STO: Product inventories as of end of year T as a percent of total sales in year T

NORMST: Normal ratio of product inventories to sales volume

C. Supplementary Variables

COST: Total Costs (labor costs + raw material/input goods costs + "other costs")
(available from 1984–86)

ELAG: Electricity Costs in T–1 (including internally generated)
(available from 1978–86)

E: Electricity Costs in T (including internally generated)
(available from 1978–86)

FLAG: Fuel costs in T–1 (coal, oil, etc)
(available from 1978–86)

F: Fuel costs in T (coal, oil, etc)
(available from 1978–86)

HLAG: Total manhours (in 1000's) in T–1
(available from 1980–86)

H: Total manhours (in 1000's) in T
(available from 1980–86)

K1: Replacement value of capital stock (building and plant) as of 31 December 1979

K2: Replacement value of capital stock (machinery and equipment) as of 31 December 1979

MLR: "What increase in employment in year T (compared with actual employment that year) would have been required to reach full capacity?"
(available from 1980–86)

RED: "Could year T's production level have been achieved with less employment? If so, by how much less as compared with actual employment in T (in percentage terms)?"
(available from 1980–86)

CHAPTER IV

Competence, Capacity and Capital: A Description of a Complementary IUI Firm Survey of Small and Large Firms and of Subcontractors

Pontus Braunerhjelm

CONTENTS

1 Introduction

The Industrial Institute for Economic and Social Research (IUI) has a long tradition of working with data collected directly from firms, using their own definitions and interpreting the data in the light of the particular purposes for which such internal data have been put together (Eliasson 1985b). The advantage of gathering and processing information directly and independently is threefold: increased quality of data, a more relevant selection of data and comparability of data over time. IUI's good relations with the firms also make it relatively easy to gain access to otherwise confidential data.

The "traditional" databases of IUI are the yearly planning survey (see Albrecht's Chapter III in this volume) carried out jointly with the Federation of Swedish Industries, covering manufacturing *firms and/or divisions* in Sweden since 1975, and the large surveys on the *international operations of Swedish firms* (Swedenborg 1979, 1982, Swedenborg et al. 1988, Eliasson 1984b, Eliasson et al. 1985a. Sections 4 and 5 in this chapter give a brief description of the database and its connection to other IUI databases). Those databases have recently been complemented with two new sets of data *on firms*, collected in 1989 and 1990. The first data set covers medium and large sized firms, predominantly located in Sweden, whereas the latter comprises small Swedish firms and subcontractors.[1] The background of these surveys is the rapid transformation of Europe due to the EC 1992 program and the restructuring of East Europe (Braunerhjelm 1990, 1991a). All these data sets are now being consolidated within the context of the micro-to-macro model. (See Chapter I in this volume.)

This chapter focuses on the contents of the two special IUI "firm surveys". The data sets include information on the firms' degree of international operations, the quality of the labor force and the nature of capital employed in the firm (traditional

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[1] The participating small firms—small being defined as having between 20 and 200 employees—make up a random sample from the firm register at the National Bureau of Statistics (SCB). Subcontractors make up a random sample from a population put together by IUI using different sources. At the time of the investigation there were no official statistics available on subcontractors. Subcontractors are defined as producers of intermediate products exposed to international competition —either through the internationalization of their customers or their international contacts— displaying a high degree of customer dependence (one customer should receive at least 20% of their production).

fixed capital complemented with more untraditional data on "soft" capital, such as investments in software, marketing, technical knowledge etc.). In addition to these "structural" data, the standard questions of the planning survey were asked (the questionnaire is found in Appendix 2). Altogether the data make possible an analysis of the sources of international competitiveness of firms, emphasizing the importance of human embodied team competence (Braunerhjelm–Eliasson 1991b).

Some questions asked in the new survey have been tested and asked in earlier special surveys, complementary to the planning survey. Special questions on the contents of manufacturing production, notably its service and information contents were added for 1976 and 1982–1985 in the planning survey. Furthermore, a special "service questionnaire" was designed in 1983. This database contains information on the degree and type of service production in different subindustries (see Deiaco and Pousette–Lindberg, pages 107 and 165 in Eliasson et al. 1986). In addition, a special questionnaire to private service producers, on the format of the planning survey, was designed and tested in 1989. Lack of funding, however, has prevented us from carrying it out so far.

This chapter divides naturally into two parts. The first part (section 2) presents the extension of the planning survey to small firms, subcontractors and foreign operations, using *the firm* rather than the division as observation unit. The second part (section 3) concentrates on the structural data. It particularly attempts to measure firm stocks of human-based knowledge. This study builds on earlier studies conducted at IUI (Eliasson et al. 1986, Eliasson 1990). The chapter includes a discussion of the problem of choosing the appropriate units of measurement and to whom the questions should be addressed. In other words, what data are available where in the firm? A plan for the organization of future data collection concludes the chapter.

2 Extension of the planning survey

Internationalization has become one of the key-perceived strategies for corporate success. Deregulation during the postwar period, the development of modern communications technologies and decreasing costs in transportation have prompted such development. The fact that some firms lacked competence to internationalize

successfully and failed, has not changed the prevailing view that internationalization is necessary to stay competitive. Hence, the analysis of firms requires that foreign operations be incorporated. While the planning survey covers domestic activities only, the observation unit in the 1989 firm survey is the firm, globally defined.

The 1990 survey covers small firms and subcontractors and is designed to correspond with the regular planning survey. It continues the pilot surveys undertaken in 1986 and 1987 (Virin 1986, 1987).

The questionnaires sent out to firms in the 1989 and the 1990 surveys consist of two parts; the first part deals with information taken directly from the annual reports of firms and, in addition, structural factors (knowledge capital, internationalization, markets). The questionnaire naturally refers to the firm as the observation unit. The second set of questions is oriented towards expectations of firms with respect to the EC 1992, their main competitive advantages and alike information. The presentation below emphasizes the information gathered in the first part of the questionnaire. I will begin by describing the 1989 survey.

2.1 Description of the 1989 database

The sample of firms in the 1989 database follows the respondents of the planning survey as closely as possible. Whenever possible, divisions have been systematically consolidated. The observation year is 1988 except for gross investment where data were collected for 1986–1988 and a (by the firms) predicted figure for 1992.

Most of the data are reported on regions, notably Sweden, the EC and the rest of the world (RoW). Firms can also be identified with respect to subindustries, whether they belong to a Swedish firm or have a foreign affiliation etc. The database covers 140 firms.

2.1.1 Sales and cost data

The sales and cost data are from the profit and loss accounts of the annual reports. Data are matched with internal data on R&D, marketing, administration, wages, etc. Expenditure on the purchase of intermediate products and unprocessed goods is included as well as costs for external purchases of services. For practically all

these data the location of production is regionally distributed on Sweden, the EC and the RoW (cf. the distribution of labor productivities and rates of return between Sweden and the EC in the machinery industry in Figures 1 and 2).

As in the regular planning survey, data on capacity utilization and the different restrictions that prevent operation at full capacity utilization are reported. Furthermore, data on firms' assets—as recorded in their balance sheets for fixed and current assets—as well as on how these are distributed between Sweden and foreign countries have been collected. This allows the comparison of rates of return in different regions (see Figure 2).

2.1.2 Internationalization and market

Structural data relate to the firms' specialization and their dependence on other firms, their internationalization and their competence level. These data make it possible to identify the source and origin of firm competitiveness (see Section 3).

The 1989 survey provides market data on specialization down to the three-digit level (when possible, down to the 6-digit level). A variety of additional market data have been collected in the 1990 survey to which I shall return in Section 2.2.

