RESTRUCTURING OF THE SWEDISH STEEL INDUSTRY

Special Projects Branch
Industry Science and
Technology Canada

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With the permission of the Government of Canada, this report is being submitted to the following senior officials of the Swedish steel industry, at their request:

- Allan Larsson, Member of Parliament (former Finance Minister and Board Member during the restructuring of SSAB)
- Per Molin, President, Avesta
- Dr. Orvar Nyquist, President, and Jan Beckeman, Director of Statistics and Economic Research, Jernkontoret (Swedish Iron and Steel Association)
- Anders Ullberg, Vice-President, Economics and Finance, SSAB

Their comments have been invited and will be sent to Don Tate, Special Advisor, Special Projects Branch.

The assistance provided by these individuals and their colleagues was very beneficial to the undertaking of this work.

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I BACKGROUND

Canadian industry faces strong competitive forces in a rapidly changing global economy:

- ever liberalizing international trade regulations
- formation of regional trading blocks
- North American Free Trade Agreement
- increasing global cost-competitiveness and price pressure.

Special Projects Branch, ISTC, has undertaken several industry sector analyses, illustrating their competitive position and trade regulations appropriate to Canadian industry.

The initial analyses of Algoma indicated that the firm's financial problems were symptomatic of the cost competitive malaise of the entire Canadian steel industry.

Inter-country comparisons among the U.K., France, Germany, U.S.A., and Japan had been undertaken illustrating the respective restructuring strategies pursued in each country with respect to:

- Government/Management Policies
- Openings/Closures/Mergers
- Labour (redundancies, retraining, assistance)
- Financial Assistance
- Trade Protection

ISTC presented the preliminary results to industry and labour. At the request of the United Steel Workers of America (Canadian section), Special Projects Branch included a labour component to the analysis. That analysis examines the experience of other major steel producing countries to determine constructive and creative ways of restructuring the industry, methods for dealing with labour redundancies and competitive labour-management models.

This study is a detailed examination of the restructuring process of the Swedish steel industry.

II CONCLUSIONS

¶ The restructuring process in the Swedish steel industry was succesful with respect to both commercial and specialty steel.

- Major restructuring in capacity, the number of plants and employees were required.
- Profitability returned but is still too low.

¶ Despite this success, further restructuring is necessary to remain in business in the ever competitive industry.

- Overcapacity in Sweden is lower than in OECD countries, but is still too great.

¶ Restructuring requires changes at the firm, industry sector and state levels.

- Corporate reorganization must precede rationalization of production.
- A coherent strategy for the entire industry is essential.
- The participation of governments is required to expedite closures and to stimulate investment.

¶ Competitive strategies require economies of scale and firm concentration on specific products both for export and the internal market.

- Swedish steel restructuring was designed to meet its export dependency.
- Specialty steel and higher value added products are a more significant component of the Swedish steel industry than in other steel producing nations.

¶ The organization of the firm and industry is a key to competitiveness. Cooperative labour-management relations are essential to competitive organizational structures.

¶ The Swedish steel workers unions were directly involved in decision-making with senior management during the restructuring of SSAB and Avesta.

¶ The workforce was decreased by more than half, during the restructuring process.

- Cutbacks affected white collar workers as well as production workers.
- Labour reductions occurred through mergers, closures, elimination of product lines and attrition.

¶ Constructive and creative ways of dealing with redundancies include early retirement, moving employees to other industries, retraining, lump sum payments and support to small business in the area.

¶ Education and training are rudimentary factors in industrial competitiveness, restructuring and redundancies.

¶ Sweden has a liberal trade policy with no quantitative restrictions and no steel tariffs vis a vis the EC and EFTA. Steel tariffs for other countries are very low.

¶ Government assistance was significant to the restructuring of the Swedish steel industry.

¶ A restructuring plan for Canada should be a strategy for the future not the present.

III POLICY RECOMMENDATIONS

A MINISTERIAL APPROACH

¶ Allan Larsson, former Finance Minister, indicates four major areas of concern for the Minister responsible.

1) Start with the restructuring of ownership on an industry sector basis.

   ¶ Plants cannot be restructured without first doing this; otherwise, each owner waits to see the others move.

   ¶ There must be a plan for the whole industry:

      1) Better prices
      2) Reduce costs - diminished overhead
         - do not need to close down good plants.
      3) Enhanced competitiveness with the U.S. requires having one large company.

2) What the Government should be prepared to do:

      1) Tough job of closures
      2) Stimulating job of creating investment
         a) Credit facilities
         b) Retraining workforce
         c) Redundancy assistance
         d) Research and development
            e.g. support for Institute of Steel Research

   Note: These should be consistent with our FTA and GATT obligations.

3) Get the labour market working

   - Passive labour market policy provides only financial benefits.
   - Active labour market policy - retraining, worktest, work must be accepted.

   ¶ An employment strategy - appeals to working people
   - has strong political meaning

   ¶ Close down the Unemployment Insurance offices one day a week in order that U.I. officials can look for jobs for unemployed.

4) Industrial Relations

   ¶ Establish a framework for both union and management involvement in the organizational structure of the firm.

   ¶ Co-determination law establishes a base for workers to be informed, consulted and a part of changes in the company.

B LESSONS FOR CANADA FROM SSAB AND AVESTA

SSAB (Provided by the Vice-President for Economics and Finance, involved in restructuring)

1) Communicate a clear and simple message to the people, workers, middle management, community and the media.

   e.g. tensions were created at one point, as unions and senior management made all the decisions; middle management felt left out and resisted.

2) Restructure quickly - not the two stage process of SSAB.

   - After first restructuring, SSAB was not sufficiently profitable.
   - Two phase approach was not planned. The company realized that restructuring was not enough and had to be done again.

3) Restructuring plan must be implemented without vacillating

   ¶ For example, OVAKO, which is now restructuring, changed the plan in process and now is in chaos.

AVESTA (Selected notes from Vice-President, Finance + Economics during restructuring and President of AVESTA - Sandvik)

1) Limit vested interests.

2) Calculate and ensure that there are enough financial resources for the transaction period.

3) Establish a management team that has a focus on the new company (team members were given shares).

4) Involve labour from the beginning and show them the facts.

5) One location, one product: multisite operation, full range of products.

IV CANADA-SWEDEN COMPARISON

¶ The Canadian and Swedish iron and steel industries have many historical similarities, despite a much longer industrial tradition in Sweden. Iron production in both Canada and Sweden was originally based on charcoal, until coke was substituted at the end of the 19th century.

¶ New technologies were adopted much later in Canada, and in a more concentrated period than in Sweden.

¶ Both industries are highly modernized, with continuously cast steel accounting for a high proportion of total production.

¶ Steel production trends in Sweden and Canada show some differences.

- The depression of the 1930s hit Canada harder.
- The post WWII boom was shorter in Sweden than in Canada.
- Production decreased more sharply in Sweden during the 1970s.
- The recession at the beginning of the 1980s was more severe in Canada.
- The end of the 1980s saw increased production in both countries.

¶ The Canadian specialty steel sector is very small by Swedish standards, and stainless steel is much more important in Sweden.

¶ The Swedish steel industry has been even more export dependent than its Canadian counterpart.

¶ Canada has the largest steel mills, but the average Canadian work place is smaller, due to the prevalence of mini-mills.

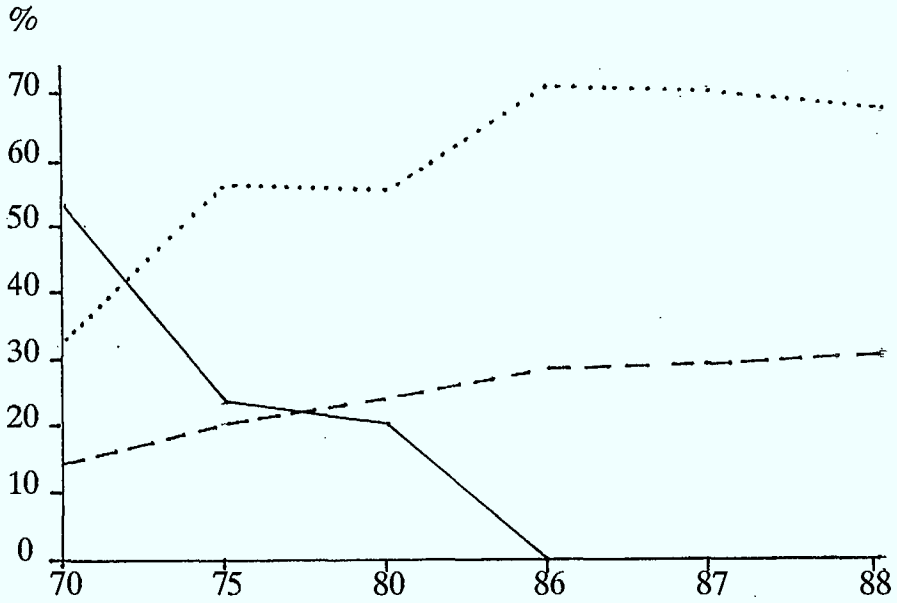
¶ The size of the Canadian and Swedish work force were similar at the beginning of the 1970s, but the subsequent pattern of reductions differed:

- From 1974 to 1986, the Swedish workforce was reduced by 43 percent, while the Canadian cutbacks amounted to 14 percent.
- White collar groups were less affected in Canada.

Figure 1

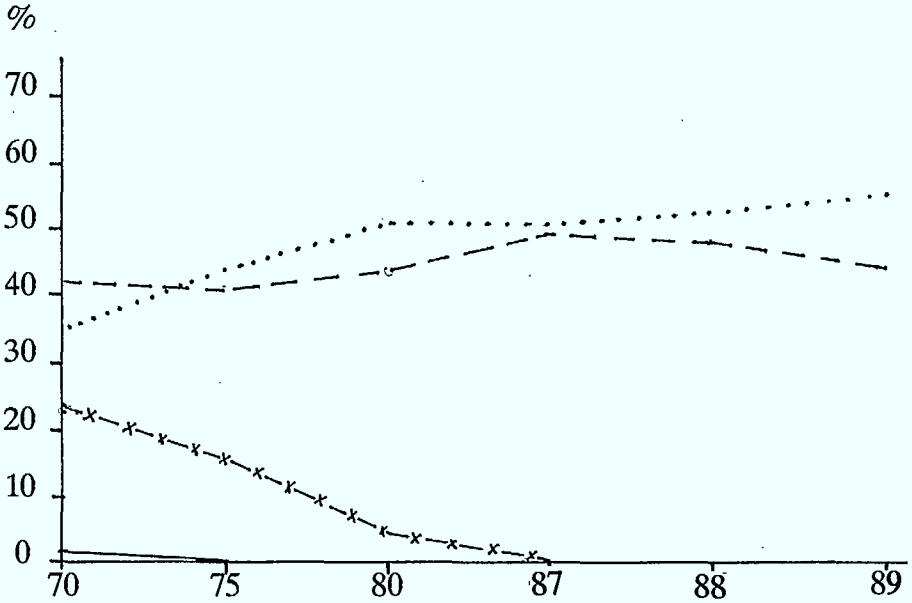
PRODUCTION OF CRUDE STEEL IN CANADA AND SWEDEN BY TYPE OF PROCESS
(Percent of crude steel produced in tons)

CANADA



——— Open hearth, including Martin processes. There was no Thomas processing in Canada after 1970.
– – – Electric furnace, including electric arc and induction.
····· Oxygen converter, including Kaldo, LD and OBM.

SWEDEN

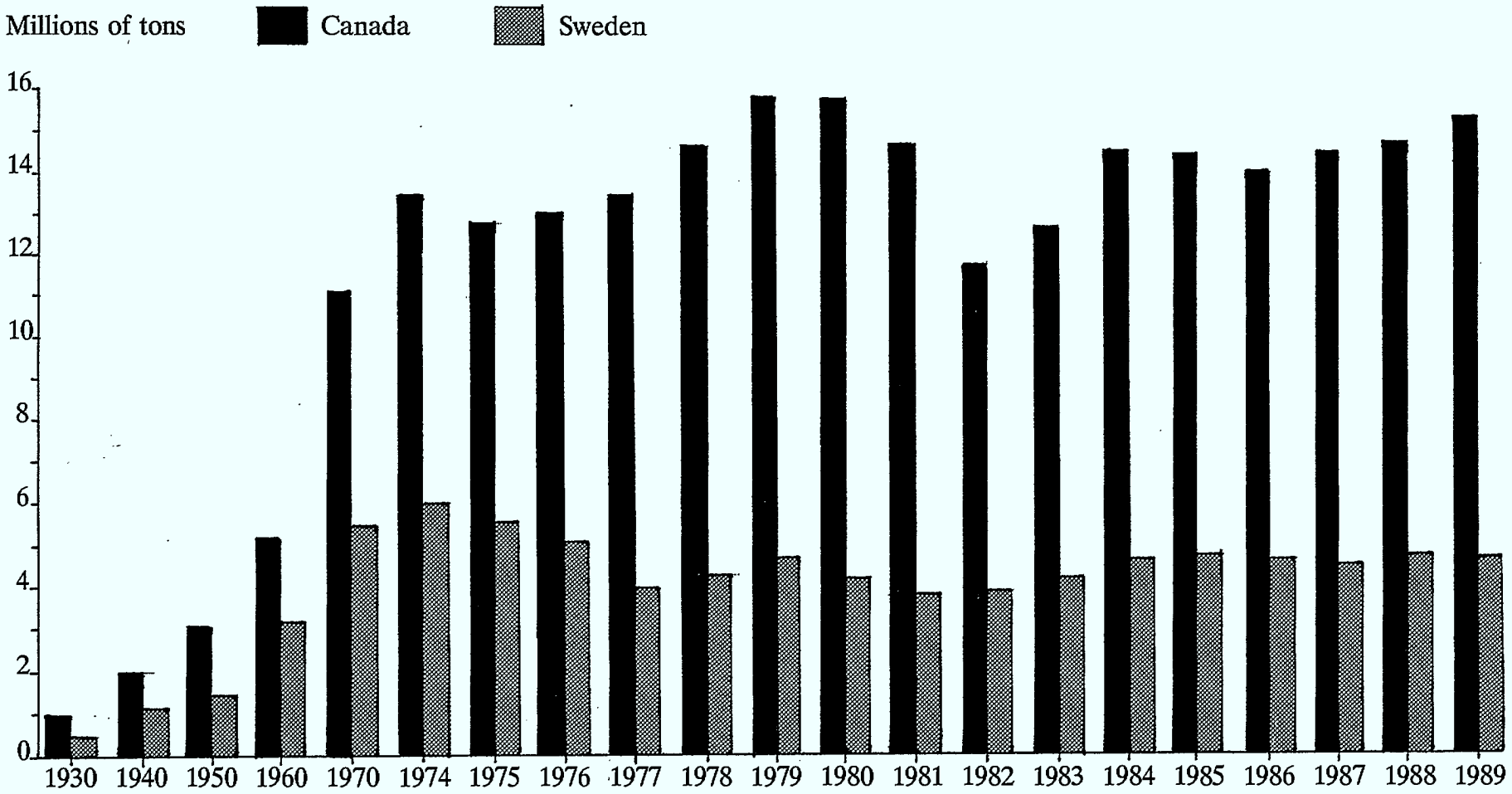


——— Thomas —x—x— Martin — – — Electric furnace ·····Oxygen converter

Source: Leif Johansson. Structural change in Canada and Sweden. 1990. See Table 3.1 for details.

Figure 2

CRUDE STEEL PRODUCTION IN CANADA AND SWEDEN
1930-1989



Source: Leif Johanisson. 1990. See Table 3.3 for details.

V SWEDISH STEEL INDUSTRY RESTRUCTURING

HISTORY

¶ Iron ore mining is a well established Swedish industry.

- Until the mid 19th century, Sweden was a leading iron manufacturer due to high quality iron ore, an abundant supply of timber and charcoal, and power from numerous waterfalls.
- The lack of coal reserves prevented Sweden from mass-producing ordinary steel with the new coal and coke processes introduced in Britain and continental Europe during the industrial revolution.
- By 1960, 40 iron ore mines were in operation in Sweden.
- Pure iron ore lost its importance for the manufacturing of high quality steel in the late 1960s, with the development of new metallurgical processes.
- Competition from new iron ore mines in Australia, South America and West Africa, contributed further to the gradual decline of the Swedish mines.
- Today, only four mines are still in operation, two by LKAB and two by SSAB.

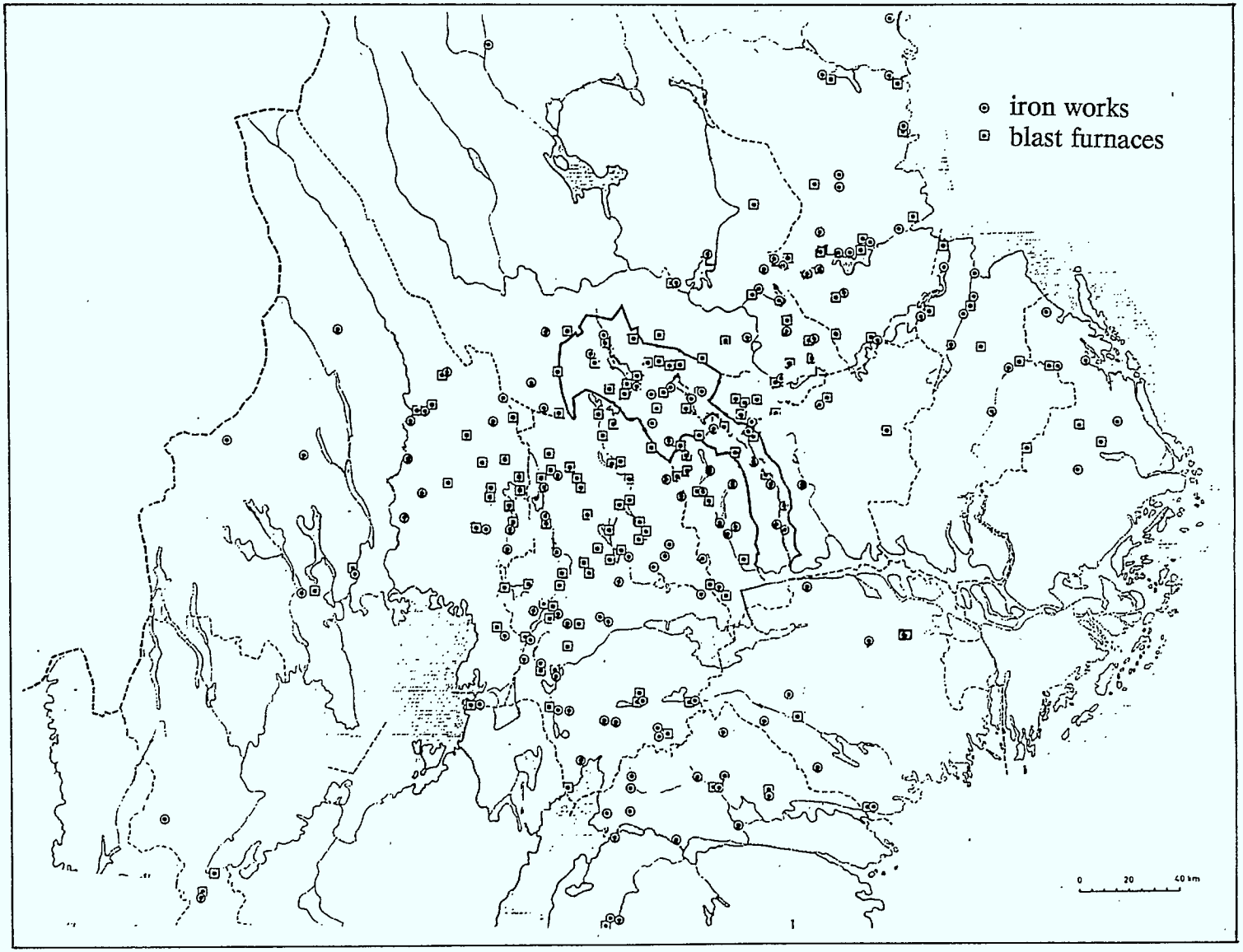
Figure 3

CONDITIONS FOR CARBON STEEL PRODUCTION IN SWEDEN

PRE WAR	1975	1988
* PURE IRON ORE * CHARCOAL	* PURE IRON ORE	* IRON ORE
MORE THAN 50 MINES MORE THAN 50 STEEL COMPANIES	20 MINES 10 STEEL COMPANIES	4 MINES 2 STEEL COMPANIES

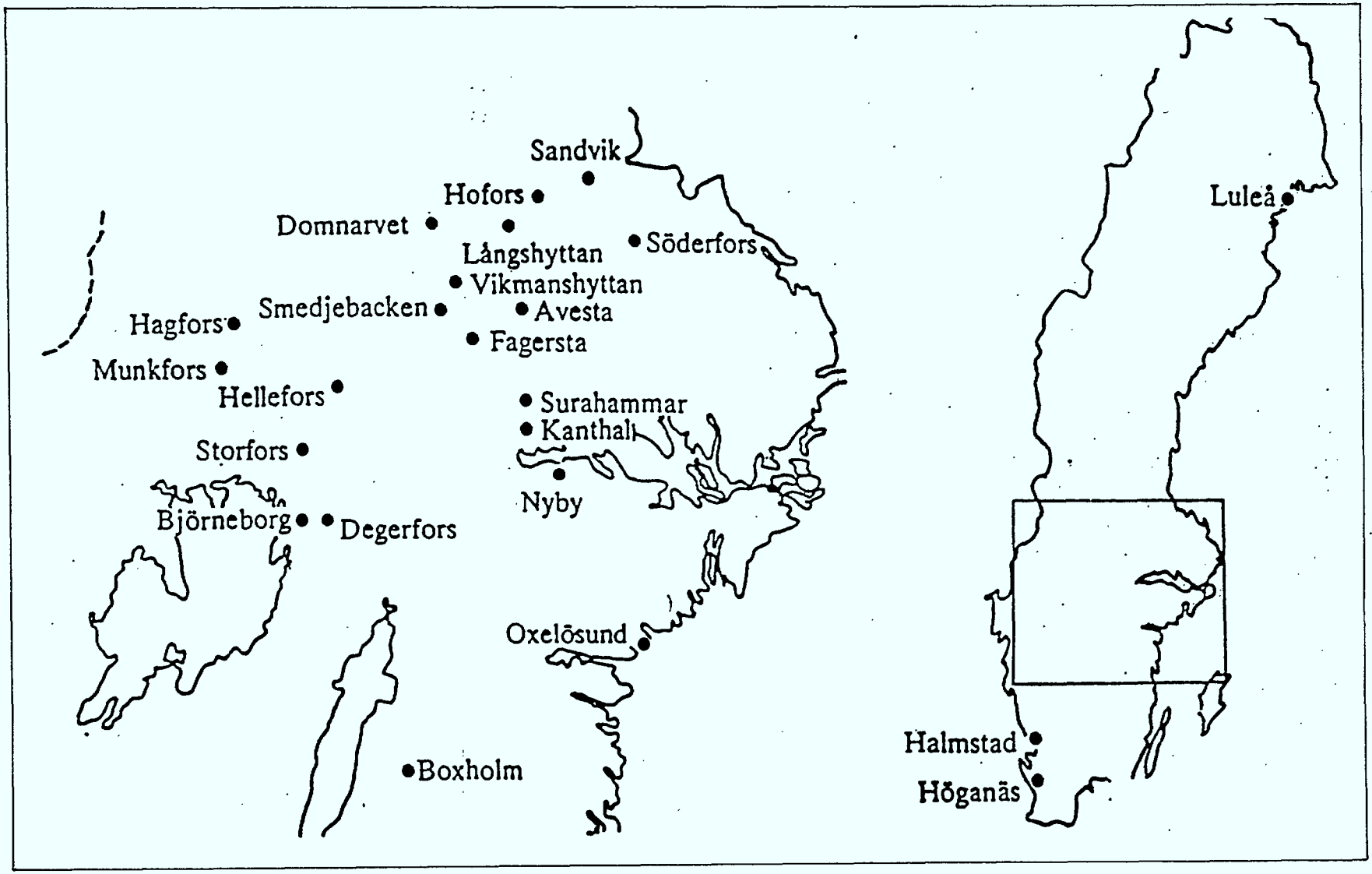
Source: Nyquist, Orvar. Structural changes in the Swedish iron ore and steel industry. 1988.

Map 1
THE SWEDISH STEEL INDUSTRY
1890



Source: Jernkontoret (Swedish Iron and Steel Association), 1990
For a complete set of maps illustrating the Swedish steel industry from 1860 to 1990, see Appendix A.

Map 2
THE SWEDISH STEEL INDUSTRY
1990



Source: Jernkontoret (Swedish Iron and Steel Association), 1990.

IMPORTANCE OF THE INDUSTRY

¶ The steel industry plays a major role in the Swedish economy.

- Today, steel accounts for approx. 4% of the total value added of Swedish industry, and approx. 6% of total exports.

¶ Swedish steel consumption has a greater relation to GNP than OECD countries.

STEEL CONSUMPTION AND GNP

Figure 4
OECD

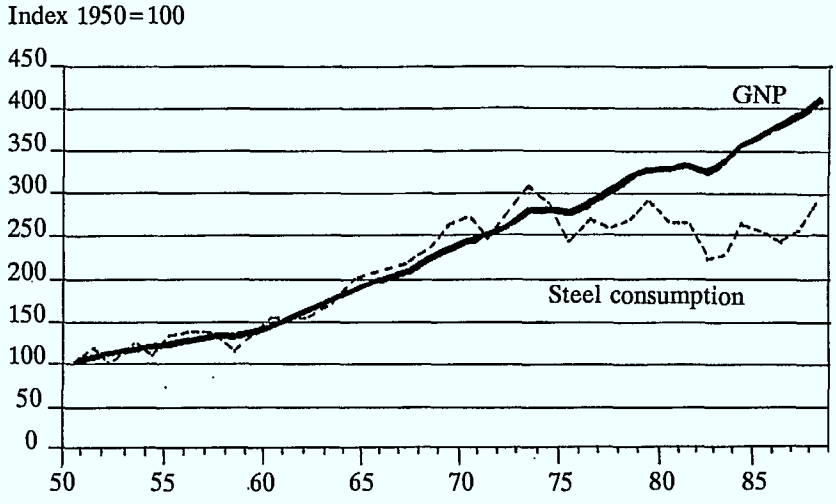
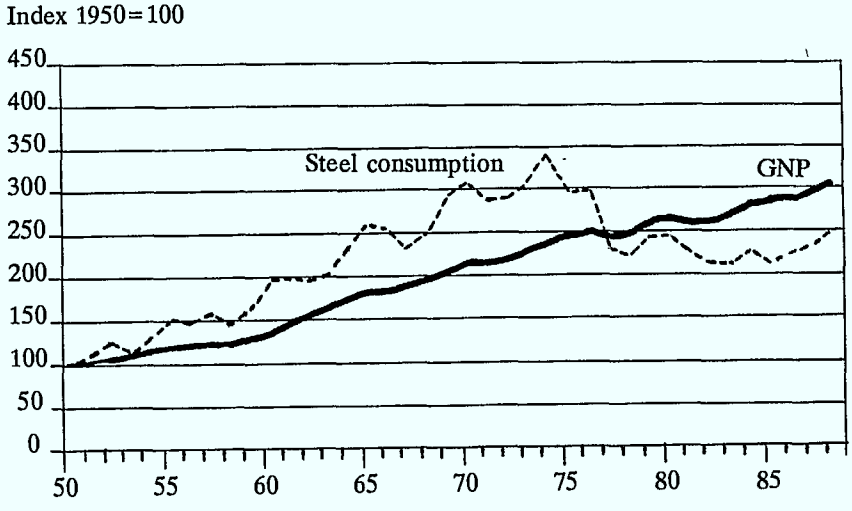


Figure 5
SWEDEN



Source: Jernkontoret (Swedish Iron and Steel Association), 1989.

PRODUCTION

¶ Capacity reductions were made earlier in Sweden than in the rest of the OECD countries. The current overcapacity is lower in Sweden than in the OECD countries as a group, but it is still too great.

¶ Production increasingly shifted toward high-grade iron and steel.

- The current overall unit value of the industry is high.
- In 1990, specialty steel accounted for 60%, in value, of the total steel production.
- Specialty steel is expected to represent a growing proportion of total production.
- Sweden's main competitors for stainless steel are West Germany, Great Britain, Finland and Italy.
- Specialty steel include stainless, tool and high speed steels, with ball bearings, valve springs, razor blades, saw blades and rock drills as the best known products.
- Two thirds of the total ordinary steel production consists of sheet and plate for industrial use, while rolled bars and rolled sections for construction purposes account for one third.

Figure 6

IRON ORE

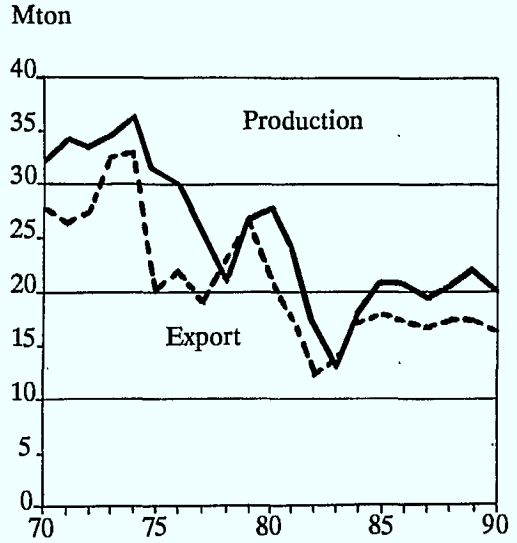
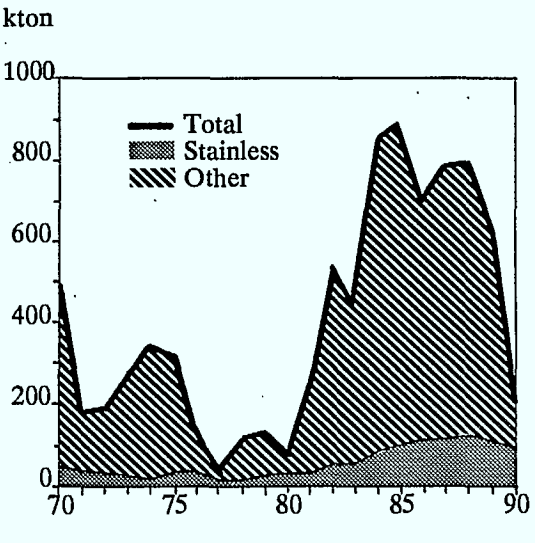


Figure 7

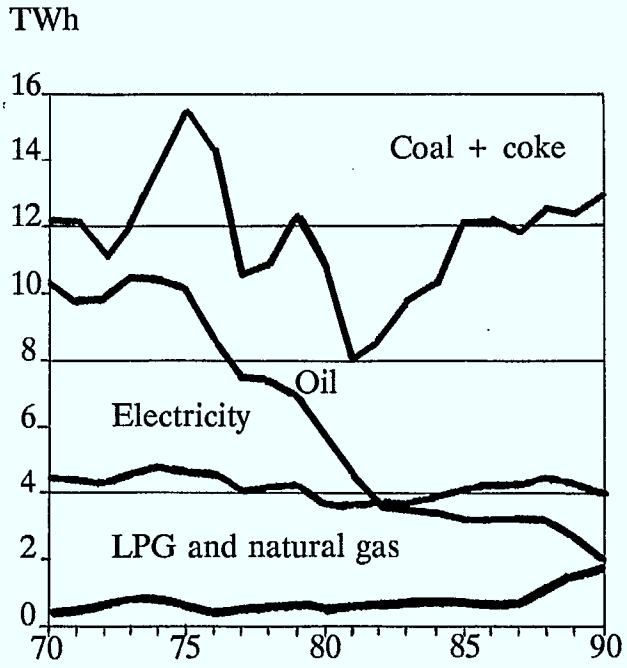
STEEL SCRAP IMPORTS



Other: mostly carbon steel scrap and some other alloys. Reliance on scrap is continuing to decrease in the early 1990s.

Source: Swedish Steel Statistics, 1990.
please refer to Tables in Appendix B for exact numbers.

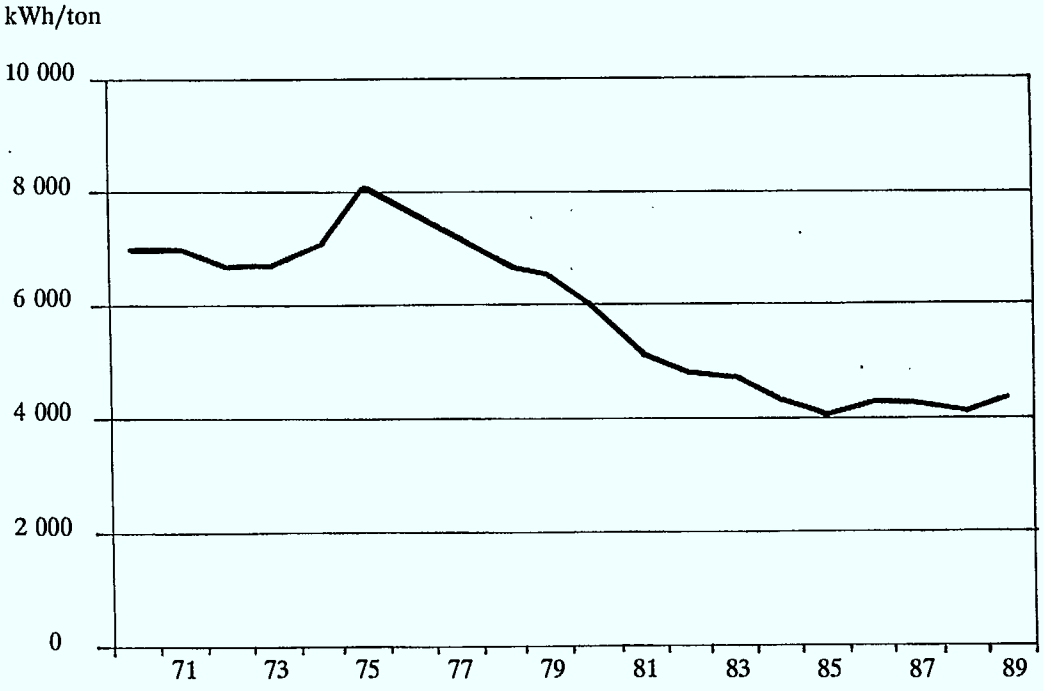
Figure 8
ENERGY CONSUMPTION OF SWEDISH STEEL WORKS



Source: Swedish Steel Statistics, 1990.

Since 1980, there has been a diminished consumption of oil and electricity. Coke is a reducing agent in the chemical process; the increased use of coke contributed to the decrease in energy consumption.

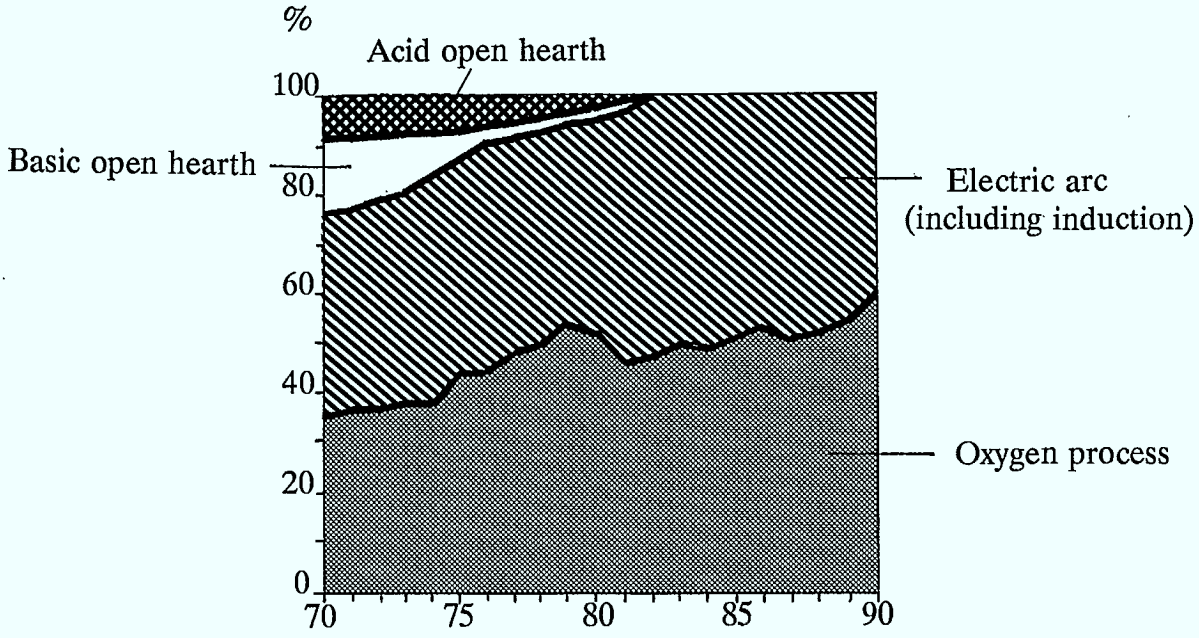
Figure 9
SWEDEN: SPECIFIC ENERGY CONSUMPTION PER TON FINISHED STEEL



Source: Jernkontoret (Swedish Iron and Steel Association), 1989.

Figure 10

CRUDE STEEL PRODUCTION BY PROCESS

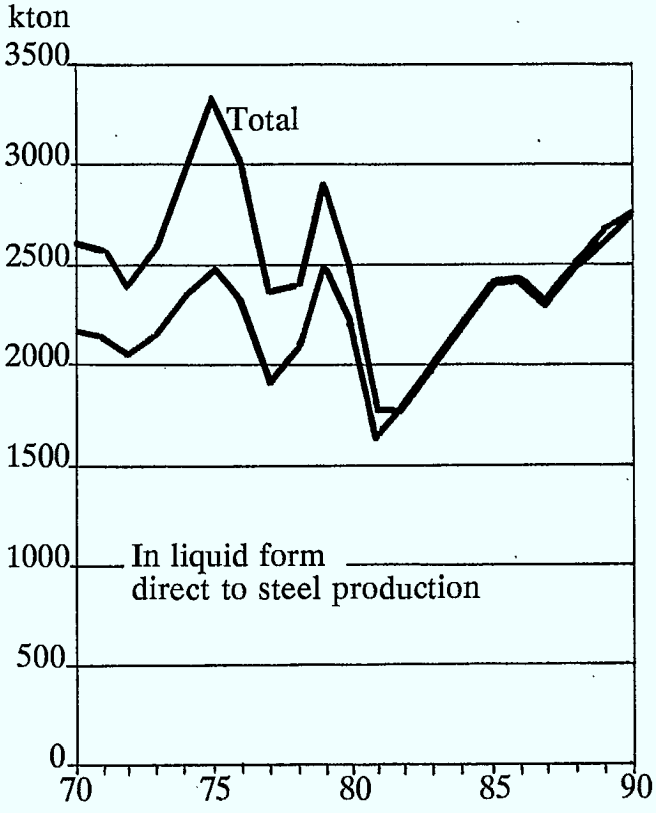


Source: Swedish Steel Statistics, 1990.

Electric arc (including induction) and oxygen processes have been the primary steel producing processes since 1980.

Figure 11

PIG IRON PRODUCTION

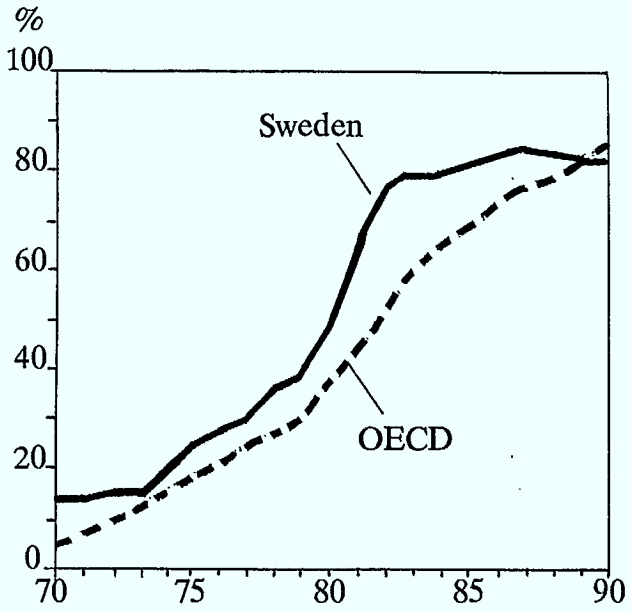


Source: Swedish Steel Statistics, 1990.

