

# The Internationalization of Swedish Industry: Determinants and Effects

by *Birgitta Swedenborg*

The multinational operations of national firms have been a subject of intensive study in the past decade. It has been a challenge for international trade theory to explain the large two-way factor movements across national borders occasioned by the multinational corporations. It has posed a challenge to policy makers having to decide whether to allow or restrain the rapidly growing foreign operations of national firms.

These questions are among those addressed in a recently completed study at the IUI.<sup>1</sup> This study uses unique census data on foreign investment by Swedish firms and contains an analysis of the determinants of foreign production by these firms and the effects on home country exports of allowing foreign production.

## **Swedish Foreign Investment in an International Comparison**

Swedish manufacturing industry has, relative to its size, very large foreign operations. In 1974 employment in foreign manufacturing affiliates of Swedish firms amounted to 24 percent of manufacturing employment in Sweden. This represents a doubling of foreign relative to domestic manufacturing employment since 1960. It also means that Swedish manufacturing industry is more multinational than its better known counterpart in the United States.

Earlier empirical studies of the determinants of outward investment have almost exclusively been based on data for the U.S. for the simple reason that comparable data for other countries have not been available. The result has been that theories of foreign investment have tended to be formulated on the basis of observations of the patterns of U.S. direct investment or of the characteristics of the often very big U.S. multinational companies. But how valid are these hypotheses for the foreign operations of firms from other countries? And what can we learn from comparative analyses?

Comparisons of the relative size and pattern of outward investment by the U.S., the U.K. and Sweden reveal differences which are due to differences in investing country characteristics such as the size of the country, traditional commercial ties with foreign countries and comparative advantage in production, where the latter is shown to also affect "comparative advantage" in producing abroad.

For example, the fact that Swedish firms have relatively larger foreign sales and also a higher propensity to supply foreign markets through exports

<sup>1</sup>The Multinational Operations of Swedish Firms. An Analysis of Determinants and Effects. IUI, Stockholm 1979.

than U.S. firms can be explained by the difference in size between the two countries. A smaller domestic market has meant that growth has inevitably led to foreign expansion for Swedish firms. The shorter distance to major foreign markets for a small European country, coupled with the fact that the home market is not large enough to allow firms to exploit economies of scale in production, explain why Swedish firms have higher export shares than U.S. firms. These differences are brought out in Table 6.

Table 6. *The relative size of Swedish and U.S. manufacturing abroad*

	Sweden			United States	
	1965	1970	1974	1966	1970
<i>Property, plant and equipment expenditures:</i>					
foreign manufacturing affiliates in % of domestic manufacturing	n.a.	22 <sup>a</sup>	n.a.	17 <sup>b</sup>	20 <sup>b</sup>
<i>Employment:</i>					
manufacturing and sales affiliates in % of domestic manufacturing	18	24	30	16	n.a.
manufacturing affiliates in % of domestic manufacturing	16	20	24	13	(18) <sup>c</sup>
<i>Net sales by manufacturing and sales affiliates in % of total foreign sales<sup>d</sup></i>	31	32	32	60 <sup>e</sup>	62 <sup>e</sup>
<i>Imports from manufacturing affiliates in % of total imports manufactures</i>	0	1	2	13	16

<sup>a</sup>Only majority-owned manufacturing firms. The change in the book value of property, plant and equipment 1969-70 plus depreciation has been related to the manufacturing industry's investment in these assets according to *Nationalräkenskaperna*.

<sup>b</sup>Foreign investment includes investment in minority-owned manufacturing firms abroad and consequently is somewhat overestimated in relation to the corresponding Swedish figure.

<sup>c</sup>The figure is an estimate of total imports from affiliates based on information from a sample survey.

<sup>d</sup>*Net sales* by foreign affiliates is defined as total sales, less imports from parent firm in the investing country. *Total foreign sales* is defined as affiliate net sales plus total manufacturing exports.

<sup>e</sup>Information on foreign sales is based on a sample survey and therefore underestimates foreign sales by all firms.

n.a. = not available.

Sources: *Survey of Current Business*, Oct. and Dec., 1967, Sept. 1971, Jan. 1973; *U.S. Direct Investment Abroad* 1966, Part II; *Statistical Abstract of the United States*, 1971; U.S. Tariff Commission (1973); *Nationalräkenskaperna, Industri, Utrikeshandel*.

Country differences in the industry composition of foreign manufacturing suggest differences in the competitive advantage of firms of different national origin in producing abroad. Swedish foreign manufacturing is relatively concentrated in industries in which Sweden has a comparative advantage as a producing and exporting country, while U.S. manufacturing abroad is relatively larger in industries in which the United States has large export shares. This may seem paradoxical, since favorable conditions for a certain kind of production in a country should mean that such production stays in the country. A possible explanation, however, is that superior know-how has been accumulated in industries in which the country has a comparative advantage and that this know-how can be exploited even when such production is moved abroad, e.g., in response to tariff or transportation costs.

