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HOME COUNTRY EFFECTS OF FOREIGN DIRECT INVESTMENT: EVIDENCE FROM SWEDEN

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ABSTRACT

This paper examines two broad issues related to foreign investment by Swedish multinationals: first the effects of outward foreign direct investment on domestic investment, exports, and employment, and second, the effects on the domestic economy from the increasing division of labor between the parents and foreign affiliates of Swedish MNCs. The paper summarizes and synthesizes the existing empirical evidence on these matters (much of which has hitherto only been available in Swedish) and discusses some possible long run effects that have not received much attention in the literature.

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1. Introduction

The effects of foreign direct investment (FDI) on the home countries of multinational corporations (MNCs) have been discussed for several years, but the topic has recently attracted renewed attention in the international debate, as a result of the regional integration processes in Europe and North America. The liberalization of trade and factor movements is creating new, large markets and removing restrictions on where plants can be located. Integration is therefore expected to alter the pattern of international investment, and cause changes in the industry structures of both home and host countries.

The home country effects of FDI are likely to be more important and significant in Sweden than in most other countries. A first reason is that Swedish MNCs occupy a dominant position in the Swedish economy, accounting for about half of manufacturing employment, which means that their decisions are likely to have notable effects on the national economy. A second reason is that the flows of outward investment have (at least until very recently) been much larger than flows of inward investment - the sum of Swedish investment abroad between 1981 and 1990 was

more than five times larger than inward FDI (OECD, 1993). The home country effects are therefore not balanced by any large host country effects. Moreover, the boom of Swedish outward investment during the late 1980s (going mainly to EC countries) provides a current motive to ask how the foreign investment of Swedish MNCs influence the home country Sweden.

The purpose of this paper is to examine two issues related to foreign investment by Swedish multinationals: first, the effects of outward foreign direct investment on domestic investment, exports, and employment, and second, the effects on the domestic economy from the increasing division of labor between the parents and foreign affiliates of Swedish MNCs. We will summarize and synthesize the existing empirical evidence on these matters (much of which has hitherto only been available in Swedish) and discuss some possible long run effects that have not received much attention in the literature.

The remainder of the paper is organized as follows. The second section outlines the motives for Swedish FDI and provides some descriptive statistics. The third section examines the evidence on the effects of FDI on Swedish investment, exports, and employment, while the fourth section focuses on some possible effects on domestic industry structure. There is also a summary and conclusion.

2. The Motives and Pattern of Swedish FDI

Sweden has a long tradition of foreign direct investment and multinational firms in the manufacturing sector. The oldest Swedish MNC dates back to the 17th century, and several of today's leading multinationals had established foreign operations before the first World War. Eighteen of Sweden's twenty largest MNCs were multinational already three decades ago

(Swedenborg et al, 1988).

Throughout the history of Swedish FDI, the main ownership advantages of the country's multinationals have been related to technologies based on domestic natural resources. Olsson (1993) identifies two types of development paths that were emerging already at the beginning of the 20th century. One group of Swedish multinationals have based their competitiveness directly on local raw materials, like wood and ferrous metals, and stayed close to their original industry. Others have built on the long Swedish tradition of metal manufacturing, originally based on the exploitation of local sources of high quality iron-ore, and upgraded their operations to more advanced industries, like machinery and transport equipment. This pattern with technology as the main competive advantage is still discernible, although some firms have subsequently relied heavily on the sales networks created to exploit some initial technological asset (see Olsson, 1993).

The motives for foreign production have also remained largely unchanged over time. According to Jordan and Vahlne (1981), Swedish firms have typically established foreign affiliates to avoid transportation costs and trade barriers and to get closer to their customers. Close customer relations have been necessary in order to develop products adapted for specific markets or specific national product standards, and to avoid discrimination of foreign producers in e.g. public procurement. The foreign operations of Swedish multinationals have seldom been undertaken to secure access to foreign raw materials, and access to cheap foreign labor has generally not been an important argument, except in the garment industry after the 1960s (Swedenborg, 1979).

However, some of the motives for FDI in the late 1980s seem to differ from earlier

periods. A new reason to establish foreign affiliates - industry's need to prepare for an increasingly more likely European Single Market that might exclude Sweden - coincided with reductions in Swedish controls on international capital movements, extremely high liquidity in Swedish firms, and a strong Krona to create a boom of outward investment.[1] This boom has had a significant impact on the overall structure of Swedish FDI, and it may also have changed the character of some home country effects, as we will discuss later.

Swedish firms with foreign production facilities are concentrated in manufacturing and include somewhat over a hundred corporations. As Table 1 shows, these firms dominate the Swedish manufacturing sector. Domestic MNCs accounted for almost half of Sweden's manufacturing employment and 90 per cent of commercial R&D expenditures in 1986. There are no data on their shares of total production, but it may be observed that they have supplied well over half of Swedish manufacturing exports since 1970. It is also useful to note that the population of Swedish multinationals is heavily dominated by a relatively small number of large and old firms. The 20 largest corporations accounted for 90 per cent of the foreign production and foreign employment of Swedish manufacturing MNCs in 1986; the 10 largest corporations alone recorded more than 75 per cent of the total (Swedenborg, et al., 1988). Only two new corporations - IKEA and Tetra Pak - have joined the "top 20 club" since the 1960s.

