otherwise, it is worth noting that the Swedish machinery industry, which is by far the biggest foreign investor overall, has a relatively high preference for majority control. This is probably related to the nature of the intangible assets controlled by firms in this industry. Thus, the competitive advantage of these firms is strongly related to the continuous R&D by the parent company. One would expect that the more technologically oriented an industry is, the smaller the willingness of the parent company to share information and the greater the insistence on control. Also, the advantage of firms in this industry is often based on general learning-by-doing such that it is not easily dissociated from the overall management of the firm. It is specific to each firm. A reinforcing reason is that each subsidiary is small relative to the overall size of the parent.

Joint ventures are also rare in food, drink and tobacco, as well as in chemicals (which includes pharmaceuticals). In both of these industries, the relatively small investment in joint ventures is matched by an almost equally limited investment in majority-owned affiliates. Swedish MNCs thus differ from MNCs from other countries in not being very strong in the chemicals industry.

Table 7 shows the relative importance of joint ventures for Swedish firms in 1974 and 1978 in different regions. Evidently, equity sharing is more common in LDCs than in DCs, although the Swed-

Table 7 Swedish joint-ventures in different countries in 1974 and 1978.
Number of ventures in per cent of all manufacturing associates
 (Total number of manufacturing associates in paranthese)

	1974		1978	
Developed countries	17	(486)	14	(567)
of which				
EEC	13	(261)	11	(306)
EFTA	13	(107)	16	(114)
North America	19	(48)	15	(68)
Developing countries	28	(109)	27	(132)
of which				
<u>Africa</u>	62	(8)	71	(7)
<u>Asia</u>	38	(26)	39	(34)
India	33	(12)	64	(11)
Thailand	0	(1)	0	(2)
Phillipines	0	(1)	0	(2)
Malaysia	50	(2)	40	(5)
Hong Kong	0	(0)	0	(2)
Singapore	0	(2)	0	(3)
<u>Latin America</u>	20	(75)	14	(91)
Argentina	10	(10)	0	(12)
Brazil	23	(31)	21	(38)
Colombia	37	(8)	25	(8)
Mexico	20	(15)	21	(14)
Peru	25	(4)	0	(4)
Rest of L.A.	0	(7)	0	(15)
All countries	19		18	

Source: IUI.

ish parent companies are relatively reluctant to share ownership in affiliates also in the LDCs. Furthermore, it can be seen that there has been no general trend toward increased equity sharing in the LDCs between 1974 and 1978, despite the pressure in this direction from many host country governments. In Latin America, for instance, where this pressure has been strong, the proportion of joint ventures fell from 20 to 14 per cent. On the other hand, the efforts by the Indian government to gain shares in the equity of foreign (including Swedish) affiliates seem to have had some success. This appears to have been at the expense of the overall volume of foreign investment, however. India's share of Swedish foreign investment has declined markedly between these years.

The pressure toward more equity sharing in the LDCs should nevertheless be an important reason for joint ventures being more common there than in the DCs. In all the LDCs where we find Swedish joint ventures we also find regulations of foreign investment.⁵ This is particularly the case in Latin America, where most of the Swedish LDC investment is concentrated. The high proportion of joint ventures in Africa can probably be traced to the fact that the few Swedish firms there to a large extent are involved in big projects in the extractive industry. Both the size and risk of such projects lead MNCs to seek equity sharing.

Here, it is important to make a distinction between joint ventures with local partners and with other MNCs respectively, since the choice of partners reveals the motives for choosing a joint venture. In cases where there is local pressure toward equity sharing, such as in Latin America and India, joint ventures are predominantly with local (private or government) partners. In cases where joint ventures are chosen freely and motivated by, e.g., risk sharing such as in the mining industry equity sharing is generally with other MNCs.