With regard to the degree of internationalization of firms, the data set contains information on exports from the Swedish units to the EC and the RoW. Moreover, exports to the EC are divided between intra-firm exports and other exports. Intra-firm exports are then classified with respect to their use; as investment goods, as intermediate products to be further processed and, finally, as goods for sale directly through the foreign subsidiary (Table 1).

Table 1 Intra-firm export to the EC as percentage of total export in different subindustries, large firms, 1988

	Percentage intra-firm export	of which for direct sale	of which are goods in process	of which are investment goods
Food industry	37	95	5	0
Paper and Pulp	26	86	14	0
Machinery	53	60	32	8

Source: Braunerhjelm 1990.

Import patterns of goods and services of individual firms have been collected, with imports divided on the EC and imports from the rest of the world. Whenever possible, imports from the EC have been shown as intra-firm and other imports. Thus, the firms' overall purchase of goods and services can be distributed on foreign and domestic sources. Intra-firm trade is one way to capture the dependence of Swedish firms of the EC market.

The regional distribution of investment and the allocation of firm assets —discussed in the previous section—constitute an additional measure of the degree of internationalization.

2.2 Small firms and subcontractors; the 1990 survey

The survey in 1990 to small firms and subcontractors is a follow-up of the 1989 survey. The questionnaire has been designed to make comparisons with the result of the 1986 and 1987 surveys to small firms possible. The 1990 survey is, however, much more detailed. In particular, more attention has been directed towards the firms' specialization in production (divided into 6 groups, Figures 3a,b), their dependence on different markets and customers (Figures 4a,b), links to the large Swedish multinationals, etc. Moreover, for some of the firms data on expectations (as well as on past performance) of sales, prices, and inventory stocks, have been included. Some of the expectations variables refer to both domestic and foreign markets.

The survey covers a sample of 115 firms, although non-response is high for some difficult questions. Firms are classified according to whether they are subcontractors, foreign or domestically owned subsidiaries, or whether they belong to a group of small, independent firms. All the accounting data of the 1989 survey are available (sales, costs, investment, etc.), as are data on foreign activities, exports, assets and expectations with regard to the EC 1992 program. Most of the accounting data have been collected for 1988–1989 and in some cases up to 1990. This time only data on labor, fixed assets, gross investment and exports are given on Sweden and foreign countries (foreign countries are divided into the Nordic countries, the EC and the RoW). No data are available (in the 1990 survey) on imports, purchases of services and intra-firm trade. Labor productivities and rates of return can be derived from

the data set (as an example, consider the distribution of the real rate of return on firms of different sizes in Figure 5).

3 Firm competence

We have attempted to obtain measures on specific firm competence, by asking questions on the firms' internal education costs, the skill composition of its labor force, R&D and marketing expenditures. Firms have also provided estimates on their hidden, "soft", capital not reported in their balance sheet, defined to be comparable to recorded tangible assets. We have asked for data on all assets—tangible and non-tangible—expressed in repurchasing value, after appropriate depreciation charges. Since these data are not part of the standard information set available at the corporate headquarters (CHQ) we have encountered special difficulties. Our prior tests of questionnaires with firms, however, indicate that firms could supply meaningful data.

3.1 "Soft" capital

To bring together "soft" capital with the firms' tangible assets is not altogether uncontroversial. Economists are used to looking at standard balance sheets, but get confused when the new data show up, even though the definition and measurement problems are the same (see Eliasson's Chapter I, Section 4.4). Complementary interviews and other studies demonstrate, however, that investments in soft capital are becoming increasingly important for firm profit performance. From a macro perspective such capital also carries implications for an economy's flexibility and ability to adjust to external shocks. A global competitive edge requires unique skills in—and continuous upgrading of—organizational learning, internal communication, marketing, R&D, etc. However, investments in such "soft" capital are—for legal and traditional reasons—not shown on the balance sheet. As a consequence, assets are generally underestimated.

As an example, consider a firm's effort to capture a share of the market in a country formerly not penetrated by the firm. The firm allocates resources to different marketing activities, establishes contact with retail dealers etc. These are

long-run investments and profit effects are expected to show only after many years. Still, such investments are charged as a whole as current costs in the profit and loss statement. Quite often this means that the division undertaking the investment is reporting a loss for several years.

Firms participating in the survey have calculated how much of their expenditure on computer software, marketing, education and R&D that should be regarded as an investment, the rest being charged to the current cost account. After depreciation, the repurchasing value of the stock of these assets has been calculated (Tables 2 and 3). For some of the categories, notably internal education, data were not available at CHQ, but had to be based on specifications from divisions and establishments.

Table 2 The composition of production capital in Swedish manufacturing firms

	9 largest firms		17 largest firms	Planning survey firms	Sample of subcontractors (ISIC 38)	Sample of small firms (ISIC 38)
	1985	1988	1988	1988	1989	1989
1 Machines and buildings	53	50	70	62	89	80
2 Software	n.a.	7	6	5	2	4
3 Technical know-how (R&D) capital	17	16	13	21	4	11
4 Marketing capital	20	19	6	10	3	3
5 Educational capital	10	8	5	2	2	2
6 Total (percent)	100	100	100	100	100	100

Source: Braunerhjelm 1990, 1991a. For the data from 1985, see Eliasson 1990.

Table 3 The composition of production capital in different Swedish industries
Percent

	Fixed capital	R&D capital	Marketing capital	Educational capital	Software capital
Food industry	90	4	3	2	1
Paper and Pulp	91	2	2	2	3
Machinery	62	21	10	2	5

Source: Braunerhjelm 1990.

Since information on "soft" capital is available only after special calculations based on the internal accounts of firms, some of the data for the firms in Table 2 have been estimated on the basis of subindustry averages, or the average for a similar group of firms. Some data have been collected through telephone interviews.[2]

The table reveals a number of interesting things. For instance, as the number of firms increases from 9 to 17, the share of fixed assets increases to 70 percent. The explanation is that the additional 8 firms belong to Swedish basic industries (forestry, steel), which are hardware production intensive and exhibit relatively low investments in "soft" capital. Furthermore, the figures suggest that the importance of traditional, fixed capital has diminished even in such a short time as 3 years.

3.2 Other competence variables

The distribution of cost variables measuring competence (the costs of R&D, marketing and education) in firms of different sizes is shown in Table 4. Apparently, small firms and subcontractors devote substantially less resources on competence account than do large firms.

[2] Obviously unrealistic values have been omitted from Tables 2 and 3, even though they are still kept in the database files to be checked in later surveys.

Table 4 R&D, marketing and education expenditures as percentage of the firms' total costs, 1989

	R&D	Marketing*	Education	Sum
Small firms	.8	4	.3	5.1
Subcontractors	1.5	3	2	6.5
Large firms	9	5	2	16

* The figures relate to the domestic parts of the firms which explains the low marketing figures for large firms.

Source: Braunerhjelm 1990, 1991a.

The data also allow the firms' labor force to be decomposed by educational level. As illustrated by Table 5, the structure of the labor force displays huge differences between firms of different sizes. This could significantly influence the firms' capability of adjustment to changing market conditions, as for instance in response to the restructuring of Europe.

Table 5 The skill composition of the labor force in firms of different sizes, 1982, 1988, 1990

	Small firms 1990	Subcon-tractors 1990	Large firms 1988	Large firms 1982
Executive staff	5	3	2	4
Specialists, middle management	9	7	11	12
White collar	16	15	29	20
Skilled worker	46	35	25	64
Unskilled worker	24	40	33	
Total	100	100	100	100

Source: Braunerhjelm 1990, 1991a.
The 1982 shares are estimates based on the IUI service survey in 1983 (see Eliasson et al. 1986).