Pig iron production increased from 1980 onwards.

Figure 12

PERCENTAGE OF CONTINUOUS CASTING

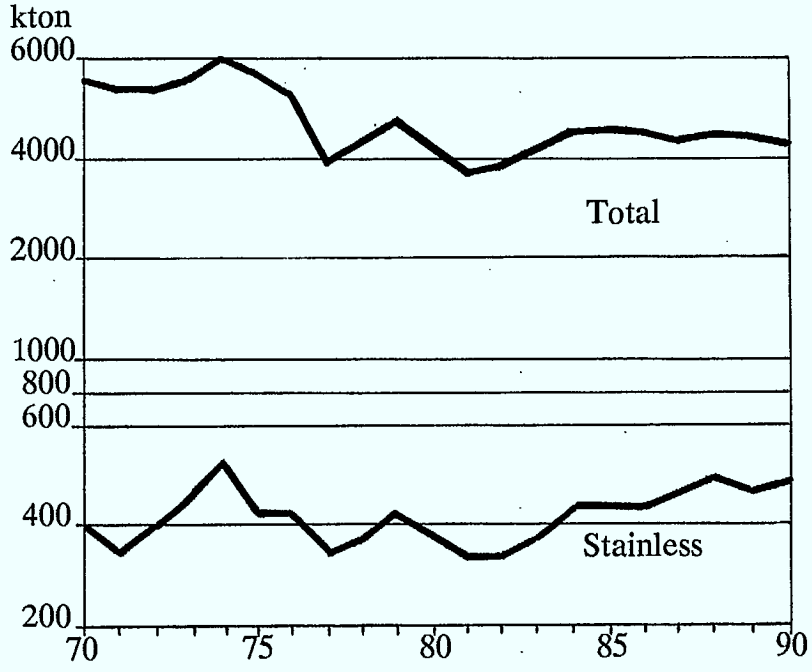


Source: Swedish Steel Statistics, 1990.

Sweden has a greater concentration of specialty steel producers which are not using continuous casting. For example, continuous casting cannot be used for high speed steel.

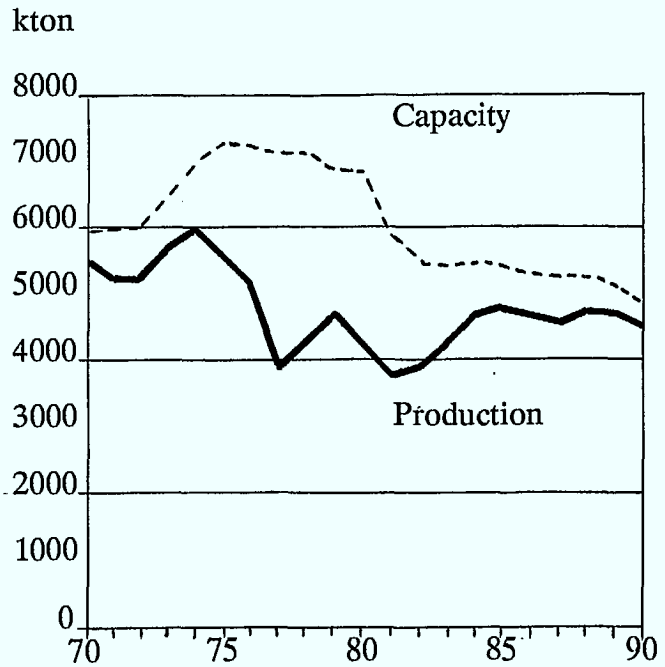
Figure 13

PRODUCTION OF INGOTS AND CONTINUOUSLY CAST SEMIS



Source: Swedish Steel Statistics, 1990.

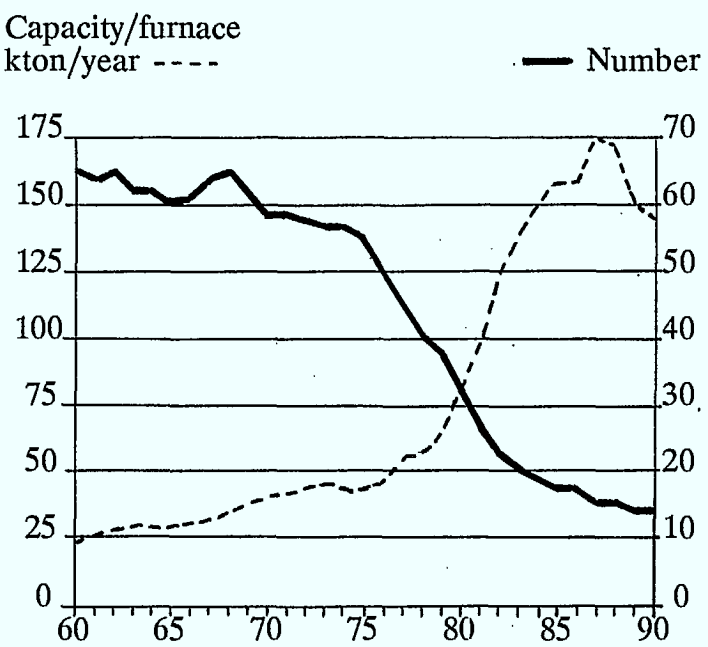
Figure 14
CRUDE STEEL



Source: Swedish Steel Statistics, 1990.

As a result of the restructuring, the Swedish steel industry is producing closer to full capacity.

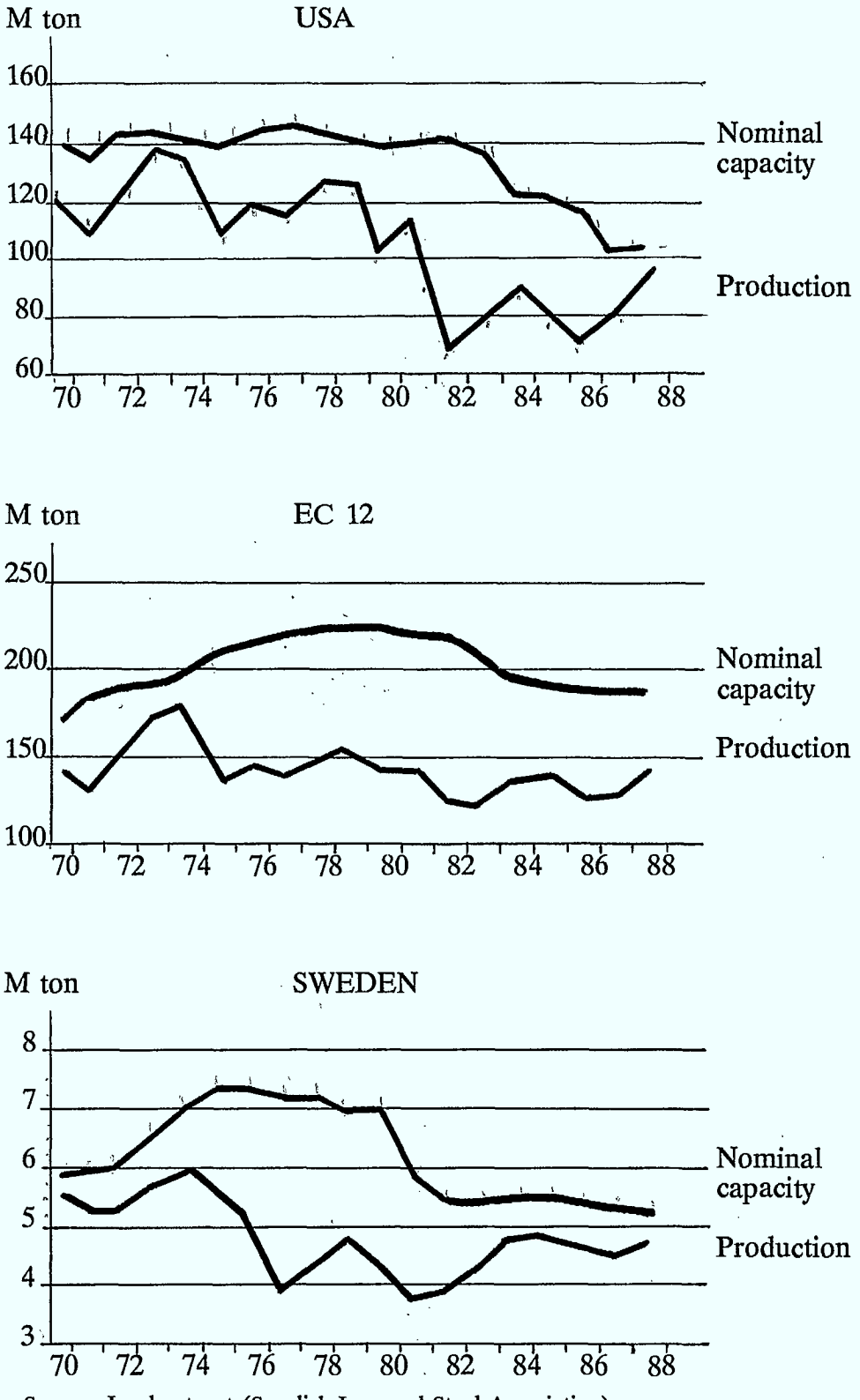
Figure 15
ELECTRIC ARC FURNACES



Source: Swedish Steel Statistics, 1990.

The number of furnaces has decreased while the capacity per furnace has increased.

Figure 16
CRUDE STEEL CAPACITY AND CRUDE STEEL PRODUCTION 1970-1988

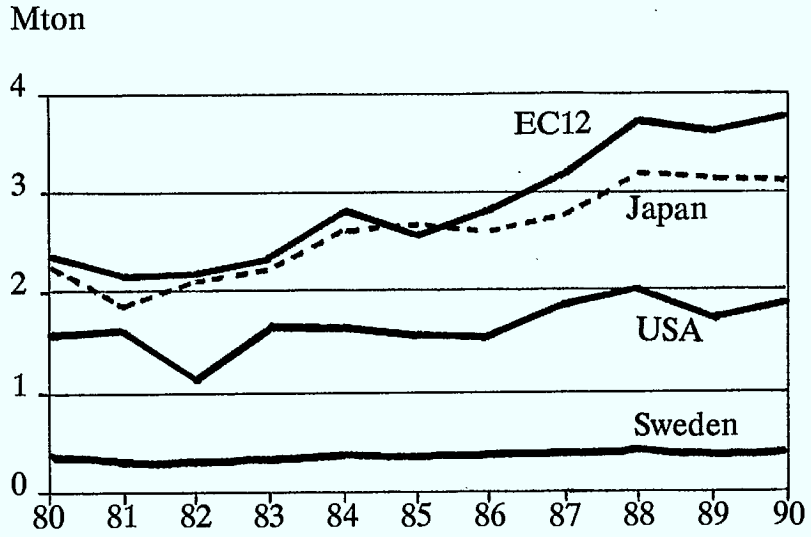


Source: Jernkontoret (Swedish Iron and Steel Association),

Crude steel producers are now producing close to full capacity.

Figure 17

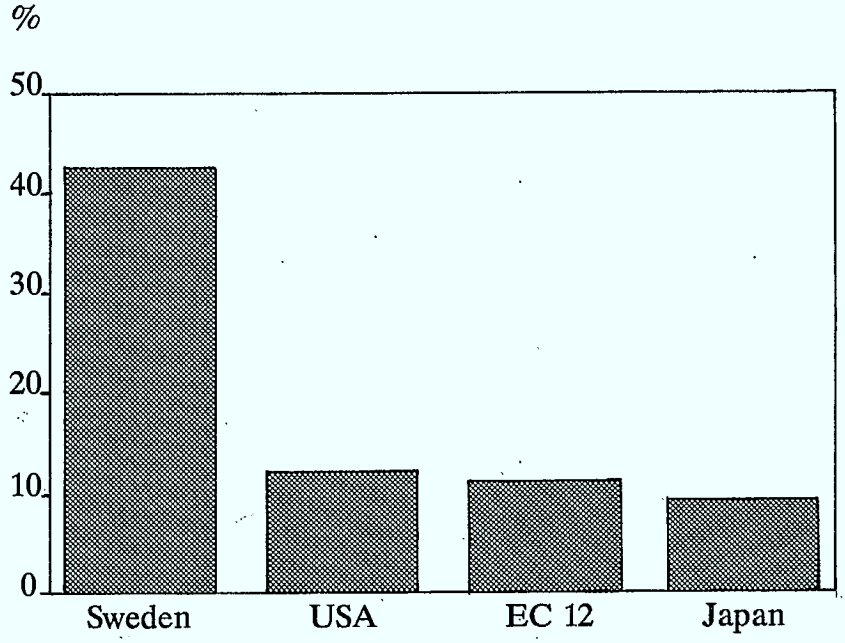
PRODUCTION OF STAINLESS STEEL
ingots and cast semis



Source: Swedish Steel Statistics, 1990.

Figure 18

STEEL ALLOYS AS PERCENTAGE OF CRUDE STEEL PRODUCTION
1990

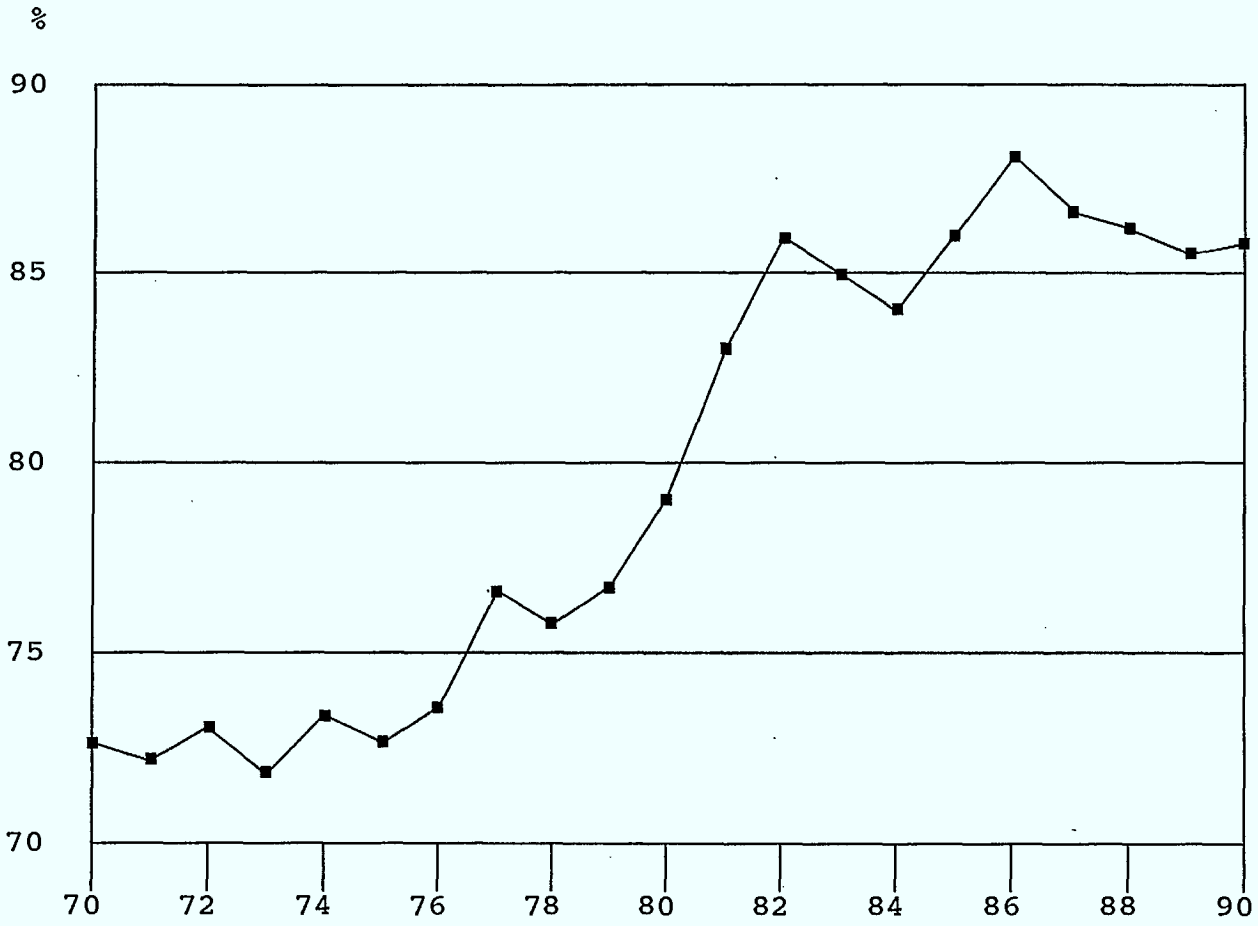


Source: Swedish Steel Statistics, 1990.

Specialty steel and, as a consequence, value-added production, is a more prominent component of the Swedish steel industry than in other major steel producing companies.

Figure 19
SWEDEN

YIELD RATE: CRUDE STEEL TO FINISHED STEEL



Source: Jernkontoret (Swedish Iron and Steel Association), 1990.

Definition of yield: Production of finished steel divided by usage of crude steel (stocks, purchases and production, i.e. the number of tons going into the finished steel process)

LABOUR

¶ Employment in the Swedish steel industry rose very rapidly during the early postwar period, reaching 45,000 by 1945.

¶ The work force peaked at 60,000 in the mid 1960s, after continued growth throughout the first half of the 1960s.

¶ From the mid 1960s to the end of the 1980s, the work force was decreased by more than half, with nearly 24,000 total job cuts.

¶ Specialty steel plants accounted for the majority of employees, from 1974 to 1989, and cutbacks were more severe in the specialty steel plants.

- From 1974-89, specialty steel plants lost more than half their jobs.
- Ordinary steel plants lost about one third of their jobs during the same period.

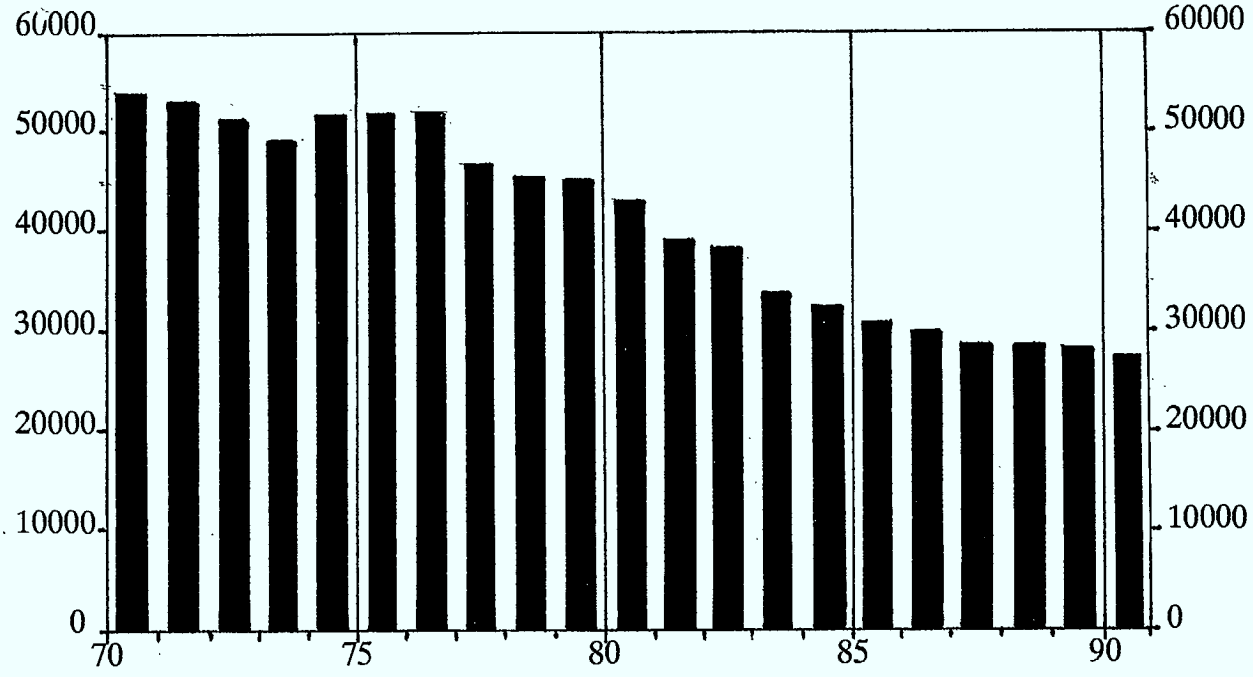
¶ Cutbacks affected white collar workers as well as production workers, although white collar reduction took place in a later phase, primarily during the 1980s.

¶ The average age of production workers declined from 42 in 1973 to 39 in 1985, largely a result of staff policy in the steel industry.

- Older workers were especially hard hit by cutbacks.
- Personnel attrition or early retirements were often use when companies reduced their workforce.
- Efforts were made to retain the younger, and generally better qualified workers.

¶ The size of the foreign workforce in Swedish mills, which accounted for 13 % of all steel workers in 1985, has remained fairly stable and been largely unaffected by cutbacks.

Figure 20
NUMBER OF EMPLOYEES IN THE SWEDISH STEEL INDUSTRY



Source: Swedish Steel Statistics, 1990.

Further labour cuts are expected as one factor of continued efforts to increase productivity.

TRADE

¶ As in other small countries, the steel industry is export dependent.

- AVESTA, for example, had 84% of its invoices outside Sweden in 1990.
- In 1990, total exports of finished steel exceeded 18 billion Sw Kr, while imports amounted to 9.7 billion Sw Kr.[1]
- The per ton value of exports is considerably higher than that of imports.

¶ The Swedish market is too small to support more than one integrated steel mill with a complete product range.

- Economies of scale require firms to concentrate on specific products, both for export and for the internal market.

¶ SSAB 's production of semis for the US is of strong strategic importance.

- It enables SSAB to have a high utilization of its metallurgical capacity, and thereby to reduce costs.

¶ Imports account for 55% of the internal Swedish market.

¶ Sweden has a liberal trade policy.

- There are no quantitative restrictions and no steel tariffs vis ã vis the EC and EFTA.
- Steel tariffs for other countries are very low.

¶ This import/export strategy is expected to keep the Swedish steel industry profitable and competitive in the future.

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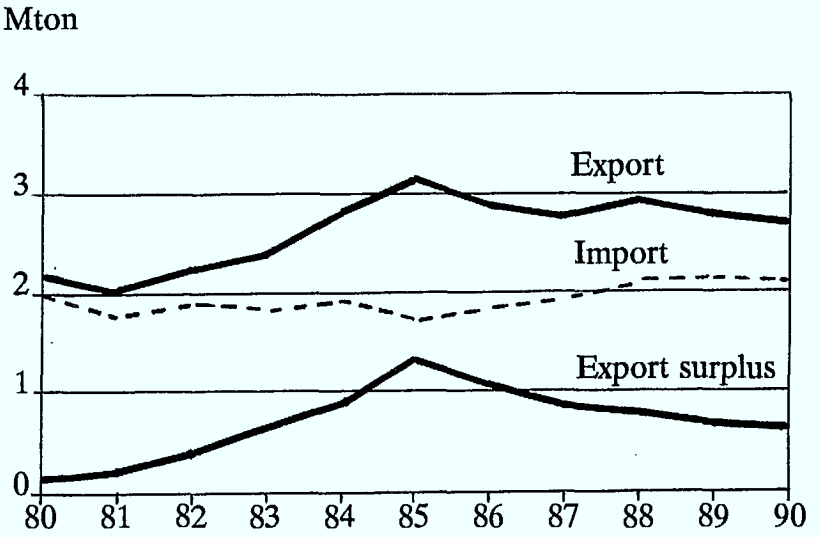
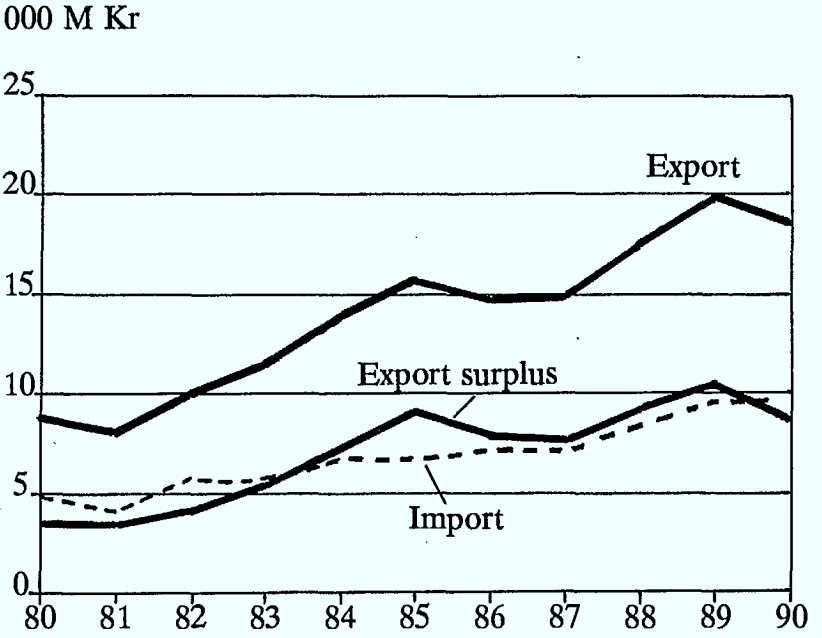
1 Exchange rate, December 20, 1991: 1 SEK = 0.211 Cdn dollar.

Figure 21
TRADE BALANCE, STEEL
including ingots and semis, ton



Source: Swedish Steel Statistics, 1990.

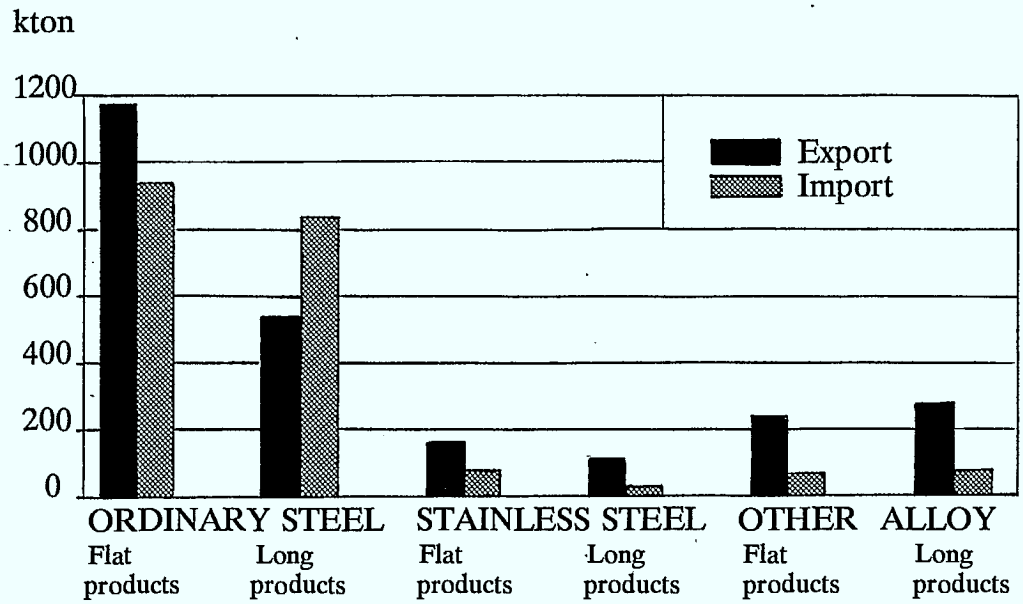
Figure 22
TRADE BALANCE, STEEL
including ingots and semis, value



Source: Swedish Steel Statistics, 1990.

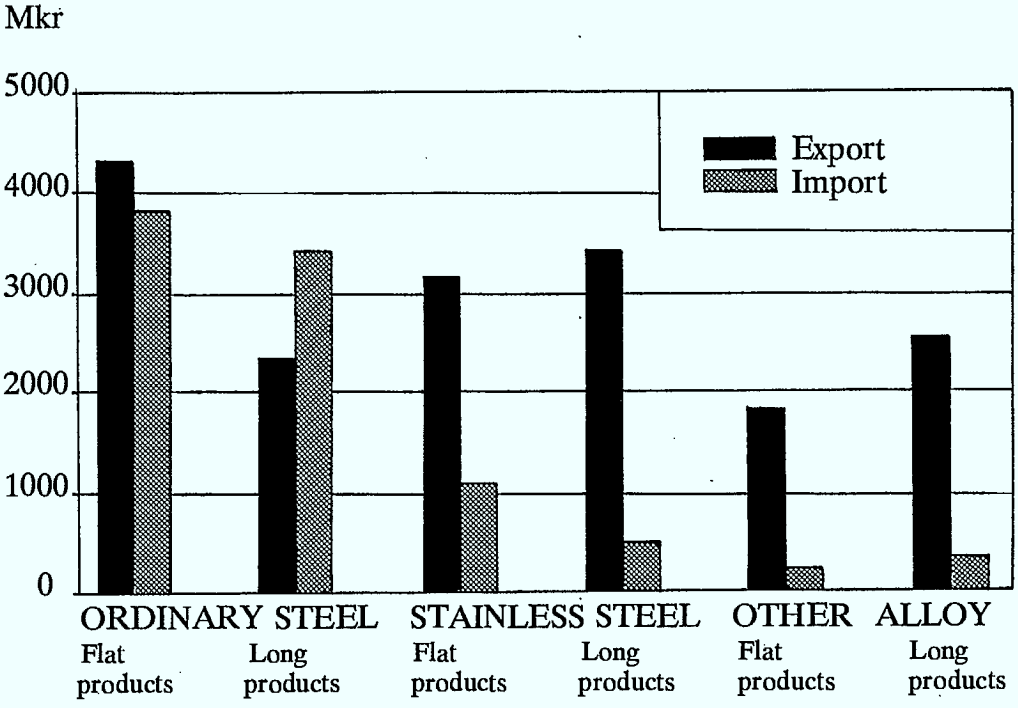
There has been a decreasing export surplus by volume but increasing exports by monetary value.

Figure 23
FOREIGN STEEL TRADE, 1990
tonnage, by product



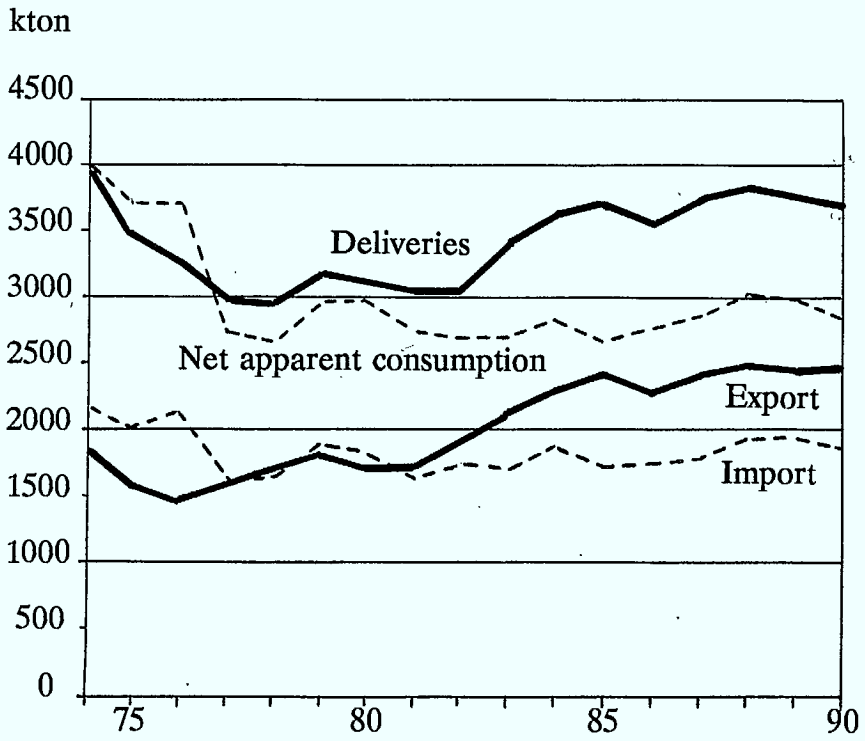
Source: Swedish Steel Statistics, 1990.

Figure 24
FOREIGN STEEL TRADE, 1990
value, by product



Source: Swedish Steel Statistics, 1990.

Figure 23
FINISHED STEEL EXCLUDING SEMIS



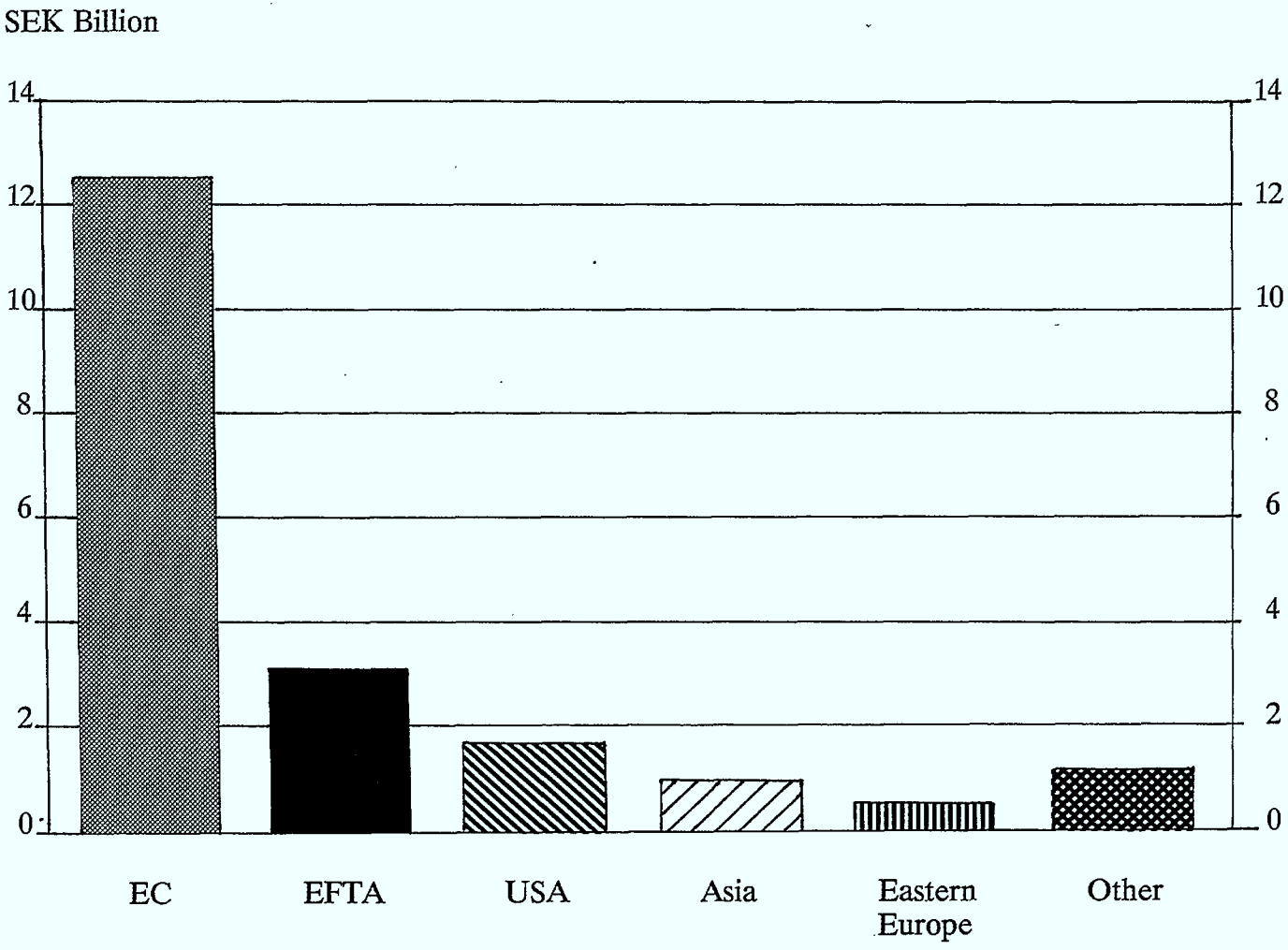
Source: Swedish Steel Statistics, 1990.

The Swedish steel industry is exporting a major share of its production, averaging two-thirds and up to 85 percent in some companies.

Sweden is also import dependent on steel material.

Figure 26

SWEDISH EXPORTS OF FINISHED STEEL INCL. SEMIS BY COUNTRY OR GEOGRAPHICAL REGION 1989

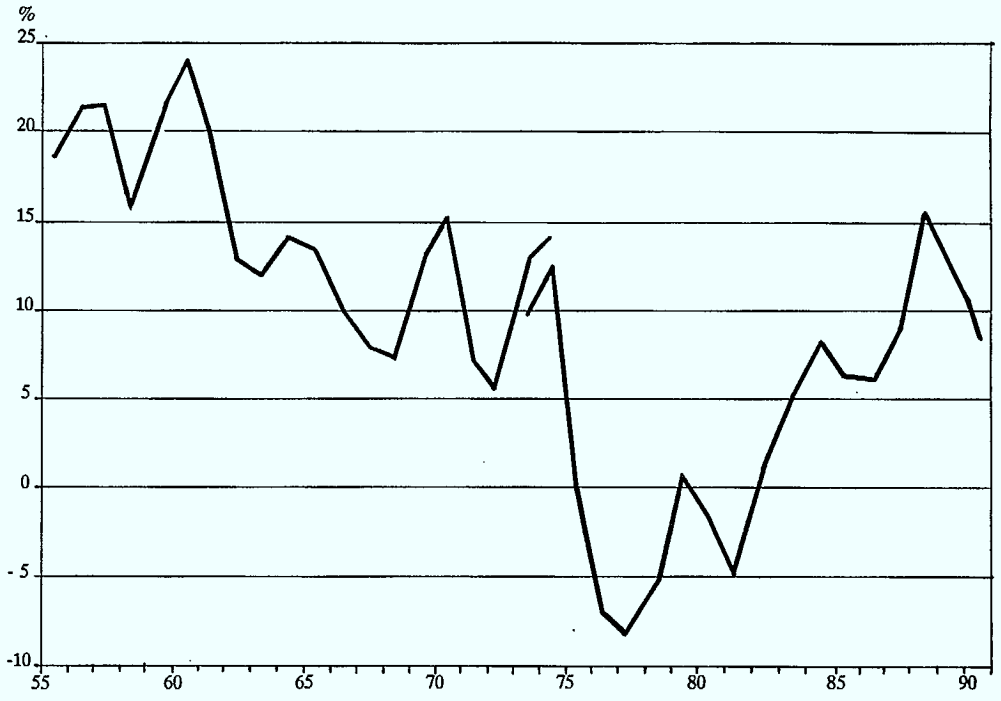


Source: Jernkontoret (Swedish Iron and Steel Association), 1989.

PROFITABILITY

- The demand for steel was good and profitability was high until the beginning of the 1960s.
- A period of oversupply and decreasing profitability followed, as a result of the rapid expansion of the steel industries outside the traditional production areas in Europe and North America.
- The initial response to the decreasing profitability was an exchange of products between the different Swedish steel companies. It became apparent that more drastic measures were needed and substantial capacity reductions, mergers and restructuring operations were carried out between 1977 and 1982.
- By 1982, profitability was reestablished, but at a level which is still considered too low.

