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The Internationalization of Industrial Firms - Foreign Production and Domestic Welfare in Finland, Norway and Sweden

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Keskusteluaiheita - Discussion papers

No. 460

Per Heum and Pekka Ylä-Anttila

THE INTERNATIONALIZATION OF INDUSTRIAL FIRMS*

**- Foreign Production and Domestic Welfare
in Finland, Norway and Sweden**

We would like to thank Maarit Säynevirta for skillful work
in organizing the data and compiling the tables and figures for this paper

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ABSTRACT: A rather small number of firms dominate the scene when it comes to industrial production in Finland, Norway and Sweden. Since the mid-1970's, at least, the group of the 30 largest industrial firms in all these countries has expanded production much more rapidly than was the case for total industry. Over the last 10 -15 years, the growth of these firms is mainly due to expansion of foreign operations, in line with the process of rapid internationalization. The paper documents this trend, responding to a general request of providing firm level data when analyzing issues of industrial transformation. Furthermore, it raises the question as to how internationalization of the major domestic firms affects the welfare prospects of the three small, open economies in question.

KEY WORDS: Internationalization of business, large firms, industrial transformation, the Nordic countries

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1. INTRODUCTION

Industrial transformation follows from the competitive outcomes of actions taken by firms to maintain and upgrade their competitiveness. One major feature of the current industrial transformation, and the one we address in this paper, is internationalization. Obviously, internationalization cannot be understood by applying ordinary industry level data, as these only contain information on production and business activities that are conducted in each country. At best such data may be applied to elaborate on changes taking place in industries in separate countries,

and even then they often fall short. National data on trade and capital flows across the national border may be of some help, but it really misses the effects of foreign production conducted by domestic firms. Stock data on inward and outward foreign direct investments (FDI) only makes a slight difference in this respect.

The Nordic economic research institutes, ETLA (Finland), IFF (Denmark), IUI (Sweden), and SNF (Norway) have responded to these shortcomings in national and industry level data by setting up a project team to study the major industrial firms of the Nordic countries. This group has established a data base on the 30 largest industrial firms of each of the 4 countries, covering the period since 1974. A descriptive analysis on the growth and transformation of the large Nordic industrial firms is presented in Heum and Ylä-Anttila (1992) upon which this paper heavily bor-

rows¹ Appendix 1 describes the data and the definitions that are applied to construct the data base. Due to incomplete data on the major Danish firms, these are left out of the present paper.

To discuss the issue of internationalization among industrial firms, section 2 briefly recalls the issue as it is envisaged at the national level. In section 3, the paper documents internationalization as it has actually taken place among the large firms of the business community. To do so, we first justify the macro relevance of our small sample of firms. Then, we show that foreign operations constitute the main component of growth among the major industrial firms of Finland, Norway and Sweden. Finally, in section 4 we discuss how the welfare of these countries is affected by the rapid internationalization of their major domestic firms.

2. INTERNATIONALIZATION AT THE NATIONAL LEVEL

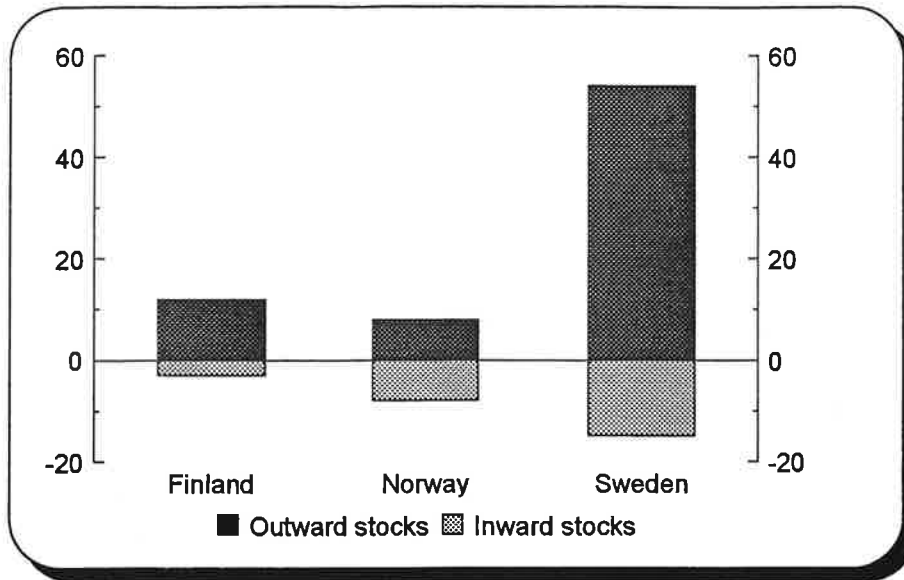
The 1980s saw a surge of international direct investment flows. The trend seems to have continued in the early 1990s, although at a somewhat slower pace. Some interesting changes in the patterns of FDI flows have taken place during the last 10 - 15 years. First, the FDIs have been growing much faster amongst the developed countries than between developed and developing countries. Second, inward and outward direct investments in industrialized countries have, in general, become increasingly more balanced (see Dunning, 1993).

In this second point the Nordic countries seem to be exceptions compared to most other industrial countries. From figure 2.1 it is evident that the imbalance is huge in the case of Finland and Sweden: In 1990, the stock of outward investments was 3-4 times as high as the stock of inward investments in both these countries. There are no other economies among the industrial countries exhibiting such huge imbalances. Preliminary data for the early 1990s indicate that this imbalance is growing. The outward flow of direct investments is at a particularly high level in Sweden, equivalent to 6% of GDP, but also in Finland it has increased rapidly from just about to be negligible in the early 1980s to 2-2,5% of GDP in the early 1990s (cfr Figure 2.2).