4 The surveys of Swedish manufacturing multinationals

Over the years IUI has conducted 5 surveys on the entire population of Swedish multinationals, covering the years 1965, 1970, 1974, 1978 and 1986 (Swedenborg

1973, 1979, 1982, Swedenborg et al. 1988). There is an early and not as complete study with data for 1960 (Lund 1967). A new survey is planned for the year of 1990. These surveys have an exceptionally high response rate (approximately 95% of the firms have answered the questionnaire) which allows unique micro panel studies. The incidence of Swedish direct investment and production abroad over different regions and nations, as well as its extent, can thus be traced to the early 60s (Lund 1967). Data are available on employment, the relation between production and sales companies, sales and acquisitions of foreign subsidiaries etc. Information is also reported for the particular country in which the Multinational Firm (MNF) has its foreign operations. Hence, country and regional dimensions of MNF activity can be shown.

These surveys, except the last one, originally had nothing to do with the MOSES Database. Some work has, however, been done on integrating the MNF firm/group data with the matching planning survey data. (See Eliasson et al. 1985a, p. 30 ff. and Bergholm–Jagrén 1985, p. 110 ff.). This work will continue, with the ambition of completing a firm panel with domestic and foreign firm operations kept separate for the years covered in the surveys. This data set will constitute part of the MOSES Database.

5 Choice of observation unit—who knows what, where?

A major database problem in MOSES work has been to consolidate financial data in the firm with production data sets for the establishment or division levels. In modern manufacturing firms CHQ management is increasingly removing itself from operational responsibilities below the division level (Eliasson 1976, Eliasson et al. 1985a). This means that the "rich" databases on production available at CHQ level in centralized firms are increasingly being removed to division level. There is not even a guarantee that division production data will be consistent with overall firm financial data. The "firm planning surveys" reported on in this chapter, rather than the "establishment and division" planning surveys in Albrecht's Chapter III, were partly motivated by a desire to obtain the necessary data from *one* source only.

However, switching from one source of information to another raises new problems. The unit of measurement that is controlled and measured by division

management may not be identical with the unit of account (the division) that CHQ controls and measures. These measurement problems are large and are subject to separate inquiries at IUI, not yet ready. For MOSES purposes we need the units that CHQ measures and controls. We do not yet know to what extent these units are the same as the planning survey units. The way the planning survey was designed, we believe, makes the matching effective. The large firm, however, runs a large number of units and subsidiaries, especially in the service area, that are not covered by the planning survey. It is even possible that significant foreign value added has been classified as domestic value added in previous surveys, due to the design of the questionnaire. Therefore, a questionnaire incorporating a conversion matrix (see Section 5.1 below) has been designed to be completed at CHQ, on the format of the MOSES model firm, later to be used to consolidate and check planning survey data.

This method saves survey time, but moves the cost of collecting the information on to the firm and creates a quality problem. Either CHQ of the large firm sends out an internal questionnaire to collect the data, which increases the probability of non-response, or completes the form on its own, with the risk of entering data of bad quality. On the latter score, which seems to be the common procedure, one could say that this is better for MOSES use, since we obtain the data available and used for decision making at CHQ. Furthermore, one would guess that CHQ data, even though of lower quality than the division and establishment data for operational use, exhibit better consistency with corporate financial accounts.

5.1 Conversion matrix between planning survey, multinational firms, and firm surveys

The planning survey units have been defined as the smallest, financially defined and reasonably stable decision units (see Eliasson 1985b, p. 363 ff.). This corresponds to the division concept, sometimes a small firm, sometimes an establishment. A division consists of a bunch of product groups. A product group is normally the smallest unit within a firm for which a complete profit and loss statement (not a balance sheet) can be composed. It is also referred to as profit centers for which single valued profit control can be defined (Eliasson 1976 Chapter 11; see also

Table 8 in Chapter I above). The division is the smallest unit for which a balance sheet can be naturally made up. A division almost always has a one to one interface with a well defined market. It is, however, also possible to ask division heads about production data.

Divisions are coordinated financially at CHQ. The point with the conversion matrix (Table 6) is to ask CHQ about data available for their coordination and control purposes and to check consistency with the data gathered in the regular planning surveys. Assuming the consistency to be good, the conversion matrix allows for the integrated use of all these databases at IUI that make up the MOSES Database. This would considerably enrich the potential for relevant empirical analysis.

Table 6 The conversion matrix

DIVISIONS		Division 1	Division 2	...	Division N	The rest	Value Added contribution
Percent Domestic Value Added contributions		Planning survey	Planning survey	...	Planning survey	CHQ	Total domestic division Value Added contribution y percent
Percent Foreign Value Added contributions		MNF survey	MNF survey	...	MNF survey	CHQ	Total foreign division Value Added production z percent
Total division	Percent	100	100		100	100	y+z = 100
Value Added contributions	Million SEK	x	x		x	x	Total firm Value Added million SEK

The CHQ of a large corporation coordinates and controls divisional activities. This requires time consistent measures of firm performance. Since the internal measurement system of a firm is designed to represent internal structures that are constantly changing, the reliable use of such information systems requires a long experience in their interpretation. CHQ management are therefore unwilling to change their internal principles of measurement, since it may seriously reduce the interpretability of internal data (Eliasson 1976).

The interpretation of internal accounts has been particularly difficult in conjunction with the classical problem of identifying the source of profits in an international firm. CHQ wants to understand and control the inner life of a complex organization through an information system designed to suit their problems. Tax literature has discussed the equitable distribution of profits in multinational firms for years, and much attention has been directed at how—and if—firms manipulate profits through their transfer pricing practices (see Eliasson 1972). Is the high rate of return in foreign subsidiaries compared to domestic operations wrong in Figure 2, because firms have charged too little for their R&D services to foreign subsidiaries?

The extension of the firm planning survey and the new survey to multinationals will shed empirical light on these questions. However, the argument for biased profit reporting is probably misleading for two reasons. First of all, although "R&D assets" reside in Sweden, even larger stocks of "marketing assets" reside in foreign subsidiaries. Secondly, if a Swedish production unit tries to sell its intangible goods to unrelated foreign firms (instead of their own foreign subsidiaries) they may have to be satisfied with even lower prices. Hence, while the parent may be charging too little for R&D services, the foreign subsidiary might be satisfied with a too small margin for their marketing services.[3] Consequently, it is decisive that the actual principles by which transfer prices are set within large business organizations are understood.

Transfer price systems incorporate certain basic principles. First of all, each transfer price system used generates its particular "profit incidence". Firms prefer to use rather simple and (internally) non-manipulatable transfer price systems that may appear arbitrarily designed to the outsider analyst or tax accountant, but allow CHQ to identify profits and losses properly and to exercise internal cost control accordingly. It is an important part of the firms' internal information system. As a consequence CHQ management does not want to change its transfer price principles since the loss of internal information quality and control probably overshadows by far the tax benefits that can be earned (Eliasson 1972, 1976). The

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[3] The large overall profit contribution from international markets is illustrated for two East European firms in Eliasson (1991b). The East European firms obtain a very low sales price since they have to use a western agent to market and distribute their products.

transfer price system used, hence, always embodies an arbitrary, profit distribution bias with special characteristics for each firm.