### **The Determinants of Foreign Manufacturing**

An economic analysis of the determinants of the propensity of Swedish firms to export and to produce abroad, respectively, indicates that Swedish firms have a competitive advantage in production, both at home and abroad, that requires relatively large proportions of skilled labor.

A high R&D intensity does not play the same role, however. Instead, a high R&D intensity appears to introduce a bias towards exporting and against producing abroad. This result is consistent with the notion—based on the theory of the product cycle—that innovative firms are able to supply foreign markets through exporting, at least in the initial stages of product or process development, and choose foreign production only when production costs between countries weigh more heavily in the total cost calculus.

The choice between exports and foreign production in serving foreign markets depends on a number of other factors as well. A high capital intensity and scale economies in production work against foreign production by Swedish firms. Different host country characteristics bring out the influence of “market proximity”—an euphemism for distance related costs—on the location of production.

Wage differences between countries do not, in general, affect the location of production as one might expect. Swedish firms turn out to have a higher propensity to produce in countries with high wages than in countries with low wages. The interpretation of this finding must be that high wage countries have other characteristics which *more than* compensate for the high wage level. Among these compensating characteristics are, on the supply side, a high labor productivity and, on the demand side, relatively large markets for sophisticated manufactured products.

Apart from the influence of relative wages, the results are not unexpected. On the whole, they agree with those obtained in similar studies of U.S. manufacturing investment. There is, now, a consensus on the general

characteristics that are conducive to multinational activity. Foreign investors have a comparative advantage in producing abroad that is based on superior know-how—a unique product or unique production or marketing know-how. Foreign production tends to replace exports when production costs abroad are favorable and barriers to trade are high.

### **The Effect on Exports of Controls on Foreign Production**

The international location of production and the volume and pattern of trade are determined simultaneously and essentially by the same set of factors. This means that one can speak of the influence of these factors on both foreign production and trade but one cannot speak of “the effect of foreign production on trade”, since one cannot speak of the effect of an endogenous variable. One can ask, however, what would be the effect on exports from the home country if quantity controls were imposed on foreign production? Then, the question is how much larger or smaller exports would have been *if* foreign production *had not been allowed* to increase?

The effect on exports depends on the extent to which foreign production causes the price abroad to fall and on whether home country exports are mainly substitutes for, or complementary to, foreign production. If increased foreign production leads to a lower price abroad and exports are mainly substitutes, exports will be smaller than they otherwise would have been. In a longer time perspective the effect depends, in addition, on whether the firms' growth in foreign markets indirectly enhances their overall competitive position, e.g., because increased firm size allows larger investments in R&D and a specialized and geographically dispersed distribution and servicing network.

### **Problems in Measuring the Export Effect**

The meaning of “the effect on exports of foreign production” and how it should be measured is far from clear to those that take part in the public policy debate. Arguments are often based on the observed simple correlation between exports and foreign production, such as that shown in Table 7.

The table reveals a negative correlation between the growth of Swedish exports and the growth of foreign production by Swedish firms in different groups of countries 1965-70 and 1970-74. Export growth has been relatively modest in countries where foreign production growth has been relatively high, as in the Common Market, in Europe outside the trading blocks (mainly Spain) and in Latin America. The negative correlation is stronger for the 1965-70 period. In the latter period it is insignificant.

An opposite relationship emerges in a comparison of exports and foreign production across firms. The simple relationship between the firms' exports and foreign production is strongly positive, as shown in Figure 14.

Table 7. *Net sales by foreign manufacturing affiliates relative to Swedish exports in different countries, 1965-1970 and 1970-1974*

	Production <sup>a</sup> by subsidiaries in relation to total foreign sales <sup>b</sup> (%) 1970	Percentage change			
		Production by subsidiaries		Swedish exports <sup>c</sup>	
		1965— 1970	1970— 1974	1965— 1970	1970— 1974
Industrial countries	29	83	93	66	96
EEC	42	103	96	52	87
EFTA	15	992	78	79	97
<i>of which</i>					
Nordic countries	12	120	94	79	93
Other Europe	11	327	368	39	175
North America	37	15	94	76	83
<i>of which</i>					
United States	36	9	89	70	79
Other industrial countries <sup>d</sup>	42	104	74	40	124
Developing countries	31	76	78	92	140
Africa	5	10	224	128	74
Asia	22	7	26	94	162
Latin America	49	131	90	69	121
World	29	82	91	69	101

<sup>a</sup>Manufacturing affiliate sales less imports from Sweden.

<sup>b</sup>Affiliate output plus Swedish exports.