Figure 27
THE SWEDISH STEEL INDUSTRY PROFITABILITY:
Return on capital
Depreciation according to plan



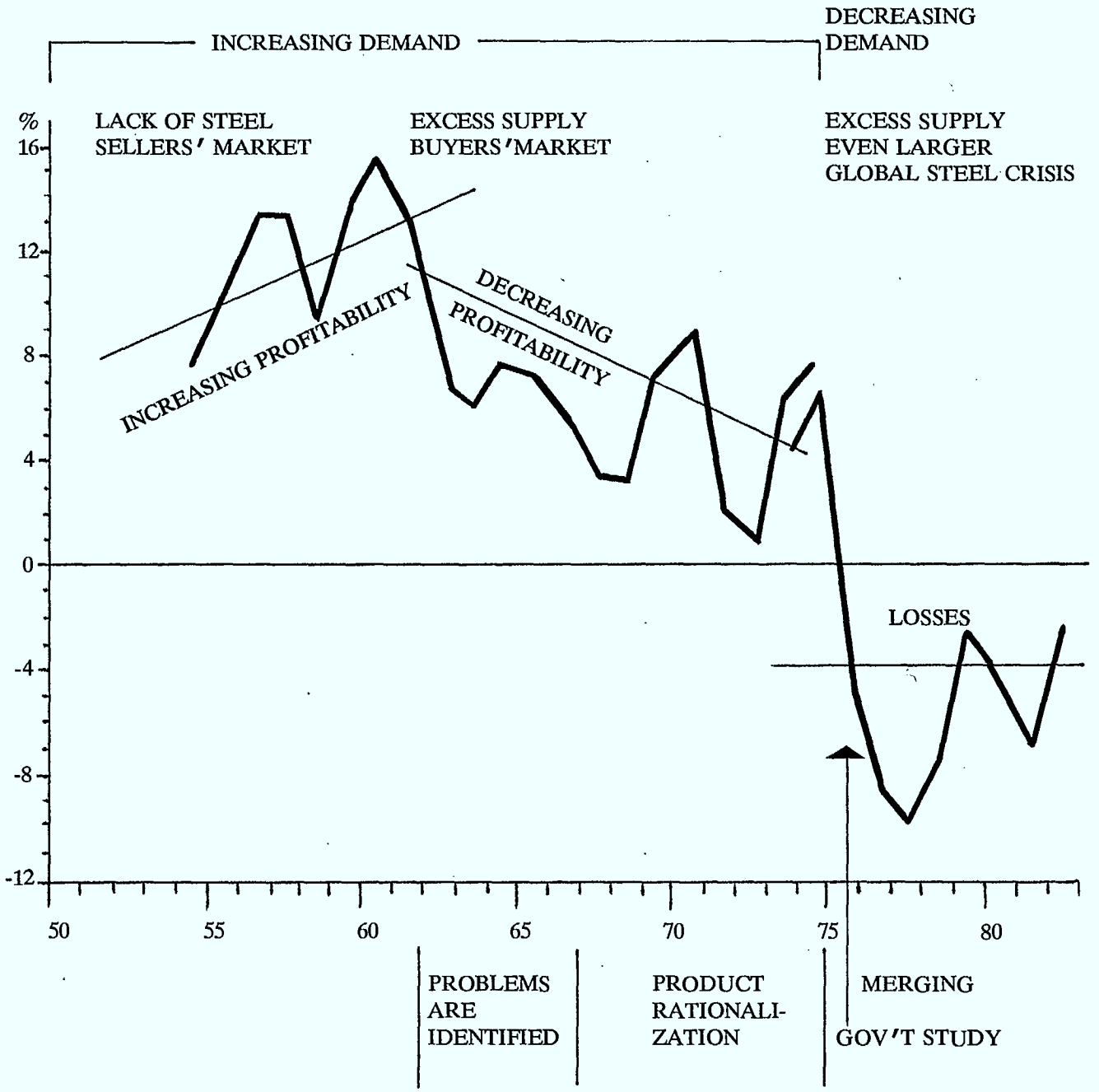
Source: Jernkontoret (Swedish Iron and Steel Association), 1991.

The break in the graph (1973-74) reflects a change in the number of companies reporting data: the old series was a sample; the new series was based on total companies.

Figure 28

PROFITABILITY
OF THE SWEDISH STEEL INDUSTRY

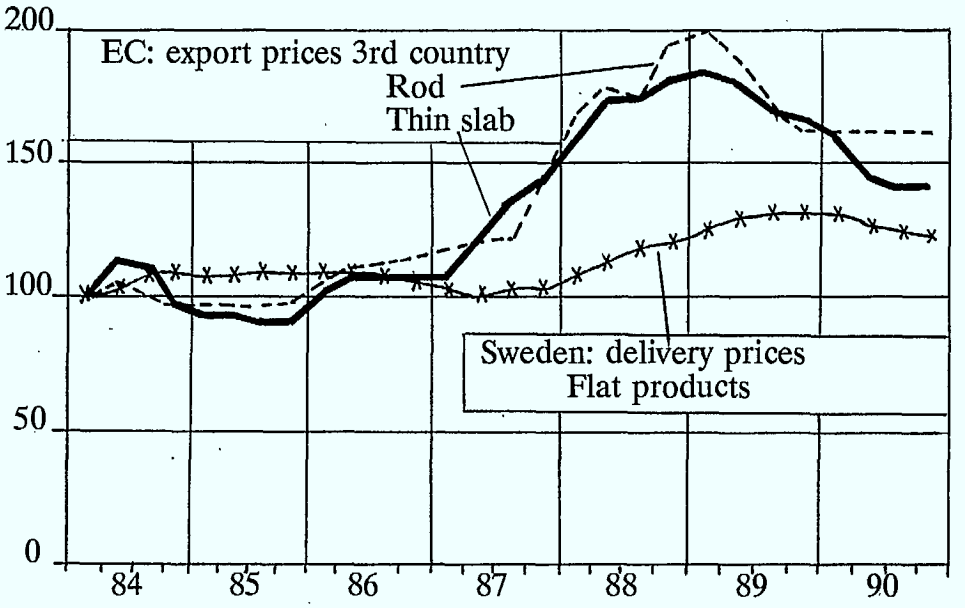
(Depreciation based on replacement value)



Source: W. Ekman, 1984

Figure 29

PRICE DEVELOPMENT, ORDINARY STEEL
Index 1984:1=100



Source: Swedish Steel Statistics, 1990.

Sweden's domestic prices are more stable than EC export prices to third countries. This reflects prices in the business cycle during the period 1987-1989.

CORPORATE STRUCTURE

¶ The Swedish steel industry was substantially rationalized from 1965 to the end of the 1980s, giving it a competitive advantage over other countries.[2]

¶ According to Ekman, (see Document # 13 in Document File A) changes in the Swedish corporate structure, from 1965 to 1983, involve:

1) The "horizontal structure", i.e. in the structure of products manufactured and sold.

2) The "vertical structure", i.e. the resources, from blast furnaces to marketing, utilized by the companies.

3) The "enterprise structure", i.e. the corporate set-up of separate works, corporations or groups of companies.

¶ Changes in the horizontal structure have restored product programs to a fairly sound state, with generally one or two producers per product.

¶ By 1983, the reduction in the number of integrated plants (with blast furnaces), from 7 to 2 had been the main change in the vertical structure.

- Blooming mills had decreased from 26 to 9.
- Medium, small section and wire rod mills had decreased from 47 to 19.
- The number of marketing organizations abroad had been reduced from 10 to 6.

¶ The enterprise structure had been radically altered, with the number of independent groups of companies and corporations operating in the steel industry falling from 24 to 14.

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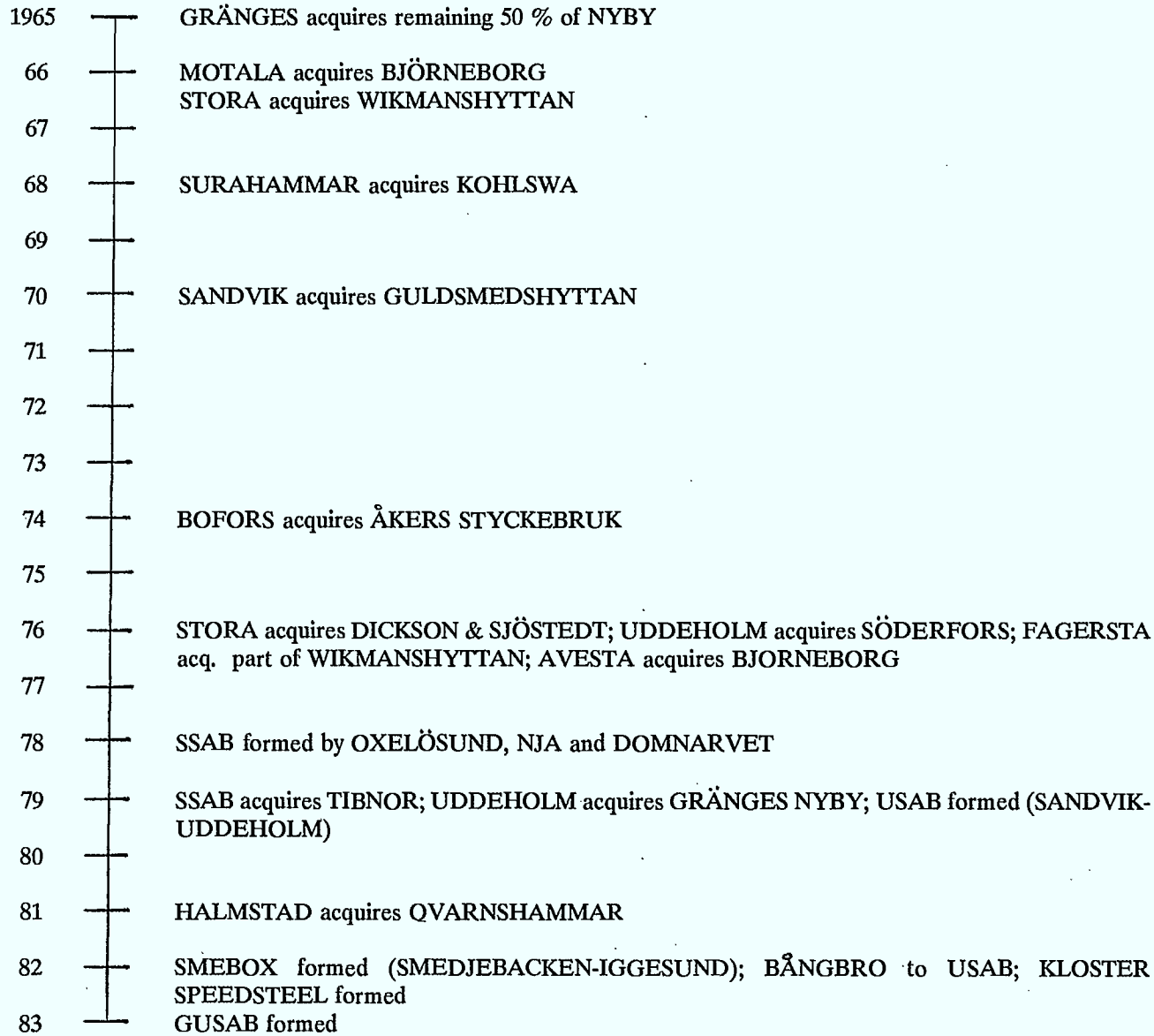
2 For an example of one CEO's approach to restructuring a firm, see Appendix C.

Figure 30

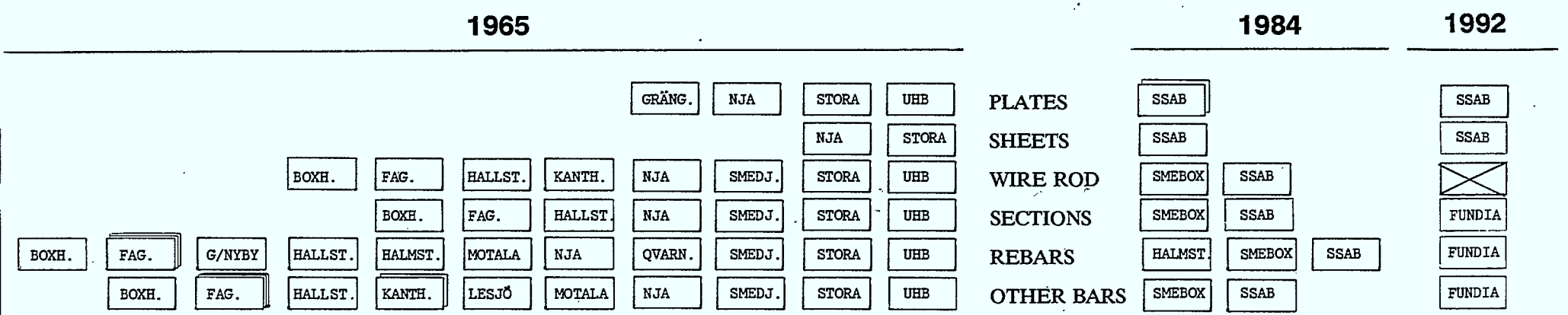
MAJOR CHANGES IN COMPANY STRUCTURE 1965-83



Source: W. Ekman, 1984.

Figure 31

ORDINARY STEEL PRODUCERS: "HORIZONTAL" STRUCTURE



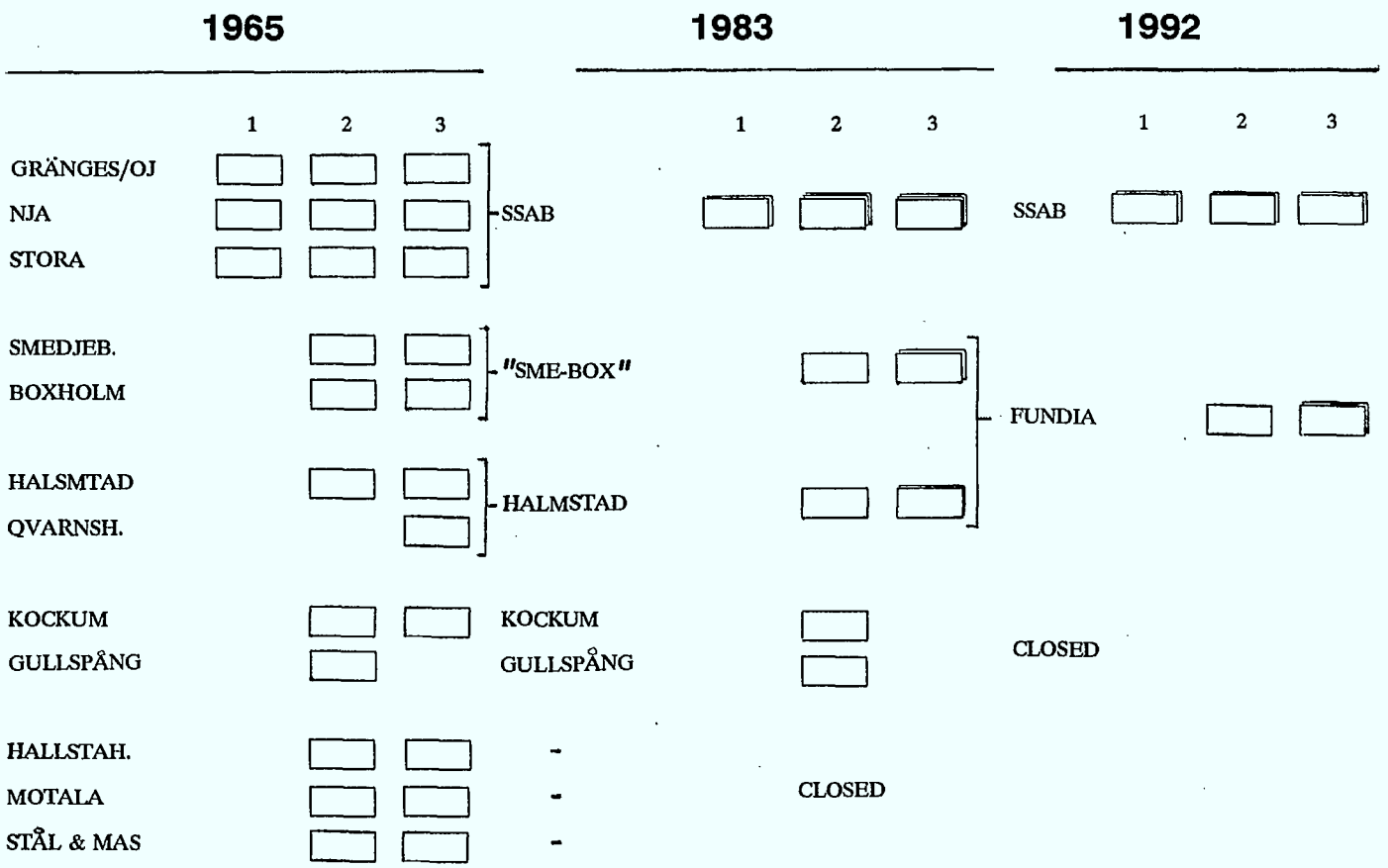
Source: W. Eckman, 1984. Updated with information provided by Jernkontoret (Swedish Iron and Steel Association.

Note: the number of boxes represents the number of plants.

Today
- SSAB concentrates on plates and sheets.
- There are no producers of wire rod.
- Smebox is now Fundia.
- Halmstad no longer produces steel, concentrating on welding and manufacturing. They are owned by Fundia.
- Fundia produces wire rod in Finland.

Figure 32

ORDINARY STEEL PRODUCERS
CORPORATE STRUCTURE AND VERTICAL PRODUCTION STRUCTURE



1 = Blast furnace 2 = Melting shop 3 = Hot forming dep.

Source: W. Eckman, 1984. Updated with information provided by Jernkontoret (Swedish Iron and Steel Association.

Figure 33

COMMERCIAL STEEL PLANTS IN SWEDEN

1977		1989			
Oxelösund	↕▲☼				
Domnarvet	↕▲☼	SSAB	↕▲☼	↕▲☼	╳☼
NJA	↕▲☼	Ovako Prof.	◌☼		
Smedjebacken	▲☼				
Boxholm-Horndal	▲☼	▲☼	Fundia	▲☼	╳☼	☼
Halmstad	▲☼				
Qvarnshammar	☼				
Gullspång	▲				
Hallstahammar	▲☼				
Kockum	▲				

↕ crude iron production
▲ crude steel production
☼ rolling

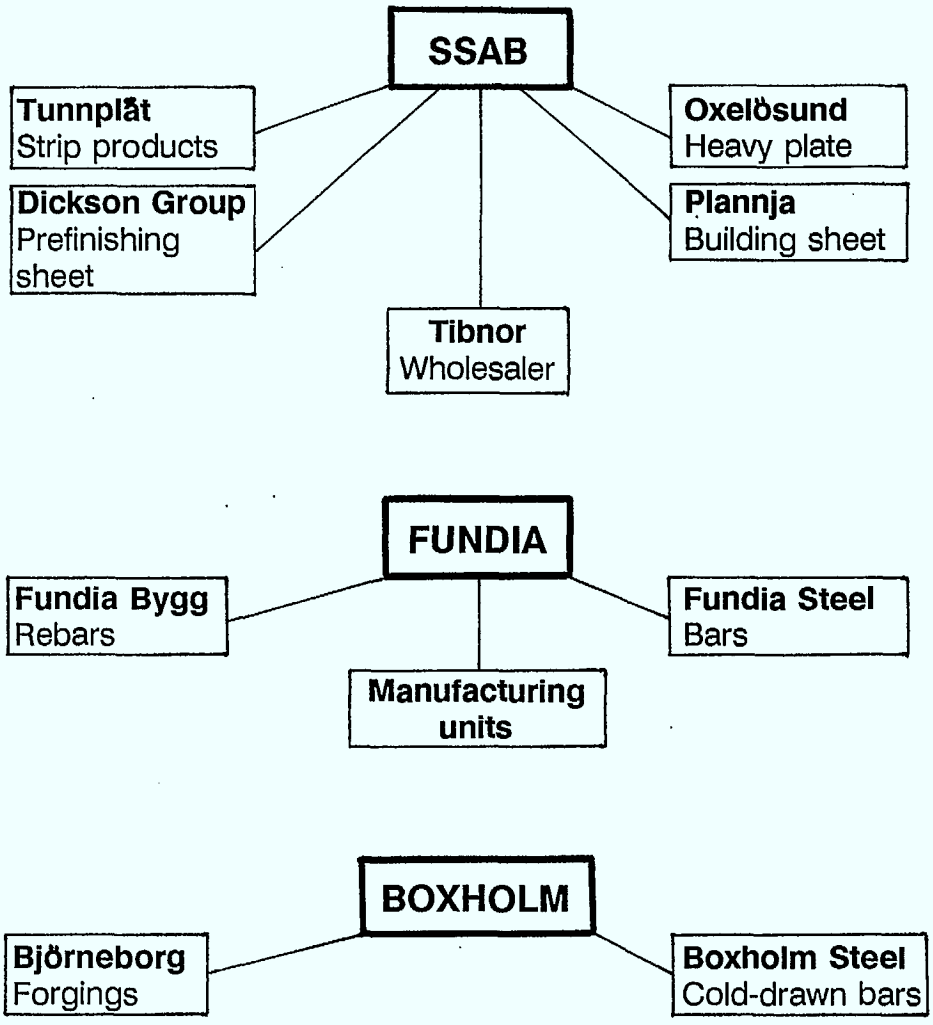
◌ suggested to be closed down
╳ closed since 1990

Firms lacking production of both crude steel and warm rolled products have not been included.

Source: Jernkontoret (Swedish Iron and Steel Association), 1989.

Figure 34

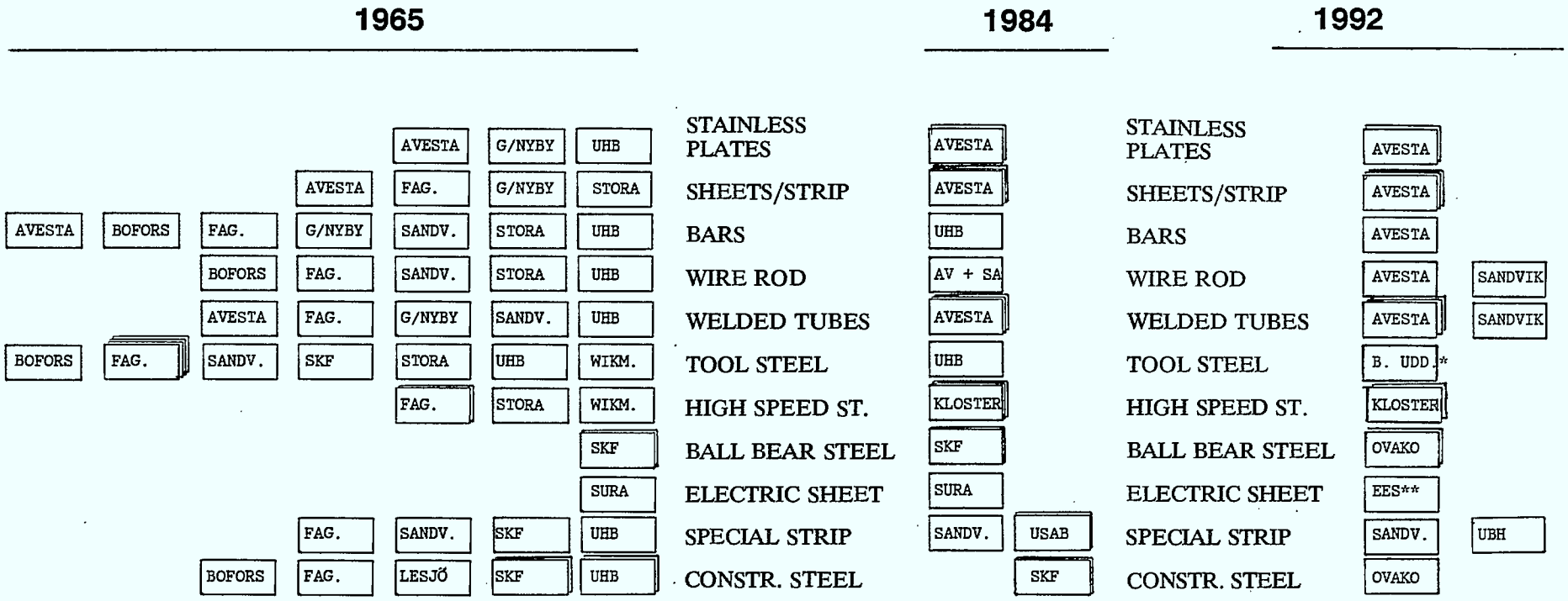
CARBON STEEL



Source: Jernkontoret (Swedish Iron and Steel Association), 1991.

Figure 35

SPECIAL STEEL PRODUCERS: "HORIZONTAL" STRUCTURE



* Böhler Uddeholm

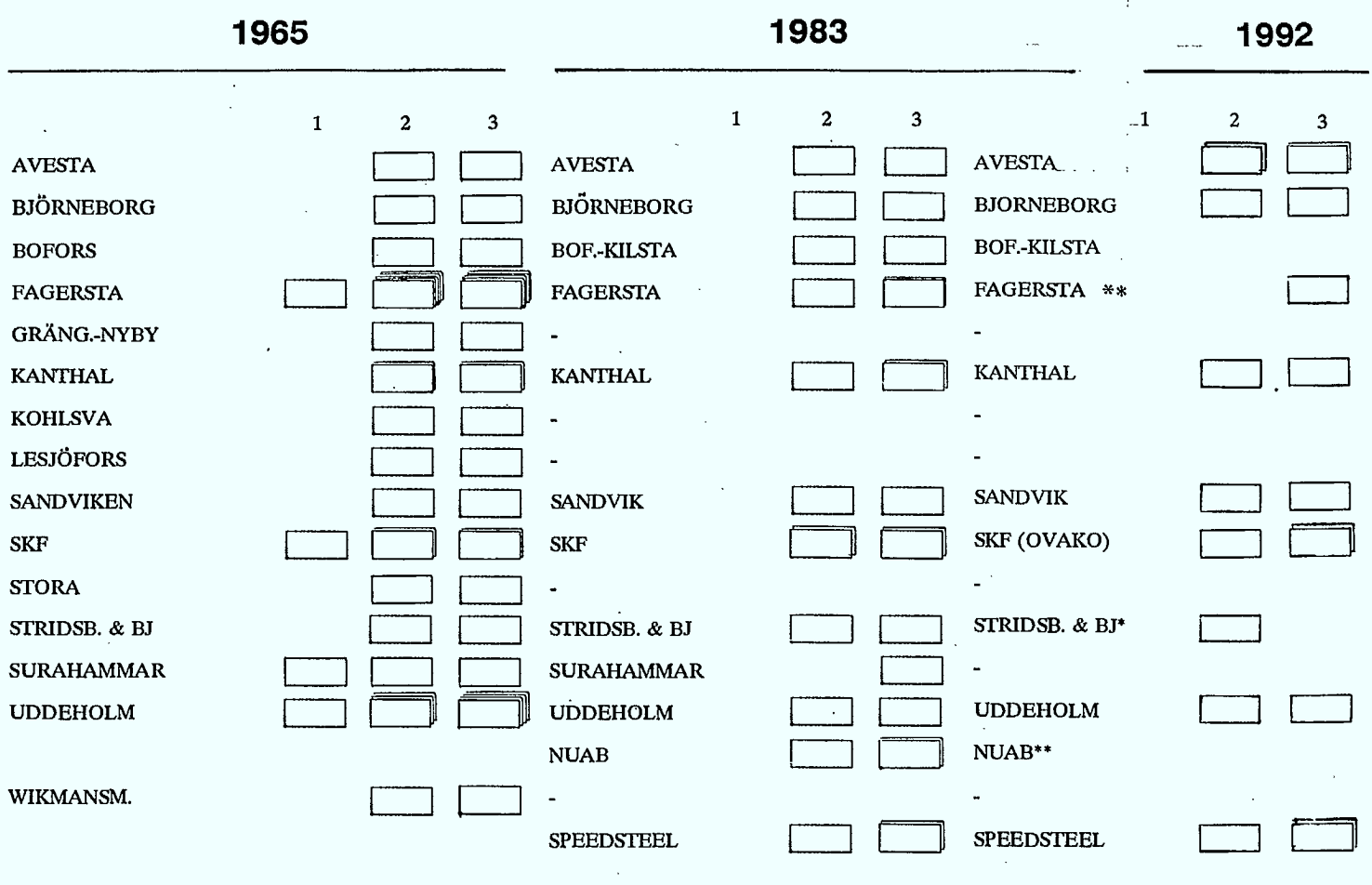
** European Electrical Steel (jointly owned by British Steel and SSAB)

Source: W. Ekman, 1984. Updated with information provided by Jernkontoret (Swedish Iron and Steel Association).

Some companies closed, others merged, to produce a structure with one single producer for each product.

Figure 36

SPECIAL STEEL PRODUCERS: CORPORATE STRUCTURE AND VERTICAL PRODUCTION STRUCTURE



1 = Blast furnace 2 = Melting shop 3 = Hot forming dep

* very small ** part of Avesta now.

Source: W. Ekman, 1984. Updated with information provided by Jernkontoret (Swedish Iron and Steel Association).

Figure 37

SPECIALTY STEEL PLANTS IN SWEDEN

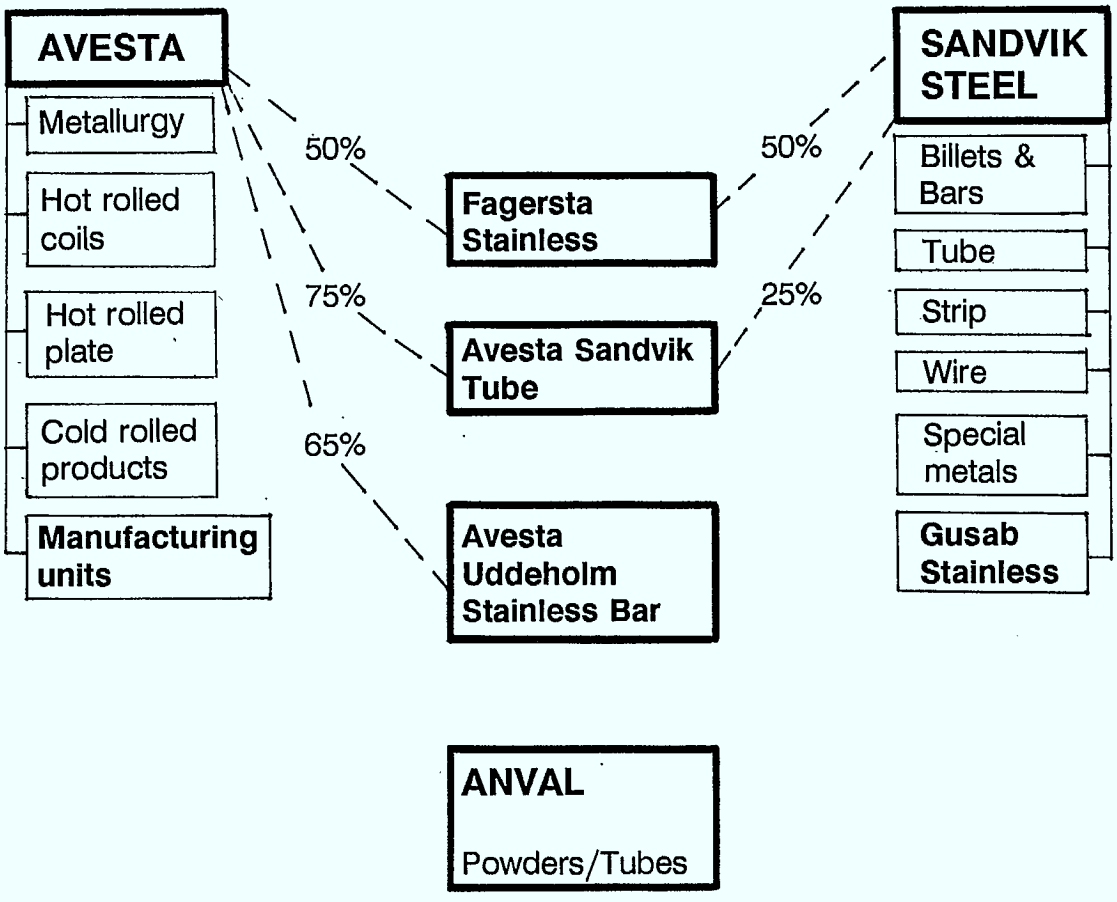
1977		1989	
Avesta	▲☼	Avesta	▲☼ ▲☼ ☼ ☼
Gränges Nyby	▲☼		
Björneborg	▲	Björneborg	▲
Bofors	▲☼		
Fagersta	↕▲☼ ▲☼ ▲☼ ☼	Fagersta Stainless	☼
Kanthal	▲☼	Kanthal	▲☼
Sandvik	▲☼	Sandvik	▲☼
SKF	↕▲☼ ▲☼	Ovako	▲☼ ▲☼
Surahammar	↕ ▲☼	Surahammar	╳
Uddeholm	↕▲☼ ▲☼ ▲☼ ☼ ☼	Uddeholm Tooling	▲☼
Lesjöfors	▲☼	Kloster Speedsteel	▲☼ ☼

↕ crude iron production
▲ crude steel production
☼ warm rolling
◌ suggested to be closed down
╳ closed since 1990

Plants with less than 10,000 tons crude steel production and plants lacking production of both crude steel and warm rolled products have not been included.

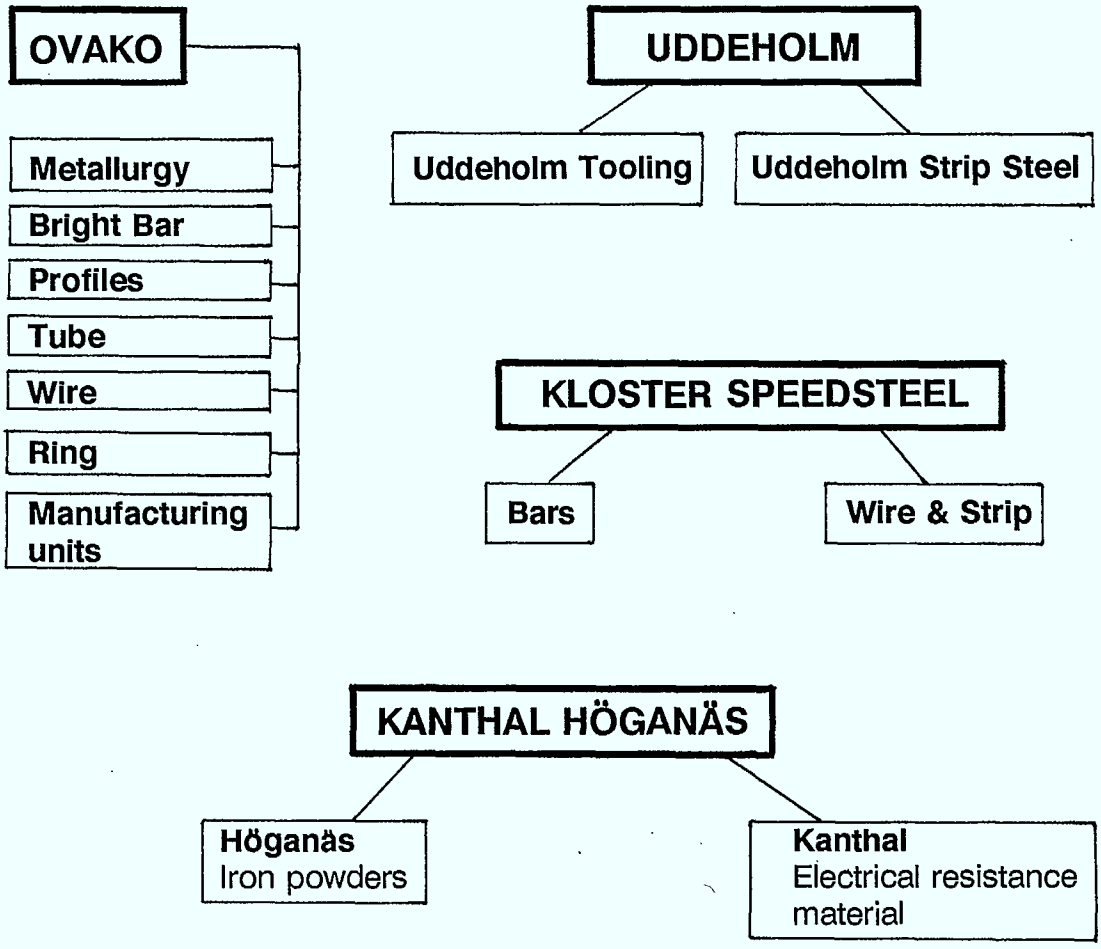
Source: Jernkontoret (Swedish Iron and Steel Association), 1989.

Figure 38
STAINLESS STEEL



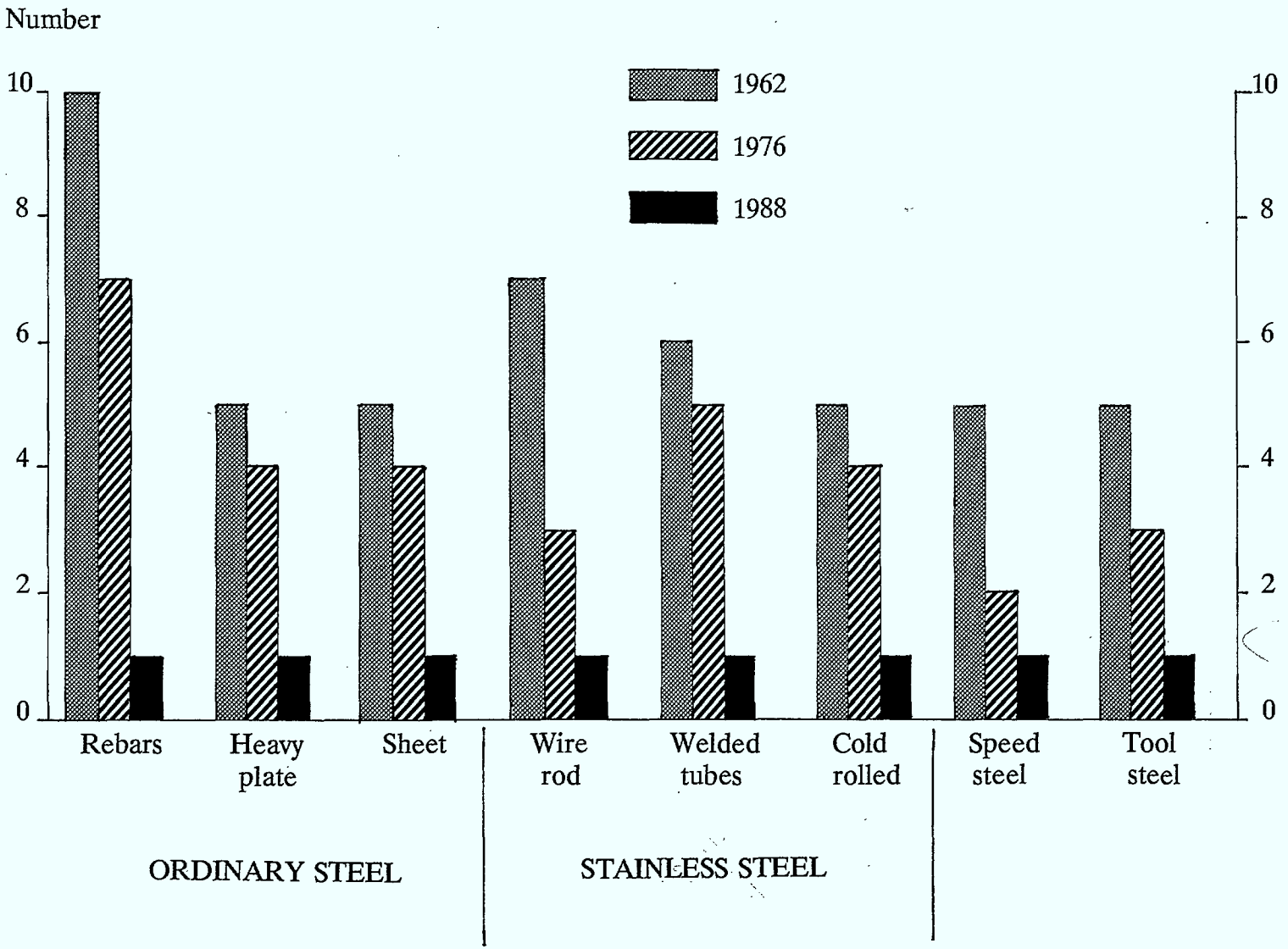
Source: Jernkontoret (Swedish Iron and Steel Association), 1991.