In the case of Norway, national aggregate data does not envisage the same imbalance, nor a similar relative increase in outward direct investments. However, if we look at manufacturing investments only, the same picture as for Sweden and Finland also occurs in Norway. In the mid-1970s, outward direct investments in foreign manufacturing was almost non-existent, while the stock of inward investments in Norway's manufacturing was rather significant. According to 1989/90 figures, the stock of outward direct investments in foreign manufacturing had grown to become some 50% larger than the stock of inward manufacturing investments.

¹ The report, "Firm Dynamics in a Nordic Perspective - Large Corporations and Industrial Transformation" (1992), is written by the two authors of this paper in cooperation with the other members of the project team, Pontus Braunerhjelm (IUI) and Steen Thomsen (IFF).

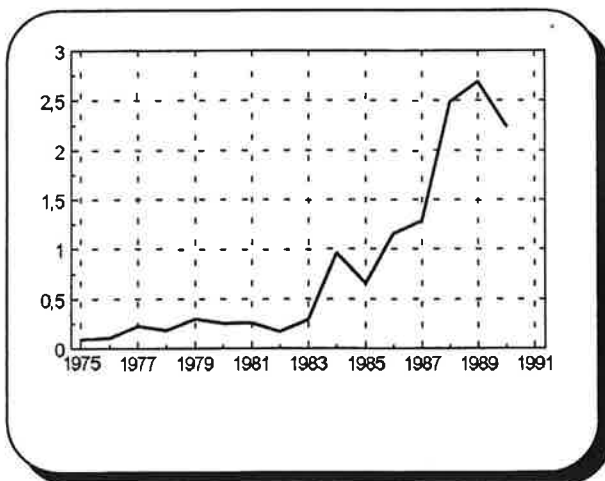
Figure 2.1. Inward and outward stocks of foreign direct investment in Finland, Norway and Sweden in 1990, billion USD.



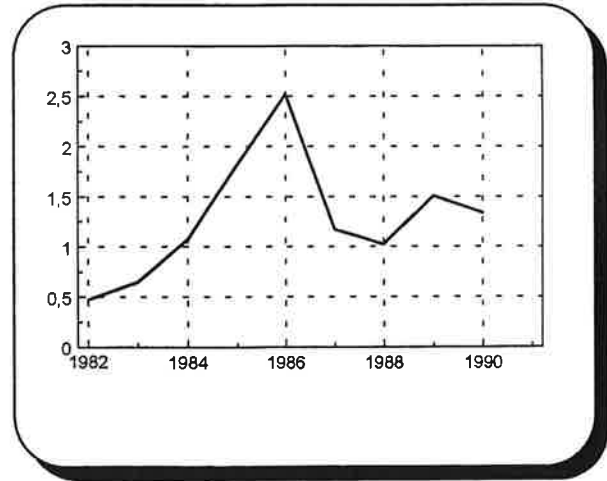
Source: EFTA

Figure 2.2. Outward flows of foreign direct investment in Finland, Norway and Sweden, % of GDP

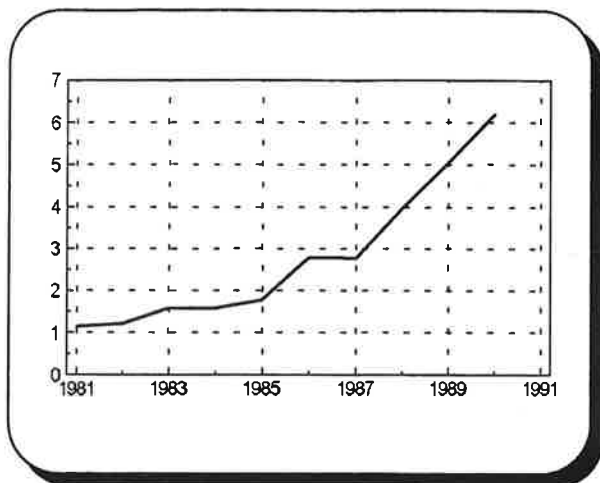
Finland



Norway



Sweden



Source: EFTA Trade 1990

It has been argued that the 1990s will see an intensified race for inward direct investments among the industrial countries (see Oxelheim, 1993). A general shortfall of investments and potential advantages from inward FDIs in the form of technology transfer and new domestic jobs are the main reasons for this.

However, the means to attract inward investment are dwindling in an increasingly integrated world. Since the factor-driven and diversification-driven motives for corporate direct investment will fade away as the integration proceeds, there is very little room for government policies (see Oxelheim, 1993). Basically two options are left: subsidies and tax reliefs (in certain limits), or superior technological and educational infrastructure. For the small Nordic economies - with generally high tax rates and difficulties in reaping scale economies inherent in technological systems - both of these options are problematic. Hence, it seems likely that there is no rapid route to more balanced situation as regards the inward and outward investments.

3. INTERNATIONALIZATION AT THE FIRM LEVEL

3.1. The Industrial Relevance of the Large Firms

The group of fairly small number of large firms is clearly dominating the mining and manufacturing sectors of the Nordic economies. In 1990 the domestic employment of the ten largest industrial corporations equalled about one fifth of total industrial (mining and manufacturing) employment (Table 3.1). Moreover, the concentration ratios have been increasing over the past 10 - 15 years. Especially, if we look at the aggregate concentration

ratios - i.e. both domestic and overseas operations are included - the growth has been very rapid indeed: the ratios have doubled since the mid-1970s in all the three countries.

The group of 30 largest companies, as well as their rank order within the group, have been quite persistent over the past few decades (see Heum and Ylä-Anttila, 1992). From the mid-1970s to 1990 the average number of exits from the group of the 30 largest is approximately one per year and the top 10 group has remained almost identical in each of the three countries. Even from a 50 year perspective the persistence seems to be high: In all the three countries roughly two thirds of the 30 largest corporations in the late 1930s are still in the group of the 30 largest in 1990 (Heum and Ylä-Anttila, 1992). Major changes and transformations have taken place within the corporations, but only few of them have completely closed down. In all countries most of the 30 largest corporations of today seem to have a history of at least 100 years. This illustrates the long-term character of business development and underlines the prerequisite of continuity in industrial transformation: A major part of new businesses evolve from the current industrial base.