-- TABLE 1 HERE --

Table 1 also shows that the importance of the Swedish market for the multinationals' operations is diminishing, and that the firms are gradually becoming more internationalized. The

Swedish share of the MNCs' total employment and output (including both parents and affiliates) fell from about 70 per cent to 60 per cent between 1970 and 1986. Employment in foreign production affiliates increased from 182,090 to 259,820 during the same period. The absolute and relative importance of foreign operations has increased further since 1986, as a result of the investment boom during the late 1980s - the flow of outward FDI during the 1986-1990 period was almost five times higher than that in the 1981-1985 period. Preliminary reports using the latest available data indicate that the total employment of foreign affiliates had reached above 450,000 and the Swedish share of the MNCs' production had fallen to below 40 per cent by 1990 (Andersson, 1993).

The sectoral distribution of the foreign production of Swedish firms in 1970 and 1986 is presented in Table 2.[2] Non-electrical and electrical machinery were the most important sectors in both years, in terms of employment as well as assets (although the relative importance of non-electrical machinery is declining), but the shares of paper products and transport equipment increased significantly during the period. Comparable data on FDI stocks for more recent years are not available, but information on FDI flows from the Swedish Central Bank suggest that the shares of pulp and paper, paper products, machinery, and transport equipment industries have increased since 1986, particularly in the EC region (Andersson and Fredriksson, 1993, p. 44).

-- TABLE 2 HERE --

Table 3 presents some data on the geographical distribution of Swedish FDI in 1970, 1986, and 1990. The EC countries and the United States were the main locations for Swedish

investment during this period, although the Latin American share was also relatively high. The table shows a reduction in the EC share of investment between 1970 and 1986, but a large increase thereafter. The EC share of employment in Swedish foreign affiliates had increased to 56 per cent by 1990. The employment share of North American affiliates has grown continuously, to 22 per cent in 1990, whereas the shares of EFTA, other developed, and developing countries have fallen.

-- TABLE 3 HERE --

The continuous growth of the foreign operations of Swedish multinationals raises important questions regarding the impact of outward FDI on Sweden and the Swedish part of the MNCs' operations. One cause for worry is that there are differences in how the competitiveness of Sweden, on the one hand, and Swedish multinationals, on the other hand, has developed over time. Sweden lost more than 20 per cent of its share of world exports of manufactures between the mid-1960s and mid-1980s, but the export shares of Swedish multinationals (including both parents and affiliates) increased over the same period (Blomström and Lipsey, 1989). The reason is that the exports from foreign affiliates have increased faster than the exports from the Swedish parent companies. Does this suggest that Swedish exports are replaced by goods produced abroad by Swedish affiliates, and that foreign jobs substitute for Swedish jobs? These questions are examined in the next section.

3. Effects on Home Investment, Exports, and Employment

Analyzing the interactions between domestic and foreign operations, Stevens and Lipsey (1992) divide the topic into two related questions. First, there are financial interactions that come about because investments in different locations compete for scarce funds, and second, there are production interactions because FDI may either substitute for home exports or increase home exports of components and intermediate goods used by the foreign affiliates. It is convenient to distinguish between these two types of interactions also here.

Financial interactions

In the debate on financial interactions, it is argued that domestic and foreign investment may be substitutes when the multinationals' capital costs are not constant. If the cost of borrowed funds increases as the firm becomes more leveraged, then the MNC's alternative projects (foreign and domestic) will compete for access to relatively cheap internally generated funds. The decision to invest scarce resources abroad may thus reduce the likelihood for concurrent investments in the home country, and vice versa. However, restrictions on international capital mobility, vertical integration, and other complementarities between domestic and foreign production are likely to dilute this effect, so the degree of substitution is an empirical question. Evidence from the U.S., presented by e.g. Stevens (1969), Ladenson (1972), Severn (1972), and Stevens and Lipsey (1992), suggest that there is in fact some substitution between domestic and foreign investment by U.S. firms. McClain (1974)[3] argues that the same holds for multinationals from the United Kingdom, and Belderbos (1992) points to a similar pattern for Dutch MNCs.

There are no published studies on Sweden, but it should be noted that capital market

regulations limited the Swedish MNCs' possibilities to finance FDI from Sweden until 1986. Consequently, the degree of substitutability between Swedish and foreign investment opportunities was probably low before that time. After 1986, the behavior of Swedish MNCs may have become more similar to that of multinationals from other countries. In fact, there is an on-going public debate about whether the low level of domestic investment in the early 1990s is partly due to the high indebtedness of Swedish multinationals, inherited from the FDI boom of the late 1980s.

Production interactions

Questions regarding the impact of foreign direct investment by Swedish firms on Swedish exports and employment have had much more prominent positions on the Swedish research agenda, and there are several detailed studies available. These represent business oriented analyses as well as econometric studies, which means that there is some variation in methodology and generality of results. Typically, the more business oriented authors have attempted to examine what would have happened in specific cases if investment abroad had not been possible, whereas the econometric studies have tried to detect the overall relationship between FDI and exports in larger samples of firms or industries.

Jordan and Vahlne (1981) is an example of the former approach. They aim to compare the domestic employment effects of foreign direct investment with alternative ways to exploit the competitive advantages of a sample of Swedish firms. The alternatives considered are exports from Sweden, licensing, and minority joint ventures, and the analysis attempts to take into account several factors that may influence Swedish exports and employment in the medium term.

These include estimates of the market shares that can be captured under the alternative strategies, differences in the ability to face and solve customer problems in the relevant markets, flows of royalties and license payments (which influences the possibilities to undertake R&D), and differences in related product sales under the alternative strategies.