Figure 39
OTHER SPECIALTY STEELS



Source: Jernkontoret (Swedish Iron and Steel Association), 1991.

Figure 40
NUMBER OF COMPANIES
WITH PRODUCTION OF CERTAIN PRODUCT



Source: Jernkontoret (Swedish Iron and Steel Association), 1988.

Figure 41

Swedish steel producers are world leaders in many areas:

Stainless steel

Sandvik largest in seamless tubes

AST largest in welded tubes

Avesta largest in hot rolled plate

Fagersta Stainless one of the two largest in wire rod

Tool steel

Uddeholm Tooling second largest

High speed steel

Kloster Speedsteel largest

Electrical resistance wire

Kanthal Hoganas largest

Ball bearing steel

Ovako one of the two largest

Commercial steel

SSAB one of the largest in wear resistant steels

Iron and steel powder

Kanthal Hoganas largest

Source: Jernkontoret (Swedish Iron and Steel Association), 1991.

Figure 42

SWEDISH STEEL INDUSTRY 1991

26 000 employees

25% thereof in foreign owned enterprises

COMMERCIAL STEEL	STAINLESS STEEL	OTHER ALLOY
Boxholm	Anval	Kanthal Höganäs
Fundia	Avesta	Kloster Speedsteel
SSAB	AST	Ovako
Wirsbo Stalror	Fagersta Stainless	Structo Dom Europe
	Sandvik Steel	Surahammar
		Uddeholm

Entirely foreign owned Partially foreign owned

Source: Jernkontoret (Swedish Iron and Steel Association), 1991

In 1991, the Swedish steel industry employed 26,000 employees, or approx. 4% of the total industrial labour force, in 15 firms:

* 4 commercial steel firms (2 entirely foreign owned)
* 5 stainless steel firms (1 entirely foreign owned)
* 6 firms producing other alloy (3 entirely and 1 partially foreign owned)

There is a significant degree of foreign ownership in the Swedish steel industry.

VI COMMERCIAL STEEL : SSAB

¶ A study of the steel industry in 1977, illustrated an overcapacity, the structure was too old, and that it was necessary to restructure the commercial steel producers together.

¶ At that time, only three integrated Carbon steel plants, Luelå, Domnarvet and Oxelösund, were in operation. All three were working at a low operating rate and with heavy losses.

¶ In 1978, a new company, SSAB, was formed out of Luleå, Domnarvet and Oxelösund, together with the iron ore mines in the central part of Sweden. The initial ownership was 50% state, 50% private.

¶ SSAB's board adopted a large scale restructuring plan in 1978.

¶ Although spread over a ten year period, restructuring was concentrated in two phases:

1) 1978-81

- The general goals were to:
  - Increase SSAB's market share and exports.
  - Secure
    * economies of scale
    * coordination advantages
    * high capacity utilization.
  - Offer a complete range of commercial steel:
    * produced in its own facilities, or
    * marketed on behalf of other firms.
  - Reduce dependence on lower grade products.
- Five strategies were used:

1) Merging of firms to create one efficient company

2) Specialization

3) Reduction in employees, from 17,000 to 12,000.

4) Labour participation at the Board level (SSAB was a pilot project for co-determination).

5) Concentrate manufacturing in as few units as possible:

   * Domnarvet was developed into a centre for strip and sheet manufacture, scrap-based metallurgy, and bar and wire reinforcements.

   * Oxelösund was retained as the centre for heavy-gauge and industrial plate.

   * Heavy and medium gauge sections were concentrated at Luelå.

- Other restructuring activities included:

   * Further development of manufacturing on all sites.

   * Scaling down mining operations.

   * Matching TGOJ and the rest of the service activities to the demand within SSAB and from external customers.

   * Rationalization of production lines and processes.

   * Reduction of metallurgical capacity.

   * Increassed use of continuous casting.

- The restructuring resulted in:

   1) Increased productivity (from 10.6 to 7.5 manh/tonne)

   2) Lower energy consumption

      * cost reduction in 1982 of SEK 1.1 billion, i.e. approx. 25%.

2) 1986-88

- In 1986, the ECSC demanded that the community's steel capacity be reduced to about 30 million tonnes/year of hot rolled products.

- Restructuring undertaken in the first phase was insufficient and further restructuring was considered necessary for SSAB to remain profitable in the increasingly competitive market.

- The second restructuring phase involved new owners, a new Board of Directors and new senior management.

- The task was to produce a more effective structure and involved:

  1) Concentration on product range

  2) Closing down mining operations

  3) Rationalization of production:

     * The electric arc furnace plant in Domnarvet was closed.

     * Production was concentrated at the two ore based metallurgy units at Luela and Oxelosund.

     * One plant one product.

  4) Extensive labour of approximately 2,600.

¶ The cost of the 1986-88 restructuring is estimated at SEK 1 billion.

¶ The restructuring measures were expected to increase the profit margin by SEK 500 million and raise productivity to 4 manh/tonne.

¶ By 1988, the steel business was divided into three companies: SSAB Strip Products, SSAB Oxelosund and SSAB Profiles.

¶ As a result of restructuring, SSAB has become mainly a producer of flat products.

- The core product is sheet from Domnarvet, supported by heavy plate from Oxelosund, and with a marginal tonnage of rail and heavy section products.

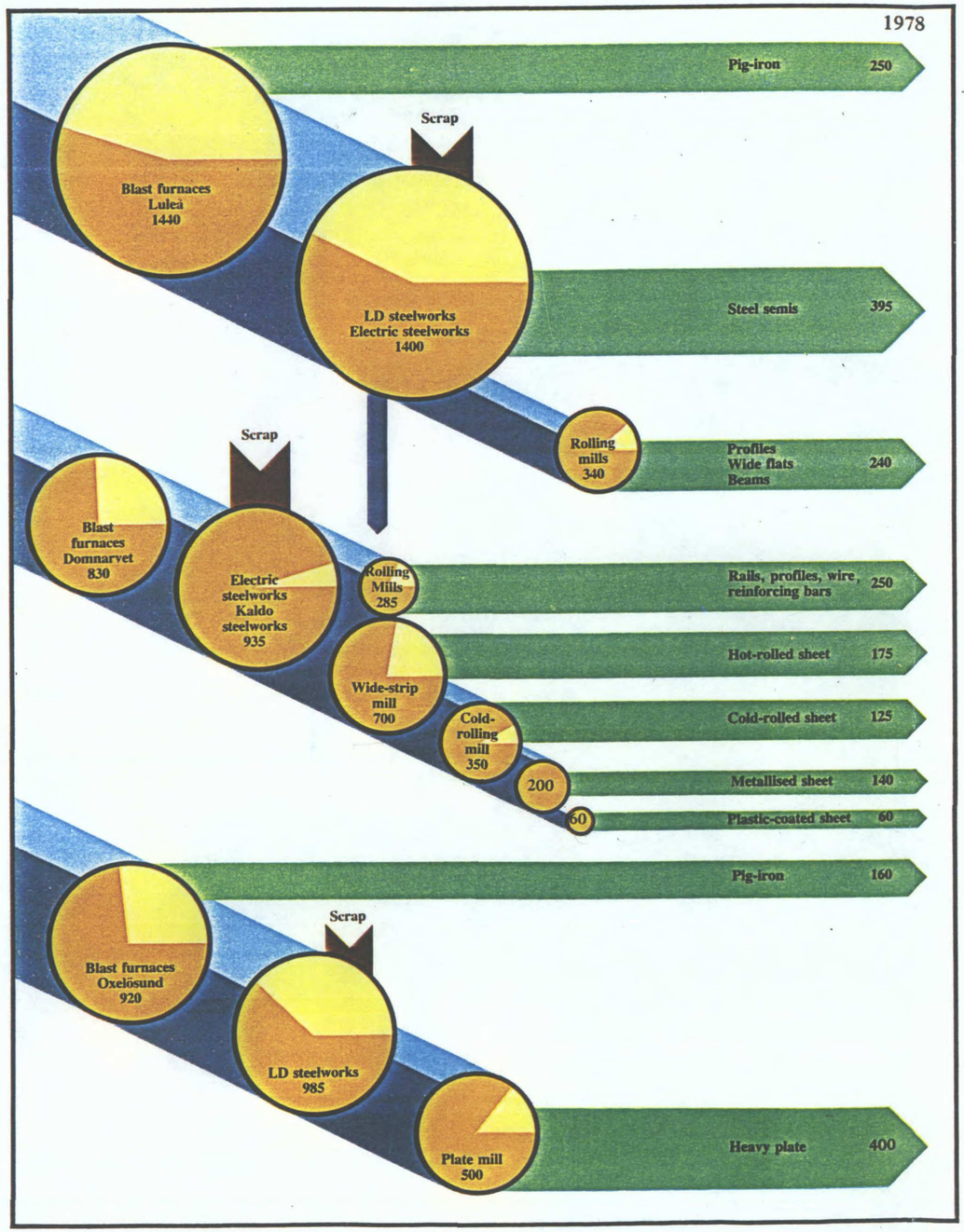
¶ Current ownership pattern:

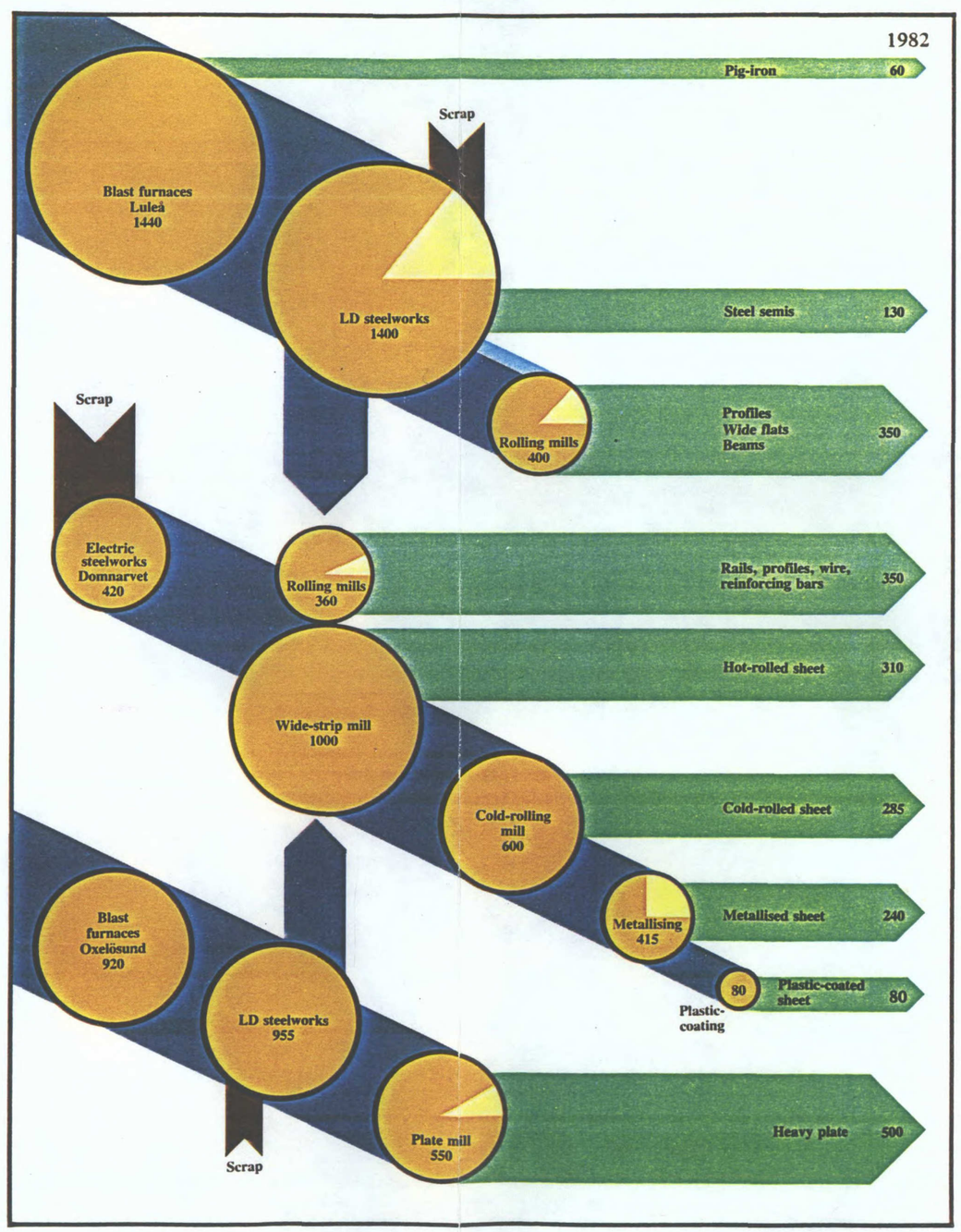
- 49% Government
- 52% private investors

¶ In one year, SSAB will be entirely privatized.

Figure 43

SSAB
PRODUCTION CAPACITIES
AND MATERIAL FLOWS
1978 AND 1982



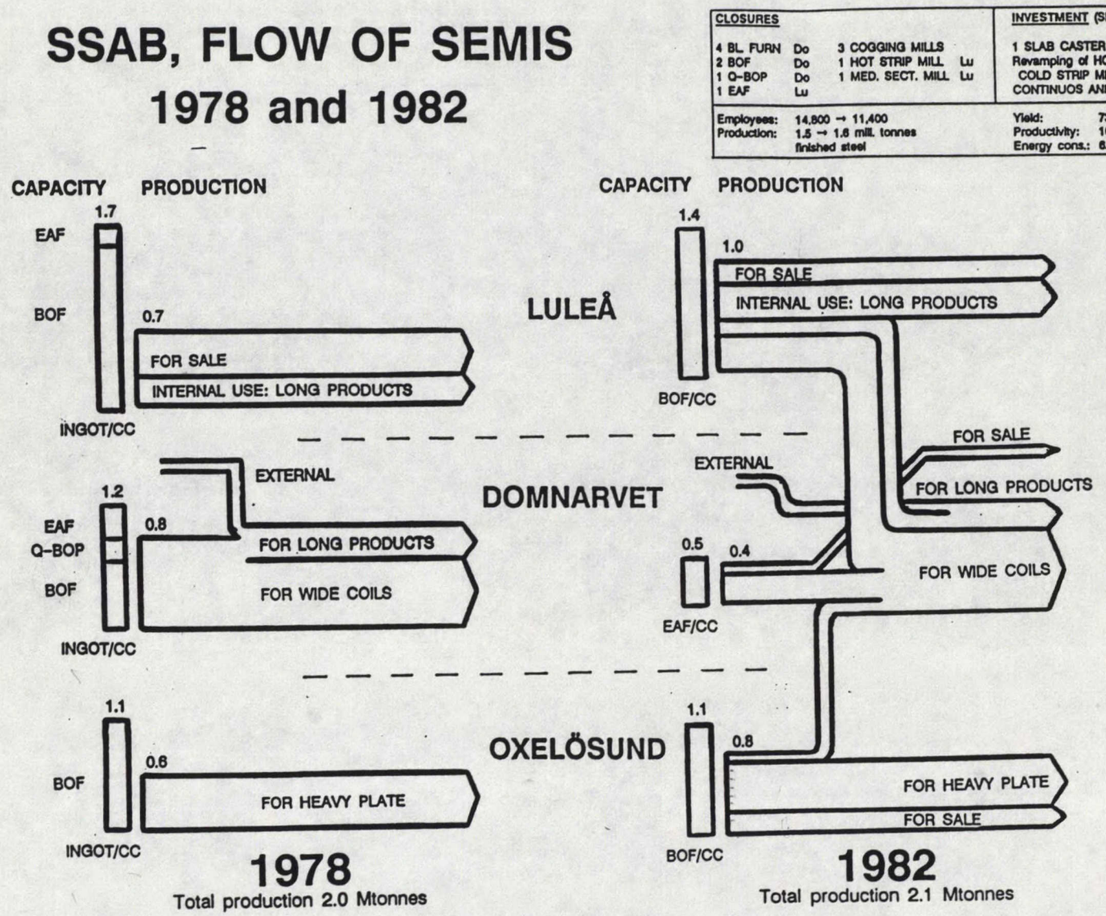


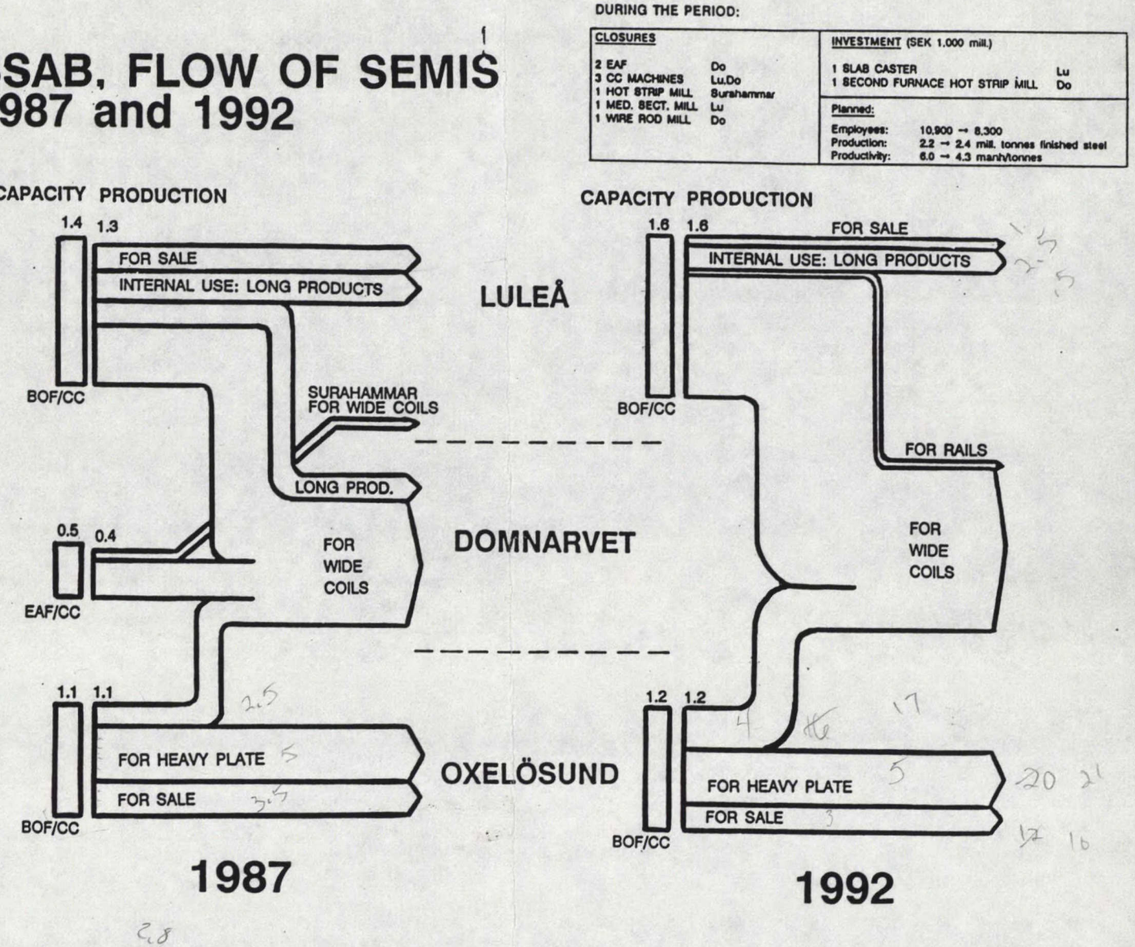
Source: SSAB, Annual Report, 1978.

Figure 44

RESTRUCTURING OF SSAB

1978-1992





Source: Jernkontoret (Swedish Iron and Steel Association), 1988.

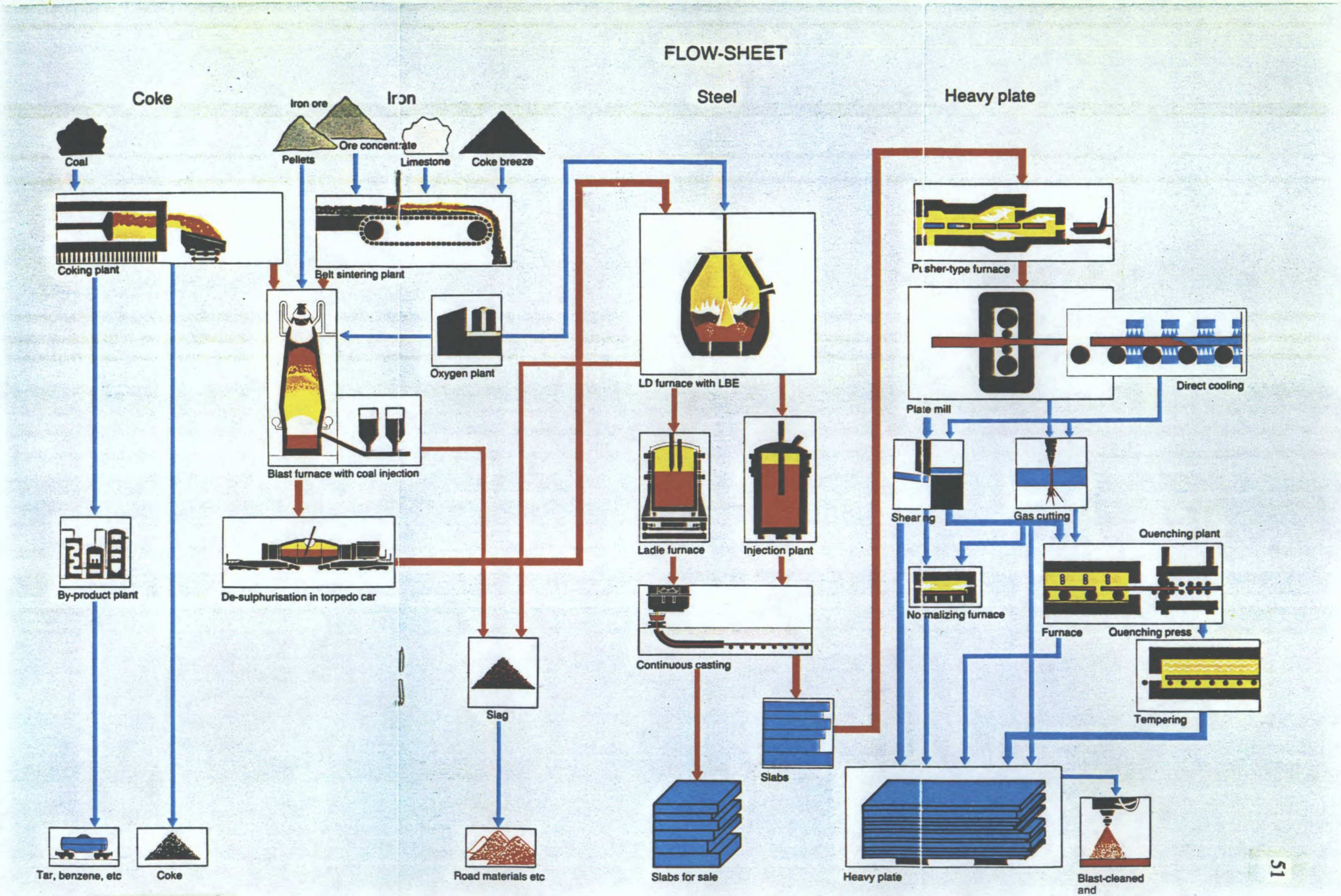
PRODUCTION

Year	Rationalization of Production Lines and Processes	Total tonnage (kt) of Crude Steel	Energy (kwh/t)	Productivity (h/t)
1978	Decentralized profit centres.	2347	6583	10.6
1979	Engineering division shut down & responsibility transferred to product divisions. Group-wide sales organization, Steel Centre, shut down. Swedish sector of marketing transferred to manufacturing divisions.	2633	6373	9.8
1980	Bulk of Dobel divisions business transferred to Dobel AB. Ownership of Ljusne transferred to Commune of Soderham. Operations at Flexiform Element AB ceased.	2247	5800	9.4
1981	Personnel working for Dobel AB transferred to its payroll. Swedish state railways buys 50% ownership in TGOJ. Commune of Oxelosund buys 50% ownership of Oxelsund's Hamn AB. Simox division sold off. Mining operations at Strassa ceased. Mineral processes division made over to a foundation of which SSAB is a trustee.	2067	5460	9.05
1982	Personnel working for Primdata transferred onto its payroll. Strassa Invest AB (est. on closure of Strassa mines) transferred to Commune of Lindesberg. Multi-location Prefinished Steel division split up into profit centres, with Roloc made part of Plannja AB. Administration at Domnarvet divided into 2 units: Personnel & Accounting.	2221	5280	7.5
1983		2587	4680	7.1
1984		2857	4640	6.5
1985		3010	4700	6.4
1986	Purchased steel business from ASEA. 50% of Dickson purchased from Avesta.	3005	4640	6.09
1987	Steel business broken down into 3 units, operated as subsidiaries: - SSAB Strip Products - SSAB Oxelosund - SSAB Profiles Separate service co. SSAB Administration at Luela AB to be formed at Luela.	2949	4580	5.7
1988	Sale of SSAB Profiles.	2963	4500	5.2
1989		2956	4392	4.6

Source: Derived from SSAB annual reports 1978-1989.

Figure 45

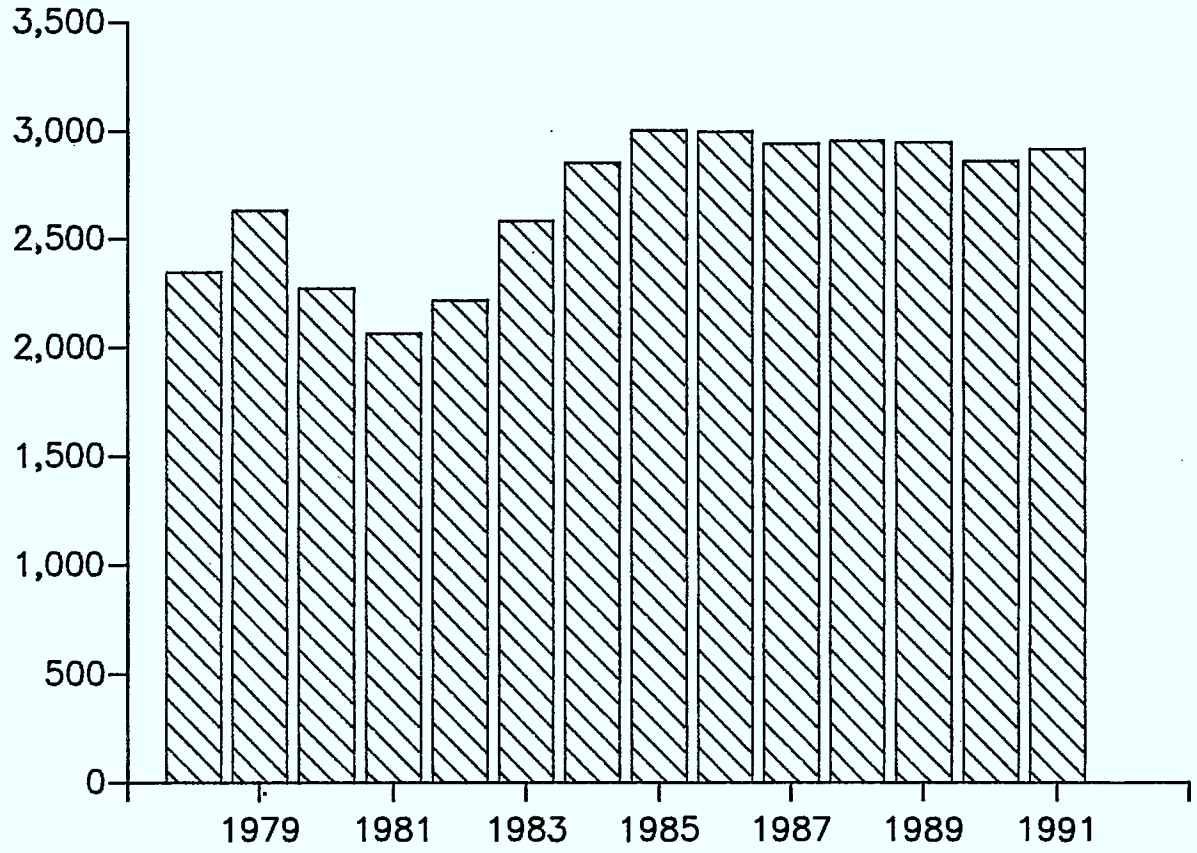
SSAB OXELOSUND FLOW SHEET
FROM RAW MATERIAL TO FINISHED PRODUCT



Source: SSAB Oxelosund.

Figure 46

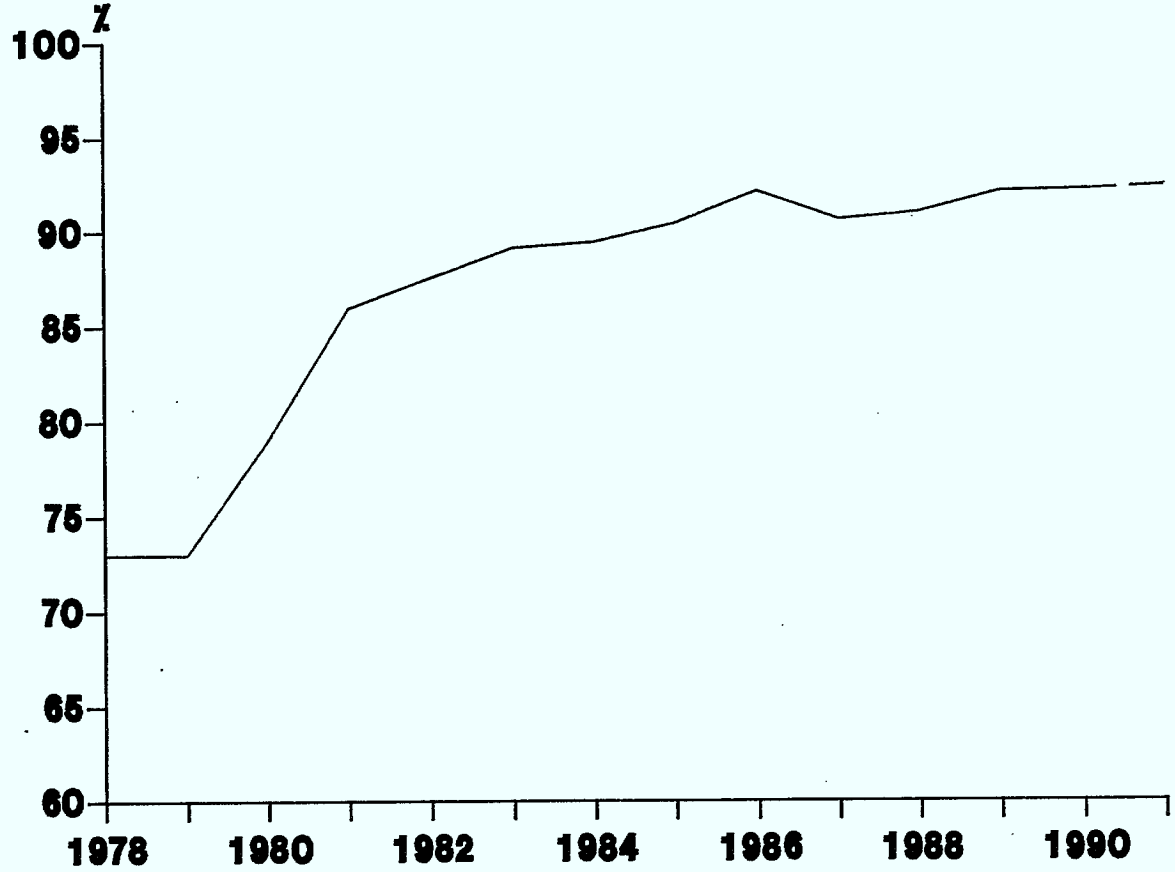
Production of crude steel (kt)



Source: SSAB annual reports, 1979-1991.

Figure 47

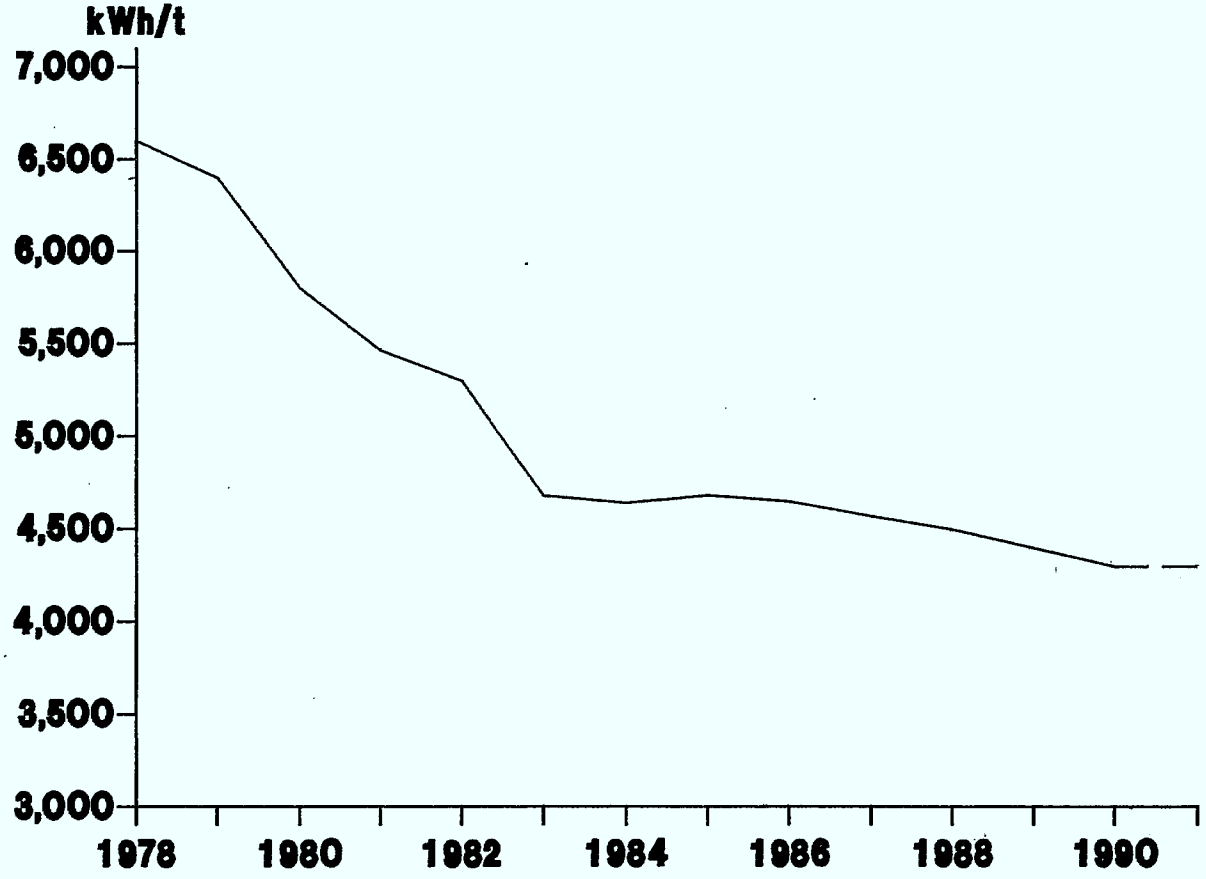
YIELD



Source: SSAB annual reports, 1978-1990.

Figure 48

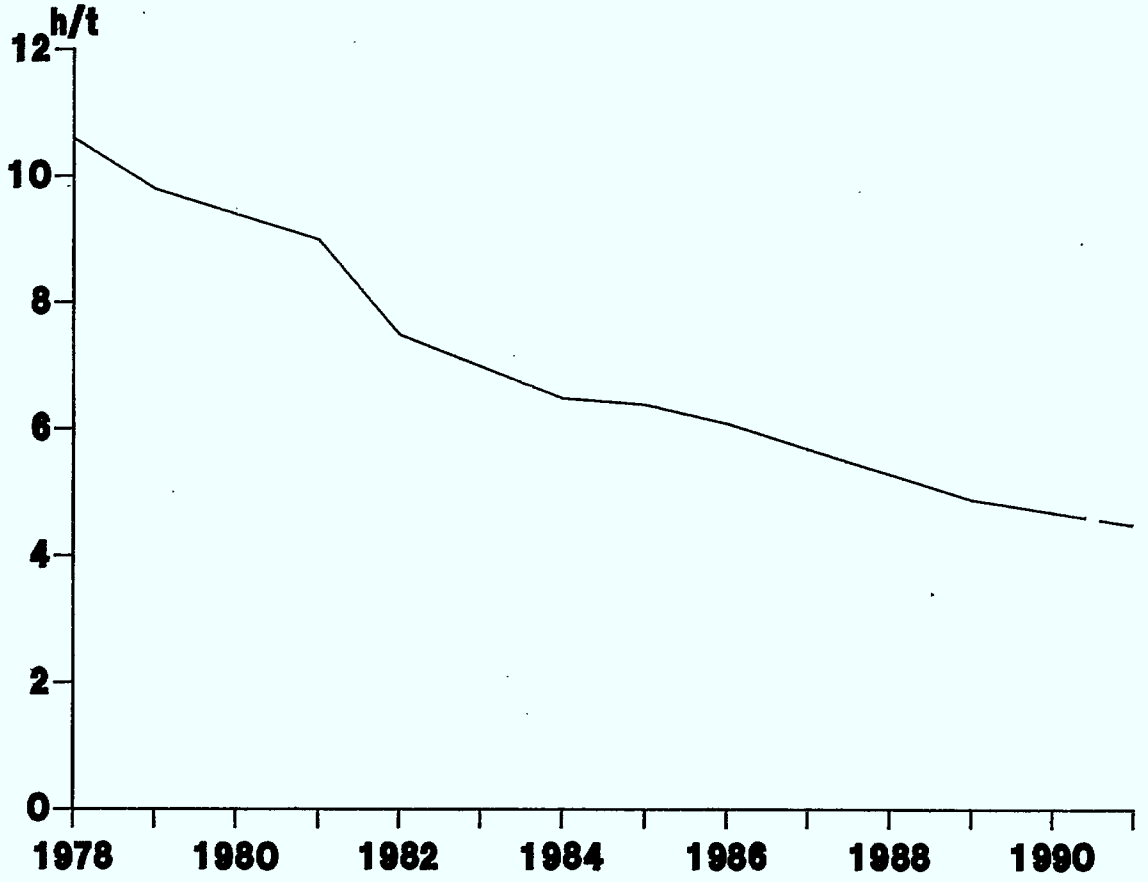
Energy Consumption Per Tonne



Source: SSAB annual reports, 1978-1990.

Figure 49

MANHOURS PER TONNE



Source: SSAB annual reports, 1978-1990.