According to Eliasson (1972) generous corporate tax advantages in Sweden may have induced firms in the 60s to exaggerate their profits in Sweden. There are no indications that a reversal of this bias should be expected for recent years. Under this presumption the rate of return difference between the foreign and domestic activities in Figure 2 may even be underestimated. This problem however, is a typical accounting problem that has to be addressed in the design of further firm planning surveys.

6 Final remarks

The two data sets—the EC survey and the survey on small firms and subcontractors—described above have been developed for their specific purposes; to investigate the effects of the EC 1992 program on the Swedish economy. An example is given in Figure 6 (see also Figure 2), where the vulnerability of subcontractors to increased costs (or to lower prices), i.e. intensified competition, is shown. In fact, the MOSES model will be used to systematically quantify the macro consequences of the EC 1992 on Sweden. This analysis requires structural data on competence attributes, such as internationalization, marketing, etc., which are not available on a routine basis from corporate accounts. The material is classified in such a way that both sector and firm data are readily accessible (Braunerhjelm 1990, 1991a). Altogether the two databases contain approximately 35 000 observations on 260 Swedish firms of different sizes in different sectors.

In the future the ambition is to repeat these surveys regularly, structural factors being an essential source of information. In 1991/92 IUI will undertake a new survey on Swedish multinational firms with links to earlier analyses (Swedenborg et al. 1988) and surveys (1965, 1970, 1974, 1978, 1986) in this area. The new survey will contain a large part of the structural questions. The idea is to make a direct integration of planning survey data and global firm data possible. Furthermore, a regular questionnaire on small firms and subcontractors will supplement the planning survey in the future.

APPENDIX 1

Formulas

The questionnaire sent out in the MNF survey and in the special surveys includes data on the firm or the group. The planning survey does the same for divisions. The conversion matrix allows us to consolidate the two sources. The conversion matrices allow the computation of profitabilities for the divisions and the whole firm. This is the way it can be done.

Assume that conversion matrices on value added, group operating profits and assets, replacement valuation are available.

Take the rate of return formula (4B) from Eliasson's Chapter I,

$$R^N = M \cdot \alpha - \rho + \frac{\Delta p^k}{pk}$$

$$M = \frac{gross\ operations\ profits}{value\ added}$$

$$\alpha = \frac{value\ added}{assets}$$

$$\rho = depreciation\ rate$$

$$\frac{\Delta p^k}{p^k} = capital\ gains\ in\ percent\ of\ assets$$

Disregard the capital gains item. Assume that information on the depreciation factor (ρ) is available from divisions (planning survey), or apply standard assumptions, as is currently done.

Then the three conversion matrices include all the information needed to compute R^N properly for each division and the entire firm.

APPENDIX 2

Questionnaire

STRICTLY CONFIDENTIAL

SWEDISH INDUSTRIAL COMPETENCE IN AN EC-PERSPECTIVE

SPECIAL ENQUIRY FOR THE INDUSTRIAL INSTITUTE FOR ECONOMIC AND SOCIAL RESEARCH

THE ENQUIRY SHOULD BE RETURNED AT THE LATEST MONDAY, JULY 3, 1989 TO THE FOLLOWING ADDRESS:

Industriens Utredningsinstitut
Box 5501
114 85 STOCKHOLM

Questions will be answered by: Pontus Braunerhjelm, tel. 08-783 84 53
Jeannette Åkerman, tel. 08-783 84 59

The name and address of the firm if different than the above:

_____

_____

_____

Contact person: _____

Tel.: _____ Ext.: _____

THE QUESTIONS REFER TO CALENDAR YEAR 1988 OR THE CORRESPONDING ACCOUNTING YEAR IF NOTHING ELSE IS SPECIFIED. THE QUESTIONS REFER TO THE PART OF THE FIRM (GROUP) WHICH HAS BEEN GIVEN AT THE TOP OF THE FORM. IF PREFERABLE, THE QUESTIONS CAN BE ANSWERED INDEPENDENTLY BY THE RESPECTIVE UNITS OF THE FIRM.

PART 1: FACTS ABOUT THE FIRM

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1. The firm's (group's) external sales distributed on regions, mill. SEK.

   (Sales should be stated net, i.e., after deduction of indirect taxes and returns. Internal deliveries should also be eliminated. Sale per region refers to subsidiary sales from each respective area, i.e., not sales to receiving markets.)

Total	Sweden	EC	RoW

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2. Total external sales according to question 1, distributed on product groups.

Products/product groups[see note 1)]	Share of sales %
	100%

---

3. Total costs distributed on type of cost and region (i.e., costs before depreciation and financial result, mill. SEK).

	Total	Sweden	EC	RoW
a) R&D costs				
b) Production				
of which				
– purchases of raw materials and intermediate products				
– energy costs				
– purchases of services (see note 2)				
– other production costs				
c) Marketing				
of which				
marketing investments (see note 3)				
d) Administration				
e) Other costs				
Total costs				

4. Gross profit, distributed by region, mill. SEK.

Total	Sweden	EC	RoW
_____	_____	_____	_____

---

5. How are educational and wage costs (incl. social charges) distributed on the following categories of profession?[note 4)] (Please estimate roughly if you don't have the appropriate statistics.)

	No. of employees	Salary cost	Educational cost
a) Executive functions, managers	_____	_____	_____
b) Employees with qualified technical assignments or special competence	_____	_____	_____
c) Other employees	_____	_____	_____
d) Skilled workers, qualified maintenance personnel, supervisors etc.	_____	_____	_____
e) Unskilled workers	_____	_____	_____
Sum: Total sum of employees, total salary costs, total educational costs	_____	_____ (1000 SEK)	_____ (1000 SEK)

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6. Number of employees and salary costs (incl. social charges, 1000 SEK) distributed on regions

	Total	Sweden	EC	RoW
Employees (Average full time)	_____	_____	_____	_____
Salary costs	_____	_____	_____	_____

7. a) Total firm assets in each region, mill. SEK.
(**Note:** If possible, use replacement valuation. Please indicate which valuation method you have been using.)

Replacement value ☐ Fire insurance value ☐ Book value ☐

Total (mill. SEK)	of which Sweden	EC	RoW
_____ mill. SEK	_____ %	_____ %	_____ %

of which

b) Fixed assets, (property, machinery, inventories) total and per region

Total (mill. SEK)	of which Sweden	EC	RoW
_____ mill. SEK	_____ %	_____ %	_____ %

c) The firm has probably invested in other assets than those visible on the balance sheet. Most of these investments have been charged at current costs. Please try to estimate the value of such assets, distributed on the following categories (after depreciation).

Resources invested in	Estimated replacement value as percentage of total assets in (7a)
c1) Software	_____
c2) R&D	_____
c3) Marketing	_____
c4) Education	_____

8. Gross investments in fixed assets (property, machinery, inventories), mill. SEK.

	1986	1987	1988	1992 (plan)
Gross investment				
of which				
a) in Sweden				
b) in EC				
c) in RoW				

9. Total exports from domestic firm units _____ mill. SEK

a) of which to EC _____ mill. SEK

b) of which to EC subsidiaries _____ mill. SEK

10. Intra-firm exports (9b) to EC intended for

a) direct sales _____ mill. SEK

b) goods in process _____ mill. SEK

c) investment goods _____ mill. SEK

11. Purchases of raw-materials, intermediate products and services. (Please estimate if no direct statistics are available.)

	Raw materials and intermediate goods	Services
a) Imports from firm units within the EC	_____	_____
b) Other imports	_____	_____
(Percentage of all imports from EC-countries	_____	_____)
c) Domestic purchases	_____	_____
	100%	100%

PART 2: ESTIMATES

12. By what percent can the production volume increase in the survey year (as compared with the preceding year) with the current production capacity and already decided capacity expansions? (By assumption there is no restriction on demand and supply of labor.)