Jordan and Vahlne's overall conclusion is that foreign direct investment has positive effects on Swedish exports and employment, because the establishment of foreign affiliates typically leads to large increases in the foreign market shares and in exports of intermediate products to affiliates. The driving force is the existence (or fear) of various types of trade barriers that would limit the market shares if export was the only available alternative. Moreover, foreign direct investment is connected with higher royalty and license payments (from affiliates) and higher exports of related products. Foreign production is judged, by Jordan and Vahlne, to be particularly beneficial for low-technology products with high transportation costs. However, the results rest on very specific assumptions about export survival rates, i.e. the fractions of the affiliates' market share that could have been served by home exports. In some cases, for standardized products, the assumed survival rates are as low as 2 to 8 per cent. In a related government research report (SOU 1981:33), Vahlne and Sölvell study a larger sample of firms and reach similar results, with the summary conclusion that FDI has been a necessary strategy for the survival and international competitiveness of Swedish firms.[4] Foreign direct investment has been complementary to Swedish exports and employment, because the alternatives would have resulted in much lower foreign market shares for Swedish firms.

It is obvious that the assumptions about export survival rates are of central importance for the outcome, and it is therefore interesting to compare Jordan and Vahlne's (1981) estimates with

data from other sources. To begin with, it can be noted that many other business oriented case studies have also been based on very low survival rates. For instance, Stobaugh, et al. (1972), who study nine U.S. firms, conclude that their entire foreign markets would have been lost within five years in the absence of FDI. A problem with these studies is that the estimates of survival rates are often based on surveys and interviews with company officials, who naturally are interested in "portraying their foreign activities in as favorable a light as possible vis-à-vis their impact on the domestic economy" (Frank and Freeman, 1978, p. 9).[5]

An alternative is provided by Frank and Freeman (1978), who set up a model for the U.S. economy where survival rates are explicitly calculated from data on costs and revenues. The model yields estimates of survival rates ranging between 20 and 40 per cent depending on industry. However, they rule out shifts in market size that are "occasioned by the establishment of a foreign subsidiary" (p. 35), which means that their figures are likely to be on the high side: the establishment of an affiliate may lead both to shifts in the demand curve and increases in market shares. They also calculate a short run "break-even" survival rate for the U.S. economy in 1970, that would lead to equally large export displacement and export stimulus from FDI. This break-even estimate is 11 per cent (p. 62): foreign direct investment will stimulate domestic exports if the surviving market shares are smaller, but reduce exports if it is larger. Using their own best estimates of survival rates, they conclude that foreign direct investment has substituted for U.S. exports and that the net employment effect of FDI is an annual loss of between 120,000 and 160,000 jobs (p. 62).[6] It should be noted that the generality of these results is also uncertain, since the period under examination may not be representative - this was the peak of the U.S. firms' internationalization process. Still, a Swedish government research report (SOU

1981:43) looking at a FDI project in West Germany made by the packaging firm PLM applies the model on Swedish data. The results suggest a survival rate between 15 and 50 per cent, which means that the project is likely to substitute for home exports. This stands in sharp contrast to PLM's management estimates of survival rates close to nil, which imply that the project would have stimulated Swedish exports.

The problem of assessing survival rates does not usually come up in the econometric studies. Instead, these typically employ regression analysis to determine the relation between exports and various firm, industry, and country characteristics - controlling for as many other determinants as possible, the focus is on the partial effect of foreign direct investment (measured e.g. as the stock of foreign assets or the value of foreign production). A negative coefficient for FDI implies that foreign production substitutes for exports, whereas a positive sign suggests that complementarity - the stimulus to home exports of intermediate and other related products - is more important in aggregate. It can be noted that most U.S. studies of this type, including Horst (1974), Bergsten, Horst, and Moran (1978), Kravis and Lipsey (1988), and Lipsey and Weiss (1981 and 1984), conclude that the complementarities have tended to outweigh the substitution effects. Yet, there are differences between the competitive advantages of Swedish and U.S. multinationals, and it may not be possible to generalize results across countries. Moreover, there is reason to examine the Swedish studies separately, since many of them include interesting methodological innovations and employ more detailed and disaggregated data than what is available elsewhere.

The most comprehensive econometric analyses of the Swedish FDI-trade relationship are presented in Swedenborg (1979 and 1982), Blomström, Lipsey, and Kulchycky (1988), and

Svensson (1993). The studies are all based on a detailed data set on Swedish multinationals collected by the Industrial Institute for Economic and Social Research (IUI) in Stockholm, but there are significant differences in methodology and results.

The major innovation in both of Swedenborg's studies is that she bases her analysis on 2SLS (two-stage least squares) estimations, in order to avoid the bias that comes about because both foreign production and exports may be affected by the same omitted variables. The first stage estimates the size of foreign production as a function of various firm, industry, and host country characteristics, and the second stage estimates exports from the Swedish parent company with the first-stage fitted values of foreign production as one of the independent variables. In Swedenborg (1979), the focus is on a sample of some 100 Swedish manufacturing MNCs with more than 300 foreign affiliates in 1974. Her findings suggest that there was no significant overall effect of foreign production on the exports of Swedish parents that year, but that the aggregate results hide two significant, but opposite effects. Foreign production seems to substitute for some exports to sales affiliates and non-affiliated customers in the host country, but there is a concurrent (larger) positive effect on the exports of goods to producing affiliates (both intermediates and finished products).[7] Swedenborg (1982) adds observations for three more years (1965, 1970, and 1978), with very similar results. The effect on total export is still not statistically significant, but there is a clear pattern when complementary and substituting exports are examined separately. A one dollar increase in foreign production is found to result in a 12 cent increase in exports to producing affiliates, but only a 2 cent fall in exports to other customers in the host country, i.e. a net export stimulus of 10 cents.