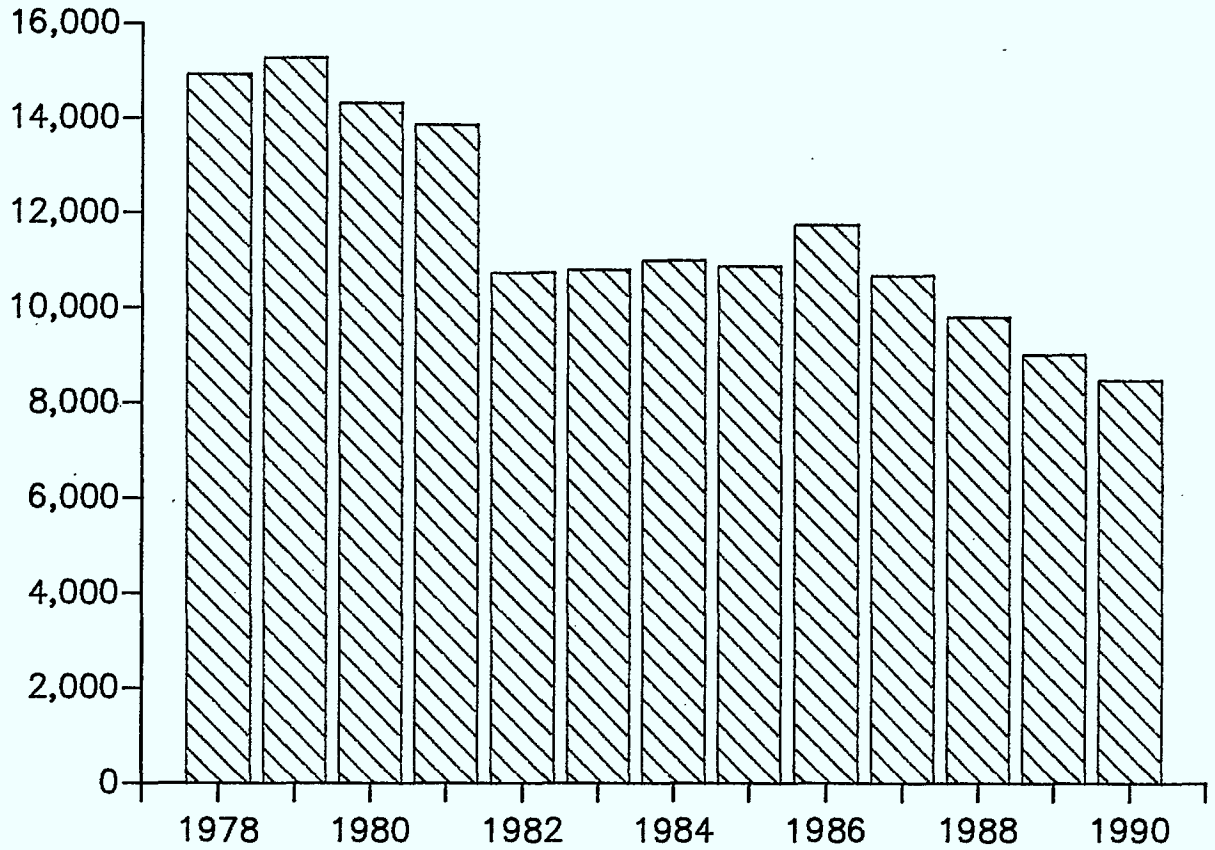
LABOUR

YEAR	REDUNDANCIES	MANHOURS /TONNE	HOW WAS LABOUR SHED?
1978	1750	10.6	Natural attrition
1979	125	9.8	N/A
1980	1075	9.4	Businesses sold off, closure & production changes pursuant to structural plan.
1981	1197	9.05	Intensification of work rationalization.
1982	2352	7.5	Termination of older personnel on specially agreed terms. Transfer of TGOJ.
1983	232	7.1	Attrition
1984	(270)	6.5	Acquisitions
1985	299	6.4	N/A
1986	(489)	6.09	Acquisitions
1987	1160	5.7	Planned restructuring.
1988	1551	5.2	Sale of SSAB Profiles & Schreiner Fleischer, and continued restructuring.
1989	650	4.6	Completed restructuring plan.

Source: Derived from SSAB annual reports 1978-1989.

Figure 50

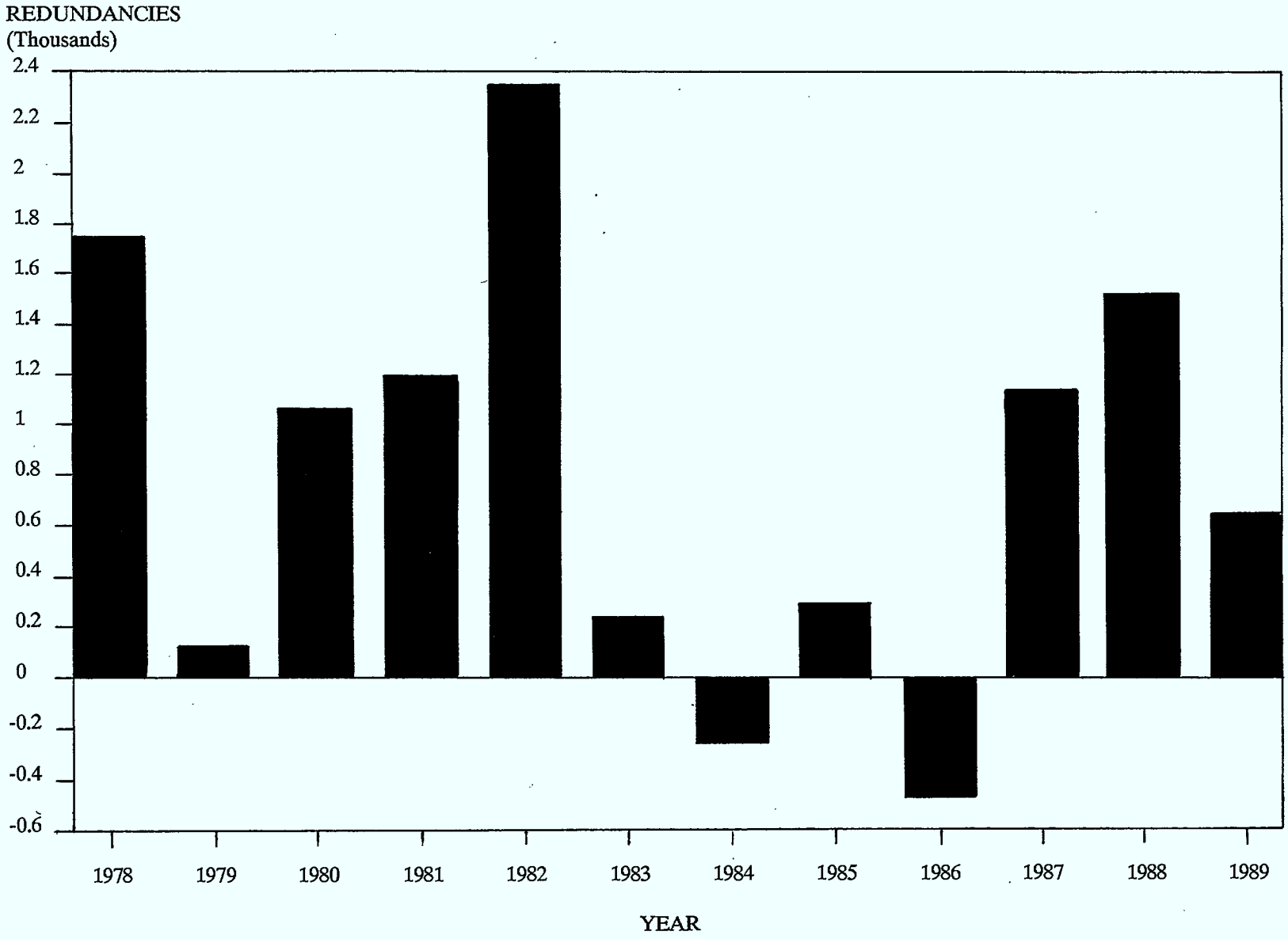
The average number of employees SSAB Steel Production



Source: SSAB annual reports, 1978-1990.

Figure 51

SSAB LABOUR



Source: SSAB annual reports, 1978-1989.

FINANCE

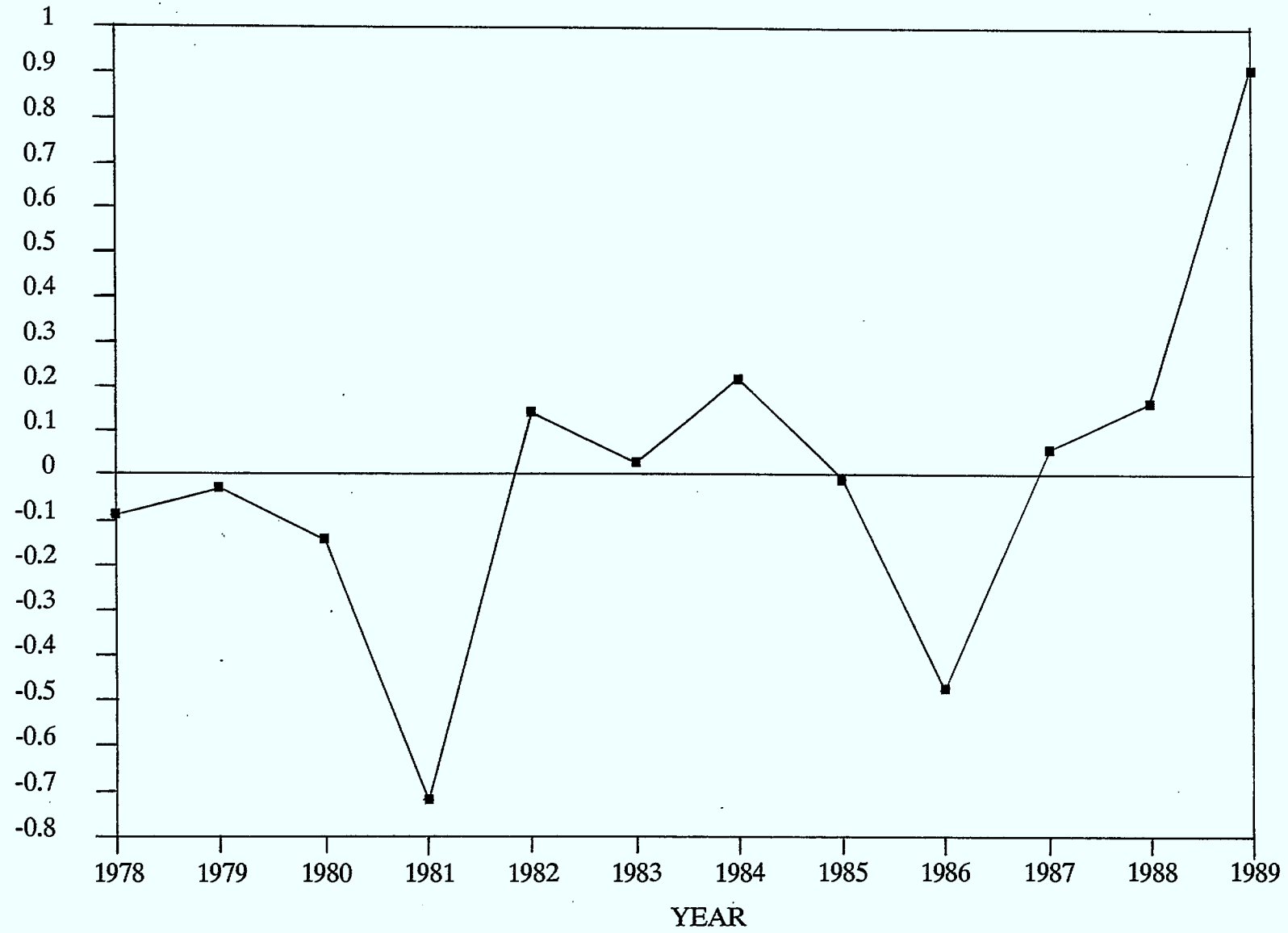
(in millions of Swedish krona)

Year	Net Profit	Change in Equity	Change in Debt
1978	(84)	Equity investment of 700m SEK by Govt. & 1.8 b SEK reconstruction loan. Ordinary shares increased by 2000 & preference shares increased by 800.	Increased by 1813.7
1979	(30)	Decreased by 29.5	Increased by 911
1980	(148)	Decreased by 147.8	Increased by 579.3
1981	(721)	Increased by 782.2	Decreased by 30.4
1982	147.2	Increased by 148.3	Increased by 532.7
1983	30.4	Increased by 31.3	Increased by 260.5
1984	231	Increased by 205	Decreased by 27
1985	(16)	Decreased by 54	Decreased by 10
1986	(473)	Increased by 518	Decreased by 137
1987	64	Increased by 64	Decreased by 321
1988	162	Increased by 138	Decreased by 492
1989	909	Increased by 984	Decreased by 406

Source: Derived from SSAB annual reports 1978-1989.

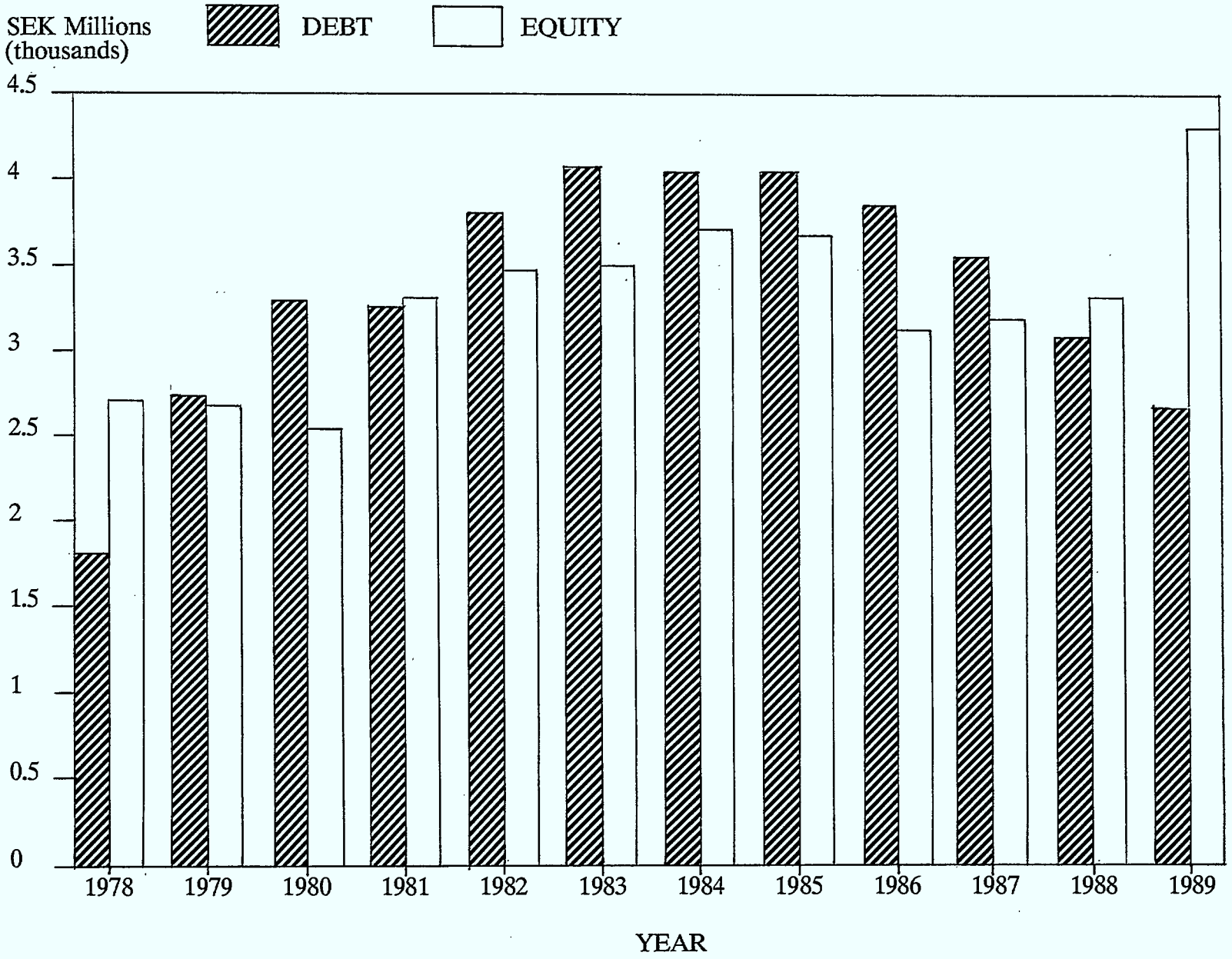
Figure 52

SSAB
TOTAL NET PROFIT



Source: SSAB annual reports, 1978-1989.

Figure 53
SSAB TOTAL DEBT/TOTAL EQUITY



Source: SSAB annual reports, 1978-1989.

Figure 54
SSAB INVOICED SALES (SEK M)
EXPORTS/DOMESTIC SALES

Source: SSAB annual reports, 1979-1988.

GOVERNMENT ASSISTANCE

- Government loans, comprising both reconstruction and structural loans, provided from 1978 to 1983, amounted to approximately SEK 5.1 billion.
- Two equity infusions, totalling approximately SEK 1.8 billion were made, at the time of SSAB's formation in 1978, and in 1981.
- Since 1983, no further equity infusions, nor subsidies or loans have been provided by the government.

Year	Amount (SEK million)	Notes
1978	2700 (loans) 700 (equity)	At the time of SSAB's formation, SEK 700 m equity infusion, and SEK 1.8 billion reconstruction loan. In the same year, SEK 700 m in the form of a conditionally repayable reconstruction loan, and SEK 200 m structural loan.
1979	1450	SEK 450 m reconstruction loan, and SEK 1 b structural loan.
1980	850	SEK 450 m reconstruction loan, and SEK 400 m structural loan.
1981	1125 (equity)	Equity infusion, SEK 500 million thereof in the form of a debt/equity conversion.
1983	78.9	State loan.

Source: Derived from SSAB annual reports 1978-1983, updated with information provided by Anders Ullberg, Vice-President, Economics and Finance, SSAB.

VII SPECIAL STEEL: AVESTA

¶ Restructuring of AVESTA involved the merger of four companies:

AVESTA
Uddeholm
Sandvik
Fagersta

¶ Uddeholm was the flagship of the industry and came into severe financial difficulty.

¶ Initial attempts to merge the companies failed due to lack of corporate consolidation. The firms were competitors looking out for their own interests.

¶ AVESTA took a leading role in negotiations between the companies, which led in 1984 to an agreement to regroup the bulk of the stainless steel sector into 2 companies: AVESTA and Sandvik.

¶ AVESTA sold the idea to obtain bank loans, issue shares and buy the other companies, who became shareholders in AVESTA.

- A new Board of Directors and management were created.
- Single objective was to make AVESTA profitable.
- Vested interests were now gone; decisions were economically based.
- AVESTA acquired Uddeholm's interest in Nyby-Uddeholm AB.
- Fagersta's stainless steel operations were acquired by AVESTA.

¶ Valuation: each company was taken at the same value.

- Otherwise you become lost in future profits and estimating historic value of assets.

¶ AVESTA had three main goals:

1) Concentrate on the development, production and marketing of stainless steel and stainless steel products.

2) Increase industrial efficiency and competitiveness on world markets.

3) Strengthen the company's financial position.

¶ The strategies used included:

- Rationalization of production lines and processes.
- Securing long term suppliers and optimum purchasing price
- Continuing redundancies. (The number of employees increased in 1984, due to the merging process which offset redundancies caused by rationalization.)
- Willingness to offload less profitable activities.

¶ Discussions were held in parallel with the Ministry of Industry regarding the terms of financial assitance to the industry.

- A government bill for the restructuring of the special steels industry was adopted by the Swedish Parliament on 17 May, 1984.

¶ After the restructuring, AVESTA and Sandvik formed two jointly owned companies:

1) Avesta Sandvik Tube AB

   * 75% Avesta interest
   * 25% Sandvik interest

2) Fagersta Stainless AB

   * both companies have a 50% interest

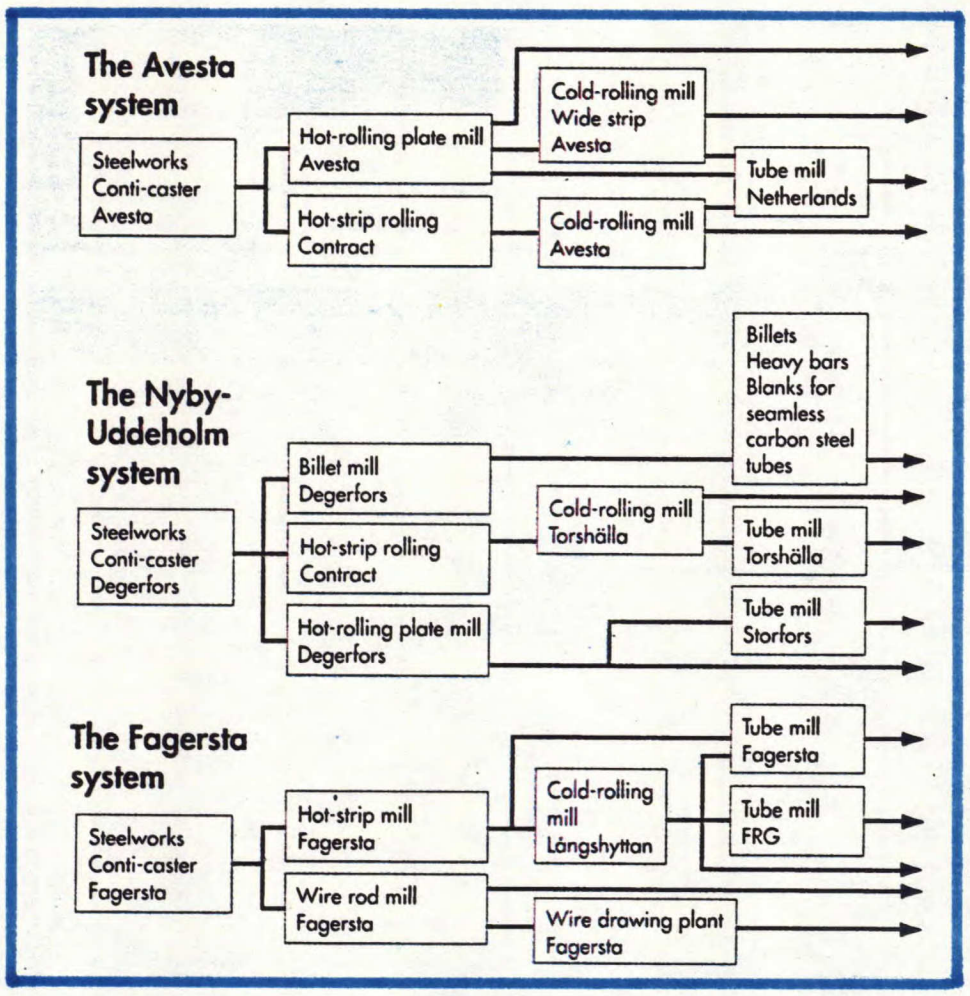
¶ AVESTA, Sandvik, Avesta Sandvik Tube AB and Fagersta Stainless AB, jointly invested 100 million SEK in a new special company, Brukinvest, in order to:

- create new operations, and
- new job opportunities in localities and regions affected by the continued restructuring.

¶ AVESTA, which emerged from the restructuring as the leading Swedish special steels company and a major world player, contends that without restructuring, there would be no steel industry in Sweden today.

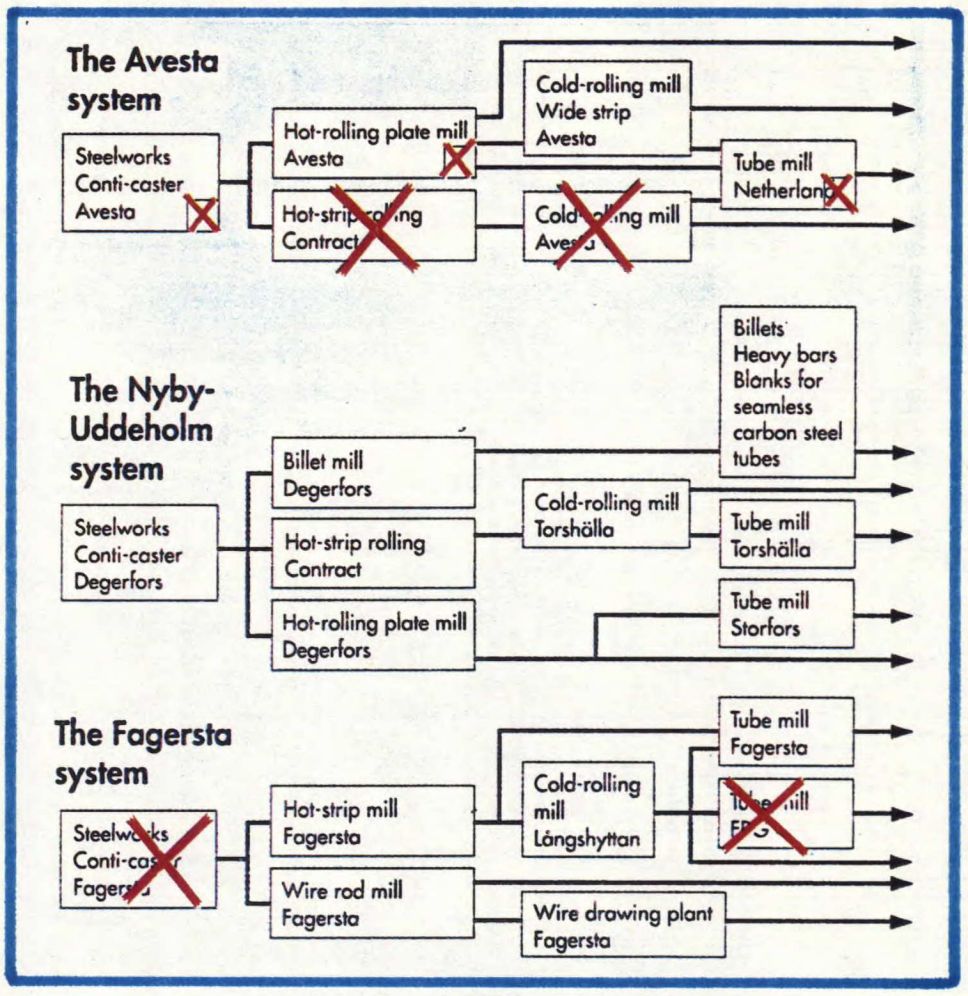
Figure 55

AVESTA RESTRUCTURING
1984-1991



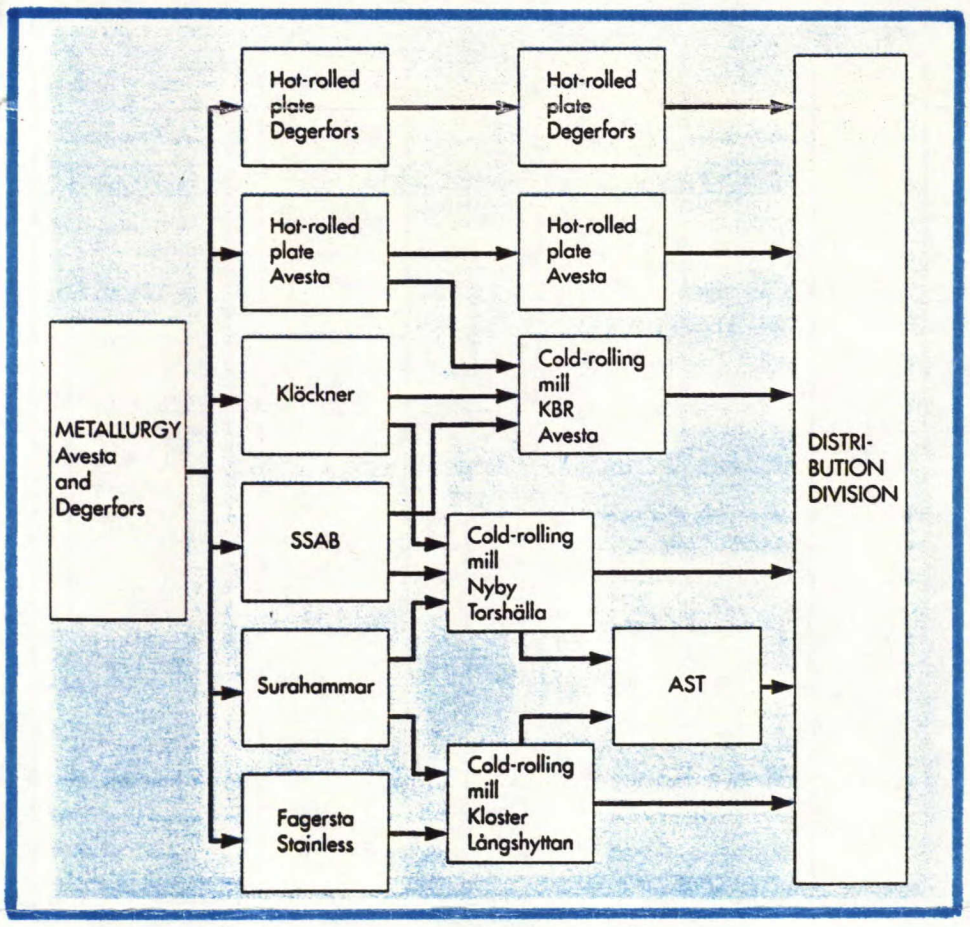
1984

Existing production units at Avesta Jernverk, Nyby-Uddeholm and Fagersta merged in 1984, laying the basis for restructuring.



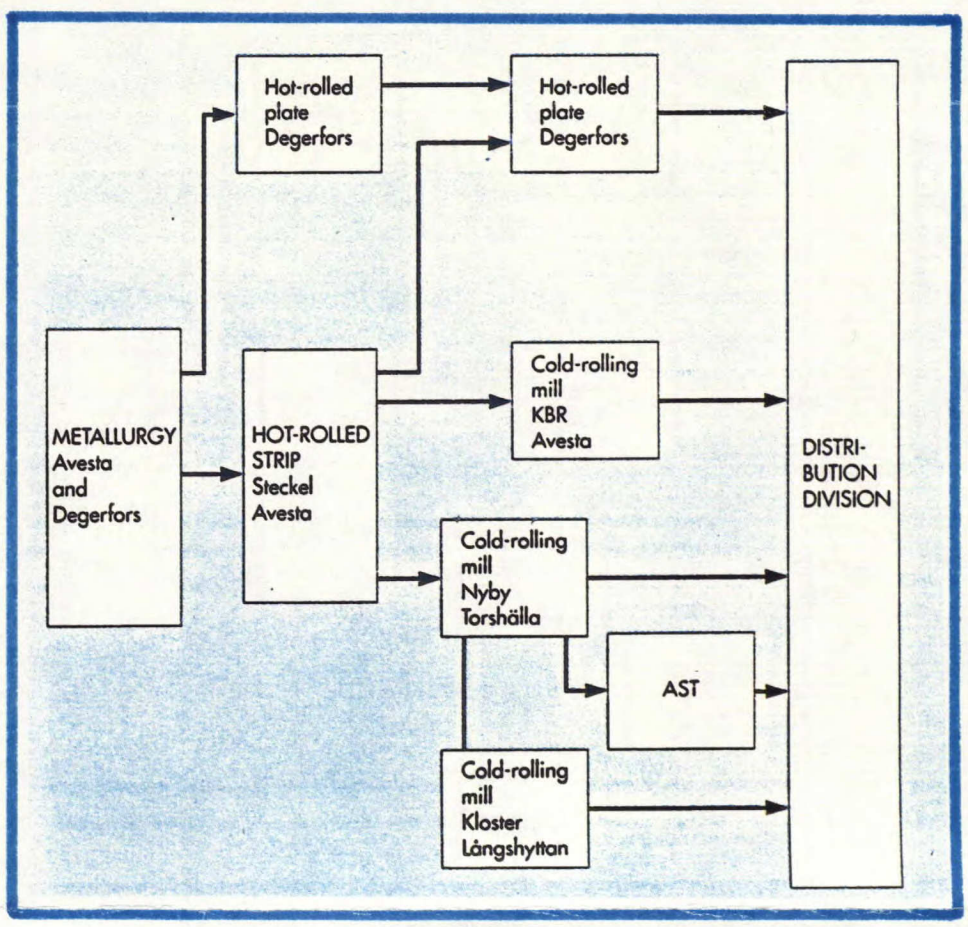
1985

Overlapping production facilities were rationalized to concentrate resources in fewer units, without reducing capacity and without altering the existing administrative system.



1990

The emphasis was placed on flat products and on products manufactured from sheet and strip. Internal administrative routines and communications were rationalized.



1991

The new Steckell mill is an integral part of Avesta's "One site - One product" strategy. The objectives include improvements in material flow and throughput time.

The new production and administration structure is based on:

- a reduced number of process stages
- up-to-date technology for strategic operations
- more direct material flows
- increased flexibility
- shorter throughput times
- a reduction in tied capital
- increased operational responsibility for divisions.

Source: Avesta, annual report, 1990.

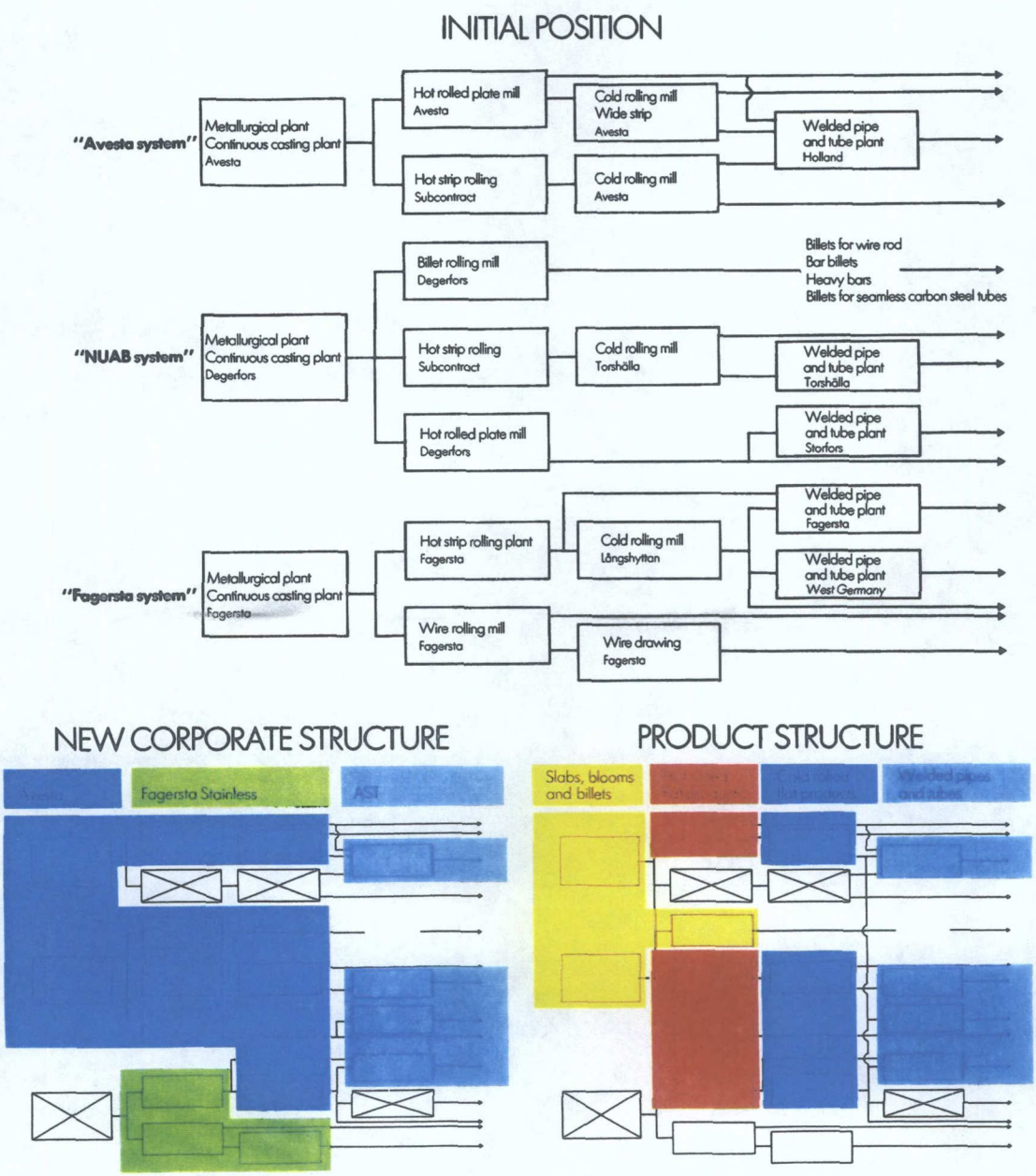
PRODUCTION

Year	Rationalization
1983	Agreement to acquire all the shares in Nyby-Uddeholm AB and stainless steel operations at Fagersta AB.
1984	Steel operations at AVESTA AB and Nyby-Uddeholm were regrouped into production divisions. Operations at Structo in Storfors were extensively rationalized and then sold to Structo Dom AB. 50% of shares in Uddsan AB were acquired from Sandvik AB, and then sold, along with 50% of shares already owned by Nyby-Uddeholm, to Structo Dom AB. Pipe and tube manufacturing activities in Storfors were sold to ANSAB AB, of which Avesta owns 50%.
1985	Fagersta Stainless AB steel mill closed. Production of cold rolled steel sheet and strip products transferred to Avesta AB steel mill in Degerfors and Avesta. Production of hot rolled plate divided between production units at Degerfors and Avesta. Production of welded tube and pipe at Avesta Sandvik Tube AB's subsidiary company transferred to Swedish tube units. Production of heavy welded pipe at subsidiary company in Helmond was transferred to units at Storfors and Torshalla. Production at Storfors was heavily rationalized. Steel mill at Avesta Inc. USA closed.
1986	Welding products division of parent company transferred to wholly owned subsidiary Avesta Welding. Manufacturing activities of Nordform division at Avesta site were transferred to wholly owned subsidiary Nordform AB. New sales companies were acquired, and have sub-group status in Benelux, West Germany, and Great Britain. Avesta steel was modified so that the previous strip division and KBR division merged, containing 3 profit centres.
1987	Long-term agreement reached with SSAB, guaranteeing access to strip hot-rolling facilities. Nordform AB subsidiary closed down operations at Degerfors and transferred them to Avesta. Forging operations of Engineering Product profit centre closed down.
1988	Board decision to build a modern Steckell mill, capable of rolling an estimated tonnage of 250-300 thousand tons per year, with lower costs and higher quality standards.

Source: Derived from Avesta annual reports 1983-1987.

Figure 56

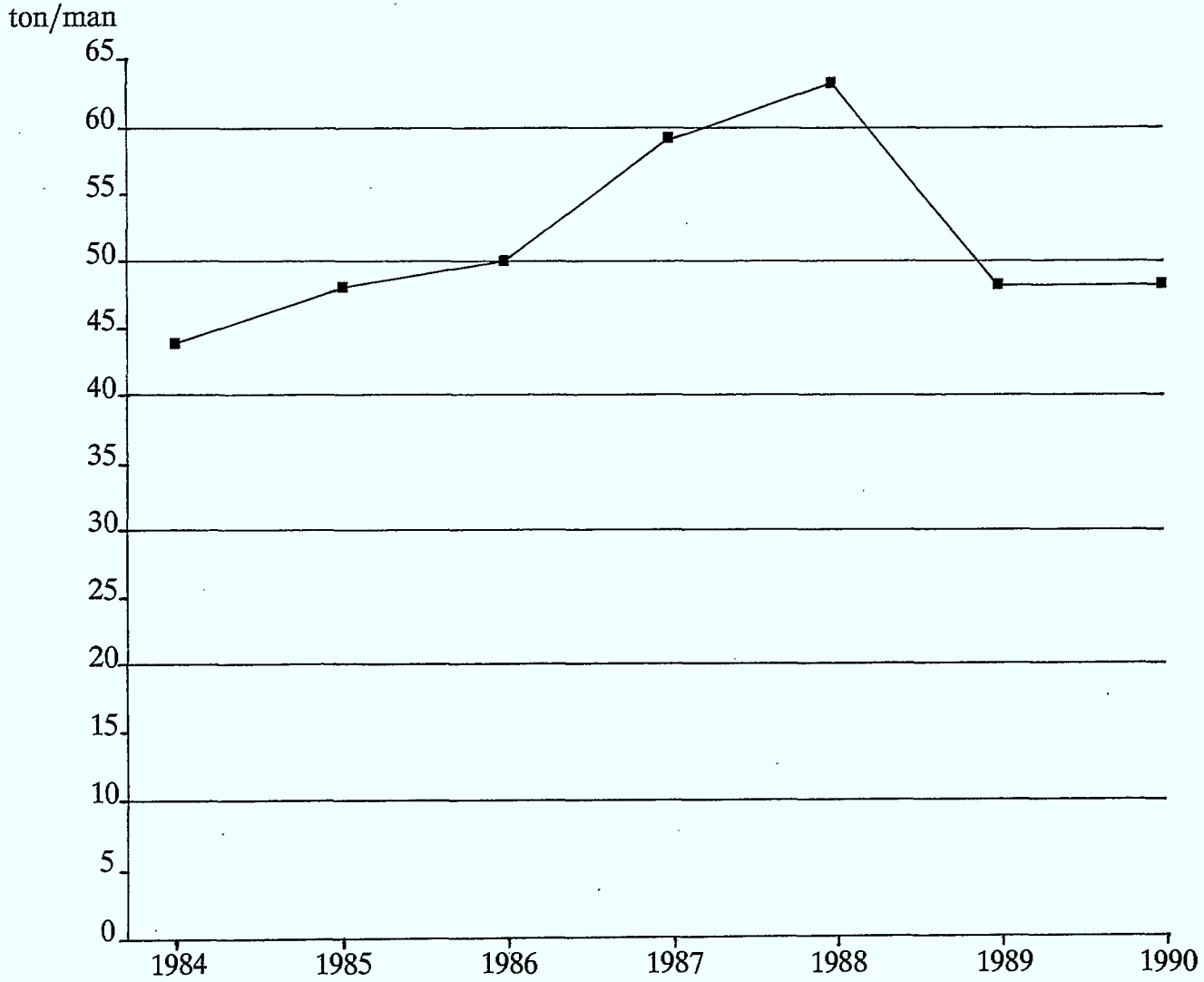
AVESTA PRODUCTION STRUCTURE



Plant or unit closed

Source: Avesta. Annual report. 1984.