It is possible, too, that the size of the host country market influences the multinationals in their organizational choice. Larger markets should provide incentives to invest, particularly in majority-

owned affiliates, because it is less risky. This could also explain why Swedish MNCs hold a higher proportion of equity in DCs than in LDCs.

Among the LDCs we also find differences, and again we may use the governments' urge to control their national economies as an explanatory factor. The high proportion of joint ventures in India and Latin America, compared to more liberal countries such as some Asian NICs, should partly be a result of this. Another factor could be the activities undertaken by the foreign subsidiaries in the LDCs. It has been shown that MNCs hold significantly higher fractions of equity in export-oriented subsidiaries than in local-market-oriented ones (Reuber et al., 1973). This difference arises partly from public policy, and partly from the multinationals' own preferences. If a project aims at serving the host country market, a local firm with some capacity or competence to make the investment succeed may serve as a useful ally. On the other hand, if a subsidiary is export-oriented and produces components to the parent or other affiliates, we expect resistance to joint venture agreements. However, this kind of explanation is not relevant to the Swedish multinationals. It is very rare that they produce in LDCs for exports, either to Sweden or to any other countries.

In Table 8 the proportion of joint venture agreements is calculated both in terms of the number of firms and of employment. If we define the size of a firm in terms of employment, this table shows that in most countries joint ventures account for a larger share of employment in all affiliates than of the number of firms. Thus, joint ventures tend to involve larger projects than majority-owned affiliates. This is particularly true in the important West European market, where Swedish foreign investment is highly concentrated anyway. In Latin America joint ventures are only moderately bigger than majority-owned affiliates. In North America and in India they are significantly smaller.

Table 8 Swedish joint ventures in different countries in 1974

	Number of joint ventures in per cent of all associates	Employment in joint ventures in per cent of total employment in manufacturing associates
Developed countries	<u>17</u>	<u>25</u>
of which		
EEC	13	24
EFTA	13	42
North America	19	6
Developing countries	<u>28</u>	<u>27</u>
of which		
<u>Asia</u>	38	16
India	33	8
Malaysia	25	30
<u>Latin America</u>	20	24
Brazil	23	27
Colombia	37	43
Mexico	20	21
All countries	<u>19</u>	<u>25</u>

Source: IUI.

One obvious reason for these size differences is that joint ventures are concentrated in industries where the minimum efficient scale of production is large. Parent firms in these industries are also large for the same reason. But - holding industry constant - what is the relationship between domestic size and the propensity to invest in joint ventures? Are small firms - because of their more limited financial and managerial resources - more prone to choose equity sharing than are larger firms? Answering this question would require analysis of individual firm data. (However, earlier analysis of firm data suggests that large domestic size is positively related, while economies of plant size are negatively related to the volume of foreign production by majority-owned affiliates. Cf. Swedenborg, 1979 and 1982.)

Our findings so far show that Swedish parent companies are reluctant to share ownership in affiliates. In fact, Swedish MNCs, despite their much smaller size have a lower proportion of investment in the form of joint ventures than U.S. multinationals. Our findings also suggest some factors that may influence the choice between majority-ownership and joint ventures:

- Experience and knowledge within the firms. Firms lacking experience and knowledge of foreign production, or of production on a specific market, may seek a joint venture instead of starting up alone;
- Research intensity. The more technologically oriented a firm is, the smaller the willingness to share information and the greater the insistence on control or total ownership;
- Product differentiation. Firms relying heavily on advertising and ownership advantages in their marketing operations are also reluctant to share information and, thus, also less tolerant toward equity sharing;

- The size of the project. The larger and riskier the project, the more prone the firm is toward equity sharing;
 - The size of the host country market. Larger markets seem to provide incentives to invest in majority-owned affiliates;
-
- Government regulations. Governments may force the MNCs to joint venture agreements.