Table 3.1 Employment (total and domestic) of the largest manufacturing companies as a per cent of total manufacturing employment, 1974 and 1990

	Finland		Norway		Sweden	
	1974	1990	1974	1990	1974	1990
10 largest						
- total	21,8	42,2	17,2	37,4	44,4	76,4
- domestic	19,0	22,0	16,2	24,2	23,9	26,7
20 largest						
- total	33,2	68,3	24,2	47,0	57,4	97,9
- domestic	30,0	40,0	23,0	32,0	32,7	36,8
30 largest						
- total	40,3	80,5	28,8	52,7	65,3	105,0
- domestic	37,0	49,2	27,4	35,8	39,2	39,6

Source: The large firm data base of the Nordic Perspective Group

It seems fair to conclude that in all three countries the group of largest firms is of great significance when considering growth of aggregate output and industrial employment and transformation. This is even more valid, when looking at the internationalization of business. The role of large corporations as the leaders of internationalization becomes evident when we compare the foreign employment of these firms to the total employment that is recorded in foreign entities owned by domestic firms. The foreign employment in the group of 30 largest corporations both in Finland and Sweden accounts for more than 90 % of the total foreign employment of domestic industrial firms (Heum and Ylä-Anttila, 1992). Thus, the internationalization of Nordic industries translates more or less to the internationalization of large firms. The 30 largest firms of all three countries envisage a high international orientation. Table 3.2 shows that the Swedish firms are particularly international in their operations: Foreign sales account for close to 80% of corporate turn over while more than 60% of their employment is in business units outside Sweden. However, the similar figures for the largest Finnish and Norwegian firms are also high; with foreign sales at the level of 65-70% of corporate turnover and employment in foreign subsidiaries at the level of 35-40% of the corporations' total.

Table 3.2 Share of number of employees in foreign subsidiaries in total employment in the group of 30 largest manufacturing companies, %

	Finland		Norway		Sweden	
	1974	1990	1975	1990	1975	1990
Foreign sales, % of corporate turnover	41	69	49	66	66	78
Employment abroad, % of corporate employment	< 10	39	6	33	37	62

Source: The large firm data base of the Nordic Perspective Group

3.2 Growth and Internationalization of Firms

Why do Firms Differ in Size and Growth - Some Theoretical Considerations

The modern corporation has a multitude of goals which it tries to reach by strategic manoeuvres. This active aspect of firm behaviour is needed if we want to raise questions about the boundaries, size and growth, and internationalization of firms. It is also needed when we want to

look at the firms as parts of national economies. Evidently firms tend to grow differently and reach different limits to their size depending on their national economic environment or home base. However, it has to be noted that multinational firms expand and make their locational decisions on the basis of their own competitive advantages which do not necessarily coincide with those of national economies.

It is our contention that firms attempt to modify and remove constraints in order to generate profits, rather than being profit maximizers within given constraints. R&D, product differentiation, mergers and acquisitions as well as strategic foreign direct investment - with their interrelations - are all different forms of active constraint-modifying behaviour.

When considering growth and growth differentials between firms, the standard assumption that scale economies in production determine the size, and that new technologies may change the economies of scale, is not sufficient. It might be that there are scale economies at the level of plants (in production), but not at the level of a firm. As firm size increases, the economies of scale may turn to diseconomies due to higher control and monitoring costs. On the other hand, the scale economies are often argued to relate more to other activities than production, namely to financing, marketing, and R&D (Eliasson, 1991, shows that only a small proportion of the resources in large manufacturing firms are devoted to production of goods). Hence, differences in size and growth of firms may also be attributed to unequal capabilities within firms to exploit such scale economies, and to identify and take advantage of these in their markets.

Besides the conventional theories of the growth of firms, most interesting perspectives to growth are found in theories on the internationalization of business (e.g. Caves 1971 and 1982; Dunning 1981 and 1988). The argument is that firms grow internationally due to a lack of markets for firm-specific assets. Ownership advantage is the key concept. Since the exploitation of firm-specific assets might be eroded in traditional trade arrangements, as exports and licencing, firms tend to internalize production by establishing foreign subsidiaries. The possession of firm-specific assets simultaneously provides an advantage which allows the firm to overcome problems associated with operations in foreign markets.

A prevalent firm-specific asset based on product differentiation leads to horizontal foreign direct investment. Similarly, firms in concentrated markets may grow through foreign direct investment in order to utilize their management capabilities when the expansion of output in the home market is limited. Furthermore, high home market concentration will encourage foreign direct investment if the essential raw material is located abroad.

Hence, the growth of firms may in general be connected to the existence of some firm-specific, rent-yielding asset which provides the basis for a profitable expansion of production. Recent studies have emphasized the feed-backs of experience from production, markets and business operations on the upgrading and cultivation of this firm-specific asset. Thus, the process of technology accumulation from which a firm creates its competitive strength, may also explain why firms grow, or invest abroad (Cantwell, 1989). They may do this, for instance, to assure their presence in global technology centers of importance to the businesses in which it is engaged (Chesnais, 1992).

These are the theoretical considerations which are of relevance when investigating the growth and internationalization of industrial firms in the Nordic countries. Below we will look at the

growth patterns and internationalization process of the largest Finnish, Norwegian and Swedish manufacturing firms.

Growth, Size and Internationalization of Large Nordic Industrial Firms

Figure 3.1 shows the world-wide employment of the 30 largest industrial firms of the three Nordic countries (Finland, Norway and Sweden) and its distribution between domestic and foreign business units in the 1974-90 period. In spite of the similarities in the home countries of these firms, there are appreciable size differences between the large corporations. The Swedish corporations are definitely the largest, but also the Finnish corporations are, on average, twice as large as the Norwegian. The differences in size can, to some extent, be explained by the differences in the rates of internationalization of these corporations. The size differentials of the domestic operations of these firms are smaller than those between the total corporations. However, even at the domestic level the size differentials are significant.