Total	Sweden	EC	RoW
_____%	_____%	_____%	_____%

13. Current production activity (the second quarter in the survey year) in percent of feasible production level.

Total	Sweden	EC	RoW
_____%	_____%	_____%	_____%

14. If below 100% (in 13) this is due to:

a) insufficient demand YES _____ NO _____
b) lack of labor YES _____ NO _____
c) other factors (itemize below):

.....

.....

15. What increase in employment in the survey year (in percentage of actual employment) is required to reach full production capacity?

Total	Sweden	EC	RoW
_____%	_____%	_____%	_____%

16. Has the "EC 1992 event" initiated restructuring of the firm in the following ways:

a) production earlier located in Sweden has been located to EC?[see note 5)] YES _____ NO _____

b) investments have been concentrated to EC and reduced in Sweden? YES _____ NO _____

c) if "YES", how many full-time jobs do you estimate have been transferred, so far, into the EC region due to this restructuring?

number of jobs: _____

d) what other effects do you expect of the "internal market" (itemize below)?

.....

.....

17. How many full-time jobs do you estimate will be transferred to the EC up to 1995, due to such restructuring effects mentioned in question 16?

	Number of jobs	Production
a) to EC	_____	_____
b) to RoW	_____	_____

18. Please identify among the alternatives the firm's relative competitive advantage.

	Very great advantage	Relatively great advantage	Some advantage	No advantage
a) product knowledge				
b) process knowledge				
c) commercialization of available technique				
d) competent organization and management				
e) competent labor				
f) R&D				
g) product quality				
h) customized products, system solutions				
i) closeness to raw materials				

j) other

.....

.....

19. To what extent do you employ automated or computer monitored production processes?

product/product groups	percentage of total process automated or/and computer monitored
_____	> 75%
_____	75–50%
_____	50–25%
_____	25–10%
_____	10–0%

20. If certain areas of factory production (< 10%) have not been automated, what are the reasons?

a) not (yet) profitable _____

b) initial investment too costly _____

c) lack of competence to automate _____

d) no time _____

e) not relevant in this production _____

f) firm is too small _____

g) automation is planned _____

h) other _____

.....

.....

21. Which are the main advantages of automation or computer monitored processes?

	Very great advantage	Relatively great advantage	Some advantage	No advantage
a) cost efficient production				
b) less dependence on labor				
c) improved monitoring of production				
d) more flexible production				
e) facilitates "just in time" etc.				
f) better and more even quality in production				
g) better product quality				
h) allows future competitive advantages				

i) other

.....

.....

22. Please indicate factors of importance for location of production to Sweden and the EC respectively.

		Sweden	EC
a)	the EC is expected to become a growth market	____	____
b)	communication between production and R&D	____	____
c)	competent organization and management	____	____
d)	competent labor	____	____
e)	easier to monitor production	____	____
f)	closeness to market	____	____
g)	uncertainty about future Swedish relations to the EC	____	____
h)	closeness to suppliers	____	____
i)	the Swedish labor market	____	____
j)	economies of scale in existing plants	____	____
k)	facilitates automation	____	____
l)	labor costs	____	____
m)	energy costs	____	____
n)	other	____	____
o)*	uncertainty about future Swedish relations to the EC even if an EES agreement is concluded	____	____
p)*	irrespective of other factors, it is natural that the firm's expansion takes place in	____	____
q)*	customers have their production abroad	____	____

* only in the survey to small firms and subcontractors

NOTES

note 1) Most companies divide their production or/and sales on divisions or product groups. It would be desirable if the division could be identified by SNI or SITC classification. Reasonable estimates are accepted.

note 2) Purchases of services include all externally bought services, such as consulting, legal services, freights, etc.

note 3) Market investment relates to periodical costs of long-run nature (goodwill, market penetration, buildings and inventories as sales offices are established, etc.).

note 4) Education is defined as courses and other education organized or paid for by the firm for their employees. It relates to firm individual as well as more general education. Both internal and external education costs should be included.

note 5) Location abroad refers to newly started operations in foreign countries or to the transfer of domestic operations to foreign countries.

ADDITIONAL QUESTIONS IN THE SURVEY OF SMALL FIRMS AND SUBCONTRACTORS

* Distribute production capacity on the following regions.

	1988	1989	1990 (plan)	1992 (plan)
a. Sweden	.....	.....	.....	.....
b. The Nordic countries (excl. Denmark)	.....	.....	.....	.....
c. EC	.....	.....	.....	.....
Total	..... 100%	..... 100%	..... 100%	..... 100%

---

* By December 31, 1989 incoming orders were

☐ larger than normal ☐ normal ☐ smaller than normal

---

* Sales prices (in Swedish crowns) of the firm's products are (between 1989 and 1990) expected to:

Market		Market		Market	
Sweden	Abroad	Sweden	Abroad	Sweden	Abroad
Increase up to		About unchanged		Decrease up to	
2.5% ☐	☐	±0% ☐	☐	2.5% ☐	☐
5% ☐	☐			5% ☐	☐
10% ☐	☐			10% ☐	☐
15% ☐	☐			15% ☐	☐
20% ☐	☐			20% ☐	☐
☐ ....%	☐ ....%			☐ ....%	☐ ....%

---

* Stock of raw materials and goods in process 1989-12-31 as percentage of total purchase 1989.

up to
☐ 5% ☐ 10% ☐ 15% ☐ 20% ☐ 25% ☐ 50% ☐ 75% ☐ 100%
☐ no stock at all

---

* What is the normal relation between the stock of raw material goods in process and yearly total purchases?

up to
☐ 5% ☐ 10% ☐ 15% ☐ 20% ☐ 25% ☐ 50% ☐ 75% ☐ 100%
☐ no stock at all

---

* How large was the stock of finished products in percentage of total sales 1989-12-31?

up to
☐ 5% ☐ 10% ☐ 15% ☐ 20% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

---

* What is the normal relation between finished products and total sales?

up to
☐ 5% ☐ 10% ☐ 15% ☐ 20% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

---

* Have you sold or acquired any firm (or part of firms) during 1989?

Sales	☐ Yes	☐ No
Acquisitions	☐ Yes	☐ No

---

* Is it probable that your firm will acquire or sell any firms (or part of firms) during the following 3 year period?

Sales	☐ Yes	☐ No
Acquisitions	☐ Yes	☐ No

---

* Will planned acquisitions take place within Sweden or abroad?

  ☐ Mainly in Sweden
  ☐ Mainly abroad
  ☐ Both in Sweden and abroad

* Distribute production on the following products groups.

  a. Raw material ..... %
  b. Simple intermediate products ..... %
  c. Components ..... %
  d. Sophisticated systems ..... %
  e. Investment goods ..... %
  f. Other ..... %

* List customers, using the classification below (1-6), that received more than 10% of your deliveries during 1989.

  Type of customer 1. Swedish MNF
  2. Swedish MNF abroad
  3. Other Swedish firms
  4. Foreign MNF in Sweden
  5. Foreign MNF abroad
  6. Other firms abroad

	Customer % of total sales	Type of customer (1–6 as above)	Product groups (acc. to questions above, a–f)
1	.....	.....	.....
2	.....	.....	.....
3	.....	.....	.....
4	.....	.....	.....
5	.....	.....	.....
6	.....	.....	.....
7	.....	.....	.....
8	.....	.....	.....
9	.....	.....	.....
10	.....	.....	.....