4 NON-EQUITY FORMS OF INVOLVEMENT

The next question to explore is to what extent Swedish multinationals are engaged in non-equity resource transfers. By such transfers we mean a range of contractual agreements such as licensing agreements and technical-assistance contracts, management contracts, turnkey agreements and franchising. In order to serve a given foreign market a firm may treat these forms of foreign involvement as alternatives to export of final products or establishing an affiliate. From theoretical considerations we expect the relative advantages and disadvantages of these forms of involvement and foreign investment to determine where one stops and the other starts (Caves, 1982, p. 204).

Table 9 shows that Swedish MNCs do not choose licensing to any significant degree. Most of their income from sales of licenses, patents, "know-how" and management contracts comes from majority-owned affiliates or joint ventures abroad. Although there was some increase in the sale to unrelated foreign firms between 1974 and 1978, still only 27 per cent of the total income came from these firms in 1978. Bearing in mind the reluctance of Swedish MNCs to share ownership in affiliates, these findings are not surprising. We expect the same factors making a firm intolerant toward equity sharing to be important also in the decision of non-equity forms of involvement.

This hypothesis receives some support when Table 10, which shows the receipts for licenses, patents, royalties, "know-how", and management contracts from unrelated concerns by industries, is compared with Table 6. Industries which have a high preference for majority ownership - such as the metal manufacturing and the machinery industries - have a low propensity to license independent firms. However, the converse does not hold fully. Indus-

Table 9 Swedish MNCs receipts of and payments for licenses, patents, royalties, "know-how" and management contracts, 1970-78
Million SEK

	1970	1974	1978
Total income of Sw parent		316	557
of which:			
majority-owned affiliates	111*	200	333
joint ventures		25	33
unrelated firms		64	150
Total payments by Swedish MNCs	99	128	172
of which:			
abroad	54	70	98

* Only manufacturing affiliates.

Source: Swedenborg (1982).

tries which have a high propensity to share equity do not necessarily have a high propensity to license independent firms. The electrical machinery industry does, but the paper and pulp, primary metals, and transportation equipment industries, do not. Why?

One reason, one may conjecture, is to be found in the particular motives for equity sharing in these industries (large project size and host country regulation). Another is the nature of the firms' competitive advantage. Paper and pulp and primary metals are not particularly R&D intensive. The knowledge advantage of Swedish firms in these industries is based on learning-by-doing and is not in a form which is easily blue-printed and separated from the firm. The automobile industry, on the other hand, is relatively R&D intensive, but their know-how is related to product differen-

Table 10 Swedish receipts for licenses, patents, royalties, "know-how" and management contracts, from unrelated firms, by industry
Per cent.

Industry	1974	1978
Food, drink, tobacco	0	0
Textiles, apparel, leather and leather products	0	1
Pulp and paper	2	0
Paper products, printing and publishing	0	3
Chemicals, rubber, plastic products	14	16
Primary and fabricated metals	4	2
Machinery (except electrical)	25	18
Electrical machinery	39	27
Transportation equipment	0	4
Mixed industry affiliation of parent	16	29
All industries	100	100

Source: Swedenborg (1982)

tiation and the protection of brand names. The safeguard of such assets require some measure of ownership control.

How much do the various forms of resource transfers contribute toward paying for total company R&D? Relating income from licenses, etc., to total company expenditures for R&D we find that minority-owned affiliates contributed only 1 per cent toward these expenditures. Independent foreign firms paid for 4 per cent. Majority-owned affiliates, by contrast, contributed, both through license payments and through R&D carried out by them, an amount equal to 23 per cent of total company R&D. That roughly corresponds to their share of total MNC production in the same year (25 per cent), which means that affiliates, on average, paid "their" share of R&D costs. (However, that average conceals considerable variation on the firm level. Most firms do not in fact charge affiliates directly for their use of R&D or other services provided by the parent.)