Figure 57
AVESTA PRODUCTIVITY



Source: Information provided by Christer Bergman, Vice-President, Finance and Economics, Avesta.

LABOUR

Year	Reduction of workers	Notes
1983	670	
1984	(4161)	The increase is due to the merger process.
1985	873	Reductions took place at most units.
1986	266	
1987	(168)	The acquisition of sales companies resulted in an increase of personnel.
1988	260	
1989	(394)	
1990	(190)	Despite the overall increase, levels were reduced by 230 at Avesta, and 65 at Degefors.

Source: Derived from Avesta annual reports 1983-90.

¶ AVESTA is currently laying off 900 employees, under a plan agreed to in May 1991.

- A proposal for a new organizational structure was presented, including the qualifications required for specific positions, and the identification of individuals proposed for the positions.
- Four strategies are being used:

1) An average of 4 months notice is given (varies from 2 to 12), depending on tenure.

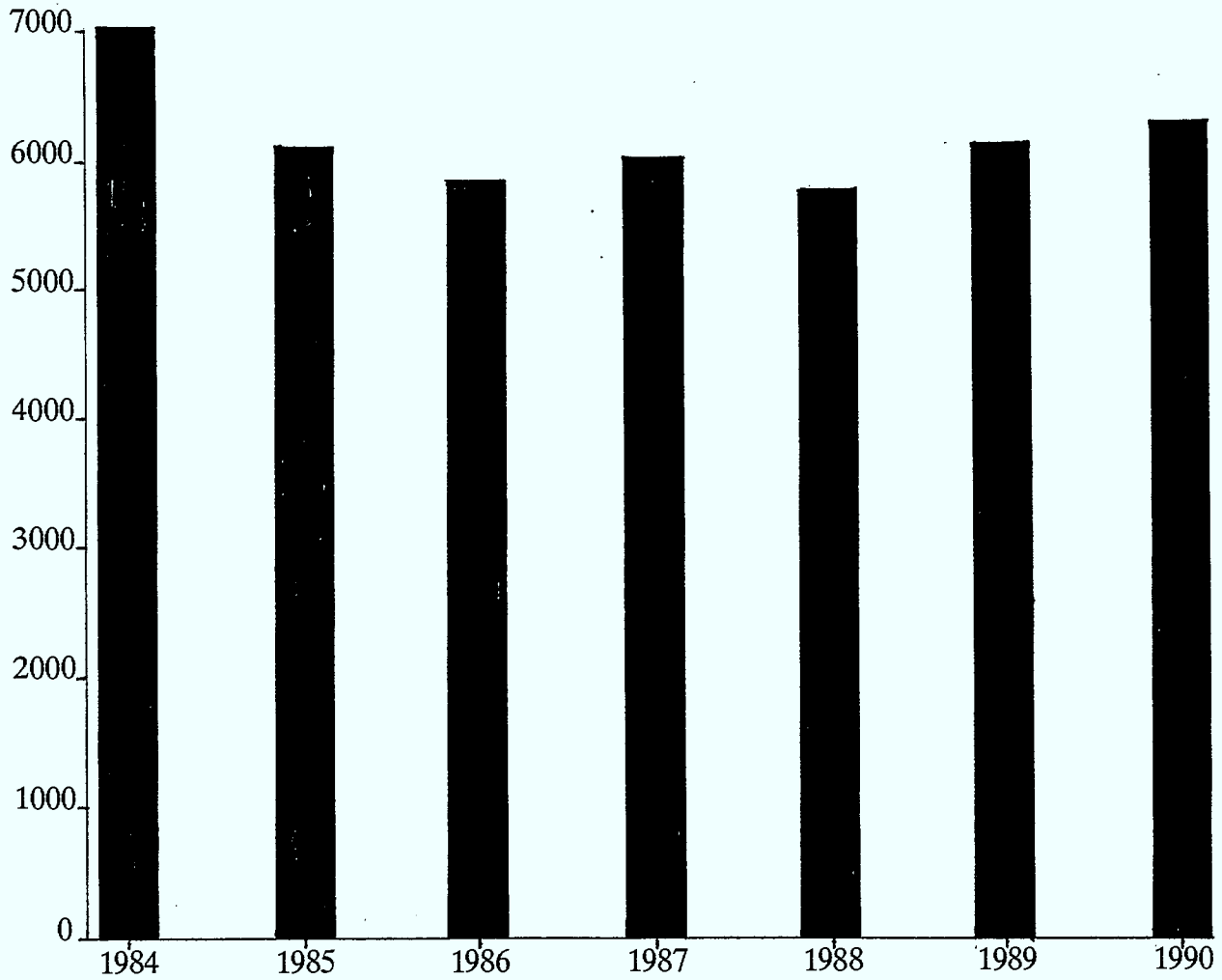
   * Employees are paid for their work until their departure.
   * Unemployment insurance follows, but no severance pay.

2) Early retirement, with 80-90% pay is offered to employees over 60.

3) Educational leave is offered, and employees are laid off after studies are completed.

4) Retraining and circulation takes place within the company for redeployment.

Figure 58
AVESTA AVERAGE NUMBER OF EMPLOYEES



Source: Avesta annual reports, 1984-87, supplemented with information provided by Christer Bergman, Vice-President, Finance and Economics, Avesta.

FINANCE

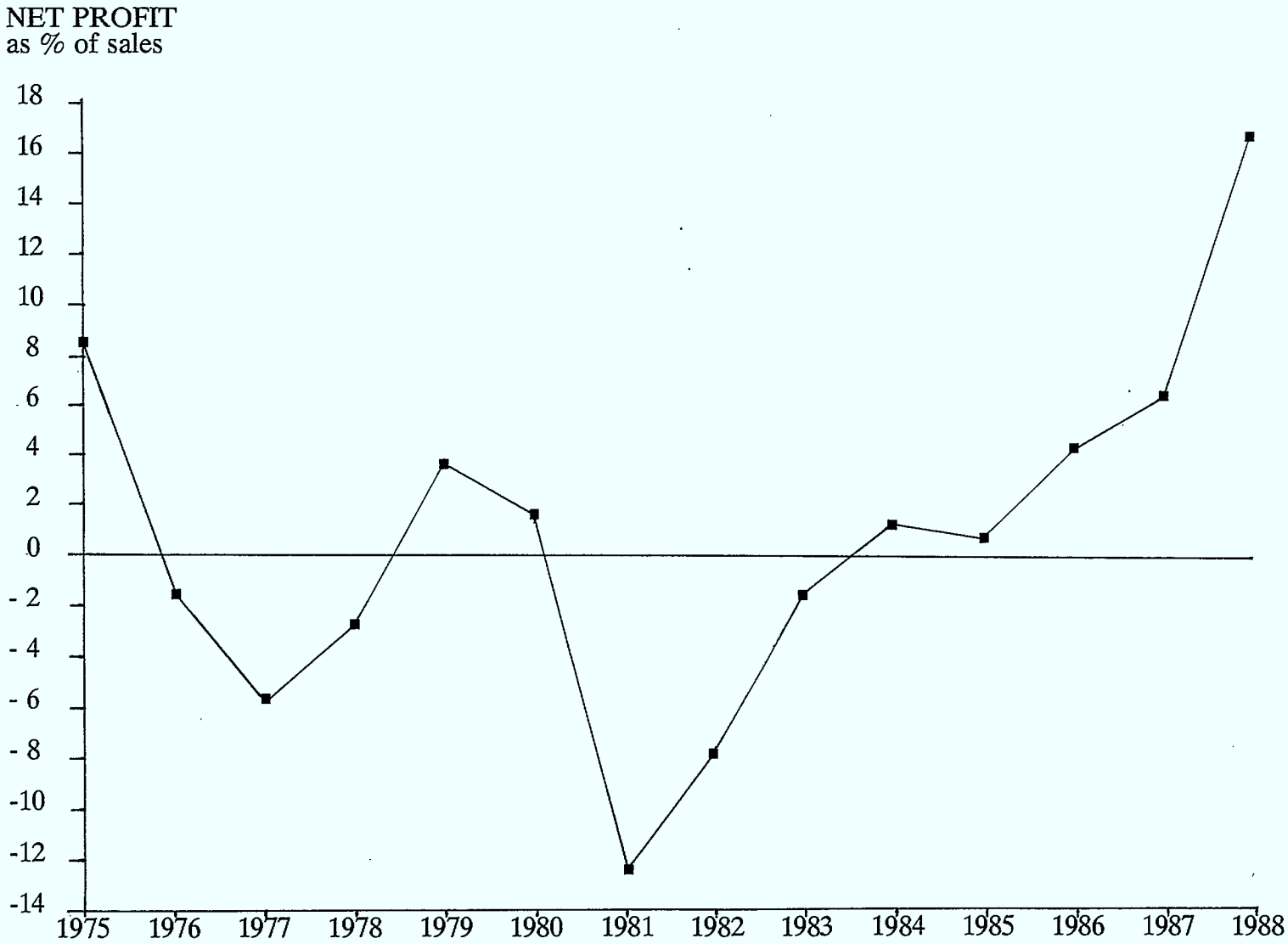
Year	Net Profit SEK millions	Change in Equity	Change in Debt
1983	(162)	Increased by 175.8	Decreased by 80.9
1984	75	Increased by 467	Increased by 533
1985	60	Increased by 130.6	Decreased by 113.2
1986	241	Increased by 91.5	Decreased by 158.9
1987	398	Increased by 96.1	Decreased by 239.7
1988	1 319		
1989	406		
1990	157		

Source: Derived from Avesta annual reports 1983-1987, supplemented with information provided by Christer Bergman, Vice-President, Finance and Economics, Avesta.

Figure 59
AVESTA TOTAL NET PROFIT

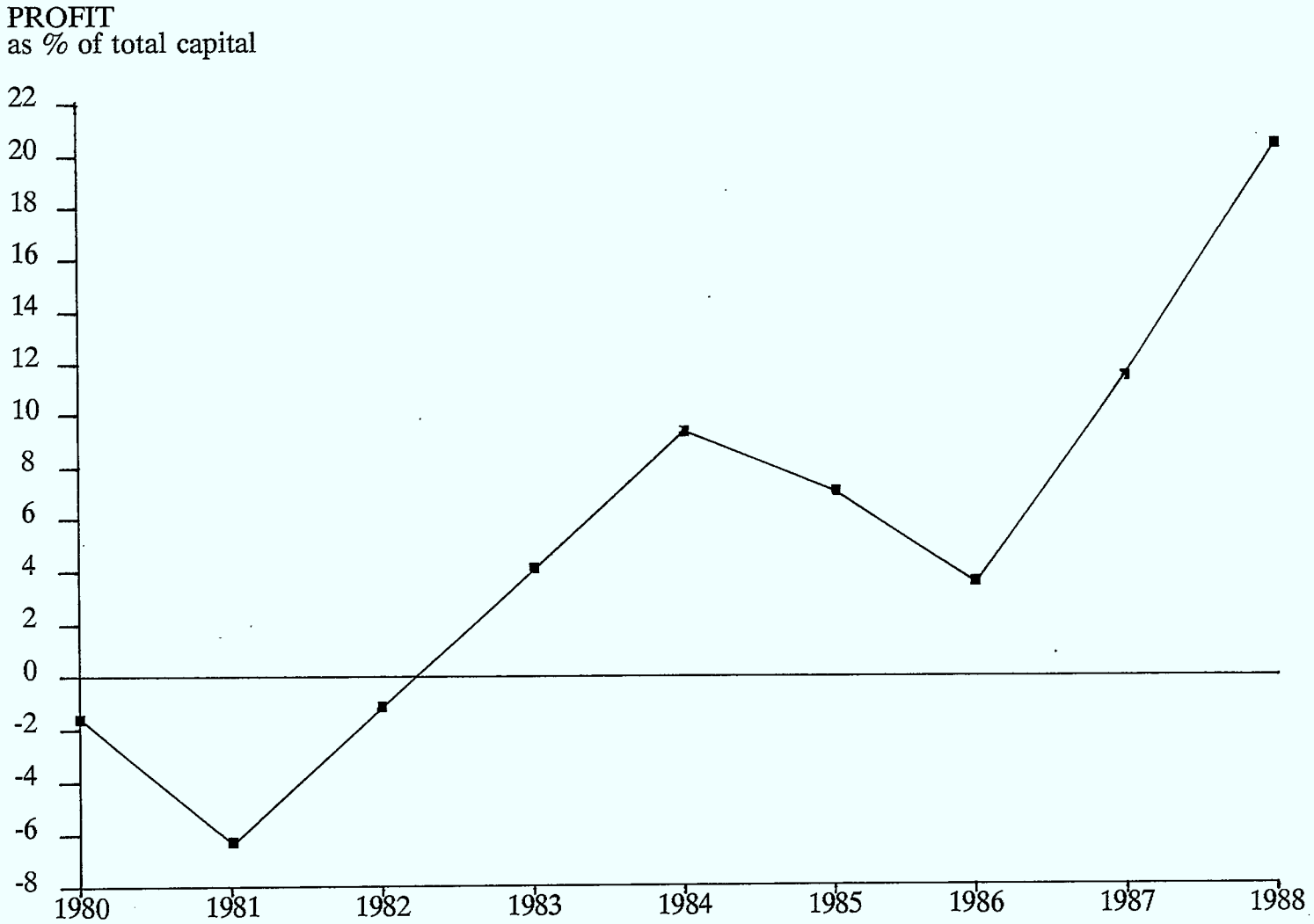
Source: Avesta annual reports 1978-1987, supplemented with information provided by Christer Bergman, Vice-President, Finance and Economics, Avesta.

Figure 60
AVESTA PROFIT AS PERCENTAGE OF NET SALES



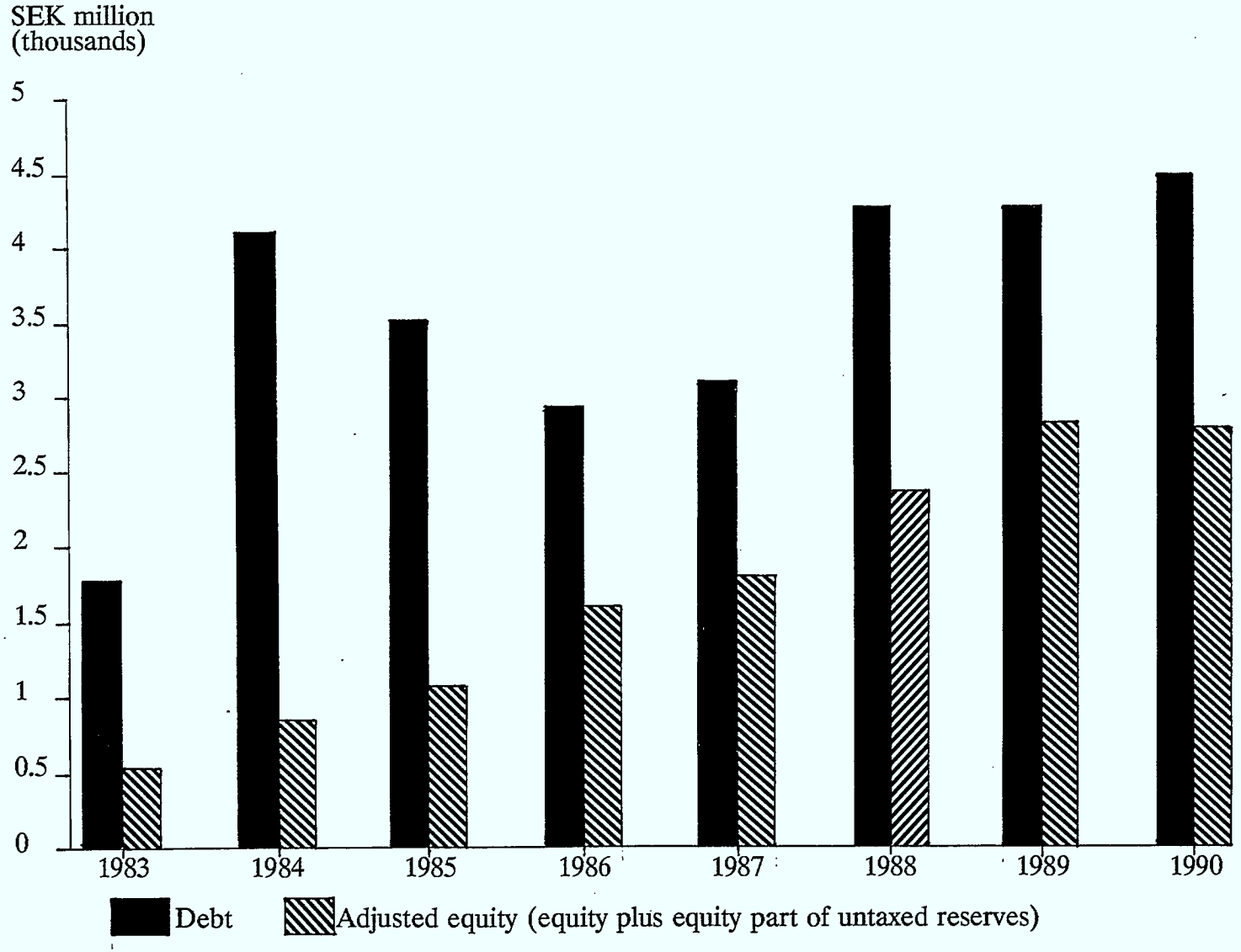
Source: Gunnar Fors. Stainless steel in Sweden. August 1991. See Table 4 Profitability for futher notes.

Figure 61
RETURN ON TOTAL CAPITAL
IN THE SWEDISH STAINLESS STEEL INDUSTRY



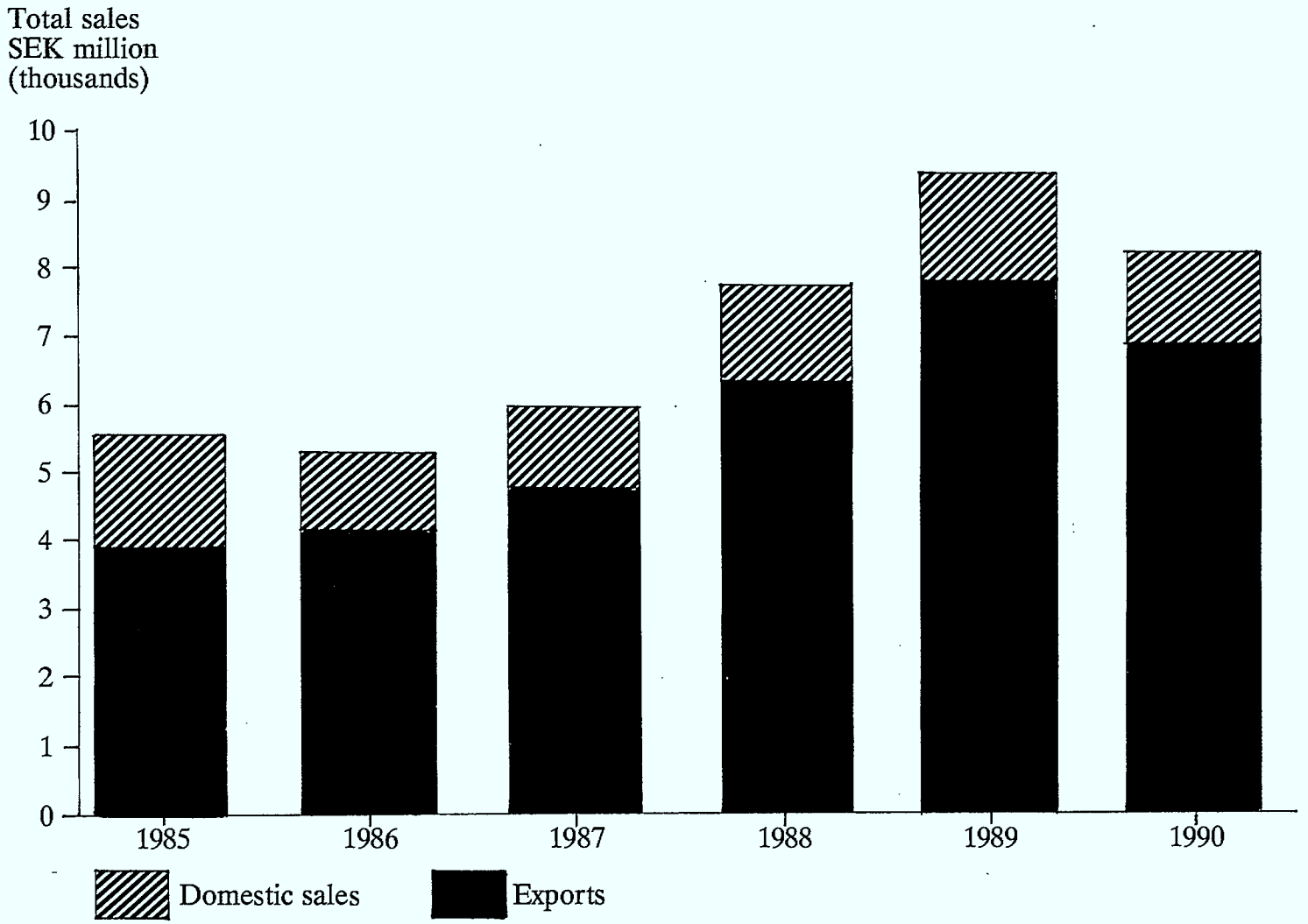
Source: Gunnar Fors. Stainless steel in Sweden. August 1991.

Figure 62
AVESTA TOTAL DEBT/TOTAL EQUITY
(SEK million)



Source: Information provided by Christer Bergman, Vice-President, Finance and Economics. Avesta.

Figure 63
AVESTA INVOICED SALES EXPORTS/DOMESTIC SALES
(SEK million)



Source: Avesta annual reports 1985-1987, supplemented with informed provided by Christer Bergman, Vice-President, Finance and Economics. Avesta. Note: 1983 and 1984 annual reports did not separate exports and domestic sales.

GOVERNMENT ASSISTANCE

¶ An agreement between the government and Uddeholm/Nyby Uddeholm included the following features:

- Loans, other than conditional loans, granted to Nyby Uddeholm were to be written off to a maximum of SEK 230 million, in order to facilitate writing off the value of fixed assets in the new group of enterprises.

- The loan write-off was conditional on a total contribution of SEK 230 million by Uddeholm and Granges, in the form of new shareholders' equity in Nyby Uddeholm.

  * Uddeholm was to provide a SEK 175 million cash injection.
  * Gränges' contribution was to be offset by receivables of SEK 55 million.

- Uddeholm was to be responsible for the payment of Nyby Uddeholm's conditional loan.

¶ The Swedish government concluded agreements with Avesta/Nordstjernan AB/A. Johnson & Co. HAB, with the following terms:

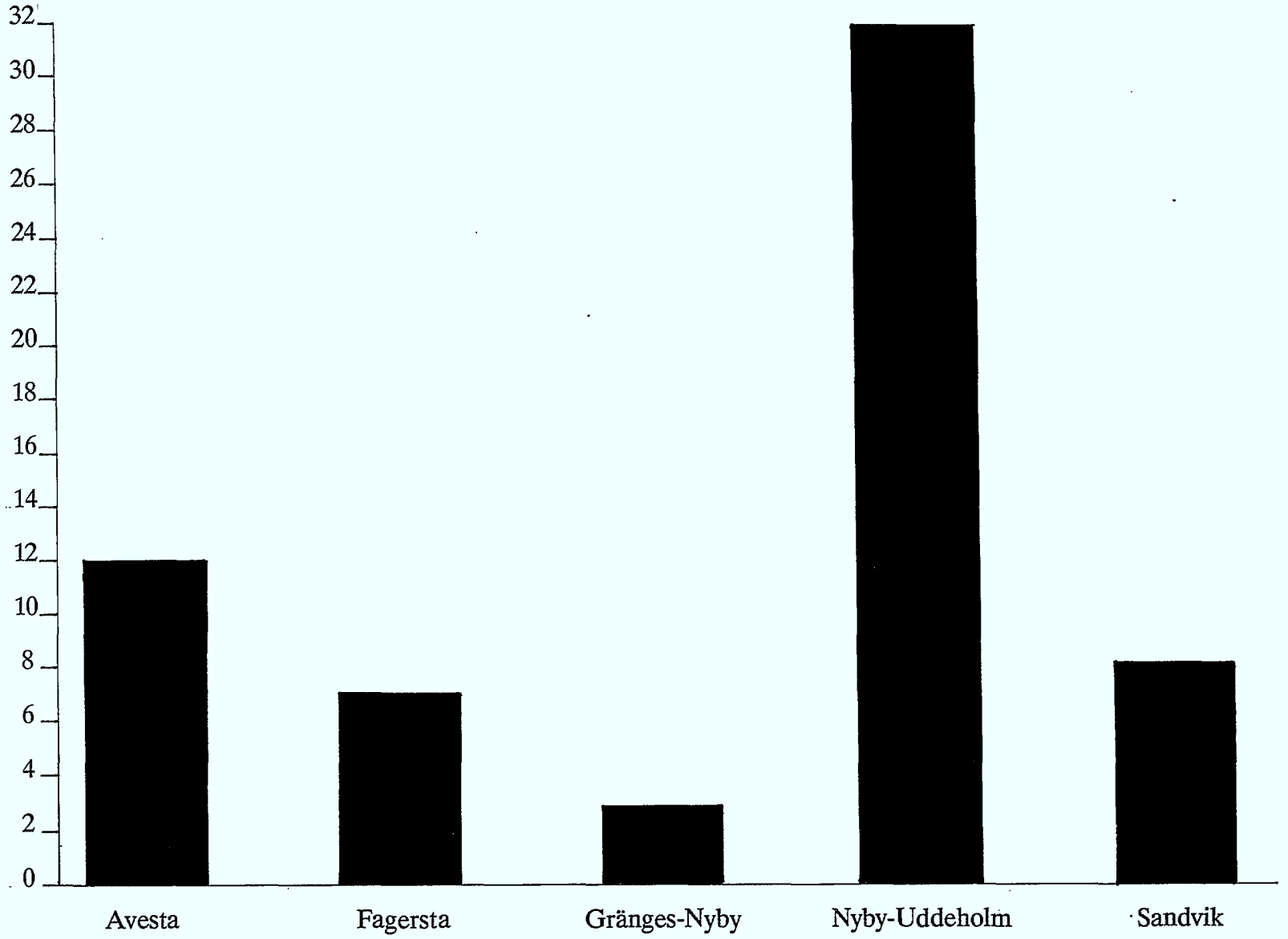
- Government loans of SEK 220 million to companies forming part of the Avesta Group were to be fully written off. This amount was to be used to write off the value of fixed assets, including SEK 70 million at Fagersta Stainless AB.

- A proviso for the write-off was that Avesta would receive a minimum of SEK 300 million in the form of new restricted shareholders' equity, arranged through Skandinaviska Enskilda Banken.

- Nordstjernan AB and A. Johnson & Co. HAB undertook, over a ten year period, to hold a majority of both the share capital and the voting rights of Avesta AB.

Source: Avesta. A presentation. 1984. See document #7, Document File A for further details.

Figure 64
SWEDISH GOVERNMENT LOANS AND CREDIT TO STAINLESS STEEL FIRMS
(U.S. $ million)



Source: Gunnar Fors. Stainless steel in Sweden. August 1991.

VIII LABOUR

A LABOUR-MANAGEMENT MODEL

In Sweden, labour-management relations are governed by a co-determination model.

The Swedish labour-management model is influenced by the older German Co-determination model and was modified to suit existing institutions. The Swedes developed a simpler, less bureaucratic model (See Model p. 81).

¶ Laws requiring that labour be kept informed by management were first introduced in 1936.

¶ Since 1976, decision-making for all company and personnel matters is regulated by law.

- Companies have adjusted by developing co-determination models.

¶ Initial resistance has given way to a general acceptance of the regulatory framework.

¶ This corporate structure is provided for by law.

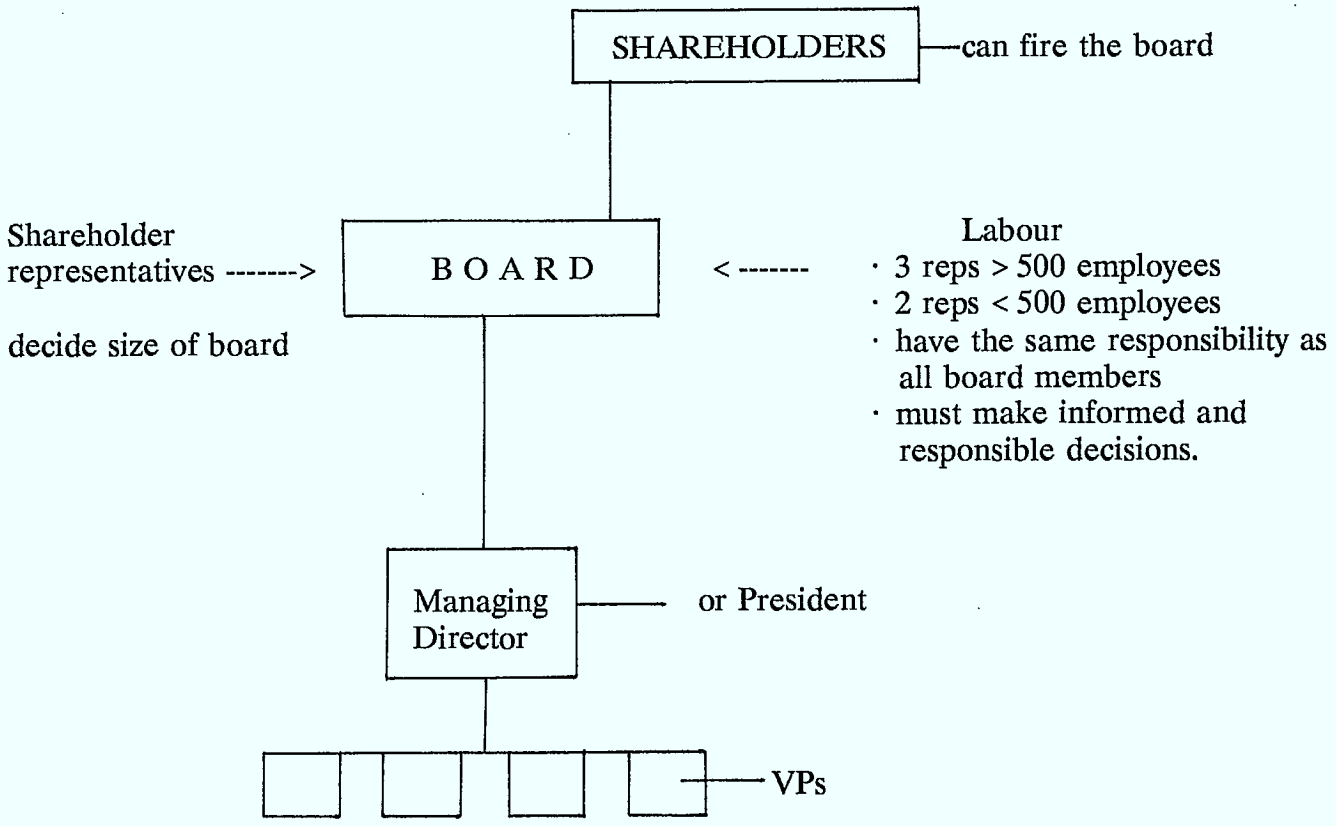
- Labour is entitled to representation at the Board level.

¶ The executive committee formed by the board must include one labour representative.

¶ Major decisions have to be negotiated with the unions, but the company has the final decision.

¶ The union can request negotiations at the industry sector labour federation level if not satisfied with firm level negotiations.

Figure 65
SWEDISH CO-DETERMINATION MODEL



POSITIVE ASPECTS

¶ The enterprise level labour-management models work very well and result in good co-operation.

¶ Intensive contact occurs with the union on several decision-making levels within the company.

¶ The labour-management model at the national level is dynamic and changing.

CRITIQUE

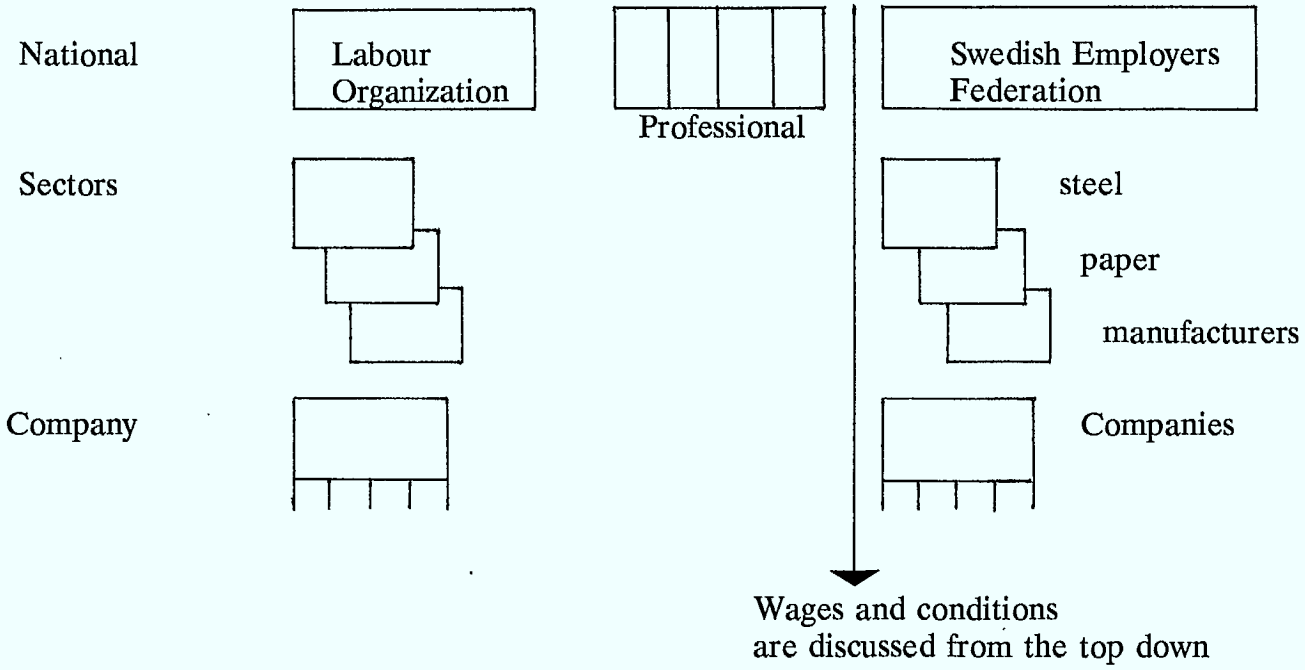
¶ Labour at the national level is not as involved in restructuring or in taking initiatives.

GENERAL DECISION-MAKING MODEL

The Co-Determination model is part of a general model for corporate and national union decision-making in Sweden.

Figure 66

GENERAL DECISION-MAKING MODEL



UNIONS

- The very strong unions played a major role in the restructuring process.
- During the restructuring of SSAB and Avesta, unions were directly involved in decision-making with senior management.
- A harder stance was taken during the second phase of SSAB's restructuring. Senior management came out with a plan. Unions were invited to come up with a more profitable plan; when this did not occur, the company went ahead with the plan developed by senior management.
- Unions are represented with 7 members on the 16 member directorate of the Labour Market Board (AMS), which includes 6 employer representatives.

B REDUNDANCIES

¶ The law provides for layoffs (depending on tenure and age), an early warning requirement, pension schemes and retraining programs.

¶ The "last in - first out" principle operates; it can be negotiated where the company wants to keep younger and high-tech trained people.

¶ Severe labour cuts took place in the late 1970s and early 1980s.

¶ The Swedes have a very intensive follow-up of redundant workers.

¶ The Swedish Metalworkers Union outlined redundancy methods negotiated between the company and the union:

1) analyze total number of workers who need to be made redundant
   - union will try to reduce the number as much as possible

2) training and education
   - for other jobs within the company (for which employee lacks qualifications)
   - for jobs on the market, outside the company

3) negotiate lump sum payment

4) support for workers starting small businesses

5) pensions for employees over 60
   - responsibility of employer
   - company receives tax break.

C SWEDEN'S LABOUR MARKET BOARD (AMS)

¶ The Labour Market Board has an effective role in the process of "mass layoffs"; utilizing a variety of standard worker assistance mechanisms:

1) advanced warning system
   - cooperation between management, labour and local authorities

2) training
   - at every level, from general to specialized

3) matching measures
   - information to find work
   - counseling

4) cash benefits to unemployed
   - while registered as searching for a job
   - 300 working days (450 days for 55-64 years)

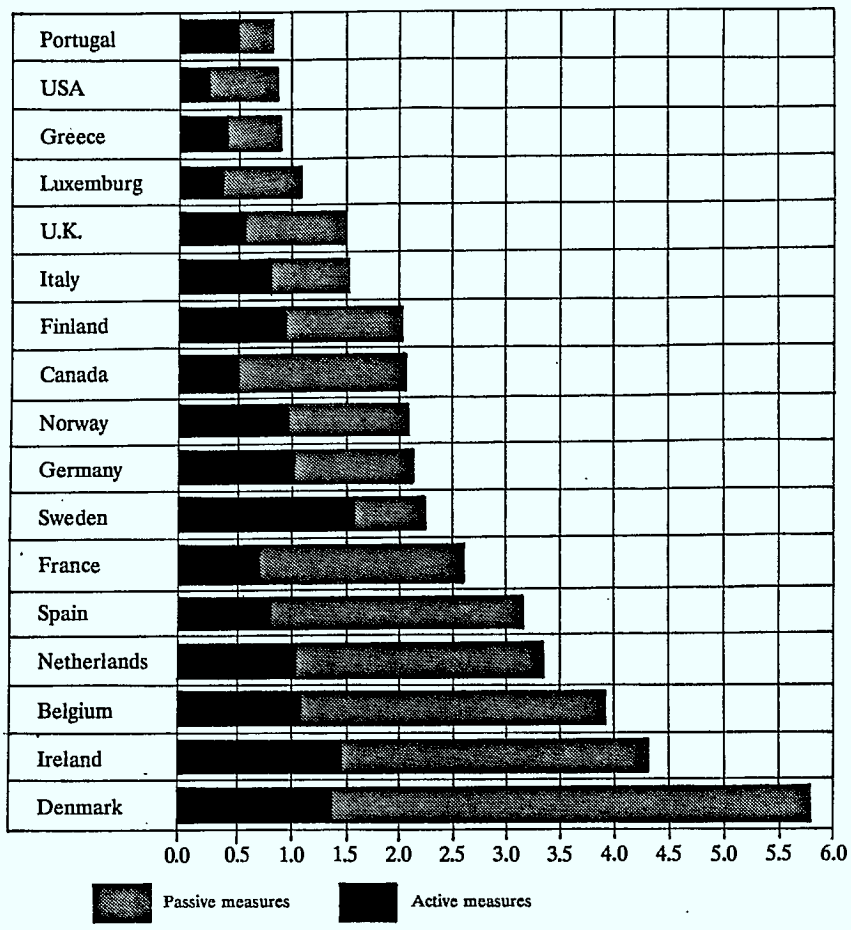
5) relief work
   - state pays the normal rate for the given work
   - not compulsory
   - U.I. could be denied, if suitable work refused

6) assistance to start own business

7) youth opportunities

Sweden gives a much higher priority to job seeking and creation through active labour market policies than any other country.