* Has the number of customers during the period 1987–89 decreased, remained constant or increased?

☐ fewer customers ☐ unchanged ☐ more customers

---

* Is your firm an affiliate of some other firm?

☐ No
☐ Yes, which is .....
☐ Owner share ..... %

---

* Do you regard any other region than EC as more important for the location of a subsidiary?

☐ Yes ☐ No

---

* If the question above is answered in the affirmative, which region are you referring to?

☐ U.S. ☐ Japan ☐ Eastern Europe ☐ The Nordic countries ☐ Asia

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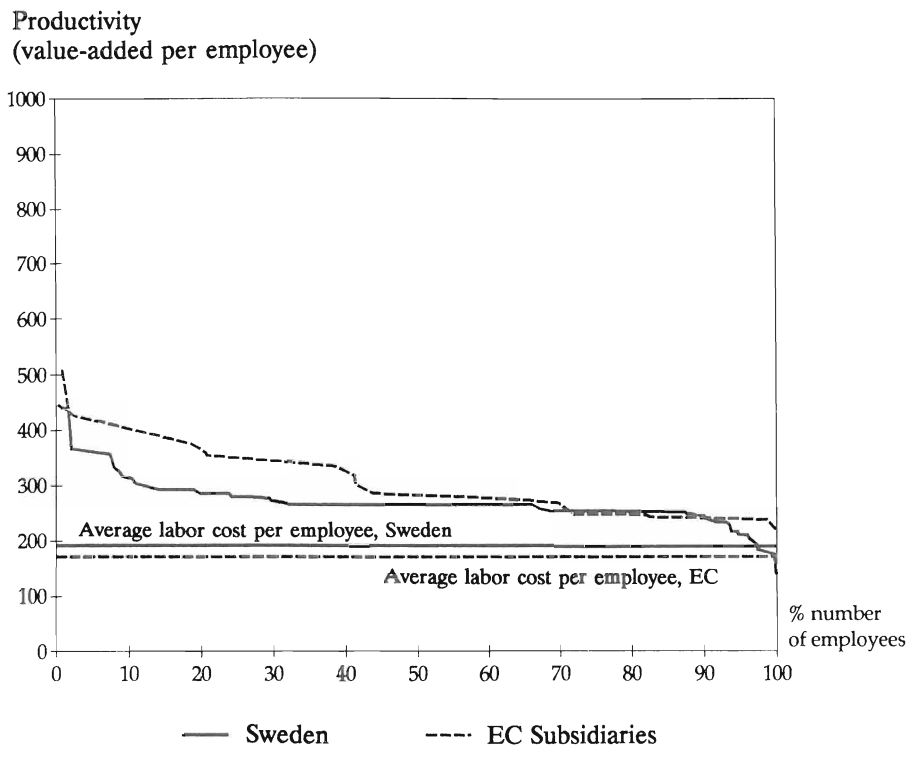
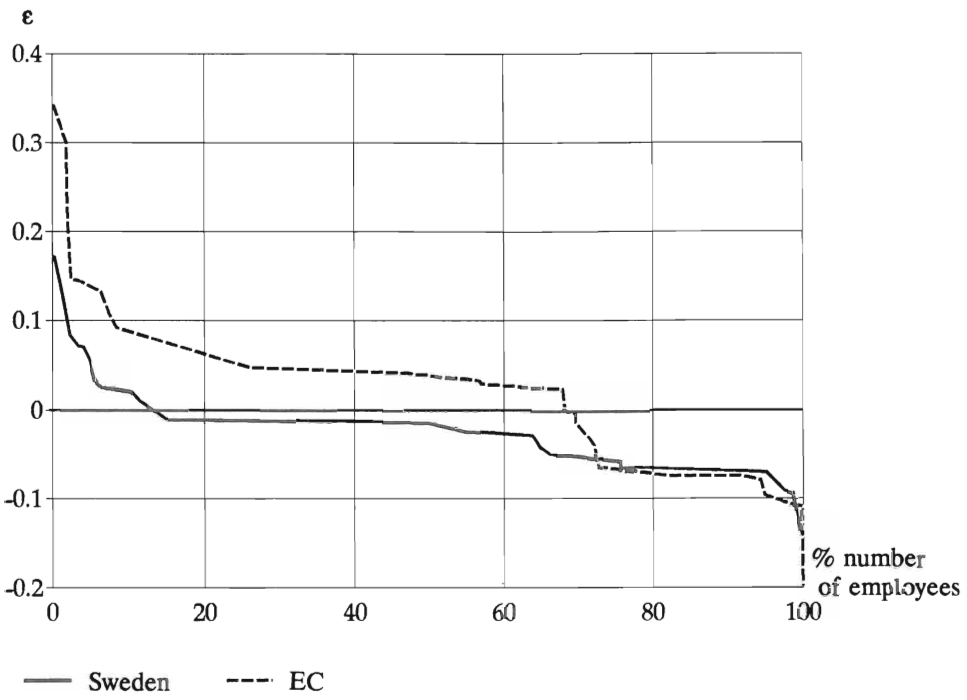
Figure 1 **The distribution of labor productivity between domestic and foreign (= EC) parts of Swedish engineering firms, 1988**



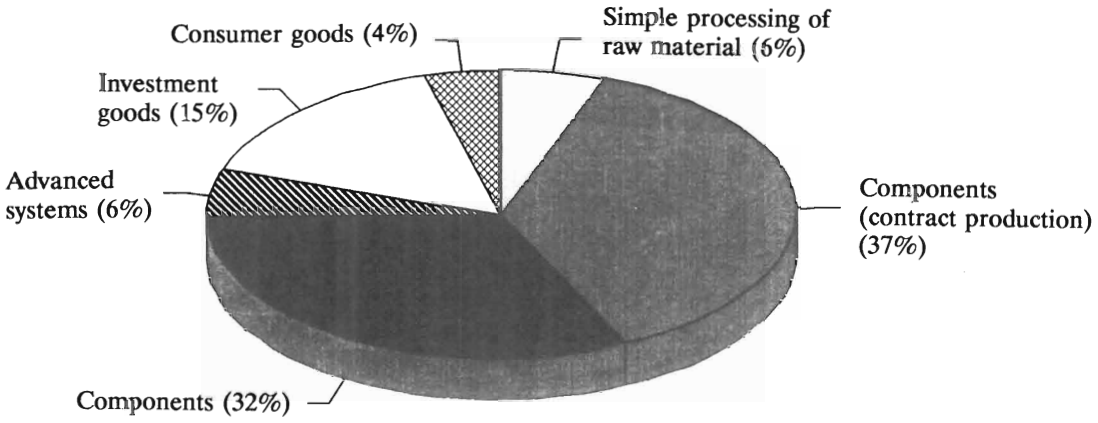
Source: Braunerhjelm 1990.