These numbers bring out the overwhelming importance to Swedish MNCs of majority-owned affiliates as a vehicle for transferring intangible assets internationally. They suggest that majority-owned affiliates are simply a more efficient instrument to affect such transfers and that, without them, the international transfer of technology would be much reduced. "New forms" - such as joint ventures and licensing - can supplement but not replace the growth of MNCs. Where such forms have been forced on MNCs, the overall volume of Swedish foreign investment seems to have been reduced (cf. India).

5 SOME QUALITATIVE INFORMATION ON THE ORGANIZATIONAL CHOICE

To add some qualitative information to the earlier analysis, we have also interviewed a sample of Swedish multinationals. These interviews have been supplemented with information from another interview study conducted at the IUI in Stockholm during the end of 1983. The purpose of that study was to analyze different aspects of the strategies used by Swedish MNCs in their foreign markets (see Bergholm and Jagrén, 1984). Together these interviews cover 10 large Swedish multinationals in various industries, such as pharmaceuticals, transport equipment and machinery. Furthermore, this section considers some recent efforts in Sweden to internationalize small and medium-sized firms.

Results from firm interviews

The interviewed firms were first asked to comment upon the conclusions reached in the quantitative analysis presented in Sections 3 and 4. In general, they found the determinants of organizational choice, summarized on pp. 22-23, to be reasonable and they confirmed that one of these was much more important than the others, namely, government regulation.

In discussing the importance of government regulations, not only in LDCs but in general, one interesting result appeared. One representative for a well-known Swedish machinery-producing firm expressed it as follows: "If we are forced into a joint venture, we never supply our latest, and most advanced technological assets." Another firm said that "sometimes we have to bring our most advanced technologies, but then we are very careful not to let people outside our own company get in touch with it." This suggests that there is a cost involved for the host countries in regulating foreign investment. If the multinationals export different

(i.e., less advanced) technologies when they are forced into contractual arrangements with local participation, the LDCs certainly should take that into account when they evaluate the relative advantages and disadvantages of different forms of foreign involvement. The LDCs may also miss potential benefits of organizational knowledge that are transferred to a foreign subsidiary (but not to a joint venture). This may be a considerable loss, since some recent studies have shown the importance of organizational techniques within firms for productivity change (see e.g., Fries, 1983, and Katz, 1980).

In response to the question as to whether "new forms" of foreign involvement tended to become relatively more important, these firms indicated that they did not. (This is consistent with the results in Table 2.) On the contrary, the tendency seems to be in the opposite direction. One firm, for instance, said that it usually used joint ventures in the initial stage, when the market was unknown. Later on, if the joint venture proved to be a good investment, the firm eventually bought out the local partner (given, of course, that the laws permitted such a deal). Here, one may speculate whether Swedish firms have a different attitude toward ownership-sharing than firms from other countries. One firm said that they preferred full control "because that is how it has always been", and it admitted that it was more conservative in this respect than comparable firms from other countries.

Regarding the potential effects of regulating foreign investment and forcing the multinationals toward more ownership-sharing, the Indian case usually came up during the discussion. With the new Foreign Exchange Regulation Act in India, the overall Swedish investment there has declined markedly. A negative attitude toward investment in India was widespread among the firms we interviewed, and the only investment they are making there today, are "strategically unimportant ones". The crucial thing in the Indian case, however, was not said to be the ownership-sharing principle which could be counteracted by giving the Indians less advanced technologies, but the fact that the foreign firms

have to share all their technical information with local universities and research institutes. Of course, if a firm has an intangible asset which is the basis for its existence, it cannot be expected to give it away freely.

As an extreme opposite to the situation in India, the Asian NICs were often mentioned. "There people know how to make business." This attitude you may also see in the recent figures on the Swedish investment pattern in the Third World. Since 1980, no less than 80 new Swedish affiliates have been established only in Singapore (Veckans Affärer, June 15, 1984). Of course, only a few of these are manufacturing affiliates, but it still indicates what type of business climate multinationals prefer.