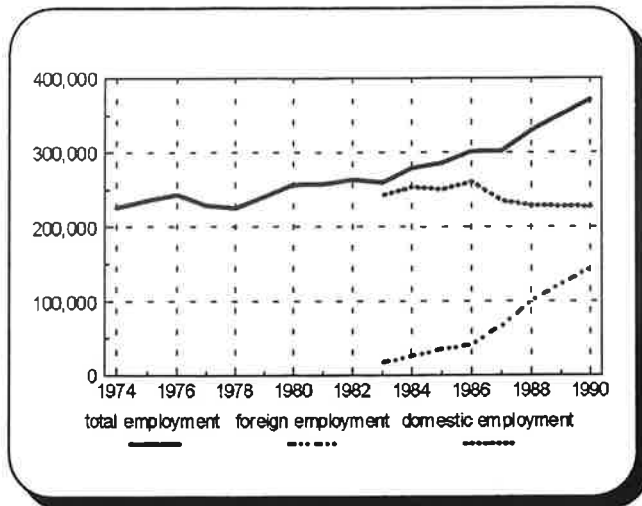
Despite these size differentials there are certain similarities in the pattern of corporate growth. During the 1970s and early 1980s employment growth was rather modest among these corporations. Then, since the mid-1980s the group of the largest firms in all the three countries grew very rapidly. The 30 largest corporations of all these countries employed roughly 40% more on a world-wide basis in 1990 compared to 1984.

The large firms have, however, grown primarily abroad (see Figure 3.2 and Table 3.1 above). When considering the distribution of employment between domestic and foreign-located entities of the large firms, it can be seen that over the whole period studied the largest firms have not increased their employment in their countries of origin. The level of their domestic employment has been either stable (1970s and early 1980s) or decreasing (late 1980s).

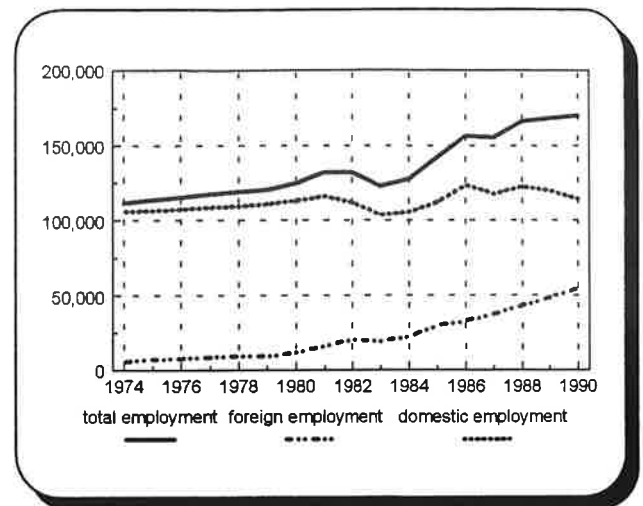
Figure 3.1. World-wide, domestic and foreign employment in the group of the 30 largest industrial corporations, 1974-90.

Number of employees.

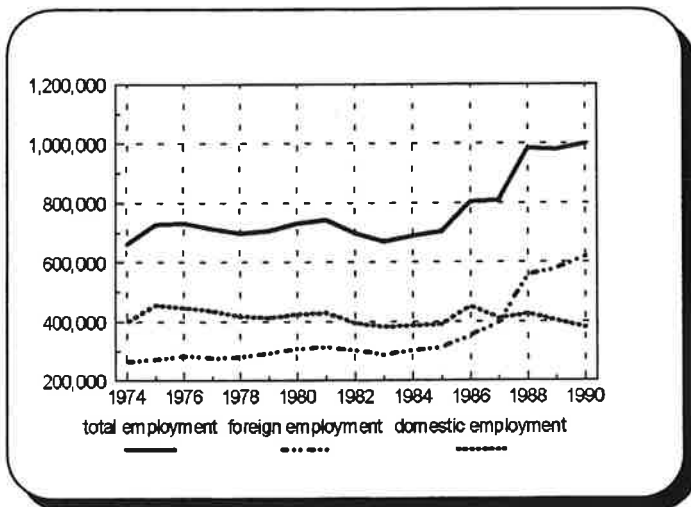
Finland



Norway



Sweden



Source: The large firm data base of the Nordic Perspective Group

The data on the pattern of corporate growth, or internationalization, are in no way sufficient to conclude anything about whether the largest Nordic corporations are "leaving" their country of origin, or whether it just means that they are adapting to the new competitive environment in

order to maintain and improve their competitive edge. The effects of this internationalization on the national economies are discussed in the next section.

4. HOME COUNTRY EFFECTS OF INTERNATIONALIZATION

From the discussion above we conclude that:

1. The stock of outward FDI is much more extensive than the stock of inward FDI for all the three countries as far as manufacturing is concerned.
2. The largest industrial firms of the three countries have rapidly been expanding their foreign operations, in particular throughout the 1980s.

This is the background for raising the issue as to how the internationalization of domestic firms affects the welfare of their home country.

Internationalization means that firms grow more rapidly abroad than at home. This does not, however, imply that the contributions of these firms to foreign economies have to take place at the expense of their domestic contributions. Foreign production of a firm may be a prerequisite for the firm to maintain and strengthen competitiveness also for its business units at home. On the other hand, foreign production is also a means for firms to escape production requirements that are set on the domestic scene. Thus, the impacts of internationalization on the Nordic economies are uncertain.