Figure 2 **Rates of return (ε) over the interest rate of long-term bonds in domestic and foreign (=EC) operations of Swedish firms, 1988**



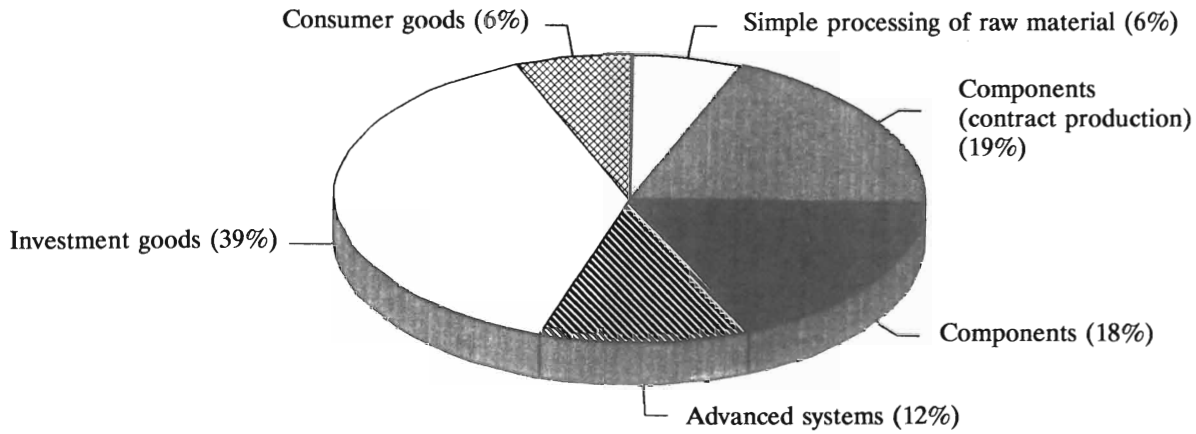
Source: Braunerhjelm 1990.

Figure 3a **Production of subcontractors distributed on different product groups, 1990**



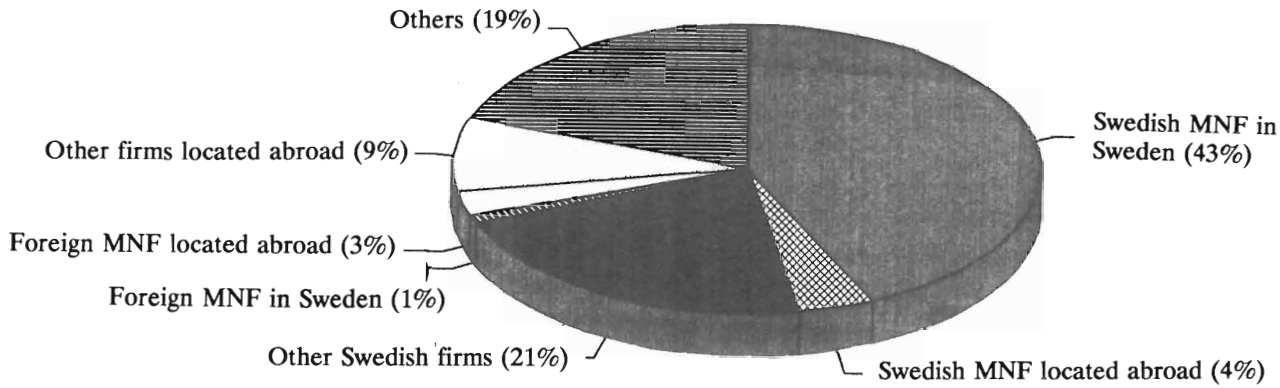
Source: Braunerhjelm 1991a.

Figure 3b **Production of small firms distributed on different product groups, 1990**



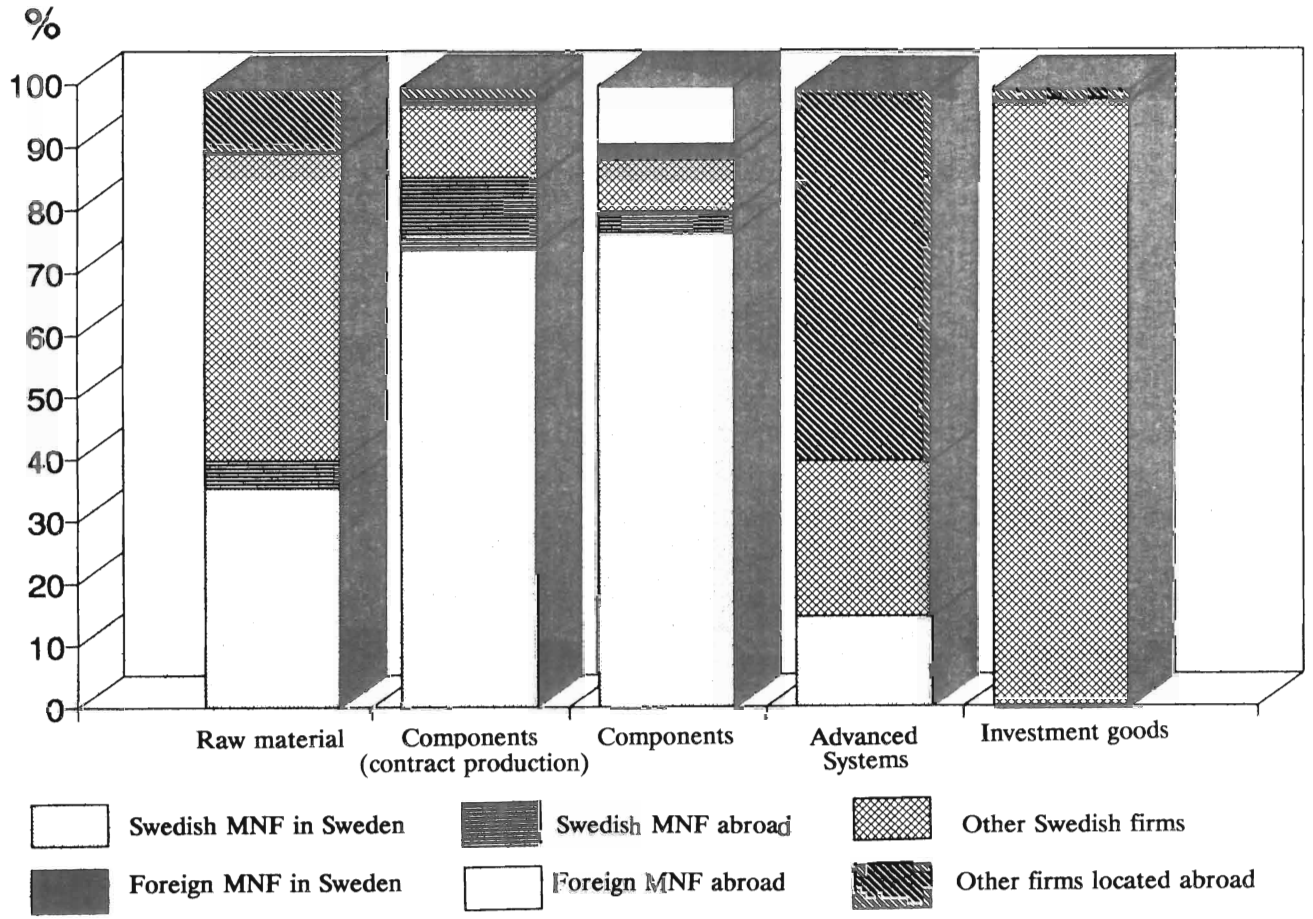
Source: Braunerhjelm 1991a.

Figure 4a The deliveries of subcontractors to different groups of customers, 1990



Source: Braunerhjelm 1991a.