Recent support to the internationalization of Swedish small and medium-sized firms

So far we have discussed Swedish firms, both large and small, which have been able to go abroad on their own. In the last years, however, there have been different attempts, both official and private, in order to encourage small and medium-sized firms to start production activities outside Sweden. Presumably, these firms would not have become international on their own, at least not at this stage. Often they are too small to carry our foreign projects by themselves and they therefore demand different kinds of support (e.g., information about possible projects in different countries, help in mediating contacts, and financial help, such as loans and guarantees). Many authorities and industrial organizations have stated their positive attitude toward support of investment and trade for all sizes of firms. Special programs for joint company projects have therefore been established in Sweden, as well as special programs to support export and investment for small and medium-sized firms.

Although the efforts to promote the internationalization of small and medium-sized Swedish firms have not been designed for the

LDCs (most of the flows seem, in fact, to have been directed toward the European market), several LDCs have shown a growing interest in these activities. The potential benefits from collaborations with such non-traditional foreign investors are expected to lie in a different kind of technological transfer. Compared to the large multinationals, the small and medium-sized firms are expected to bring technologies which are better suited to the LDCs, mainly because they use a smaller scale of production. However, since this phenomenon is so recent, it is not possible to evaluate it yet. Still, considering the interest of it both in Sweden and in some LDCs, something significant in the North-South flow of resources may come out of it in the future. In the Mexican development plans, for instance, the promotion of small and medium-sized firms is one of the main objectives today, and cooperation with Swedish firms, among others, has been given priority.

6 **IMPLICATIONS OF ALTERNATE FORMS OF DIRECT INVESTMENT FOR THE INVESTING COUNTRY**

Foreign investment affects the investing country by several avenues. One is the effect of financial flows on the balance of payments, viz., the outflow of investment capital and the subsequent inflow of dividends and interest on that capital. Another is the "effect" of the location of production on trade flows. Locating production abroad instead of producing at home for exports leads, it has been alleged, to less exports, less production and less jobs in the home country. This has been one of the most controversial issues surrounding foreign direct investment from the investing country's point of view. A third effect is related to the fact that multinational growth allows the firm to grow larger than it otherwise would have. This, in turn, allows it to exploit economies of firm size. In particular, it can invest more in R&D, advertising, a geographically dispersed sales and service network, all of which enhances the overall competitiveness of the firm.

These effects have been analyzed in some detail with regard to Swedish majority-owned affiliates abroad (in Swedenborg 1979, 1980, 1982). Here, we will restate some of the main findings of that analysis as well as discuss how the effects of alternate forms of direct investment may differ from those of investment in majority-owned affiliates.

First, the question of capital flows, which is relatively straightforward. If there are no external effects, the private return on foreign direct investment will be the same as the social return. Thus, if firms are profit maximizing and invest abroad because the real rate of return is higher there than could be obtained at home, foreign investment would also be the most profitable alternative for the home country (disregarding internal income distribution issues). However, the presence of taxes alters this conclusion and introduces a wedge between the private and social return. To the investing firm it is a matter of indifference whether it pays taxes abroad or at home. But from the investing country's point

of view the return after tax on foreign investment should be compared to the before-tax return on alternative home investment. This leads to a presumption that foreign investment is relatively less profitable than home investment for the home country, at least when profitability is confined to the direct return on investment.

From this point of view, the smaller the outflow of investment capital, the better. Hence, alternate forms of foreign involvement, requiring a smaller or no capital stake in a given project, would be more profitable. Current Swedish regulation of foreign direct investment, which requires that Swedish investment abroad be financed through foreign borrowing for a period of five years, ameliorates the problem.

The second issue, namely, the effect of foreign production by home country firms on exports is more complex, since foreign production and exports are determined simultaneously. Both depend positively on the firm's competitive advantage. Both are affected, though in opposite direction, by factors which determine locational choice. The question that must be addressed is: Given the joint determinants of foreign and domestic production, what would be the effect of a policy which effectively constrains firms from producing (or increasing their production) abroad?