Theories on the internationalization of firms do not provide much help when looking into this matter, as they are more concerned with the causes than the (regional) economic impacts of internationalization. Traditional theories on international trade and international capital mobility are also of limited use, as they neglect the role of multinational firms.² Internationalization of firms has not received proper attention when theorizing on the competitiveness of countries, even though the mobility of industrial competence, technology and other assets within multinational firms obviously are of significance in this respect. In the case of Sweden, for instance, it is shown that the country lost more than 20% of its share in world exports of manufactured goods from the mid-1960s to the late 1980s, while the large Swedish multinational firms increased their share by more than 15% (Blomström, 1991). These firms seem to have restored their competitive position by expanding their production outside the national borders. The comparative advantages of internationally operating firms and those of countries do not necessarily coincide.

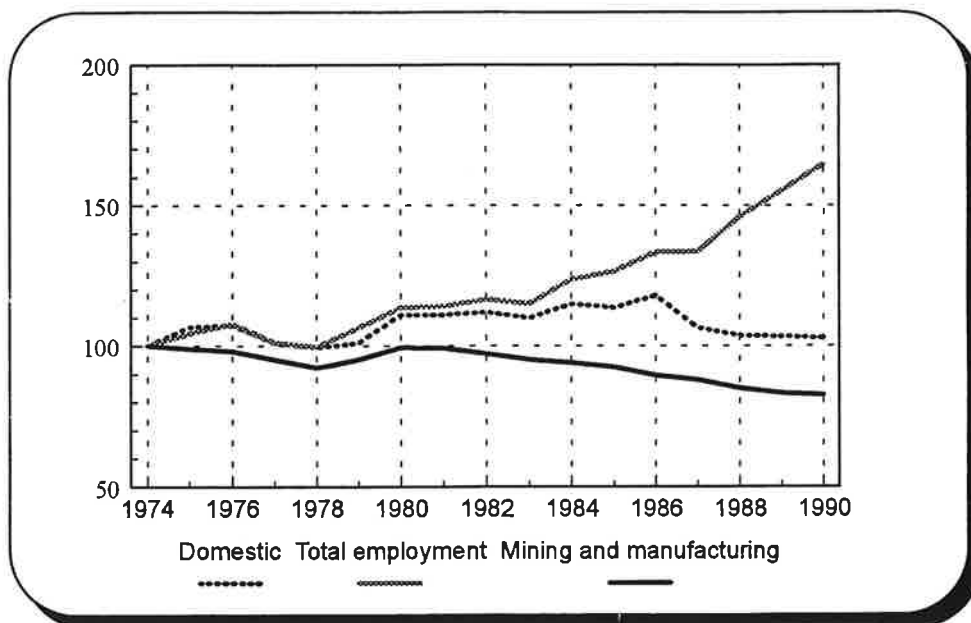
A simple indication of how the rapidly internationalizing, large firms contribute to the economy of their home country is to consider their share of the domestic industry total. We have already shown that their share of total industry employment varies between the three countries at the level of 35-50% (cfr. Table 3.1). Their share in industry output and in exports are likely to be even higher, and the relative size of the large firms' R&D expenditures clearly exceeds their contribution to total employment in each country (Heum and Ylä-Anttila, 1992).

² The new theories on international trade, linking to theories on endogenous growth, are promising in this respect (Grosman and Helpman, 1991). In future work we attempt to incorporate these in our considerations.

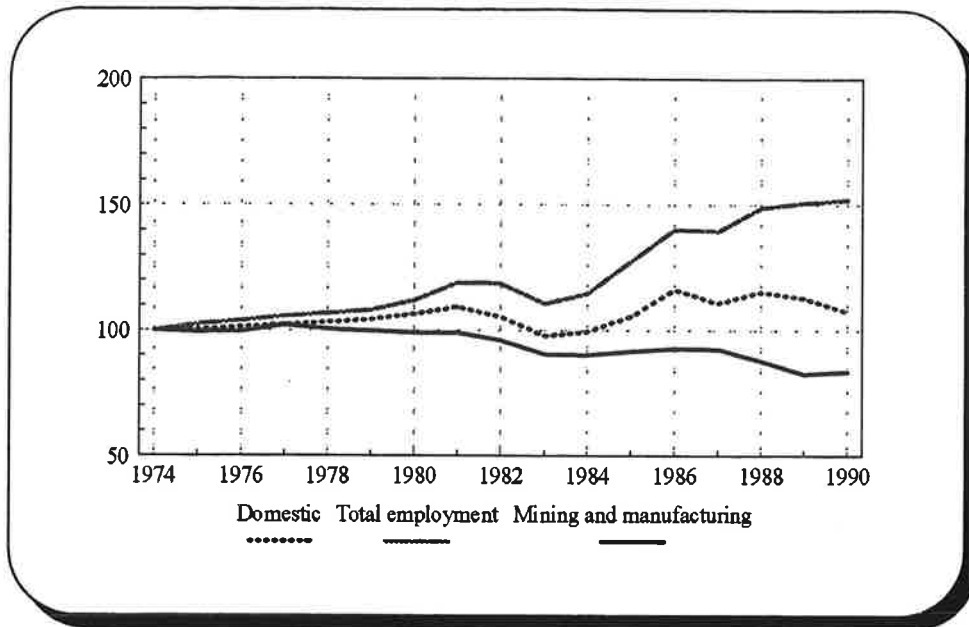
This documents that large industrial firms play an important role in the industrial activities on the Nordic scene. But, it does not answer how the home country economy is affected by their rapid internationalization. Then it seems more relevant to compare the growth of these firms with the industry total of their home country. Figure 4.1 presents how employment has developed since the mid-1970s for the 30 largest firms, specified on total corporate employment and on employment in domestic business units, and for the industry total of their respective home countries.

Figure 4.1: Employment within the 30 largest firms and in the manufacturing and mining industry of their home country, 1974-1990. 1974=100.