Blomström, Lipsey, and Kulchycky (1988) argue that Swedenborg's results are uncertain

because her first-stage estimations have low explanatory power, so that much of the relevant variation in the affiliates' production is neglected in the second stage. They examine Swedish exports and foreign direct investment for 10 aggregate industry groups in 1978, as well as changes between 1970 and 1978, in a conventional OLS (ordinary least squares) framework. By focussing on changes in the variables, they hope to eliminate the impact of the omitted variables that simultaneously affect foreign production and exports, but not those that affect changes in production or exports. Moreover, they look at total Swedish exports in each industry, rather than only the parent corporations' exports. This means that they may capture some instances where the affiliates' activities have substituted for other firms' exports, but also cases where FDI has facilitated other Swedish firms' exports to the host market. The latter situation may occur if foreign production familiarizes the host country with Swedish products, or if the affiliates transfer information about the host country's business environment back to Sweden.

Yet, the findings in Blomström, Lipsey, and Kulchycky (1988) differ little from those presented by Swedenborg (1979 and 1982). There are no signs of substitution between Swedish exports and foreign production for any of the industries included - if anything, the authors find a larger complementary effect - and there is no evidence that large foreign production in a country reduces the country's subsequent imports from Sweden.[8]

A recent study by Svensson (1993), using unpublished data from the latest survey of Swedish direct investment abroad (for 1990), challenges the results of the earlier research. Svensson argues that it is necessary to account for the foreign affiliates' exports to third countries, because they are likely to substitute directly for parent exports. Doing this, he finds that there now appears to be substitution between Swedish investment abroad and exports from

Sweden. However, his results are not comparable to those of the earlier studies. While Swedenborg (1979, 1982) and Blomström, Lipsey, and Kulchycky (1988) examined the effect of production by Swedish foreign affiliates on the absolute value of exports from Swedish parent companies or Sweden, Svensson investigates the effect of foreign direct investment on the ratio between parent exports and the company's (parent plus foreign affiliates) sales. Since foreign direct investment typically increases the denominator of his dependent variable, there is reason to expect a negative estimated effect of FDI even if nothing at all happens with parent exports.[9] Thus, what he finds is simply that exports from the home country become relatively less important when the size of foreign operations increases.

We can therefore summarize the Swedish debate on production interactions by noting that both the business oriented and the econometric studies have found either no effect on home-country exports, or a somewhat higher level of home-country exports as a result of Swedish firms' investment abroad. Judging from these results, Swedish FDI does not appear to be detrimental to Swedish exports. However, it must be noted that the examination of financial and production interactions leaves out some important aspects of the effects of FDI on the home country. For a more complete analysis, we must turn our attention to another set of issues that has been neglected in most studies, until recently: the structural effects that come about because foreign direct investment influences the composition of home country exports.

4. Effects on the Home Country's Industry Structure

The structural effects of foreign direct investment on the home country have received relatively little attention in the international debate, and the few studies that are available have focussed on

a limited set of issues. A number of studies have examined the relation between FDI and profits (or, more generally, market power) in the home country, and concluded that internationalization typically strengthens the domestic market position and the firm characteristics that made it possible to undertake FDI in the first place (see e.g. Cohen, 1972, Pagoulatos and Sorensen, 1976, Bergsten, Horst, and Moran, 1978, Hirshey, 1982, and Benvignati, 1983). The MNCs' profitability benefits from their ability to "achieve greater vertical integration (utilizing cheap labour and/or raw materials), spread joint costs across a larger base, diversify portfolios across different economies and markets and reduce tax liabilities" (UN, 1993, pp. 73-74). Higher profits, in turn, stimulate investments in R&D and marketing and enhance the oligopolistic nature of the industries where multinational corporations typically operate. Other researchers have discussed the impact of foreign direct investment on the composition of domestic labor demand (see Hawkins, 1972, U.S. Tariff Commission, 1973, and Frank and Freeman, 1978). The picture emerging from these studies is that there is a shift in labor demand favoring "white-collar" employees at the expense of "blue-collar" workers, arguably because multinational firms tend to export production activities, while concentrating management, marketing, and R&D at the home base.

Only a few Swedish studies have examined this kind of issues in detail - one exception is a government research report dealing with effects of investment abroad on the structure of the Swedish labor force (SOU 1983:16) - but there is a growing awareness of the importance of structural effects. The consequences of FDI on the composition of export products - shipments of intermediate inputs and other complementary products to affiliates replace exports of finished products to other customers - may well be more conspicuous than the effects on the total amount

of exports. Below, we will first discuss what type of operations the Swedish MNCs are likely to retain in Sweden, and then try to identify some possible effects of this change in industry structure.

What type of production is located in Sweden?

Trade theory proposes that the international division of labor within multinational corporations (under free trade) should conform to the factor endowments of different production locations (see e.g. Dunning, 1993). The factor requirements of different stages in the production process vary, and each separate stage should be located where the most intensively used inputs are most abundant.