Theoretically, exports, foreign affiliate production and licensing a foreign producer are alternative ways in which a firm can exploit its competitive advantage in foreign markets. The profit maximizing firm will choose the most profitable alternative, which in the case of exports and foreign production is the least-cost source of supply (Horst, 1969). Given that foreign production leads to lower costs it also allows the firm to lower price and increase foreign sales more than it otherwise could have. An unambiguous effect of larger foreign sales is that the investing firm will be larger overall. However, domestic production may increase or decrease depending on whether the positive effect of a lower price abroad on the firm's complementary exports is sufficiently large

to offset the negative effect on substitute exports (Horst, *ibid.*, Swedenborg, 1979).

Hence, the net effect on domestic production is an empirical question. It has been analyzed on the basis of comprehensive data for Swedish firms and the results indicate that the positive effect outweighs the negative effect (Swedenborg, 1979, Ch. 7, Swedenborg, 1982, Ch. 7). Thus, Swedish exports are somewhat larger than they would have been in the absence of foreign production. This, perhaps surprising, finding is related to the above point about simultaneous determination. To the extent that foreign production substitutes for Swedish exports, the decline in exports would have occurred even without foreign production by Swedish firms. The reason is that the main determinant of the change in exports is the change in relative production costs and trade barriers, not the change in MNC production. Thus, if foreign tariffs are raised, Swedish exports will decline, but they will decline by less than they would have if Swedish firms had not increased their output abroad.

The effect on employment in Sweden is derivative from the effect on exports. A positive effect of foreign investment on the investing firm's exports means that this firm will be larger and, hence, increase its employment more than it otherwise would have. The increased demand for labor and other inputs by this firm will lead to a higher price of the kind of inputs used relatively intensively by this firm. Since Swedish foreign investors are characterized by a relatively high R&D and skill intensity, income redistribution should be in favor of skilled labor.

Are the effects on home country exports of allowing alternate forms of direct investment likely to be different in any respect? Not in principle. To the extent that the output produced by minority-owned affiliates is similar to that produced by majority-owned affiliates - as it is for most Swedish firms - the effects should be the same. The effects are related to the volume and kind of production abroad, not to the mode of ownership. The same reasoning applies to licensing foreign producers.

However, to the extent that firms are forced to choose joint ventures or licensing rather than majority-owned affiliates, foreign output is likely to be smaller than it otherwise would have been. Consequently, the positive effect on exports will be smaller, too. Still, the direction of the effect would be the same.

The third issue relates to the indirect effect on the firm's competitiveness of allowing foreign involvement. Increased foreign sales through majority or minority-owned foreign affiliates allow the firm to spend more on R&D and an international sales and service network, since the fixed investment cost can be spread over a larger sales volume. Such investment enhances the firm's competitiveness both in its domestic and foreign operations.

In principle, the same result can be achieved through direct sales of R&D through patents or licensing or through partial leasing of sales and service facilities. The extent to which licensing is a substitute for affiliate production depends, as noted earlier, on the existence of well functioning markets for knowledge. The relatively small income which Swedish MNCs obtain from licensing independent firms abroad suggests that licensing is not, in fact, a very close substitute for affiliate production. Nor do joint ventures appear to be a first choice for Swedish MNCs in recovering income on R&D investment, since, as shown earlier, much of the investment in minority-owned affiliates has been induced by host country pressure.

The indirect and more long-run effect on R&D, and similar investment enhancing the competitiveness of firms, is probably the most important of the different kinds of effects considered here. A crude calculation (see, e.g., Swedenborg, 1985) suggests that the R&D intensity of Swedish MNCs may be as much as 65 per cent higher as a result of their investment in majority-owned affiliates. This, in turn, has a strong, positive effect on the export growth of these firms (Swedenborg, *ibid.*). Thus, a high R&D intensity is both a reason for, and an effect of, international investment. It helps explain why Swedish MNCs account for a

much higher share of industrial R&D (over 70 per cent) than of manufacturing exports (58 per cent) or employment (47 per cent).