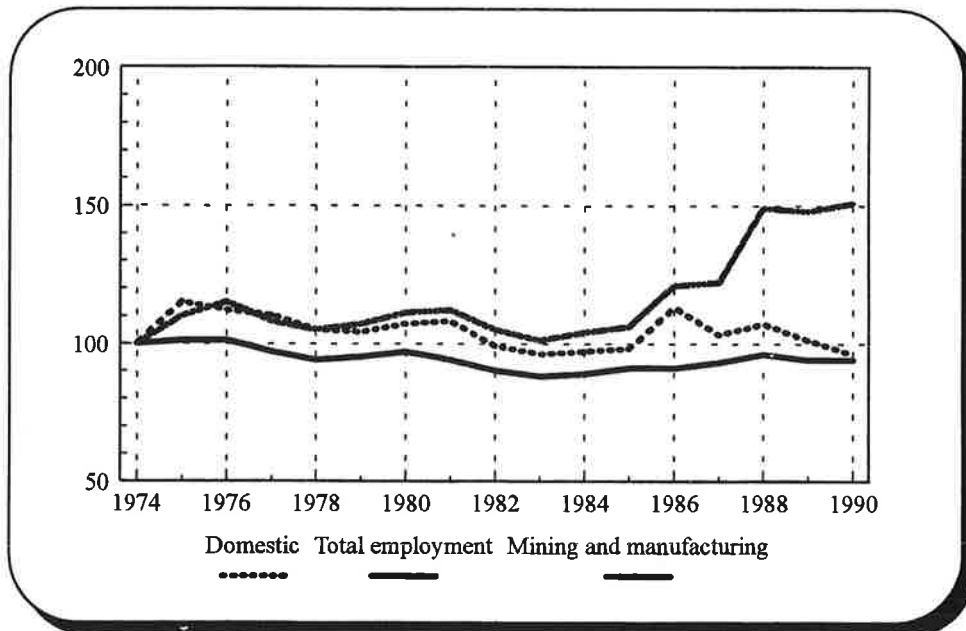
FINLAND



NORWAY



SWEDEN



Source: Heum and Ylä-Anttila (1992)

The figure clearly demonstrates that for all three countries the growth of the large firms' operations has been much stronger abroad compared to that at home, and compared to the industry total of their home country. This was particularly the case throughout the 1980s. Comparing 1990 with the mid-1970 situation, the domestic operations of the 30 largest industrial firms have grown somewhat faster than the home country's industry total, i.e. the major firms have by and large kept their domestic employment while the domestic industry total has been reduced³. However, during the latter half of the 1980s employment fell in the domestic business units of the largest firms in Finland and Sweden, and since the late 1980s this seems to be the case in Norway too. In Finland, the industry total decreased even more, so that the share of the 30 largest firms in total industry employment kept slightly increasing. In Sweden, however, where the major firms are much more internationally oriented than in any of the other two countries, the employment share of the 30 largest industrial firms was reduced (Heum and Ylä-Anttila, 1992). Thus, the 1974-1990 period does not envisage the same relative growth pattern across the countries, even though it is a common feature that the largest firms have been rapidly internationalizing their business operations.

Estimating growth differentials and shares of the domestic industry total are rather crude measures of how the rapidly internationalizing firms contribute to the economy of the home country. Regardless of the scores, it is hard to interpret whether the contributions are positive or negative to domestic welfare. For instance, it may be tempting to conclude that contributions are positive when the domestic units of the major firms perform better than the industry average, for instance if they can show higher output growth. Higher output growth than the industry average would, however, mean that concentration in domestic production is increasing. According to standard theory, higher concentration generally hampers aggregate economic growth through efficiency losses. But, this does not necessarily mean that decreasing concentration ratios should be preferred. For small, open economies, like in the Nordic countries, the existence of international competition may assure the necessary competitive forces even when domestic production concentrates. Thus, if larger firms are needed to reap scale economies and to undertake risky projects, as in R&D, to maintain and improve competitiveness, the resulting domestic concentration should not necessarily be of any concern.

Obviously, there are no easy way to trace the impacts of internationalization of domestic firms on the home country economy. To our knowledge, the most thorough analyses of this issue has been conducted in Sweden (Swedenborg, 1973; 1979; 1982; 1991, the work in relation to a public committee summarized in SOU 1983:17, and Eliasson, 1984), reflecting the long history of extensive international operations among the major Swedish firms.

The focus of these studies has been on how foreign production of domestic firms affects Swedish exports and competitiveness of the domestic business community. In principle, exports may either increase or decrease due to the establishment of foreign production by domestic firms. For the internationally investing firm, domestic exports increase to the extent the foreign establishments provide access to new markets and base their production on inputs that are produced in the home country units of the firm; it decreases to the extent the production abroad substitutes production which the firm otherwise would have conducted at home. For other

³ It should be noted that the recorded growth of the large firms is the net effect of 1) the firms' endogenously generated growth, and 2) Their involvement in restructuring the business community through takeovers, mergers, and the like. The latter factor has probably been of greatest importance.

domestic firms it is the same; the foreign establishment of domestic multinationals may either be complementary or competitive with respect to their production.

Swedenborg (1979; 1982) concludes in her analysis that there is a clear positive, and statistically significant, effect of foreign production on Swedish exports. More intuitive data on the motives of the firms to establish production abroad, on the kind of production they engage in abroad compared to the structure of domestic production, and on the trade between domestic and foreign units of these firms, have generally been assumed to point in the same direction (SOU 1983:17). Foreign production, thus, is expected to have caused adjustments within the domestic business community which contribute to an upward shift in the productivity and income level of the home country. In essence, the effects of domestic firms engaging in foreign production have been assumed to be similar to the ones achieved from increasing the division of labour and international trade (Swedenborg, 1982).

Swedenborg's analysis have recently been questioned using the same data. Svensson (1993) shows a clear substitution effect of Swedish firms' foreign production on domestic exports. At the margin this substitution is quite substantial, and it is mainly caused by third country exports of the foreign affiliates. However, according to these analyses it is not possible to conclude anything about the total exports of a parent firm, if it had not established any production abroad at all.