Traditionally, Swedish comparative advantages have been based on natural resources like timber, ore, and hydro-power, and products developed from these assets continue to be important in Swedish exports. According to Blomström, Lipsey and Ohlsson (1990), Sweden's comparative advantages vis-á-vis other OECD countries are still in products with low and medium R&D content, many of which are based on the indigenous natural resources. Raw material based industries (metals, wood products, and paper products) are particularly prominent in Swedish exports to the EC, whereas imports from the EC are largely made up of engineering products (machinery, electronics, and transport equipment). This pattern persists even though the R&D expenditures of Swedish firms (in per cent of value added) have been among the highest in the world since the mid-1970s.

Theory therefore suggests that the production undertaken at home by Swedish multinationals should also capitalize on Sweden's comparative advantages and focus on products

with relatively low R&D content. The production of Swedish affiliates located in other industrialized countries should have some bias toward high-tech products (although transport costs and various types of market imperfections may unsettle the picture). Unfortunately, it is not possible to test this hypothesis directly. There are no comprehensive data available on the factor contents in the MNCs' foreign and domestic production, nor is there detailed information on what specific products parents and affiliates are actually manufacturing.

However, data on intra-firm trade seem to confirm that the division of labor between parents and affiliates is becoming more accentuated, and that the degree of specialization in home production is increasing. The intra-firm trade between parents and affiliates has always made up a large share of the Swedish parents' total exports, but the importance of these flows increased significantly during the late 1980s, particularly for EC affiliates. About a third of the parent exports to the six original EC members went to producing affiliates in 1986, but the share had increased to nearly half by 1990, as shown in Table 4. The rates of increase in intra-firm exports to affiliates located in the other EC countries were equally large, although from lower initial levels. At the same time, there were marked changes in the structure of these exports. Whereas intermediates and finished goods had accounted for roughly 50 per cent each in 1986, the share of intermediates had grown to nearly 75 per cent in 1990. The affiliates exports back to Sweden also increased during the period, to reach almost a fifth of their total sales in 1990 (Andersson, 1993, p. 6).

-- TABLE 4 HERE --

Hence, it appears clear that the parents are concentrating their efforts on production of intermediate inputs. Can we say anything at all about the characteristics of these products? For lack of readily available data on product categories and factor intensities, some authors have used information on other aspects of MNC operations to answer the question. Andersson (1993) notes that the labor productivity of EC affiliates increased at an average annual rate of 5.5 per cent between 1986 and 1990, while the parents' productivity growth rates were negative. He posits that this was mainly caused by a shift in the location of the Swedish MNCs' various production stages. Earlier, most of the value added was produced in the parent company and many affiliates functioned as relatively simple assembly plants. More recently, he argues, affiliates have taken over some of the more skill-intensive parts of the production process, and parents have specialized in simpler, raw material based operations at lower stages in of the value added chain. Andersson also examines firm level data for the periods 1974-1978 and 1986-1990 in a regression analysis, and finds a significant negative relation between labor productivity growth in parents and increases in the share of intermediate goods in the parents' total exports to their EC affiliates. From this, he concludes that FDI is now leading to an increasing specialization in raw material based production with relatively low value added.

Given the lack of direct evidence, it is necessary to interpret this conclusion with caution. Swedish productivity growth may have been low for reasons that have nothing to do with the division of labor between MNC parents and affiliates - for instance, the incentives to work hard have probably been weak in Sweden because of the high income taxes and the compressed wage structure. It is also possible that imperfections in Swedish markets have motivated MNCs to move operations abroad, so that the causality runs from events in the home country to MNC

behavior, rather than the opposite. Yet, it is interesting to note that the only available study of the employment structure in Swedish MNCs outlines a picture that is at least partly consistent with Andersson (1993). Increasing foreign production in Swedish MNCs was apparently accompanied by lower skill requirements in home based production already in the early 1980s - the largest MNCs employ a lower share of qualified production workers than Swedish industry on average (SOU 1983:16, p. 172).

In addition to the suspected specialization in intermediates with low value added and high raw material content, Swedish MNCs have also retained most of their technology production at home. Over four-fifths of the MNCs' R&D expenditures in 1990 were undertaken in Sweden, although the affiliates' share of R&D had increased slightly since 1986 (Andersson, 1993). The focus on R&D is also apparent in the MNCs employment structure. The largest MNCs employ higher shares of R&D personnel than other Swedish firms (SOU 1983:16, p. 172).

As a result of this concentration of research efforts, Sweden exhibits one of the world's highest rates of R&D expenditures, along with Japan, Germany, Switzerland and the United States. However, there seems to be a contradiction between the intensive research efforts and the large export shares of products with a low R&D content. Why have exports not shifted towards more R&D intensive products during the past decades? One possible answer is that the MNCs have not found Sweden to be the most suitable location for their high-tech production - the fruits of the MNCs' Swedish research efforts have instead been exported for use in foreign affiliates (see Blomström, 1990, for such an argument).

Thus, the limited evidence we have about what type of production is located in Sweden suggests a somewhat peculiar pattern. On the one hand, there appears to be a concentration to

production of intermediates, which, according to some authors, are characterized by relatively low value added and high raw material content. On the other hand, there is also a focus on technology production, which is the area where Swedish MNCs have their firm specific competitive advantages. It is possible that this peculiar pattern arises only in advanced countries with abundant natural resources, but not in advanced countries with comparative advantages in human capital or technology, where the country's and MNCs' advantages are likely to coincide. Hence, the pattern in Sweden may differ from that in countries that are poor in natural resources, like Japan, the Netherlands, or Switzerland.