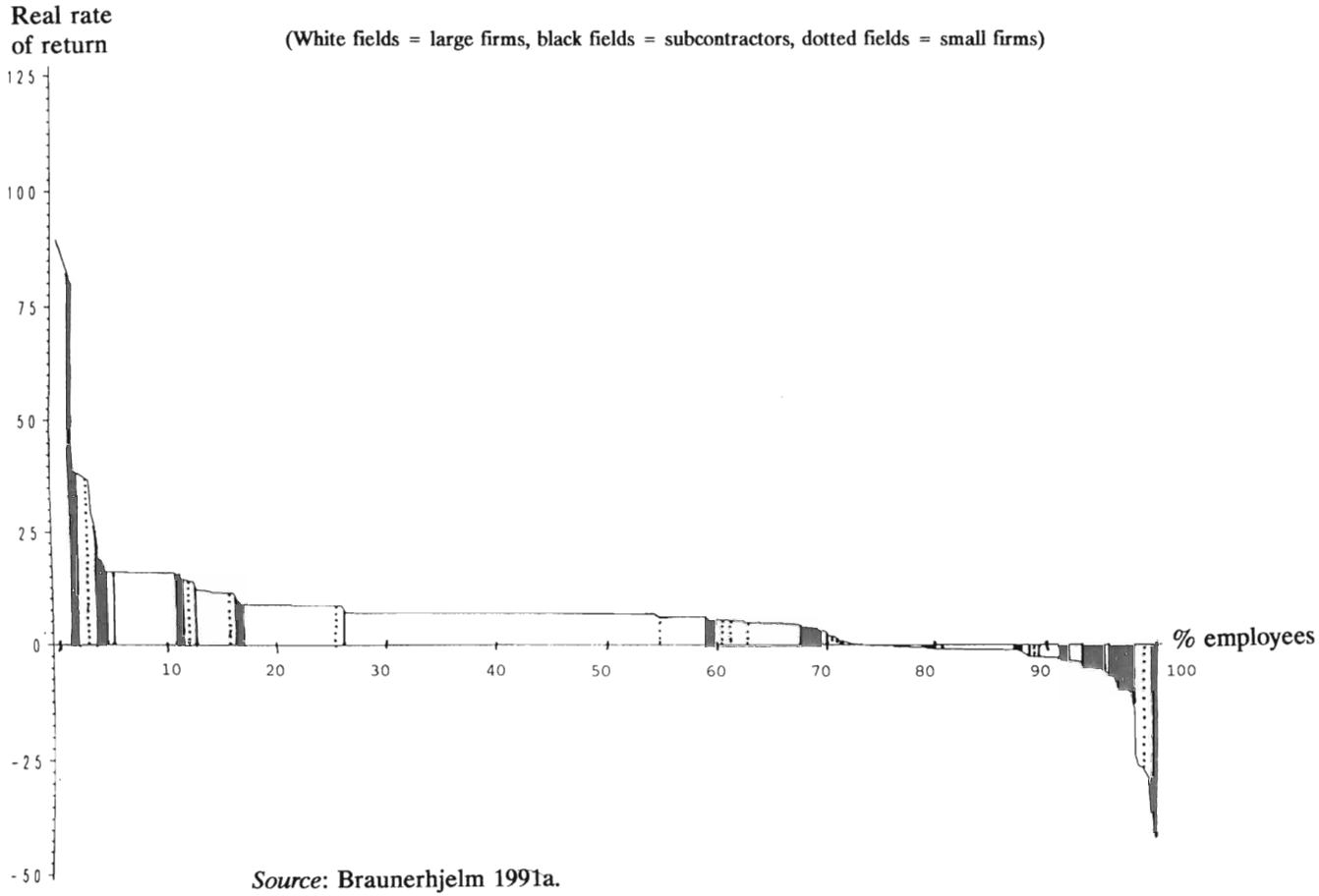
Figure 4b The composition of customers in different subcontracting production, 1990



Source: Braunerhjelm 1991a.

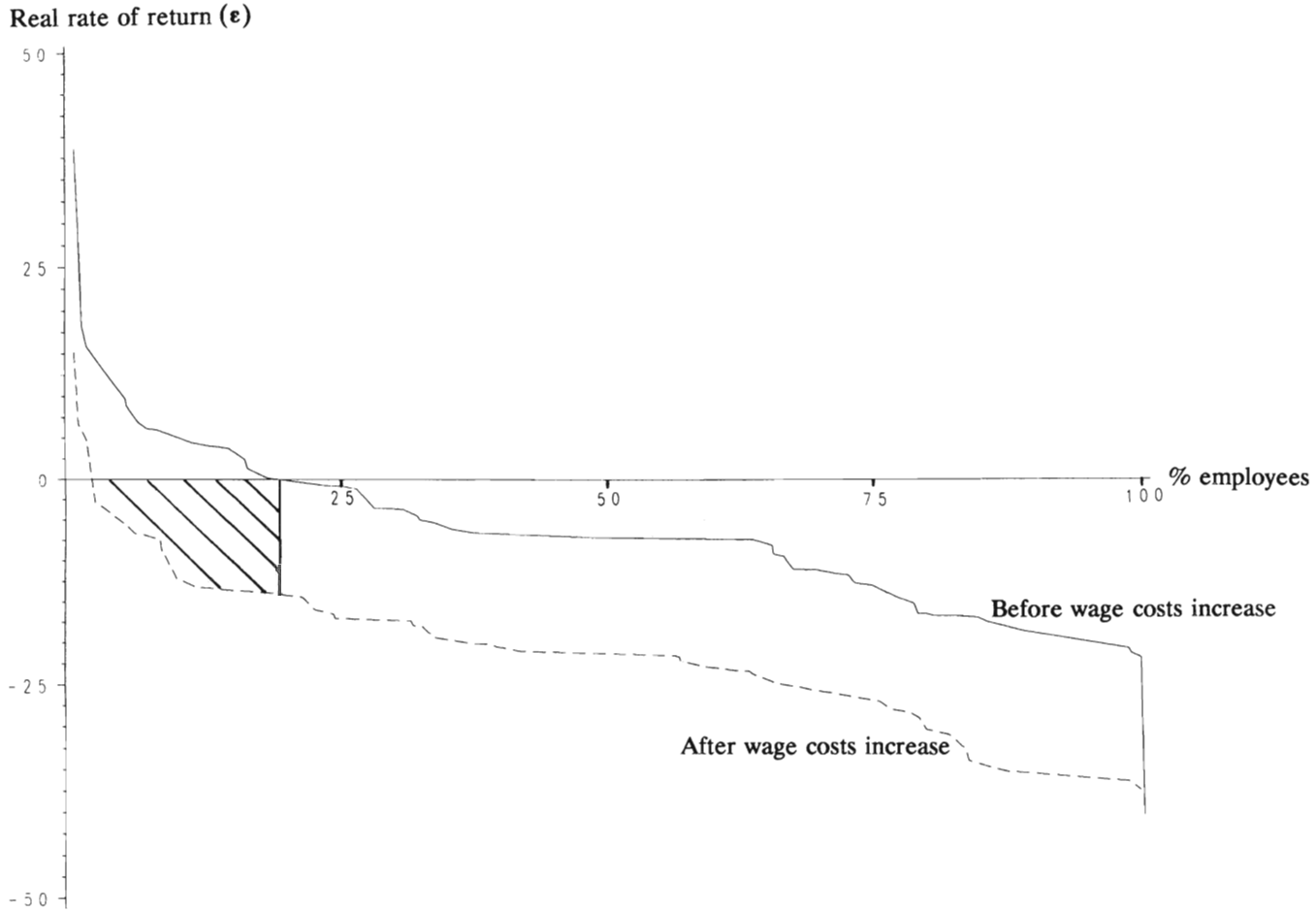
Figure 5 **The firms' distribution of the real rate of return (ε) over the interest rate of long-term bonds, 1988**

(White fields = large firms, black fields = subcontractors, dotted fields = small firms)



Source: Braunerhjelm 1991a.

Figure 6 **The effect of a 10 percent increase in wage costs for Swedish subcontractors, 1990**



Source: Braunerhjelm 1991a.