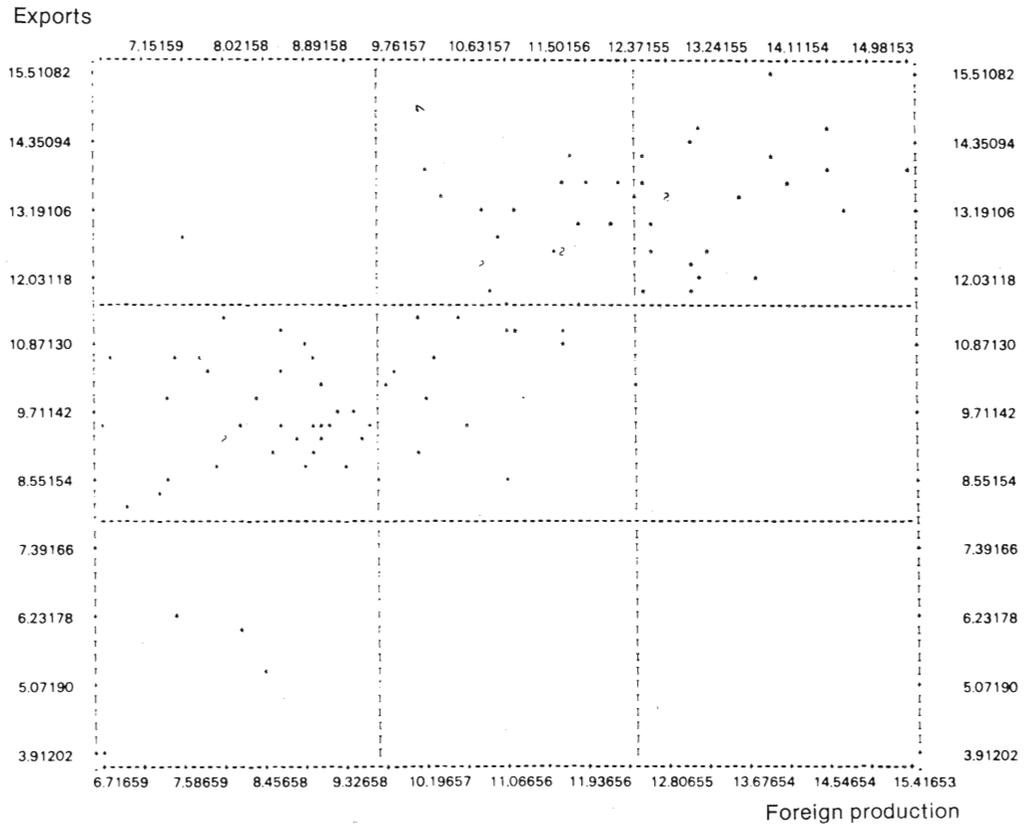
<sup>c</sup>Excluding exports to Eastern Europe.

<sup>d</sup>Australia, New Zealand, South Africa.

In neither case does the relationship indicate what the effect is on exports of allowing foreign production. The relationship appearing in the table is likely to reflect mainly the influence of factors affecting the location of production, e.g., trade barriers and comparative production costs. The relationship pictured in the figure reveals the influence of factors which positively affect both exports and foreign production, e.g., differences among firms in the degree of competitiveness.

In order to answer the question of how much larger or smaller exports would have been if foreign production had not been allowed to increase it is necessary to hold constant all other factors which influence both exports and foreign production. In addition, it is necessary to isolate the effect which runs from foreign production to exports from the one which runs in the opposite direction. Earlier studies have not done this in a satisfactory manner. Although the method used in the Swedish study presented here is superior in principle, the results should, nevertheless, be interpreted with caution.

Figure 14. *Simple correlation between exports and foreign production by Swedish firms*



### **Empirical Results for Swedish Firms**

Regression estimates (based on estimation in two stages) of the effect of an exogenous change in foreign production by Swedish firms—e.g., as a result of decreased controls—show the following. Increased foreign production leads to increased exports of products which are complementary to foreign production and reduced exports of products which are non-complementary to, or substitutes for, foreign production. The net result of these opposite effects is a small positive effect on the exports of foreign investors. It comes to about 6 cents for every one dollar increase in foreign production. Since the estimated effect is non-linear (it is linear in logs), this is the *mean* effect. Also, it is the short-run effect of marginal changes in foreign production. For larger changes and in the longer run it is also necessary to take account of the probably positive effect of foreign growth on the overall competitiveness of foreign investors. This effect has not been estimated, however.

But why, one might wonder, have the implications of foreign production for home country exports been the subject of such controversy — not just in Sweden but in other investing countries as well — when the effects are so small? In large part it has been due to uncertainty regarding what the alternative to foreign production would have been and the extent to which foreign markets could have been served through exports. The results for Sweden indicate that they could not have been so served, that without foreign production these markets would largely have been lost to the firms. By producing abroad these firms not only gain in foreign market shares through foreign production, but they actually succeed in exporting somewhat more than they could otherwise have done. This result is important, not because increased exports is a goal in itself (it is not) but because it eliminates one of the stated reasons for the current regulation of foreign investment by Swedish firms.