Effects of increasing specialization

The discussion above implies that Swedish multinationals are concentrating their home production in two areas: R&D and intermediate products. Since the MNCs' location choices are based on profit maximization, it can be assumed that their decisions reveal that there are private gains to be made from specialization. It is not equally obvious what the net effects are for Sweden. One reason is related to the characteristics of markets and production processes. Differences in market structure allow some industries to charge higher prices and generate larger profits than others, and differences in technologies mean that some types of production processes are connected with positive external effects and spillovers. The impact of FDI on the home country may be beneficial if production processes with high profits and positive externalities are retained at home, but effects are likely to be less advantageous if these are among the activities that are moved to foreign affiliates. Another reason is that it is impossible to identify any alternatives to the continuing internationalization of Swedish multinationals. Would the MNCs be able to retain the

present production volumes and market shares if they were not allowed to continue the specialization of their Swedish operations and the expansion of their foreign production, or would they be outcompeted by foreign rivals?

Consequently, very few studies have examined the home country effects of FDI from this perspective, and there is no generally accepted notion of what industries are most beneficial, what kinds of externalities are relevant, how important they are in quantitative terms, and how they compare with the gains from specialization identified in neo-classical trade theory. The sole exception seems to be a consensus that FDI has allowed the Swedish MNCs to grow larger and spend more resources on R&D than what would otherwise have been possible, and that this has had a positive impact on the scientific and technological capability of Sweden (see e.g. Håkansson, 1980). Our discussion of the possible long-term effects of increasing specialization will therefore be rather speculative, and the ensuing paragraphs are perhaps best seen as an agenda for future research.

The view that the MNCs' decisions to concentrate R&D in the parent company are beneficial for Sweden is seldom questioned, as noted above, and there is no need to repeat the well-known arguments for why R&D may be connected with positive externalities. Instead, it is interesting to note that the recent debate has raised several questions about Sweden's ability to benefit from the potential R&D spillovers in the long run.

First, the debate has revealed worries that R&D is also moving abroad, and the foreign affiliates' share of the Swedish MNCs' total R&D expenditures did indeed increase slighlty between 1986 and 1990. It is not yet clear whether this is a stable trend (the affiliates' share of R&D remained more or less stable between 1970 and 1986), but the recent changes call attention

to questions about what has determined the location of R&D. More specifically, it has been argued that R&D has been cheap in Sweden because the salaries of scientists and engineers have been low compared to other OECD countries (Blomström, 1990). However, low salaries have also meant that the incentives to invest in higher education are weak, and skilled labor is becoming more scarce. Sweden has therefore lost its position among the countries with the highest education and skill levels in manufacturing, and it may be difficult to retain the comparative advantages in R&D if present trends continue.

A second cause of concern has been the lack of a shift in total Swedish exports toward more high-tech products during the past decades, in spite of the very high R&D expenditures (Blomström, Lipsey and Ohlsson, 1990). As discussed earlier, this may indicate that Swedish research results are not exploited at home, but rather exported to foreign affiliates where production takes place. The question is then which activities yield the most positive externalities: production of high technology (i.e. R&D) or high-technology production? This may be a more general problem than the previous one.

Finally, for Sweden to benefit from the potential R&D externalities, it is necessary that there is a population of local firms that are able to absorb spillovers (see Kokko, 1992). However, a concentration of the MNCs' Swedish operations to fewer and perhaps less advanced intermediates might have a profound impact on thousands of their non-multinational suppliers and sub-contractors in Sweden. Overall, there is already a downward trend in the number of sub-contractors, and the share of inputs purchased in Sweden is also falling (Braunerhjelm, 1991). Further increases in Swedish investment abroad and a continuing specialization of Swedish operations could enhance this trend, since many of the suppliers and sub-contractors may lack

the resources to follow the MNCs abroad. This potential effect of FDI on industry structure therefore raises questions about the possibilities to absorb the spillovers from the MNCs' R&D efforts in the future.

The consequences of an increased bias towards production of intermediates, which may be characterized by low R&D and high raw material content, have only been discussed very briefly in the Swedish literature, but most of the comments point in the same direction: there are serious doubts about the advantages of this type of development. One apparent reason for the skepticism is a worry that the MNCs' decisions about production locations may have been partly motivated by various market imperfections that have distorted factor prices. This would also render the resulting division of labor more or less distorted, and motivate policies to remove the imperfections. In fact, the current unemployment rates - over eight per cent of the labor force is unemployed and another five to six per cent are engaged in various public programs, to compare with average unemployment rates of between one and three per cent during the past decades - testify that problems of this kind are serious, since all markets do not clear.

However, the possibility that market structure and various types of externalities are important has also figured in the debate. For instance, Andersson (1993) departs from the assumption that Swedish MNCs are increasingly specializing in simple raw material based products, and argues that this is undesirable because there are differences between markets for simple intermediates and more advanced and differentiated finished goods. For the first group of products, there is already fierce price competition and the entry of new producers from the industrializing countries and the emerging market economies of Eastern Europe is likely to add to the pressure. Continued competitiveness in these industries requires cost reductions and

perhaps also falling real wages. The markets for advanced finished products, by contrast, are more oligopolistic, and there are generally higher profits, faster product development, and more room for increases in real wages. One objection to this assessment is that the exports from MNC parents to affiliates are intra-firm transactions. The prices and competitive conditions in parallel arms-lenght markets may not apply, and intra-firm trade may even be an effective way to exploit domestic raw materials.