Figure 67
LABOUR MARKET POLICY EXPENDITURE BY PERCENTAGE OF GDP, 1990



Source: AMS (Labour Market Board). Annual report 1990/91.

An active labour market policy would be constructive to the restructuring of the steel industry and indeed other industry sectors in an environment of structural adjustment to the economy as a whole and global competitive pressure.

¶ Governments could employ the collective resources of their industry and employment departments, to retool unemployed labour for competitive industries of the future.

IX FUTURE RESTRUCTURING

NEW INDUSTRIAL MODEL REQUIRED

AVESTA President, Per Molin, states unequivocally that a new industrial model must be achieved for Sweden as well as for Canada, not only to achieve competitiveness but to survive in the industry.

- ¶ Restructuring is an ongoing process; fewer and fewer companies are required to produce more.
- ¶ Companies are under pressure to find their strength.
- ¶ Industries in small countries like Sweden and Canada are forced to live on other countries' markets.
    - In 1990, AVESTA, for example, has 84% of its invoices outside of Sweden.
- ¶ In the long term, volume is required in the steel industry.
    - Swedish restructuring developed volume in single products.
- ¶ M.I.T. analysis indicated that Swedish steel industry needs a better structure in capital markets. Utterback pointed out the "time frame "of capitalism for restructuring. This is decisive.

There is no industry in the world that has as high a degree of computerization as the steel industry.

AVESTA is concerned they might lose if they don't make the right analysis of the situation. Also, they have to get the unions to see the industrial perspective.

A TOTALLY DIFFERENT INDUSTRIAL MODEL IS REQUIRED

1) ADDRESS MARKETS - integrated flexible production with high quality product and volume in targeted markets.
2) LONG TERM PERSPECTIVE - both capital and employees must be loyal.
3) BETTER EDUCATED, MORE SKILLED WORKERS
    - not skilled as steel workers, but as operators, requiring a totally new concept on how to produce steel using computers.

COMPETITIVE PRESSURE

International developments are taking two directions:

1) NUCOR (flat rolled products in competition with Algoma)

- With 400 employees, it produces 1,000,000 tons.
- NUCOR bought knowledge; computerized the system; simplified the process.
- They have targeted 20% of the product range of the large market.
- Management is aware of the important role of computers controlling quality and efficiency.
- Can increase value added profits.

2) Japanese competitive pressure

The profitability of the Japanese steel industry is more evident when their greater return on capital (value of shares) is considered together with the annual dividend.

¶ NIPPON is the biggest and best in the world.

¶ Molin was told by Nippon senior management three years ago, that by 1999 Nippon would be involved in 50% non-steel products, for example, they would be moving into the production of computers.

¶ The London Financial Times not long ago published that Nippon had ruined prices in the computer industry by cutting prices by 30%.

¶ The point is that Nippon, through a computerized industrial model, can't keep its contingent of workers fully employed in steel and has moved into other products.

¶ The Japanese are not exporting their future knowledge; we don't see how fast the developments are coming.

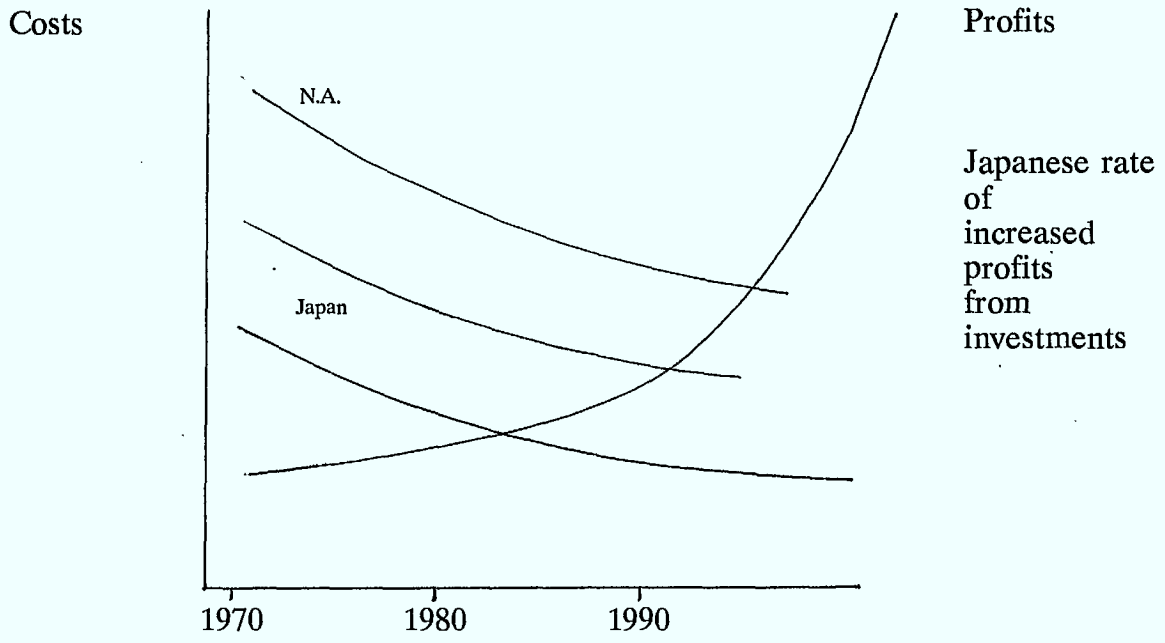
¶ North American steel is backward when it comes to industry efficiency.

The Japanese are continuing to stress the cost factor but the rate of cutting costs is decreasing.

Through more advanced product range and flexibility income is escalating; value added development from investments is increasing.

Figure 68

JAPANESE COSTS/PROFITS



Note: This diagram is merely illustrative.

¶ Japanese are reaching maximum utility of competitive gains through cost reductions and are now achieving competitive advantage through increased profits from investments.

ROLE OF GOVERNMENT

A recent Swedish task force on productivity, composed of leading economists, academics, senior administrators and representatives from interest groups, identified the following roles for the government:[3]

¶ A stable stabilization policy

- A credible exchange rate and a more balanced wage negotiation system are needed. The task force was concerned about two major devaluations which offset the necessary restructuring process.

¶ Increased pressure for internationalization

- An increased number of sectors, especially in the protected services industries, should be opened to international competition.

¶ Increased competition

- The government should enact new competition legislation, to forbid price collaboration and market collusion, increase mechanisms to prevent mergers that create a monopoly, and provide stiffer sanctions against illegal barriers to competition.

¶ Renewal of the public sector

- The public sector requires a wage structure with stronger incentives for increasing responsibilities and enhancing qualifications, flatter hierarchies, a reduced number of wage levels, and continued pressure on price levels.

¶ Improved education

- Improvements to the extent and quality of education should include enhanced teacher education, three years of high school for all students, incresed numbers of graduating engineers, continued decentralization of schools, and expansion of tertiary education.

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3 Both sections dealing with the Swedish task force on productivity are based on an analysis of a translation of the original Swedish document (See document #12, Document File A).

¶ Increased rate of capital formation

- The rate of capital formation should be increased by providing the same profitability for productive investments as in the surrounding world, and creating incentives to enhance the productivity of the existing capital stock.

¶ A modern infrastructure

- Economic integration, the increased importance of just-in-time production, and the need to facilitate individual mobility underscore the importance of expanding and modernizing the infrastructure.

¶ Increased savings

- Enhanced incentives for savings are needed, along with reduced taxes on savings, and the abolishment, for small companies, of wealth tax on company capital. A complementary pension system where the size of the pension depends on the contributions should be introduced.

¶ Increased pace of technological development

- Policies should aim at providing incentives and creating a favourable environment for the development and diffusion of technologies.

¶ An integrated strategy for growth

- The two central elements of an integrated growth promoting strategy are the opening of a greater number of sectors to competition and the strengthening of the driving forces behind the formation of human capital.

ROLE OF INDUSTRY

Three roles were identified for industry by the Task force on productivity.

1) A modern organization of labour

¶ Firms can substantially increase productivity by introducing a modern organization of labour, based on:

- "simultaneous engineering", where various functions in the product chain increasingly occur simultaneously.
- flatter organizational hierarchies, with fewer decision-making levels.
- increased team work.
- rotations between assignments, to broaden qualifications.
- improved personnel training woven into production.

2) Quality and time cycles

¶ Improved control and a continuous upgrading of product quality can be built into the organization of labour itself.

¶ Setting concrete and high goals for the shortening of time cycles, from start to finished product, is one way to increase productivity.

- Different departments are forced to improve the ways in which they interact.
- An increasing number of employees are encouraged to learn each other's tasks.
- Time based goals facilitate following the development of management's productivity.

3) A wage setting system which promotes productivity.

¶ The system should drive education and development in the work place.

- Increased knowledge and greater responsibility should determine the development of individual salaries, as opposed to formal qualifications or organizational status.
- The performance of increasingly difficult tasks and of an increasing combination of assignments should be lead to increased pay.

¶ Production measures used as a basis for performance pay should include qualitative indicators.

- Two issues need to be resolved:
  - how to renumerate employees whose work is not measured.
  - how to prevent wage structures from spreading in an inflationary manner to all other areas.

A restructuring plan for Canada must be a strategy for the future not the present.

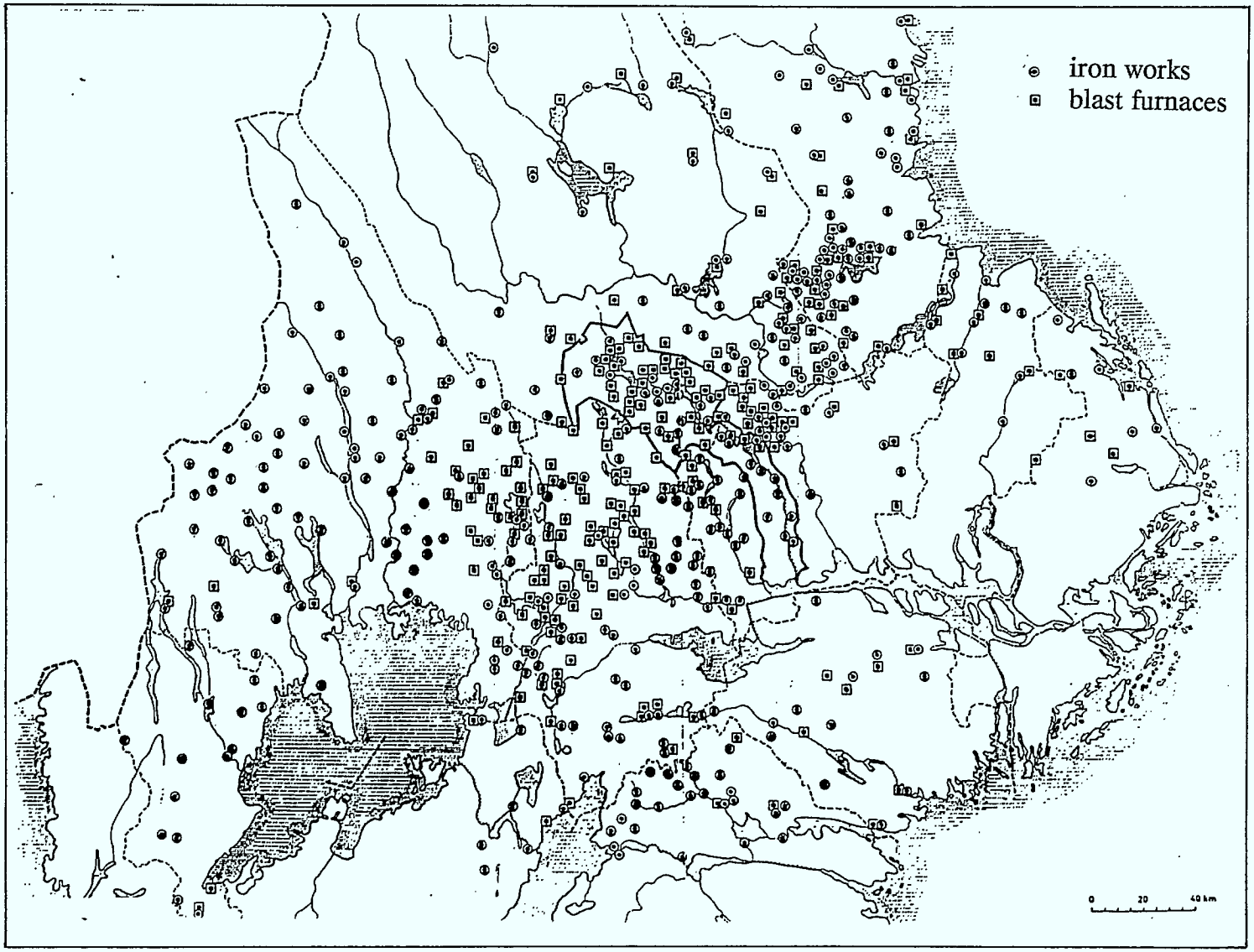
APPENDIX A

MAPS OF SWEDISH STEEL INDUSTRY 1860-1990

Map 1

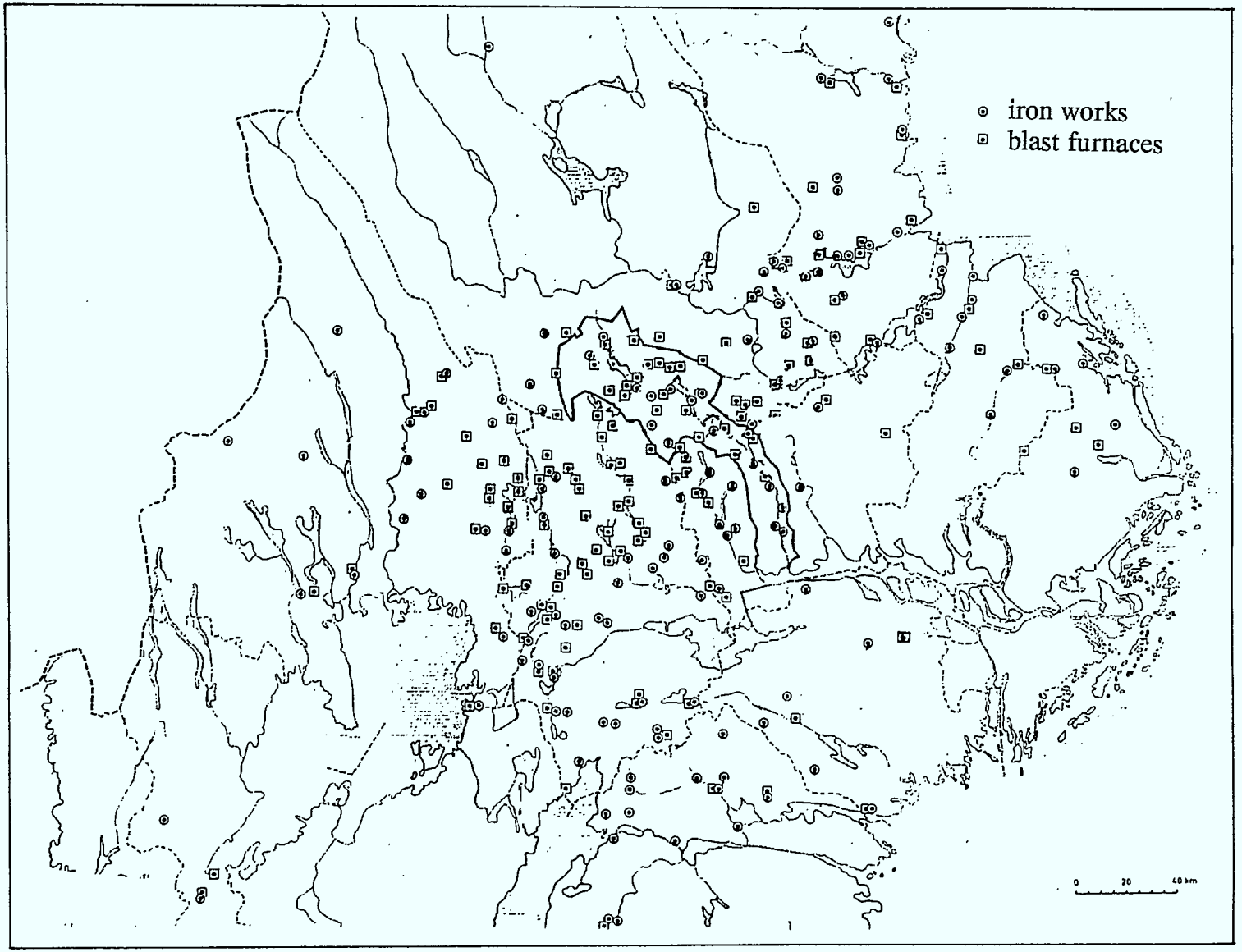
THE SWEDISH STEEL INDUSTRY

1860



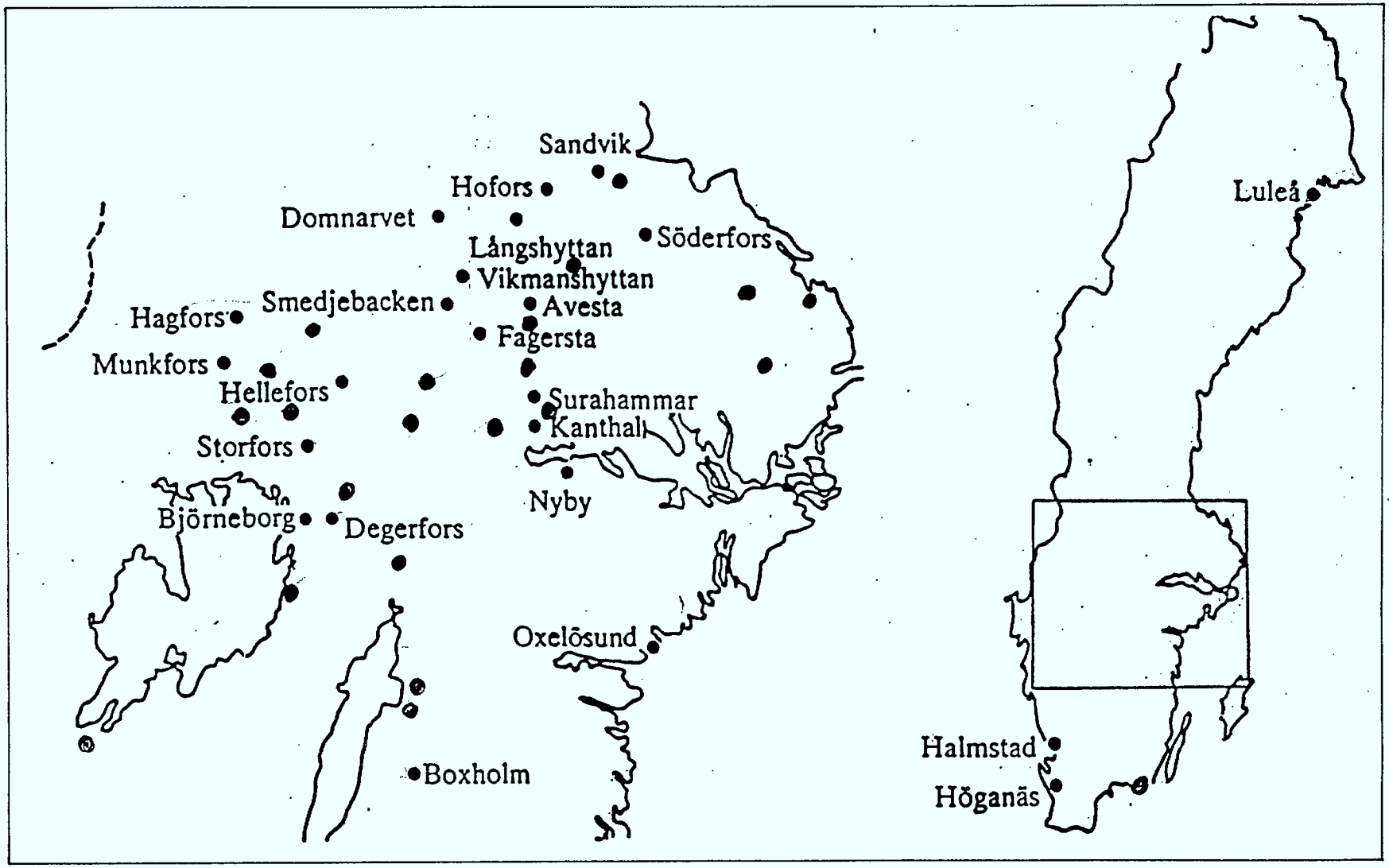
Source: Jernkontoret (Swedish Iron and Steel Association), 1990.

Map 2
THE SWEDISH STEEL INDUSTRY
1890



Source: Jernkontoret (Swedish Iron and Steel Association), 1990
For a complete set of maps illustrating the Swedish steel industry from 1860 to 1990, see Appendix A.

Map 3
THE SWEDISH STEEL INDUSTRY
1965

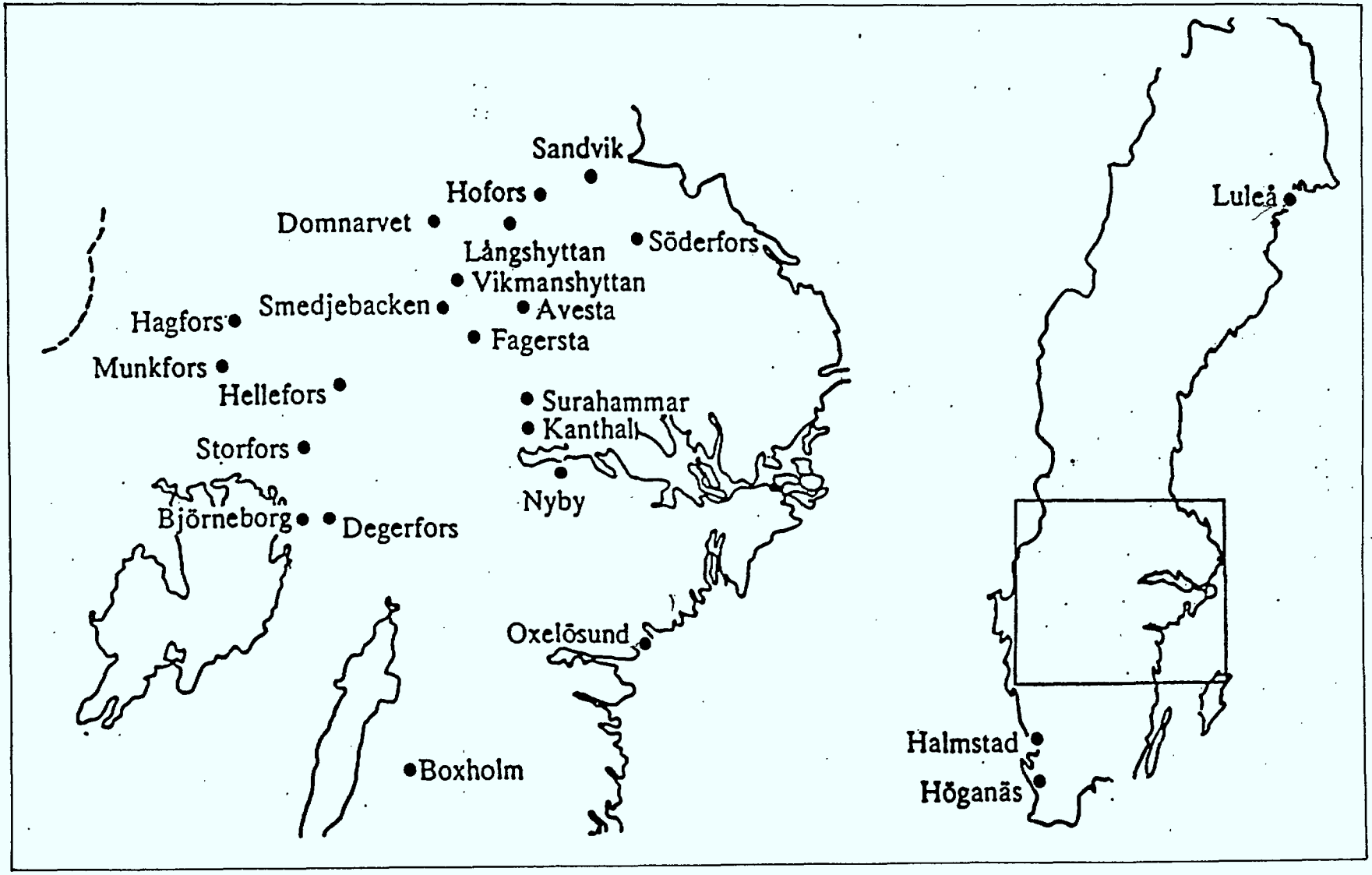


Source: Jernkontoret (Swedish Iron and Steel Association), 1990.

Map 4

THE SWEDISH STEEL INDUSTRY

1990



Source: Jernkontoret (Swedish Iron and Steel Association), 1990.

APPENDIX B

SWEDISH STEEL STATISTICS
1990

Compiled by Jernkontoret (Swedish Iron and Steel Association)

Table 1

RAW MATERIALS ETC. FOR STEEL PRODUCTION

THOUSAND TONS

	IRON ORE		SPONGE IRON	STEEL SCRAP				FERRO ALLOYS	
				IMPORTS			CONSUMPTION OF MERCHANT SCRAP		
	PRODUCTION	EXPORTS	PRODUCTION	STAINLESS	OTHER	TOTAL	ORDINARY	EXPORTS	IMPORTS
1970	31509	27972	185	53	425	478	982	59	103
1971	34367	26179	174	40	138	178	888	64	103
1972	33979	27610	178	34	154	188	914	67	129
1973	34727	32917	190	30	239	269	1016	84	204
1974	36153	33105	197	17	334	351	1055	86	215
1975	30687	20332	175	37	279	316	963	67	186
1976	29862	22039	187	40	91	131	927	83	176
1977	24839	18913	161	19	14	33	677	110	95
1978	21063	22204	117	19	97	116	798	168	138
1979	26619	26246	136	32	90	122	830	146	175
1980	27184	20998	123	35	37	72	813	101	131
1981	23225	17709	101	35	206	241	1004	125	108
1982	16143	12597	107	59	469	528	1116	90	120
1983	13212	14186	103	58	388	446	1191	127	120
1984	18123	17599	120	86	747	833	1505	120	148
1985	20454	18371	109	106	779	885	1549	129	132
1986	20489	17219	111	118	587	705	1393	102	124
1987	19707	16837	118	113	676	789	1396	96	134
1988	20440	17722	122	124	663	787	1142	112	137
1989	21763	17473	116	109	505	615	1255	114	131
1990	19877	16430	109	94	131	225	914	108	130

Source: Jarnbruksfornodenheter. The steel works in JBF § statistics accounted for 98% of the Swedish steel production in 1990.

Table 2
ENERGY CONSUMPTION OF SWEDISH STEEL WORKS

TWh

	COAL AND COKE	ELECTRICITY	OIL	LPG AND NATURAL GAS
1970	12.2	4.6	10.4	0.4
1971	12.1	4.5	9.9	0.5
1972	10.9	4.4	9.9	0.6
1973	12.0	4.8	10.5	0.8
1974	13.9	5.0	10.4	0.7
1975	15.6	4.8	10.1	0.7
1976	14.0	4.6	8.5	0.6
1977	10.4	4.0	7.4	0.6
1978	10.8	4.1	7.3	0.6
1979	12.1	4.2	6.9	0.7
1980	10.6	3.7	5.8	0.6
1981	8.0	3.5	4.5	0.6
1982	8.6	3.8	3.8	0.6
1983	9.7	3.8	3.6	0.7
1984	10.1	3.9	3.4	0.8
1985	12.1	4.0	3.1	0.7
1986	12.1	4.1	3.1	0.8
1987	11.9	4.1	3.2	0.8
1988	12.1	4.4	3.1	1.1
1989	12.4	4.2	2.6	1.4
1990	13.1	3.9	1.9	1.6

Table 3
PIG IRON:
PRODUCTION AND FOREIGN TRADE

THOUSAND TONS

	PRODUCTION		EXPORT	IMPORT
	TOTAL PIG IRON	LIQUID PIG IRON FOR STEEL PRODUCTION		
1970	2608.2	2151.8	1.6	354.8
1971	2584.5	2120.6	3.0	352.2
1972	2355.2	2030.0	6.2	344.3
1973	2569.5	2163.4	42.9	337.6
1974	2978.6	2372.1	207.0	208.9
1975	3308.8	2483.6	193.3	223.8
1976	2951.6	2351.3	53.9	227.3
1977	2329.7	1930.2	156.2	82.0
1978	2363.1	2065.1	510.5	40.5
1979	2905.5	2474.6	150.3	51.8
1980	2435.2	2178.7	179.6	45.9
1981	1770.0	1672.2	45.1	36.9
1982	1779.3	1743.3	29.6	58.2
1983	2010.9	1992.4	26.3	38.0
1984	2213.6	2198.3	3.0	38.6
1985	2432.5	2388.8	7.0	46.8
1986	2435.2	2410.3	8.5	57.0
1987	2313.5	2294.3	3.4	51.2
1988	2491.9	2463.1	12.2	65.2
1989	2637.8	2585.8	13.8	50.6
1990	2735.7	2706.2	5.3	43.4

Table 4

CRUDE STEEL PRODUCTION
by process

THOUSAND TONS

	CRUDE STEEL (INGOTS + CONTINUOUSLY CAST SEMIS + STEEL FOR CASTINGS)									
	BASIC AND ACID BESSEMER	OPEN HEARTH		ELECTRIC		KALDO, LD AND OBM	TOTAL CRUDE STEEL PRODUCTION	THEREOF		
		ACID	BASIC	ELECTRIC ARC*	INDUCTION			INGOTS	CONT. CAST SEMIS	STEEL F. CASTINGS
1970	29.8	472.2	802.3	2070.2	211.2	1911.3	5497.0	4652.3	774.3	70.4
1971	23.7	445.5	736.6	1959.7	182.0	1923.9	5271.4	4439.9	770.1	61.4
1972	20.2	425.2	674.9	2048.7	172.6	1915.4	5256.9	4364.4	839.8	52.7
1973	-	419.5	732.1	2183.8	184.9	2143.7	5664.0	4718.2	886.2	59.6
1974	-	450.1	709.9	2336.6	188.6	2303.8	5989.0	4761.2	1158.1	69.7
1975	-	390.1	489.3	2129.9	166.1	2436.0	5611.4	4151.0	1397.0	63.4
1976	-	322.0	351.4	2042.3	151.5	2272.4	5139.7	3642.7	1451.6	45.4
1977	-	247.0	166.1	1567.9	113.6	1873.4	3968.1	2723.9	1214.1	30.1
1978	-	206.7	133.3	1764.3	103.3	2117.3	4325.0	2735.9	1561.4	27.7
1979	-	162.2	119.9	1858.2	103.3	2489.7	4733.4	2879.6	1824.1	29.6
1980	-	108.7	97.1	1777.2	103.9	2149.6	4236.6	2131.1	2076.5	29.0
1981	-	49.3	45.9	1895.6	98.8	1680.7	3770.4	1228.5	2517.0	24.8
1982	-	-	-	2024.8	84.1	1791.3	3900.2	912.7	2965.3	22.3
1983	-	-	-	2102.4	54.8	2052.9	4210.1	830.1	3354.4	25.6
1984	-	-	-	2372.0	54.5	2278.8	4705.3	935.3	3743.5	26.5
1985	-	-	-	2344.2	43.6	2424.8	4812.6	907.2	3879.8	25.6
1986	-	-	-	2211.9	38.5	2465.2	4715.7	835.5	3858.0	22.2
1987	-	-	-	2228.5	40.6	2326.0	4595.2	732.0	3841.7	21.6
1988	-	-	-	2264.7	35.0	2479.2	4778.9	786.9	3967.4	24.6
1989	-	-	-	2051.0	31.0	2610.1	4692.1	806.6	3862.2	23.3
1990	-	-	-	1712.5	30.1	2711.7	4454.2	614.2	3819.7	20.3

* including production by AOD, CLU and VOD.

Table 5

PRODUCTION OF INGOTS AND CONTINUOUSLY CAST SEMIS

by quality

THOUSAND TONS

	ALLOY STEELS						HIGH CARBON STEEL (c≥ 0.6%)	TOTAL SPECIAL STEELS	ORDINARY STEEL (c< 0.6%)	TOTAL INGOTS AND CONTI-NUOUSLY CAST SEMIS
	TOOL STEEL EXCL HIGH SPEED STEEL	HIGH SPEED STEEL	HEAT TREATMENT CARBURIZING AND SPRING STEEL	STAINLESS STEEL	OTHER ALLOY STEEL INCL BALL BEARING STEEL	TOTAL ALLOY STEELS				
DEFINITIONS ACCORDING TO THE EARLIER NOMENCLATURE (CCCN) UP TO AND INCL. 1987										
1970	109.2	26.5	277.4	393.5	454.9	1261.5	251.2	1512.7	3913.8	5426.6
1971	90.5	26.6	237.7	340.0	472.2	1167.0	227.8	1394.8	3815.3	5210.0
1972	76.6	23.5	264.0	388.6	473.7	1226.3	206.0	1432.3	3771.9	5204.2
1973	108.3	28.6	307.4	467.3	454.4	1365.9	229.1	1595.0	4009.4	5604.4
1974	118.7	33.9	365.2	518.5	459.4	1495.7	241.1	1736.8	4182.6	5919.4
1975	109.2	32.9	354.2	420.6	472.3	1390.2	169.7	1559.9	3988.0	5548.0
1976	11.9	29.4	283.2	417.9	426.1	1268.5	148.1	1416.6	3677.6	5094.3
1977	91.0	30.4	238.2	325.2	353.3	1038.1	101.0	1139.1	2798.9	3938.0
1978	131.7	36.5	333.4	360.5	395.4	1257.5	91.5	1349.0	2948.2	4297.3
1979	152.1	32.9	363.8	418.1	442.6	1409.5	69.4	1479.0	3224.8	4703.8
1980	104.0	31.4	318.7	379.1	439.6	1272.8	54.6	1327.3	2880.3	4207.6
1981	104.9	23.8	340.0	330.3	407.8	1206.8	66.6	1273.5	2472.0	3745.5
1982	102.7	22.2	334.0	328.5	418.6	1206.0	85.4	1291.4	2586.6	3878.0
1983	105.4	19.5	347.5	370.9	380.5	1223.8	110.2	1334.0	2850.5	4184.5
1984	118.5	28.5	372.0	441.6	450.3	1411.0	123.1	1534.1	3144.7	4678.8
1985	110.0	28.4	364.7	434.8	408.9	1346.7	105.5	1452.2	3334.7	4787.0
1986	98.6	25.4	333.4	434.9	365.9	1258.2	95.7	1353.9	3339.6	4693.5
1987	116.4	24.3	300.9	457.1	358.6	1257.2	89.8	1347.0	3226.5	4573.6
DEFINITIONS ACCORDING TO THE NEW NOMENCLATURE (HS) INTRODUCED IN 1988										
1988	99.6	28.4	a)	481.8	1163.8	1773.5	83.7	1857.2	2897.1	4754.3
1989	103.3	32.0	a)	457.3	1469.8	2089.4	77.6	2167.0	2501.8	4668.8
1990	88.5	31.1	a)	471.4	1296.2	1887.1	70.6	1957.7	2476.2	4433.9

a) included in other alloy steel.

Note: Alloy steels are defined according to the CCCN (up to and including 1987) and the HS (from 1988 onwards) nomenclatures. In the latter nomenclature, the prescribed contents of alloy elements have been lowered in many cases, which implies that some steels, classified earlier as non-alloy, are now classified as alloy.

Revised definitions of stainless steel and high speed tool steel are of no practical importance for the measurement of Swedish crude steel output.

Table 6

CAPACITY AND NUMBER OF FURNACES AT THE END OF THE YEAR

	1975 a)		1988		1989		1990	
	NUMBER	CAPACITY ktons/year	NUMBER	CAPACITY ktons/year	NUMBER	CAPACITY ktons/year	NUMBER	CAPACITY ktons/year
PIG IRON PRODUCTION FURNACES								
BLAST FURNACES	14	4120	4	2640	4	2840	4	2840
INDUCTION FURNACES	1	32	-	-	-	-	-	-
TOTAL CAPACITY FOR PIG IRON PRODUCTION *)		4152		2640		2840		2840
SPONGE IRON FURNACES	7	256	4	165	4	165	4	165
CRUDE STEEL PRODUCTION FURNACES b)								
ACID OPEN HEARTH	13	513	-	-	-	-	-	-
BASIC OPEN HEARTH	10	727	-	-	-	-	-	-
ELECTRIC ARC	57	2457	15	2579	14	2090	14	2010
INDUCTION	38	221	11	50	11	45	8	40
KALDO, LD AND OBM CONVERTERS	11	3600	3	2700	3	2800	3	2800
TOTAL CAPACITY FOR CRUDE STEEL PRODUCTION *)		7518		5329		4935		4850
AFTER-TREATMENT FURNACES								
AOD AND CLU CONVERTERS	3	228	3	550	3	550	3	550
CASTING MACHINES								
SLABS			5	2730	6	2800	6	2940
BLOOMS, BILLETS			6	1632	5	1250	5	1330
TOTAL CASTING CAPACITY **)				4362		4050		4270

a) The capacity in 1975 is to date the largest capacity.

b) Excl. steel furnaces at independent foundries.

*) The total capacity, respectively, for pig iron production and crude steel production is the total capacity of the furnace, reduced with regard to possible narrow sections in blast machinery, casting bay, etc., and to possible duplex operations. Steel capacity refers to approved ingots and continuously cast semis.

**) The steel furnaces constitute a narrow section for the continous casting operation.

Table 7

FINISHED STEEL EXCLUDING SEMIS

THOUSAND TONS

	1	2	3	4	5	6	7
	DELIVERIES BY SWEDISH STEEL WORKS	EXPORTS	CALCULATED DOMESTIC DELIVERIES (1-2)	IMPORTS *)	GROSS DELIVERIES TO THE SWEDISH MARKET (3+4)	THEREOF PURCHASES OF THE STEEL WORKS	NET APPARENT CONSUMPTION (5-6)
1974	4023	1819	2204	2133	4337	303	4034
1975	3425	1543	1882	2015	3897	246	3651
1976	3275	1490	1785	2120	3905	250	3655
1977	2975	1606	1369	1589	2958	203	2755
1978	2985	1699	1286	1662	2948	244	2704
1979	3169	1834	1335	1906	3241	265	2976
1980	3116	1710	1406	1832	3238	247	2991
1981	3039	1744	1296	1666	2962	187	2775
1982	3059	1919	1141	1753	2894	202	2692
1983	3397	2155	1241	1678	2919	232	2688
1984	3629	2353	1277	1837	3114	294	2820
1985	3680	2444	1236	1680	2916	268	2648
1986	3535	2302	1233	1752	2985	224	2762
1987	3715	2438	1277	1756	3032	180	2852
1988	3797	2514	1283	1909	3192	173	3019
1989	3740	2484	1257	1917	3174	173	3001
1990	3646	2506	1140	1888	3028	168	2860

*) excluding hot rolled coils of alloy steel (incl. stainless steel).