The indirect effect on R&D is probably similar as between alternate forms of direct investment - provided the firm is free to choose the most efficient form of foreign investment itself and is not constrained by government policy. The effect is related to the intangible asset transfer which is fundamental to all forms of foreign involvement considered here. However, it is clear that investment in majority-owned affiliates is the most important and preferred mode of effecting this transfer in the case of Swedish firms.

7 SUMMARY AND CONCLUSIONS

This paper has examined empirically the extent to which Swedish multinationals choose majority ownership, joint ventures and licensing agreements respectively when they go abroad. The results show that they rely heavily on majority-owned subsidiaries, both in DCs and LDCs, and that they are involved only to a small extent in joint ventures and licensing activities. In fact, Swedish firms have a lower proportion of foreign investment in the form of joint ventures than U.S. multinationals. This finding contradicts the idea that MNCs from small countries, in general, would be more tolerant toward sharing of ownership. We have suggested that one explanation may lie in the differences in activities undertaken by firms from different countries.

The paper also tries to identify some factors that are of importance in determining the choice of organization abroad by Swedish MNCs. Although the empirical evidence presented is crude, it is at least consistent with the following factors playing a major role in determining the choice between majority ownership and joint ventures.

- The size of the project relative to the size of the investing firm. Joint ventures are relatively more important in the mining and primary metals industry and in the paper and pulp industry, which are characterized by large minimum efficient plant size. The same is true of the automobile industry.
- Host government regulations. Joint ventures often represent a response to host government pressure to share equity in local affiliates. This is seen in the high proportion of joint ventures in LDCs but also in some industries such as telecommunications.

- Firm-specific assets. The more specific know-how is to the firm in the sense that it is difficult (costly) to transfer to other firms, the more likely transfer will be associated with equity participation and some measure of control. Know-how based on continuous R&D or learning-by-doing and know-how related to product differentiation or general management are examples of this. Either could explain the high propensity of the Swedish machinery industry to invest in majority-owned affiliates.

Not surprisingly, the factors which make firms intolerant toward equity sharing also make them reluctant to choose non-equity forms of involvement. For example, industries which have a high propensity for majority ownership also have a low propensity to license independent firms. In general, Swedish MNCs do not license independent foreign producers to any significant degree. Most of their income from licensing comes from majority-owned affiliates abroad, which further underlines that affiliate production is the preferred mode for resource transfer internationally.

Finally, we have summarily discussed the implications of alternate forms of foreign investment for the investing country. We have argued that these effects do not differ in principle from those of investment in majority-owned affiliates. Alternate forms of investment requiring a smaller or no transfer of equity capital internationally is, of course, a lesser burden on the investing country's balance of payments. On the other hand, the most important positive effect of international investment, we argue, is that it allows the investing firms to receive a higher return on R&D and firm-specific knowledge. In this respect, joint ventures and licensing are inadequate substitutes for majority-owned affiliates. This is consistent with the proposition that MNCs and international direct investment arise because of imperfections in markets for intangible assets.

Notes

¹ In this study we will draw mainly on the data on Swedish multinationals which have been collected by the Industrial Institute for Economic and Social Research (IUI) in Sweden. The IUI surveys of the Swedish mining and manufacturing industries in 1965, 1970, 1974 and 1978 are unique in that there exists no comparable information - official or otherwise - in Sweden. The surveys have been designed to cover all Swedish mining and manufacturing firms which had affiliates abroad or minority interests in foreign manufacturing firms (joint ventures) in any of the survey years 1965, 1970, 1974 or 1978. The 1965-70 survey covered all foreign manufacturing and sales affiliates of the Swedish parent and foreign manufacturing firms in which the investing firms had a minority interest. For 1974 and 1978, affiliates and minority interests in other sectors than manufacturing and trade are also covered.