Another potential effect of specialization in raw material based intermediates is that the prices of these products are often more sensitive to changes in business trends than those of advanced finished products. The case of Finland, where exports have traditionally been much more biased towards intermediates based on forest products and metals than in Sweden, provides a relevant example (Haavisto and Kokko, 1991). The value of Finnish exports has always dropped rapidly during the troughs of the international business cycle, and the resulting balance of payments crises have necessitated recurrent devaluations. In fact, the Finnish ten-year devaluation cycle (with major devaluations in 1949, 1957, 1967, and 1977-78) is highly correlated with the major depressions in the European economy during the post-War period.[10] Devaluations have been seen as the only possible policy response, simply because the size of the export sector has made it imperative to uphold international competitiveness, often at the expense of other objectives. Income distribution is one of the other goals that has sometimes been sacrificed, because devaluations typically benefit capital owners at the expense of wage earners. Hence, there may be cause to be wary about increasing raw material dependence to the extent that recurrent exchange rate changes (or volatile exchange rates) are contrary to other political or economic objectives.

Finally, there is reason to once again consider the effects of specialization on the sub-contractors and suppliers of MNCs. What happens with industry structure if the parent companies specialize in the production of some of the intermediate inputs used in their final products, and there are fewer components to be made in Swedish plants? Are the Swedish suppliers able to export to Swedish foreign affiliates, or will the motives to engage Swedish suppliers be reduced? The number of suppliers employed by Swedish MNCs has been falling rapidly over the past years, as noted earlier. Moreover, few domestic (non-multinational) suppliers and sub-contractors have the capability to follow the MNCs abroad, as shown by Braunerhjelm (1991). Examining a sample of 140 Swedish sub-contractors, he notes that only 4 per cent of their output is shipped to Swedish MNC affiliates abroad, while Swedish MNCs at home account for 43 per cent of their sales. This implies that a continued division of labor along the lines discussed above - even one that is successful enough to increase the total employment in Swedish industry - may have a profound impact on Swedish industry structure. It is conceivable that the present population of manufacturing firms, which is made up of few large MNCs and thousands of smaller sub-contractors and suppliers, may be replaced by a structure with an unchanged number of MNCs (that are perhaps even larger than today) but a significantly lower number of smaller firms.

We already noted that this kind of development might reduce the opportunities to benefit from R&D-spillovers, but there may be additional effects on e.g. growth rates. It is generally believed that small and medium sized firms were instrumental in generating economic growth in the U.S. and the U.K. during the 1980s, and they have played major roles in the development of new high-tech industries all over the industrialized world. Recent empirical studies have also demonstrated that firm growth decreases with firm size and firm age (see. e.g. Evans, 1987;

Hall, 1987; Dunne, Roberts, and Samuelson, 1989). The link between firm size and growth in Sweden may be different, but any significant relation provides a motive to think twice about the possible effects of FDI on the home country's economic structure.

5. Summary and Conclusions

This paper set out to summarize some of the research on the impact of Swedish investment abroad on Swedish investment, exports, and employment, and to discuss some effects of the division of labor between MNC parents and foreign affiliates. Reviewing the literature on the relation between foreign investment and home country exports (and employment), we found that the net effect seems to be one of complementarity. Foreign production substitutes for some home exports of finished goods, but the advantages of market proximity allow the foreign affiliates to capture a larger market share than what the parent, exporting from Sweden, could achieve. The resulting increases in the parent's exports of intermediate and related products are large enough to make up for the lost exports of finished goods.

We also noted that the effect of foreign direct investment on the structure, rather than volume, of Swedish exports may be important. Instead of shipping finished products to foreign consumers, MNC parents are increasingly shipping intermediate products to their foreign affiliates. There are no data on product categories or the factor content of the parents' and affiliates' production, so it is not possible to draw any conclusions regarding the characteristics of these intermediates. Yet, some Swedish economists have argued that the division of labor may entail an increasing specialization of Swedish manufacturing on products with relatively low value added and low R&D content. In addition, there is a concentration of R&D activities in Sweden.

Few studies have hitherto examined the effects of FDI via its impact on the structure of exports, and there is a paucity of relevant information on the topic. Our discussion of the possible long-term effects of increasing specialization was therefore rather speculative, and focused on some topics for future research. The questions that were raised concerned the possibilities to benefit from potential R&D externalities, the impact of an increased raw material bias on income distribution and exchange rate volatility, and the consequences for industry structure and growth rates. Some of these effects are potentially important, not only for Sweden but perhaps also for other home countries of multinational corporations.

Notes

1. It is useful to note the difference between the Swedish response to European integration and some North American reactions to NAFTA. The fear that Sweden would perhaps not join the European Community contributed to the surge of Swedish investment in EC countries during the late 1980s. The North American debate in 1993 has revealed concerns about the opposite reaction, i.e. massive outflows of investment ('the great sucking sound') as Canada and the United States join NAFTA. This illustrates a fundamental difference between the motives for FDI in the two regions: Swedish MNCs are still mainly concerned about market access abroad, whereas North American MNCs already have access to their most important markets (i.e. their home markets) and worry more about production costs.

2. Most of the data on Swedish MNCs are from comprehensive surveys conducted by the Industrial Institute of Economic and Social Research (IUI) in Stockholm. The surveys have been conducted every fourth year between 1970 and 1990 (except 1982), but detailed information on the results of the 1990 survey are not available.

3. As quoted by Caves (1982, p. 166).

4. The SOU publications are government committee reports on various topics: the ones referred to in this paper are all based on investigations by the Direct Investment Committee 1977-1983.