As to competitiveness, it is argued that the foreign production of Swedish firms has strengthened the long-term competitiveness of these firms and their Swedish units (Swedenborg, 1982). The internationalization of firms has, thus, contributed positively to the growth rate of the home economy, generating a faster rise of domestic welfare than otherwise possible (Eliasson, 1984). This effect of internationalization on productivity works through R&D and other efforts to cultivate firm-specific assets promoting competitiveness (Swedenborg, 1991). Foreign production has allowed firms to grow in size compared to what otherwise would have been possible. Thus, R&D expenses, and other expenses to promote and upgrade the industrial competence of a firm, may be distributed over larger sales volumes. Furthermore, higher sales help to finance, and probably increase the magnitude, of such efforts. To the extent foreign establishments help to generate new knowledge, or competitive innovations (as argued by e.g. Cantwell, 1989), and to the extent the multinational organization of a firm helps to diffuse this knowledge (as the school of internalizing transactions argues, e.g. Buckley and Casson, 1976), this should strengthen the competitiveness of the firm. As the core of the activities promoting competitiveness has been shown to take place in the home country units of Swedish multinationals, this is also assumed to generate positive externalities throughout the domestic business community, benefitting domestic welfare. According to Eliasson (1984), the long-term net effect of foreign production by domestic firms on the Swedish economy, by and large, are similar to what is achieved by domestic, technological progress: A higher rate of productivity growth, which increases production and real income. This latter dynamic effect is hard to quantify, but is argued to be potentially of greater long-term significance than the effect on exports (Swedenborg, 1991).

The overall positive evaluations of how the internationalization of domestic firms has affected the economy of Sweden, have been widely shared. A public committee, appointed to evaluate the industrial impacts of FDI on Sweden concluded: Given the cost level, outward FDI have had positive long-term effects on Swedish exports and employment (SOU 1983:17). The committee,

however, also forwarded some caveats regarding this conclusion. The positive domestic welfare effects may be expected to prevail as long as the foreign production of domestic firms allows Swedish labour to be employed at higher wages, and a more extensive industrial production and R&D to be conducted in Sweden, than would be otherwise possible. The more important the foreign units of Swedish multinationals become regarding R&D and third country exports, the less likely it is for these positive home country effects to occur.

Svensson (1993), which we have commented upon, is precisely on the effects of third country exports by foreign affiliates. Besides, Andersson (1992) shows that while Swedish multinationals increasingly located their R&D in Sweden between 1974 and 1986, this trend was broken in the late 1980s. The share of foreign R&D increased from 13.5% in 1986 to 16.5% in 1990. Data from ETLA suggests that a similar relocation of R&D is taking place among the multinational firms of Finland. Braunerhjelm (1991) further argues that Swedish subcontractors to the Swedish multinationals may be squeezed because of the latter's rapidly expanding investments in the EC area. The short-term effect of this exploding EC orientation among Swedish multinationals has been an increase in exports for Swedish subcontractors. But, in a somewhat longer time perspective, the expanding EC base of Swedish multinationals will force them to review their purchasing channels and business contacts, raising competition for the current Swedish subcontractors. Some will be weeded out of the market, while others will have to move out to stay close to their customers.

A recent study by Fors (1993) suggests that intra-firm technology transfers might have significant effects on multinational firms' home and host countries. Technology transfer, at least in the case of Sweden, seems to have been more or less one way traffic: From Sweden to host countries. These technology flows seem to have contributed clearly to the growth of total factor productivity of foreign affiliates, but the effect on parent companies need further analysis (Fors, 1993).

Thus, what is at risk with internationally operating firms is that the industrial base on which the welfare of a country is founded, may be eroded. Internationalization means at least to some extent that domestic resources are employed to generate value abroad. This is of no concern to the firms. And, as long as there are positive net feed-back effects on the home economy, it is also of advantage to home country welfare. However, if the employment of domestic resources to engage in foreign production also implies 1) That the firms increasingly move R&D and other competitive promoting activities abroad, 2) That the foreign subsidiaries increasingly compete with home country units for third country exports, and 3) That domestic subcontractors have to follow in the footsteps of the large multinational firms to stay in business, the home country economy will suffer. The industrial base of its welfare dwindles.

5 CLOSING REMARKS

This paper has documented that the major industrial firms primarily have expanded abroad, while their home countries experience a much larger stock of outward than inward FDI as far as manufacturing is concerned. Cut and dried conclusions as to how the internationalization of domestic firms affects the welfare of the home country are, however, hard to draw. Previous studies have, by and large, evaluated these impacts to be positive, basically because the internationalization of domestic firms has strengthened, or at least maintained, the relative competitiveness of the domestic industrial base. There is a risk, however, that the internationalization of domestic firms may also erode the industrial base on which the welfare of the home country is founded. In fact, in the case of Sweden, recent data indicates that this may be about to happen. In the case of Finland and Norway, data is more inconclusive. More extensive studies are, of course, needed to conclude anything on this matter. However, regardless of what conclusions that may be drawn, there are hardly any adequate reason to try to enforce strict regulations on FDI, or to attempt to control the foreign operations of domestic multinationals. Policy efforts should rather, on sound industrial grounds, attempt to promote the strength and competitiveness of the domestic industrial base to attract internationally operating firms, whether they be of domestic or foreign origin.

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APPENDIX 1: DEFINITIONS AND DATA ON LARGE NORDIC FIRMS

Problems in Defining Manufacturing and Firms

The prime concern of our research is to apply a firm level approach to analyze **manufacturing production**, which is considered the key to wealth for all the Nordic countries. However, if we only are to include manufacturing firms, our empirical base may easily prove too narrow. Manufacturing capabilities do not only evolve from current manufacturing production, but also from the business activities in related industries. In particular, we assume the possibilities of spill-over effects to manufacturing from the extraction of non-renewable natural resources, as ore, oil and natural gas, to be of importance. Thus, in this study we pay attention to the **ISIC industries 2 and 3**.