The surveys requested much more detailed information on majority-owned foreign manufacturing affiliates than on other affiliates and joint ventures. Still they cover enough information, particularly for 1974, on joint ventures and licensing activities for the purposes of this paper.

For a presentation of the data, see Swedenborg, 1979, Appendix B.

² A joint venture refers to a subsidiary in which the parent company's equity share is 50 per cent or less.

³ We exclude the possibility of producing at home for export (or import substitution) since we are not interested in that case here.

⁴ The employment figures are available for 79 per cent of the joint ventures in 1974, but only for 37 per cent in 1978. In order to correct for this, the number of employees in 1978 has been increased by 14,300. This was the number of employees in 1974 in the firms that gave information for that year but not for 1978. Because of this manipulation, the data for 1974 are more reliable than those for 1978.

⁵ India's Foreign Exchange Regulation Act of 1973 places a 40 per cent ceiling on foreign equity participation (with some exceptions). In Malaysia the Industrial Co-ordination Act of 1975 requires all manufacturers to apply for licenses to start or continue operations. In some Latin American countries this policy is of an older date. In Mexico, for example, there has been legislation in force since 1944. The Law to Promote Mexican Investment and to Regulate Foreign Investment of 1973 requires majority Mexican ownership in all foreign ventures, and reserves some activities for Mexicans (or the Mexican State). The law has mainly been used in connection with firms starting up after 1973.

REFERENCES

- Bergholm, F. and Jagrén, L. (1984) "Det utlandsinvesteringande företaget - En empirisk studie" (The International Firm - An Empirical Study"), Draft, IUI, Stockholm.
- Caves, R.E. (1982) Multinational Enterprise and Economic Analysis, Cambridge: Cambridge University Press.
- Fries, H. (1983) "The Firm, Productivity and the Emerging Technology", in G. Eliasson and H. Fries (eds) "Microeconometrics", IUI Yearbook, Stockholm: IUI.
- Horst, Thomas, (1969) "A Theoretical and Empirical Analysis of American Exports and Direct Investment", Unpublished Ph.D. thesis, University of Rochester.
- Katz, J.M. (1980) "Domestic Technology Generation in LDCs: A Review of Research Findings", Working Paper No. 35, Buenos Aires: BID-CEPAL.
- Lipsey, R.E. (1982) "Recent trends in US trade and investment", NBER Working Paper No. 1009.
- Reuber, G.L., et al. (1973) Private Foreign Investment in Development, Oxford: Clarendon Press.
- Samuelsson, H.F. (1977) Utländska Direkta Investeringar i Sverige (Foreign Direct Investment in Sweden), Stockholm: IUI.
- SCB (1981) Utländska Företag (Foreign Owned Enterprises), SM 1981:15.
- Swedenborg, B. (1979) The Multinational Operation of Swedish Firms. An Analysis of Determinants and Effects, Stockholm: IUI.
- Swedenborg, B. (1980) "Valutaregleringen och direkta investeringar" (The Foreign Exchange Regulation and Direct Investment) in Valutareglering och ekonomisk politik. Expert Report to the Commission on Foreign Exchange Regulation, SOU 1980:51.
- Swedenborg, B. (1982) Svensk industri i utlandet. En analys av drivkrafter och effekter (Swedish Industry Abroad. An analysis of Determinants and Effects), Stockholm: IUI.

- Swedenborg, B. (1985) Chapter on Sweden in Dunning, ed., International Investment and Economic Structure. Forthcoming.
- Teece, D.J. (1982) "A transaction cost theory of multinational enterprises", University of Reading Discussion Paper in International Investment and Business Studies No. 66.
- Telesio, P. (1979) Technology Licensing and Multinational Enterprises, New York: Praeger.
- Vernon, R. (1977) Storm over the Multinationals. The Real Issues, Cambridge, Ma.: Harvard University Press.