5. Interestingly enough, the prevailing view of the Swedish labor movement has also been that FDI is "necessary and positive for overall the competitiveness of the firms, and generates spillover gains to the domestic branches of the corporations" (Hjalmarsson, 1991, p. 256).

6. Another illustration of how results depend on assumptions about export survival rates is given by U.S. Tariff Commission (1973), where the employment effects of FDI are analyzed. Assuming 100 per cent survival rates, the Commission estimates that the total impact of U.S. Foreign direct investment in 1970 was a loss of 1.1 million jobs. Assuming a 50 per cent survival rate reduces the estimated loss to 400,000 jobs. Finally, the effects are recalculated under the assumption that U.S. exporters would have maintained the shares of world trade they held in 1960-1961 (i.e. before the rapid expansion of American investment abroad that took place during the 1960s). The result is a net job gain of 500,000 U.S. jobs. (See also Frank and Freeman, 1978, Chapter II.)

7. Swedenborg claims that a one dollar increase in foreign production stimulates 15 cents worth of exports to the producing affiliate, but substitutes for 9 cents worth of exports to other firms in the host country (Swedenborg, 1979, pp. 215-217).

8. Blomström, Lipsey, and Kulchycky (1988) also include some 2SLS estimates similar to those of Swedenborg (1979 and 1982). Their 2SLS regression yield somewhat larger positive coefficients for the effect of foreign production on Swedish exports than what their OLS regressions do. This is contrary to Swedenborg's findings (although she only looked at the parents' exports from Sweden), and possibly an indication that foreign production may have some

positive external effects on other Swedish exporters.

9. Apparently, Svensson (1993) has divided his original dependent variable (parent exports) with the size of the MNC in order to avoid heteroscedasticity.

10. Trade with the Soviet Union exerted a countercyclical effect on Finnish exports after the mid-1970s, which led to a change in the export structure and reduced volatility during the 1980s, until the collapse of the Soviet Union in 1991 (Haavisto and Kokko, 1991). The picture has now reverted to that before the 1980s: consequently, the most recent European depression has forced a large devaluation.

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Table 1.

Swedish MNCs and the Swedish Economy: Some Descriptive Statistics.

	Manufacturing Employment		Manufacturing Output		Industrial R&D	
	1970	1986	1978	1986	1970	1986
Swedish MNCs' share of Swedish activity	0.43	0.48	n.a.	n.a.	0.70	0.90
Swedish share of Swedish MNCs' activity	0.69	0.59	0.72	0.61	0.85	0.86

Source: Calculated from Swedenborg (1973) and Swedenborg, et al. (1988).

Table 2.

Sectoral Distribution of Swedish Manufacturing FDI, producing affiliates. (Per cent)

	Employment		Total Assets	
	1970	1986	1970	1986
Food Products	1	1	1	1
Textiles	2	1	1	0
Pulp and Paper	2	3	7	3
Paper products	2	8	3	11
Chemicals	14	11	8	10
Metals	10	9	13	7
Non-electrical Machinery	43	34	43	36
Electrical Machinery	18	22	16	19
Transport Equipment	2	7	4	9
Other	6	4	6	3

Source: Swedenborg, et al. (1988), *Den svenska industrins utlandsinvesteringar 1960-1986*, Industrial Institute of Economic and Social Research, Stockholm, Table 3.4.

Table 3.

Geographical Distribution of Swedish Manufacturing FDI, producing affiliates. (Per cent)

	Employment			Total Assets	
	1970	1986	1990	1970	1986
EC6	45	36	-	47	36
EC3	12	11	-	11	10
EC12	60	51	56	-	-
EFTA	10	8	5	10	8
Other W. Europe	1	3	-	1	2
USA	5	19	-	7	30
Canada	2	2	-	5	3
North America	7	21	22	-	-
Other developed	5	4	3	4	3
Latin America	12	12	-	12	8
Africa, Asia	8	5	-	3	1
Developing	18	17	13	-	-

EC6 = Belgium, France, Germany, Italy, Luxembourg, Netherlands;
EC3 = Denmark, Great Britain, Ireland;
EC12 = EC6 + EC3 + Greece, Portugal, Spain;
EFTA = Austria, Finland, Iceland, Norway, Switzerland (+ Portugal for 1970 and 1986);
Other W. Europe = Greece, Malta, Spain, Turkey;
Other developed = Australia, Japan, New Zealand, South Africa;
North Amerika = Canada, USA;
Developing = Africa, Asia, Latin America;

Source: Swedenborg, et al. (1988), *Den svenska industrins utlandsinvesteringar 1960-1986*, Industrial Institute of Economic and Social Research, Stockholm, Table 3.5, and Andersson and Fredriksson (1993).

Table 4.

Parent Exports to Producing Affiliates as a Share of Parent's Total Exports to Region 1974-1990. (per cent)

	EC6	EC3	Other EC	EFTA	North America	Other OECD
Year						
1974	34.8	15.1	28.8	16.9	17.1	46.4
1978	26.5	17.1	12.2	11.3	23.9	17.0
1986	30.5	12.7	19.8	9.2	14.7	30.7
1990	46.0	23.2	27.0	5.1	17.2	31.4

EC6 = Belgium, France, Germany, Italy, Luxembourg, Netherlands;
EC3 = Denmark, Great Britain, Ireland;
Other EC = Spain, Portugal, Greece;
EFTA = Austria, Finland, Iceland, Norway, Switzerland;
Other OECD = Japan, Australia, New Zealand.

Source: Andersson (1993), Table 3.