Defining mining and manufacturing as the empirical base of our study, poses another problem. The **conventional classification of industries** does not give a sufficient picture of manufacturing production. Manufacturing firms are increasingly becoming service producers (Eliasson et al., 1990), while they also decouple manufacturing services in separate units which officially are classified to belong to other industries. Hence, official statistics do not properly account for the role of internal and external service production related to manufacturing firms. There is, however, no easy way to avoid this problem.

A firm level approach poses another definitional problem, which may be labeled the boundaries of the firm (Tirole, 1988). The modern corporation is no easily definable entity. In many respects its boundaries are blurred because of several types of ownership arrangements and contract based inter-organizational relations (Ylä-Anttila and Lovio, 1990). Some consider the firm as a "nexus of treaties" (see Aoki et. al., 1990). Also here we have to make a choice, and we end up by applying the legal boundaries which define the firm as a financial entity. These two main definitional problems arise because the traditional boundaries between firms and industries are fading away. National accounts and industrial statistics do not properly measure the industry level aggregates; and defining firms as financial entities neglects the contract-based inter-firm relations, which are of importance when the firm, is seen as a strategic decision making unit. This, however, constitutes a shortcoming in to our study, as it is in most others.

The Data Base on Large Nordic Firms

We focus on the **30 largest industrial corporations** of Denmark, Finland, Sweden and Norway. The number 30 is chosen at random. Our concern has been to select a number that is small enough to be handled efficiently in a microeconomic-based approach, and we regard 30 to be so.

Further clarification is needed to operationalize what we mean by the largest Nordic industrial corporations. We define a **corporation** as a financial entity encompassing various business operations which legally are within the control span of one ownership group. An **industrial corporation** is defined as a corporation which has more than 50% of its total employment in conventional mining and manufacturing. This means that industrial corporations may have

SBUs operating in other industries, but that the majority of employment in the corporation as a whole is in industries classified as ISIC 2 or 3.

Defining **Nordic industrial corporations**, we include all firms operating in one of the Nordic countries, even though they may be owned from abroad and be part of a larger foreign corporation. In such cases, however, we only include the legal parts of the firm registered in the host country, i.e. also foreign subsidiaries which are directly subordinated to their control.

When selecting the **largest industrial corporations** in each of the three Nordic countries of this study, several measures of size are available. As value creation is our main concern when studying industrial and economic development, information on value added would be a quite natural ranking criterion. Value added data is, however, hard to come by at the corporate level of production. The most frequently reported size measures are sales and employment. As we expect employment figures to be the ones that correlate most strongly with value added, we have chosen it to be our ranking criterion. We have then considered world-wide employment of the corporations rather than employment which they have in their countries of origin. Either way, the sample of corporations would have been more or less the same. Only the rank order is to some extent affected.

The number of variables on which we have sought corporate data, is quite limited. We have sought information on sales, employment, R&D, profits and foreign operations (sales and employment) as well as on value added and on the founding year of the firm. At this stage, the priority has been given to foreign operations, in particular regarding sales and employment, and our data coverage is fairly good in this respect. However, also for these variables as for the others, there are variations in the coverage over time and between countries. Appendix 1 presents the list of variables and information on the number of corporations from which we have data.

Problems Regarding the Data Base

It is a fact that corporations continuously are subject to change. When constructing a data base on specific firms, the extent of mergers and acquisitions may cause some trouble. Our basic idea has been that we keep the acquiring corporation in our data base, and regard it as expanding through external growth. The acquired corporation or SBU becomes part of the acquiring financial entity. If the acquired unit is a corporation, it stops to exist as a separate entity at the corporate level. In some cases, however, it is difficult to say which of the two merging corporations actually should be considered as staying on as a financial entity. Then we have had to rely on our own discretion. There is no reason to believe that this causes major problems in analyzing our data.

There are, however, three matters to be aware of when interpreting the data which is used in this report. The first concerns consistency within the data. As there are no systematically collected public data on corporations in any of the Nordic countries, we have had to collect them from different sources: mainly from annual reports and directly from the management of the corporations. This means that we base our information on the consolidation principles which the corporations apply. These may vary between corporations, and they have to some extent been changed during the period covered by this study. Thus, accepting the consolidation principles of the corporations, we are aware of problems that may arise when interpreting

development patterns revealed by the data. We think, however, that these problems are of minor importance in our study.

The second matter concerns the industry aggregates which are used to compare growth patterns at the corporate and national level for the different countries, and to calculate the share of the largest corporations in domestic mining and manufacturing. We make use of the National Accounts, which causes a problem as service production is included in the corporate figures, while excluded for those at the aggregate level. We take account of that in our discussion.

Finally, the sampling of corporations may cause some problems when the data is used to analyze changes in the ways business is conducted. The 30 largest corporations in the data base are selected for every year between 1974 and 1990. Thus, our sample varies from one year to another, while panel data would be preferable when analyzing industrial transformation.

As the top-30 corporations one year tend to be among the top-30 also in later years, we do to some extent have panel data. The number of corporations which can serve as a panel for all of this period is on the other hand fairly low, i.e. less than 20 in each country.

Establishing panel data is, however, more complicated than to just include the apparently same corporations over the time period considered. A corporation changes over time as it invests to take the advantage of changing business opportunities, through mergers and acquisitions, and by divestitures. Only the corporation's name may remain a constant. Thus, to establish true panel data we also need to collect information for the years a corporation does not qualify to be among the 30 largest.

However, for practical purposes we do not expect it makes much difference to illustrate current trends in business development on the basis of the then largest industrial corporations in a country, rather than to examine these trends on the basis of a panel sample selected among the largest corporations. At least this is what we can expect because of the persistence of large firms, which is documented in Chapter 3. This is also confirmed when comparing the trends envisaged by our samples with results from our preliminary attempts to construct panel data from our data base.

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