Table 8

INGOTS AND SEMIS: DELIVERIES, FOREIGN TRADE, ETC.

kton

	INGOTS			SEMIS: EX WORKS DELIVERIES				
	DELIVERIES TO SWEDISH STEEL WORKS AND CUSTOMERS ABROAD	FOREIGN TRADE		TO OTHER SWEDISH STEEL WORK **)	TO OTHER SWEDISH AND FOREIGN CUSTOMERS	TOTAL QUANTITY AS PER INVOICE	EXPORT FOR HIRE-ROLLING	TOTAL DELIVERIES
		IMPORT *)	EXPORT					
1970		19.2	50.8	78.1	38.1	116.2	8.0	124.2
1971		6.1	5.4	39.8	57.1	96.9	19.1	116.0
1972		90.2	29.6	46.3	68.0	114.3	11.1	125.4
1973		130.8	43.1	71.2	53.6	124.8	4.5	129.2
1974		3.5	64.2	93.1	89.3	182.4	-	182.4
1975		1.7	21.0	70.5	129.9	200.4	-	200.4
1976		1.8	14.3	88.1	164.4	252.5	8.5	261.0
1977		8.9	2.2	90.8	246.4	337.2	2.4	339.6
1978		13.1	24.1	97.5	447.4	544.9	19.2	564.1
1979	36.3	2.1	27.3	193.8	452.1	645.9	5.4	651.3
1980	36.8	2.4	43.1	206.9	334.9	541.8	3.7	545.6
1981	19.6	1.0	11.8	202.9	256.6	459.5	9.5	469.0
1982	29.3	1.4	2.3	240.5	341.2	581.7	15.8	597.5
1983	44.7	0.3	2.6	385.6	195.5	581.1	0.1	581.2
1984	35.8	0.7	1.1	267.2	422.4	689.6	-	689.6
1985	36.1	1.2	14.3	264.1	613.5	877.6	0.9	878.6
1986	14.3	2.1	6.3	224.2	548.7	772.9	3.1	776.0
1987	18.6	2.7	7.6	120.0	369.9	489.9	-	489.9
1988	3.9	0.2	0.4	117.1	399.4	516.5	0.5	517.0
1989	1.0	0.9	0.7	104.0	303.2	407.2	8.4	415.6
1990	1.7	1.1	0.3	56.7	170.7	227.4	41.0	268.4

*) In the customs' foreign trade statistics for 1972-73 continuously cast steel is included in "INGOTS", but from 1974 onwards it is included in "SEMIS". Therefore, this material (80 and 125 ktons respectively for 1972-73) has been excluded in "STEEL WORKS IMPORTS" for these years.

**) Deliveries between steel works within the same company, or group of companies, are not included.

Table 9

INGOTS AND SEMIS: DELIVERIES, FOREIGN TRADE ETC. (CONTINUED)

	SEMIS (CONTINUED)						SHARE OF INGOTS AND SEMIS IN TOTAL EXPORTS OF STEEL (BY TONNAGE)
	STEEL WORKS ′ IMPORTS *) (QUANTITY RECEIVED)	SEMIS FOR SALE (NET) ***)	FOREIGN TRADE				
			IMPORTS *)		EXPORTS		
	ktons	ktons	ktons	kSEK	ktons	kSEK	%
1970	30.1	8.0	30.0	25.7	43.7	42.5	6.5
1971	24.2	32.9	25.6	13.5	73.5	52.9	5.5
1972	42.2	25.8	38.3	18.2	60.2	46.9	5.5
1973	9.5	44.1	11.3	7.3	61.2	56.1	5.4
1974	144.0	-54.7	124.5	79.0	137.0	149.4	10.0
1975	207.9	-78.0	198.4	180.4	106.6	112.6	7.6
1976	130.7	33.7	136.9	125.2	171.6	174.7	11.1
1977	100.0	146.4	94.6	83.5	272.6	338.5	14.6
1978	65.5	381.9	74.4	79.7	496.6	505.2	23.5
1979	56.1	396.0	81.3	117.1	492.7	597.2	22.1
1980	88.3	246.6	105.8	160.7	365.3	437.5	19.3
1981	84.5	172.1	104.4	170.7	247.1	392.1	12.9
1982	93.6	247.6	114.3	191.8	310.9	562.7	14.0
1983	92.6	102.9	100.0	156.0	234.8	419.2	9.8
1984	78.6	343.8	78.9	175.1	449.0	886.2	16.1
1985	46.4	567.1	33.8	104.0	613.5	1219.4	20.4
1986	58.8	489.9	46.8	130.2	548.7	1065.7	19.4
1987	94.3	275.6	134.2	273.7	372.5	785.3	13.5
1988	70.0	329.4	122.1	422.2	430.0	1069.0	14.6
1989	80.0	223.2	118.8	517.1	329.9	117.1	11.8
1990	60.0	110.7	85.8	240.3	239.2	1067.9	8.7

*) In the customs ′ foreign trade statistics for 1972-73 continuously cast steel is included in "INGOTS", but from 1974 onwards it is included in "SEMIS". Therefore, this material (80 and 125 ktons respectively for 1972-73) has been excluded in "STEEL WORKS IMPORTS" for these years.

**) Deliveries between steel works within the same company, or group of companies, are not included.

***) Refers to the steel works ′ deliveries to Swedish customers (except steel works) and deliveries to foreign customers, minus the steel works ′ imports.

Table 10
SWEDISH EXPORTS OF FINISHED STEEL
by quality

	TUBES		OTHER FINISHED STEEL PRODUCTS			EXPORTS OF FINISHED STEEL (INCL TUBES)	INGOTS AND SEMIS	TOTAL EXPORTS OF FINISHED STEEL (INCL INGOTS AND SEMIS)
	STAINLESS STEELS	OTHER STEELS	NON-ALLOY STEELS	STAINLESS STEELS	ALLOY STEELS EXCL STAINLESS			
	THOUSAND TONS							
1980	40.4	182.1	1060.6	169.5	257.1	1709.6	408.4	2118.0
1981	35.6	191.9	1141.8	140.6	233.6	1743.5	258.9	2002.4
1982	39.9	174.8	1304.0	162.9	237.0	1918.6	313.2	2231.8
1983	42.3	159.0	1515.7	176.0	262.1	2155.2	237.5	2392.7
1984	45.1	181.8	1589.1	216.1	320.6	2352.6	450.1	2802.7
1985	48.5	182.9	1679.8	205.9	326.8	2443.9	627.8	3071.7
1986	50.5	160.5	1570.9	204.8	315.7	2302.3	555.0	2857.3
1987	49.1	158.1	1689.0	220.7	321.6	2438.4	380.1	2818.5
1988	58.9	171.7	1570.8	230.5	482.1	2514.0	430.4	2944.4
1989	58.1	169.9	1529.9	217.9	507.6	2483.5	330.6	2814.0
1990	54.5	155.4	1628.8	221.8	446.0	2506.4	239.5	2745.9
% var. 89/88	- 1.4	- 1.0	- 2.6	- 5.5	+ 5.3	- 1.2	-23.2	- 4.4
% var. 90/89	- 6.2	- 8.5	+ 6.5	+ 1.8	-12.1	+ 0.09	-27.6	- 2.4
	MILLION SWEDISH KRONOR							
1980	908.5	826.6	2396.0	2395.0	1574.0	8100.1	571.2	8671.3
1981	802.8	878.1	2550.5	1918.4	1486.3	7636.0	450.6	8086.6
1982	985.1	941.4	3390.9	2366.6	1660.8	9344.8	567.8	9912.6
1983	1049.6	943.8	4240.3	2707.6	1871.5	10812.9	480.2	11293.1
1984	1222.3	1091.5	4852.3	3462.1	2474.4	13102.7	893.0	13995.7
1985	1447.7	1183.6	5352.1	3687.0	2662.3	14332.9	1243.8	15576.7
1986	1454.8	1112.7	5204.2	3457.0	2565.0	13793.6	1079.5	14873.1
1987	1323.1	1108.8	5360.3	3655.4	2606.8	14054.4	799.1	14853.5
1988	1849.8	1271.8	5280.4	4839.7	3375.3	16617.0	1071.5	17688.5
1989	2234.3	1467.0	5696.0	5634.3	3900.0	18931.6	1126.7	20058.2
1990	1973.8	1359.6	5792.1	4552.5	3666.6	17344.6	1076.0	18420.6
% var. 89/88	+20.8	+15.3	+ 7.9	+16.4	+15.5	+13.9	+ 5.2	+13.4
% var. 90/89	-11.7	- 7.3	+ 1.7	-19.2	- 6.0	- 8.4	- 4.5	- 8.2

Note: Alloy steels are defined according to the CCCN (up to and including 1987) and the HS (from 1988 onwards) nomenclatures. In the latter nomenclature, the prescribed contents of alloy elements have been lowered in many cases, which implies that some steels, classified earlier as non-alloy, are now classified as alloy.
Revised definitions of stainless steels are of no practical importance for the measurement of Swedish crude steel output.

Prod Spec 1957.7 Ord 2476.2 Exports 1990 Spec 722.3 Ord 2023.7 } 2746

Table 11

SWEDISH IMPORTS OF FINISHED STEEL
by quality

	TUBES		OTHER FINISHED STEEL PRODUCTS			EXPORTS OF FINISHED STEEL (INCL TUBES)	INGOTS AND SEMIS	TOTAL EXPORTS OF FINISHED STEEL (INCL INGOTS AND SEMIS)
	STAINLESS STEELS	OTHER STEELS	NON-ALLOY STEELS	STAINLESS STEELS	ALLOY STEELS EXCL STAINLESS			
	THOUSAND TONS							
1980	3.1	261.5	1455.9	63.0	80.1	1863.6	100.5	1964.1
1981	2.8	233.4	1340.0	45.5	66.6	1688.3	105.4	1793.8
1982	4.3	255.1	1392.5	50.3	82.2	1784.4	115.7	1900.1
1983	4.3	260.8	1310.7	29.6	97.3	1702.7	100.3	1803.0
1984	3.9	308.8	1408.9	33.4	109.5	1864.5	79.6	1944.1
1985	4.6	290.0	1275.4	32.3	101.7	1704.1	35.0	1739.1
1986	4.7	283.5	1351.3	37.9	107.8	1785.3	48.9	1834.1
1987	5.3	295.6	1337.1	37.8	112.4	1788.2	136.9	1925.1
1988	8.7	303.5	1498.0	42.6	101.4	1954.1	122.3	2076.4
1989	9.7	290.0	1505.4	54.2	113.9	1973.3	119.7	2093.0
1990	10.2	295.0	1485.6	92.5	97.3	1980.6	[86.9]	2067.5
% var. 89/88	+11.5	- 4.4	+ 0.5	+ 27.2	+12.3	+ 1.0	- 2.1	+ 0.8
% var. 90/89	+ 5.2	+ 1.7	- 1.3	+70.7	-14.6	+ 0.4	-27.4	- 1.2
	MILLION SWEDISH KRONOR							
1980	64.1	832.4	3039.8	554.5	273.2	4764.0	161.8	4925.8
1981	62.7	744.9	2704.2	410.0	247.8	4170.1	176.7	4346.8
1982	110.6	1007.3	3549.9	477.0	336.1	5480.9	196.9	5677.8
1983	117.7	1081.2	3694.0	379.7	408.5	5681.0	158.0	5839.0
1984	97.4	1298.6	4185.4	472.8	492.5	6546.7	182.2	6728.9
1985	130.9	1345.6	4094.7	488.4	536.6	6596.2	112.7	6708.9
1986	129.8	1362.8	4458.4	524.2	554.3	7029.5	140.5	7170.0
1987	148.5	1395.5	4422.4	554.1	546.2	7066.7	281.2	7347.9
1988	232.8	1492.5	5140.2	779.1	504.0	8148.6	427.0	8575.6
1989	305.8	1587.5	5599.3	1108.4	624.2	9225.2	531.1	9756.2
1990	285.4	1646.7	5640.1	1315.5	570.9	9458.6	257.5	9716.1
% var. 89/88	+31.4	+ 6.4	+ 8.9	+42.3	+23.8	+13.2	+24.4	+13.8
% var. 90/89	- 6.7	+ 3.7	+ 0.7	+18.7	- 8.5	+ 2.5	-51.5	- 0.4

Note: Alloy steels are defined according to the CCCN (up to and including 1987) and the HS (from 1988 onwards) nomenclatures. In the latter nomenclature, the prescribed contents of alloy elements have been lowered in many cases, which implies that some steels, classified earlier as non-alloy, are now classified as alloy.
Revised definitions of stainless steels are of no practical importance for the measurement of Swedish crude steel output.

Prod Spec 1957.7
Ord 2476.2

Imports 1990 Spec 200
Ord 1867.5 } 2067.5

Table 12

PRODUCER PRICE INDICES (1968=100)

	IRON, STEEL, FERRO ALLOYS								
	PIG IRON, FERRO ALLOYS	FINISHED STEEL				IRON AND STEEL CASTINGS AND FORGINGS, UNWORKED			TOTAL
		ORDINARY STEEL	STAINLESS STEEL	ALLOY STEEL OTHER THAN STAINLESS	TOTAL	TOTAL	THEREOF		
							IRON CASTINGS	STEEL CASTINGS	
1970	139	144	145	114	136	125	..	..	134
1971	141	134	121	119	126	145	..	..	129
1972	121	135	121	121	128	149	..	..	129
1973	137	177	140	132	155	156	157	146	152
1974	232	269	176	176	218	201	195	180	213
1975	273	252	177	207	219	257	250	242	225
1976	255	244	181	214	218	274	259	295	227
1977	231	242	196	230	226	284	271	290	231
1978	231	263	209	246	244	297	277	301	246
1979	280	286	249	281	274	327	304	330	278
1980	298	319	297	309	309	353	354	395	315
1981	292	319	311	322	318	417	385	454	324
1982	326	398	352	361	373	458	419	494	378
1983	368	430	371	384	401	487	445	534	406
1984	436	465	386	423	431	524	467	585	436
1985	513	484	429	475	463	563	521	634	472
1986	..	486	432	495	470	595	554	664	479
1987	..	462	425	504	459	615	574	667	473
1988	..	488	541	513	510	637	595	699	521
1989	..	550	659	569	588	730	670	900	594
1990	..	561	550	595	564	776	718	981	575

NOTE: Producer price indices, calculated by Statistics Sweden, illustrate the price development on the production side of the Swedish steel industry's production for sale. For a rather limited selection of products, monthly data are collected which, in principle, refer to invoiced prices. However, Statistics Sweden frequently receives list price quotations. As is well known, the latter often deviate from real, invoiced prices. For this reason, the producer price indices are of limited value as a measure of the real price development.

Table 13

NUMBER OF EMPLOYED IN THE SWEDISH STEEL INDUSTRY

	STEEL WORKS - SPECIAL STEEL			STEEL WORKS - ORDINARY STEEL			TOTAL STEEL WORKS		
	WAGE EARNERS	EMPLOYEES	TOTAL	WAGE EARNERS	EMPLOYEES	TOTAL	WAGE EARNERS	EMPLOYEES	TOTAL
1973	24 760	8 100	32 860	13 380	3 370	16 750	38 140	11 140	49 610
1974	25 430	8 070	33 500	13 870	3 640	17 510	39 300	11 710	51 010
1975	24 770	8 150	32 920	14 520	3 950	18 470	39 290	12 100	51 390
1976	24 250	8 100	32 350	14 650	4 400	19 050	38 900	12 500	51 400
1977	21 400	7 670	29 070	13 390	4 150	17 540	34 790	11 820	46 610
1978	21 040	7 430	28 470	12 560	4 340	16 900	33 600	11 770	45 370
1979	20 510	7 380	27 890	12 740	4 220	16 960	33 250	11 600	44 850
1980	19 580	7 140	26 720	11 860	4 010	15 870	31 440	11 150	42 590
1981	17 760	6 550	24 310	11 000	3 690	14 690	28 760	10 240	39 000
1982	17 310	6 200	23 510	10 320	3 580	13 900	27 630	9 780	37 410
1983	15 060	5 360	20 420	9 620	3 370	12 990	24 680	8 730	33 410
1984	14 340	4 780	19 120	9 940	3 170	13 110	24 280	7 950	32 230
1985	..	..	18 240	..	..	12 320	..	..	30 560
1986	..	..	17 640	..	..	11 689	..	..	29 326
1987	..	..	16 560	..	..	11 740	..	..	28 300
1988	..	..	16 210	..	..	11 690	..	..	27 900
1989	..	..	16 680	..	..	10 870	..	..	27 550
1990	..	..	16 160	..	..	10 480	..	..	26 640

Note: Numbers of employees correspond to average number of employed on a full year basis.

Source: Jernkontoret's (Swedish Iron and Steel Association) profitability study.

Table 14

CRUDE STEEL PRODUCTION IN SELECTED COUNTRIES 1960-90

Thousand metric tons

	1960	1970	1974	1980	1987	1988	1989	1990	% var. 90/89
WESTERN EUROPE									
EC									
WEST GERMANY	34 101	45 041	53 232	43 838	36 248	41 023	41 073	38 434	- 6.4
ITALY	8 462	17 277	23 804	26 501	22 819	23 760	25 213	25 510	1.2
FRANCE	17 299	23 774	27 021	23 176	17 693	19 122	18 692	18 994	1.6
U.K.	24 695	27 833	22 323	11 277	17 414	18 950	18 740	17 841	- 4.8
BELGIUM	7 181	12 607	16 319	12 422	9 783	11 217	10 948	11 414	4.3
NETHERLANDS	1 942	5 042	5 837	5 272	5 082	5 518	5 681	5 415	- 4.7
LUXEMBURG	4 083	5 462	6 447	4 618	3 302	3 661	3 721	3 560	- 4.3
DENMARK	317	473	536	734	606	650	624	610	- 2.2
IRELAND	30	80	110	2	220	271	324	325	0.3
GREECE	65	450	687	870	907	959	956	1 050	9.8
TOTAL EC 10	98 175	138 039	156 316	128 710	114 074	125 131	125 972	123 153	- 2.2
PORTUGAL	-	385	387	663	721	799	724	699	- 3.5
SPAIN	1 920	7 394	11 502	12 643	11 691	11 886	12 765	12 935	1.3
TOTAL EC 12	100 095	145 818	168 205	142 016	126 486	137 816	139 461	136 787	- 1.9
EFTA									
AUSTRIA	3 163	4 079	4 699	4 623	4 301	4 560	4 717	4 291	- 9.0
SWEDEN	3 218	5 497	5 989	4 237	4 595	4 779	4 692	4 454	- 5.1
FINLAND	273	1 169	1 656	2 508	2 669	2 798	2 921	2 860	- 2.1
SWITZERLAND	275	524	592	929	866	988	916	963	5.1
NORWAY	478	870	913	862	851	910	678	385	-43.2
TOTAL EFTA	7 407	12 139	13 849	13 159	13 282	14 035	13 924	12 953	- 7.0
OTHER									
YUGOSLAVIA	1 442	2 228	2 836	3 634	4 367	4 487	4 448	3 608	-18.9
TURKEY	280	1 312	1 590	2 536	7 044	7 982	7 799	9 322	19.5
TOTAL OTHER	1 722	3 540	4 426	6 170	11 411	12 469	12 247	12 930	5.6
TOTAL WESTERN EUROPE	109 224	161 497	186 480	161 345	151 179	164 320	165 632	162 670	- 1.8

Source: IISI.

Table 14 (continued)

CRUDE STEEL PRODUCTION IN SELECTED COUNTRIES 1960-90

Thousand metric tons

	1960	1970	1974	1980	1987	1988	1989	1990	% var. 90/89
EASTERN EUROPE									
USSR	65 292	115 886	136 200	147 931	161 874	163 037	160 097	154 286	- 3.6
POLAND	6 680	11 750	14 556	19 485	17 145	16 873	15 094	13 637	- 9.7
CZECHOSLOVAKIA	6 768	11 480	13 640	14 925	15 416	15 380	15 464	14 877	- 3.8
ROMANIA	1 806	6 517	8 840	13 175	14 962	14 314	14 415	9 687	-32.8
EAST GERMANY	3 787	5 425	6 165	7 308	8 243	8 133	7 829	5 566	-28.9
HUNGARY	1 886	3 110	3 468	3 767	3 622	3 582	3 315	2 820	-14.9
BULGARIA	251	1 800	2 188	2 567	3 044	2 880	2 899	2 401	-17.2
TOTAL EASTERN EUROPE	86 500	156 000	185 100	209 158	224 306	224 199	219 113	203 274	- 7.2
U.S.A.	90 068	119 307	132 195	101 456	80 877	90 650	88 834	88 900	0.1
OTHER									
JAPAN	22 138	93 322	117 131	111 395	98 513	105 681	107 909	110 331	2.2
CHINA	18 450	18 000	21 119	37 121	56 280	59 430	61 590	67 241	9.2
CANADA	5 270	11 200	13 623	15 901	14 737	14 866	15 458	12 281-	-20.6
BRAZIL	2 282	5 390	7 515	15 337	22 228	24 657	25 055	20 569	-17.9
SOUTH KOREA	50	481	1 947	8 558	16 782	19 118	21 873	23 125	5.7
INDIA	3 339	6 276	7 069	9 514	13 121	14 309	14 608	14 963	2.4
SOUTH AFRICA	2 114	4 757	5 839	9 067	8 991	8 837	9 337	8 619	- 7.7
AUSTRALIA	3 744	6 839	7 813	7 589	6 100	6 387	6 735	6 666	- 1.0
MEXICO	1 474	3 881	5 138	7 156	7 642	7 779	7 851	8 682	10.6
NORTH KOREA*	641	2 180	3 200	5 800	6 730	6 830	6 930	7 000	1.0
TAIWAN	200	350	597	3 417	5 915	8 288	9 047	9 747	7.7
OTHER*	900	5 900	8 700	12 700	23 100	24 800	25 300	26 000	2.8
TOTAL OTHER	60 600	158 600	199 700	243 600	280 100	301 000	311 700	315 200	1.1
WORLD PRODUCTION	346 400	595 400	703 500	715 600	736 500	780 200	785 300	770 000	- 1.9

* Estimate

Source: IISI.

Table 15

PRODUCTION OF STAINLESS STEEL IN SELECTED COUNTRIES 1960-1990
INGOTS AND CAST SEMIS
(thousand metric tons)

	1960	1970	1974	1980	1986	1987	1988	1989	1990*	% var. 90/89
WESTERN EUROPE										
EC										
WEST GERMANY	259	504	688	816	888	957	1 187	1 169	1 146	- 1.9
ITALY	58	238	311	493	540	551	626	619	566	- 8.5
FRANCE	186	460	570	594	611	700	784	727	800	10.1
U.K.	224	257	226	144	294	393	428	379	388	2.1
BELGIUM	5*	8	109	123	147	182	265	325	372	14.1
SPAIN	12	25	76	161	273	320	426	366	461	26.0
TOTAL EC	744	1 492	1 980	2 331	2 753	3 103	3 716	3 585	3 733	4.1
OTHER										
AUSTRIA	40	66	66	79	48	54	67	64	58*	
SWEDEN	176	394	519	379	435	457	482	457	471	3.1
FINLAND	-	-	-	91	173	189	206	192	220*	
YUGOSLAVIA	..	..	..	..	30	35	30	30	28*	
TOTAL WEST. EUROPE	960	1 960	2 570	2 880	3 439	3 838	4 501	4 328	4 510	4.2
OTHER COUNTRIES										
U.S.A.	908	1 160	1 950	1 537	1 529	1 836	1 991	1 754	1 853	5.7
CANADA	30*	..	..	..	70	85	127	154	..	
JAPAN	238	1 653	1 928	2 217	2 570	2 772	3 150	3 134	3 130	- 0.2
BRAZIL	..	..	..	105	160	192	188	196	..	
SOUTH KOREA	..	..	..	..	32	40	60	180	..	
INDIA	..	..	7	20	150	162	176	188	..	
SOUTH AFRICA	..	..	..	..	102	120	135	120	..	
AUSTRALIA	5*	..	87	48	40	45	34	..	..	
TAIWAN	..	..	..	..	90	130	139	140	..	
OTHER*	..	..	..	..	21	45	45	..	..	
TOTAL OTH. COUNTRIES	1 190	2 990	4 080	4 010	4 751	5 428	6 055	5 942	6 190	
TOTAL	2 150	4 950	6 650	6 890	8 190	9 266	10 628	10 270	10 700	4.2

* estimate
\- no quantity
.. data unavailable

Source: ERAMET-SLN, INCO, Jernkontoret (Swedish Iron and Steel Association) and others.

APPENDIX C

RESTRUCTURING STRATEGY

RESTRUCTURING STRATEGY

A variety of approaches may be taken in restructuring a firm. The following is a presentation of the strategy employed by Hans Bergström, President of Marknadshuset and former CEO responsible for restructuring several firms.

1) Let the fires burn and examine the situation

- Excess labour was identified
    * prior to making any changes in firm
    * 10% excess manpower formed
- Solutions were sought to place excess manpower elsewhere.
- Cases were handled individually:
    * consultants
    * retraining
    * government support
    * early retirement
    * reeducation.
- Two gains:
    1) streamlined organization
    2) positive rapport with the union to take on the harder task of cutbacks.
- Individuals received assistance to start their own business
    * in areas other than steel, to keep the community thriving in a diversified way.

2) Union participation

- An offer was made to the unions to participate in the management of the restructuring, but under the condition that workers must not be informed.
- The unions naturally declined.
- An alternative was offered: informal discussions on a regular basis with union leaders to brief and reflect on the restructuring plans, in camera.

3) Firm split into separate legal companies

- The unions' consent was obtained.
- In some of the new units, employees were offered ownership.
- Each unit bought and sold its own services.

4) Business expansion

- Customer oriented strategies were developed
- High volume custom jobs were undertaken
  * product integrated with customer
  * price competitiveness
  * different sales forces built up.
- Excess production capacity was sold
  * monthly identification of excess capacity
  * this did not tie up capital
  * instead, customer capital was used.

APPENDIX D

CONTACTS

INDIVIDUALS

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OTHER RECOMMENDED CONTACTS

- **Axel van den Berg**
  McGill University
  (worked in Sweden on comparative analysis of industrial structures in Canada and Sweden)

- **George Emerfelt,** Managing Director
  Johnson Group (owners of AVESTA)
  (recommended by Benkt Lindstrom)

- **Dr. Leif Johansson** and **Dr. Bengt Furaker**
  Goteborgs Universitat
  Brogatan 4, S-41301 Goteborg, Sweden.
  (comparative analysis of industrial structures in Canada and Sweden)

- **Wayne Pokorny,** President
  Ingersoll Steel, Newcastle
  (recommended by Benkt Lindstrom; could show restructuring within the company)

- **Diane-Gabrielle Tremblay,** Professor
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  (study of Swedish industrial model; recommended by Gabor Farago).

APPENDIX E

DOCUMENT LIST

Doc #1

Arbetsmarknadsdepartementet (Ministry of Labour). The Swedish Act on co-determination at work. January 1985. Concise presentation of Swedish co-determination legislation, including the workers' right of association, of negotiation, of information and the union right of veto.

Doc #2

Arbetmarknadsstyrelsen (AMS - Swedish Labour Market Board). Various documents on labour market policies.

Doc #3

Auer. P. Industrial relations, work organization and new technology: the Volvo case. 24.1.85. Examines the context of Swedish co-determination, within which Volvo's industrial relations have developed.

Doc #4

Asard, Erik. Employee participation in Sweden 1971-1979. Economic and industrial democracy: an international journal. Volume 1, No. 3. August 1980. Describes the Social Democrats conception of "economic democracy" and employee influence.

Doc #5

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Doc #6

Avesta. Share issue prospectus. Was not transacted, but the information is still valid. See p. 24 for Special steel industry restructuring plan.

Doc #7

Avesta. Various documents, charts and diagrams.

Doc #8

Berggren, Christian. Changes in the rationalization pattern and organization of work within mass production in the Swedish engineering industry. 1980. Includes comparison of work organization at Volvo and Saab Scania.

Doc #9

Bernhardsson, Gote. The closedown of the Oresund shipyard in Landskrona. 1983. This closure was part of a large-scale restructuring of the Swedish shipbuilding industry, and entailed the loss of 2,500 jobs. Analyzes reasons for success of the County Labour Board's involvement.

Doc #10

Brostrom, Anders. Co-determination, work organization and the rights of ownership. Covers background, aims and implementation of Swedish Co-Determination Act. Stockholm: Arbetslivscentrum.

Doc #11

Brostrom, Anders. Industrial and economic democracy in Sweden: approach and problems. Paper presented at the Bologna conference on Industrial and Economic Democracy. 7-8 May, 1982. Description of Swedish labour relations model and co-determination.

Doc #12

Eklund, Klas, et al. Drivkrafter for produktivitet och valstand: produktivitets delegations betankande (The forces that drive productivity and well-being: a report from the Task force on productivity). Stockholm: 1991. A comprehensive analysis of reduced economic growth in Sweden, its causes, underlying problems, and strategies for future growth. Includes a comparison of Sweden and OECD countries.

Doc #13

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Doc #14

Enstrom, Peter and Levinson, Klas. Industrial relations in the Swedish auto industry - developments in the seventies. Paper presented at the workshop on Recent Developments in Automobile Industrial Relations, at the International Institute of Management in Berlin, March 26-27, 1982. Seeks to illustrate the relationship between structural changes and industrial relations in the Swedish auto industry in the 1970s. Includes section on role of trade union.

Doc #15

Foreningen Auktoriserade Revisorer (FAR). Key to understanding Swedish financial statements 1980. A helpful document for use in conjunction with SSAB and Avesta annual reports.

Doc #16

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Doc #17

Gustavsen, Bjorn. Bibliography on labour and labour-management issues. From Vagen till battre arbetsliv: strategier och arbetsformer i ett lokalt utvecklingsarbete. (The way to a better working life: strategies and workorganization). Mostly English sources, some Swedish and German.

Doc #18

Holzhausen, Jan. Employee representation on company boards. Paper presented at the ILO industrial relations seminar, The Hague, April 1981. Analysis of pertinent Swedish legislation.

Doc #19

Jernkontoret (Swedish Iron and Steel Association). Svensk stalstatistik (Swedish steel statistics). 1990. Original Swedish document (see Appendix B for English version of tables).

Doc #20

Jernkontoret (Swedish Iron and Steel Association). Complete presentation of restructuring of Swedish steel industry. Stockholm: Jernkontoret. 1991. Comprehensive set of diagrams, charts and maps on the Swedish steel industry.

Doc #21

Johansson, Leif. Structural change in Canada and Sweden: a look at the evolution in three industries. Umea. November 1990. Working paper for the research projetc "Labour Market Policy and Structural Change. A Comparative Study of Canada and Sweden."

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Doc #23

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Doc #25

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Doc #26

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Doc #27

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Doc #28

Sandberg, Ake. From satisfaction to democratization. Paper for the Symposium on the roles of sociologists in relation to industrial management and conflict at the 10th World Congress of Sociology. Mexico City, August 16-21, 1982. Provides an overview of research themes in Swedish sociology of work.

Doc #29

SSAB. Annual reports. 1979-1990. For information on restructuring see 1979 (p. 12-13), 1980 (p. 8-10, comprehensive presentation), 1981 (p. 10-13), 1982 (p. 9-12), and 1987 (p. 4-5 "The new SSAB".

Doc #30

SSAB. Proposed plan of action for SSAB with financial consequences. 1 February 1987. Detailed restructuring objectives and strategies.

Doc #31

SSAB. Proposed principles for SSAB's future direction. Underlying premises and principles for use in SSAB's restructuring.

Doc #32

Sweden. Ministry of Finance. Press release. 10 January, 1992. Draft budget bill presenting the government's economic policy which seeks to end economic stagnation, reduce unemployment, fight inflation and increase individual freedom and welfare. Provides information and statistics on recent economic developments, along with forecasts for 1993.

Doc #33
Newspaper clippings.

Doc #34
Swedish labour statistics from various sources, including U.S. Department of Labour, Bureau of International Affairs.

OTHER RESOURCES

The following documents can be found in the document file accompanying Patrick Doherty's previous report, European Steel Industry Analysis Project. Ottawa:ISTC. January 1992.

LABOUR/MANAGEMENT

Doc #1
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Doc. #19
Unterwegger, Peter. The Social Implications of Flexible Automation. PEL Notes. UAW Research Department. June 1, 1983. A look at the link between technological change, and increased social well-being, with reference to the difference between the U.S.A., and countries such as Sweden, West Germany and Austria.

STRUCTURAL ADJUSTMENT

Doc. #15
Sweden. Ministry of Industry. Ministry of Labour. Swedish Institute. Policies for structural change in Sweden. 1991. Includes case study of Bergslagen, an area severely hit by the decline in the iron and steel industry (see pp. 35-42).

Doc. #16
Unterwegger, Peter. What can we learn from Sweden? Presentation at the conference on "Creating Work Organizations and Work Environments: the Swedish Approach." Ann Arbor, Michigan. November 16-17, 1988.

GOVERNMENT ASSISTANCE OR RETRAINING/EDUCATION

Doc. #1
AMS. (Swedish Labour Board). Various documents on Swedish labour market policy.

Doc. #4
Olsen, Gregg M. ed. Industrial change & labour adjustment in Sweden & Canada. 1988. Toronto: Coach House Press. Presents Swedish employee assistance, education and retraining policies.

APPENDIX F

NOTES BY TOPIC

Lessons for Canada

[Larsson p. 1]

1) Start with restructuring ownership, can't restructure plants without first doing this.

- look at what needs to be closed down first.
- must have a plan for the whole industry.
  1) Better prices
  2) Reduce costs - diminished overhead
     don't need to close down good plants
  3) Enhanced competitiveness with U.S. - having one large company.

2) What is the government prepared to do?

Both a) tough job of closures
b) stimulating job of creating investment:
  i) Credit facilities
  ii) Retraining of workforce
  iii) Redundancy help - active labour market plan
  iv) R+D - e.g. support for Institute of Steel Research

(These should be compatible with free trade policy.)

3) Get the Labour Market working.

- AMS has tough rules on labour.
- if you have a passive (LMP) Labour Market Policy, you can't be tough on benefits, i.e. the worktest, retraining.
- if you have an active LMP, you can be tough on benefits: i.e workers must accept work or lose benefits.

Sweden/Germany	Denmark/Ireland	Spain
2.5 % of GDP	5%	
70% active	70-80% passive	
30% passive		

4) Industrial Relations

- Includes both management and unions --> organizational structure within firm.
- MBL - Co-determination Act 1976
  - base for workers to be part of changes in company:
    - right to information
    - union has right to obtain information - consultant

Strategy for Canadian industry

- [Ullberg p. 6]
  1) Communicate clear and simple message to people, workers, middle management, community and media.
  2) Do it quickly.
  3) Have to implement plan without vacillating.

OVAKO, for example, which is now restructuring, changed the plan and is in chaos.

- [Lindstrom p. 8]
  1) Remove vested interests.
  2) Calculate and ensure you have enough financial resources for the transaction period.
  3) Establish a management team that has a focus on the new company (team members were given shares).
  4) Involve labour from the beginning; show them the facts.

Algoma

- [Johanisson p. 9]
  Product "A" in Algoma = the people from Algoma.

North American steel

- [Molin p. 11]
  North American steel is backward when it comes to industry efficiency.

Swedish restructuring experience

- [Molin p. 11]
  The Swedish experience is the most promising and most interesting example of restructuring analysis.

- [Ullberg pp. 4-5]
  SSAB - 2 step restructuring process.

1) Phase I 1978-1981

Three companies:

NJA	- state owned
GRANLES	- going bankrupt
DOMNARVET	- owned by pulp + paper companies; - was losing money

Merged to form SSAB - goal was to find a more efficient company.

Process required:

- Specialization - kept the whole range of products, in principle; specialized.
- Reduction of employees (17,000 to 12,000)
- Labour (Alan Larson as rep) participated at Board level in restructuring.

(SSAB was a pilot project for co-determination; restructuring of SSAB coincided with introduction of Co-determination).

Tension created: middle management felt left out; top management - unions made decisions.

1986: price problems; SSAB was not sufficiently profitable - they realized restructuring was not enough

2) Phase II - 1987-1989

New owners, new Board of Directors, new top management.

- Asked to produce a more efficient structure:

  1) Concentrated on product range
     - heavy plate and strip mill products
     - left long products.

  2) Lay down mining operations (idea was to close it).

  3) Rationalization - concentrated production, shut down plants

- Thought it would lead to:

·	investments	1000 M SEK
·	increased cost	1060 M SEK
·	increased profit	440 M SEK
.	decreased employees	2500

Top management operation (no union); very quick; plan presented in one month.

Added a fourth item:

4) Strategy - invited unions to come up with a more profitable plan; if not, they would go ahead with company plan. This was severe on union.

They were fortunate: the steel and labour markets were good. Prices were rising and opportunities for workers were increasing. The restructuring may not have gone so well (profits were greater than expected), had the conditions been worse.

- [Lindstrom p. 7]
  - Restructuring involved four companies:
    1) Avesta
    2) Uddeholm
    3) Sandvik
    4) Fagersta
  - Company characteristics:
    * These companies all exported 75% of their product.
    * 50% import of steel.
    * Well established, international players, highly competitive.
    * Very rich companies, had other resource interests.

1977
- Uddeholm in trouble; started discussions with Avesta; no result.
- Uddeholm, Fagersta and SKF started merger discussion; no result.
- The firms were competitors looking out for their own interests.

1982
- Uddeholm (industry flagship in Sweden) came into severe financial difficulty.
- Anders Wall, an aggressive financier, took over.
- An agreement was reached between Avesta and Uddeholm.
- Fagersta felt threatened and wanted to join.
- Everyone was groping in the dark, looking for ways to come together.
- Firms looked to the government for funds; this eventually fell through.

1983
- Avesta sold the idea to obtain bank loans, issue shares, and buy the other companies, who became shareholders in Avesta.
- Set up Board of Directors and new management.
- One task was to make the new AVESTA profitable: vested interests were now gone and decisions were economically based.
- This restructuring occurred during an economic boom.
- Profitability guided the degree of restructuring.

- [Johanisson p. 9]

1980s
- Changes in ownership structure at AVESTA and SANDVIK; also a change in Uddeholm.
- Business conditions were very severe from 1980 to 1983.

- 1) Value
  * Each company was taken at the same value.
  * This was also done with Speedsteel.
  * Otherwise, you get lost in future profits and estimating historic assets.

- 2) Understanding that this had to be done.

1983: negotiations did not lead to a final agreement.

1984: AVESTA bought out the stainless steel operations of Fagersta and Uddeholm.

New structure/outline for the Company
- Equipment available (very important)
- Investments made
- Size of the market

Merger process
- one location one product
- multisite operation
- full range of products

Restructuring lessons
- The company is now profitable.
- Without restructuring, there would be no industry today.
- Return on capital does not give all the answers, i.e. in order to reach the same rate of return, you must have greater efficiency (productivity, marketing, etc.).

- [Molin p. 10]
  - Labour organized in 3 parallels: union, politics, co-operatives.
  - Labour was a strong driving force in the restructuring of the industry.
  - Restructuring resulted in equalized wages, throughout the country.
  - Very strong unions.
  - A strong work ethic prevailed in the 1960s and 1970s; society was very productive.
  - Welfare state became more and more expensive; taxes were increased.
  - Localization represents a drive to keep regional communities alive.
  - This resulted in more and more obstacles to restructuring, which took longer.
  - The restructuring period covers two governments: the Conservatives were in power from 1976 to 1982, when the Social Democrats took over.

- 1975-1985 restructuring period:

  - SSAB FLAT |
  - long process FUNDIA | restructured per product line
  - AVESTA -> stainless |
  - UDDEHOLM
  - SANDVIK

- Was not a good decision; companies were under pressure and had to find their strength.
- The Swedish restructuring developed volume in single products.
- The developments in Sweden at the end of the 1980s were predictable.

- Mining operations

  [Ullberg p. 5]
  - Company suggested to close mining operations.
  - The government wanted to keep the operation.
  - Company paid government the costs it would require for closure and sold to government for one krona.
  - It was a catastrophe, because it let down the workers, the community and the taxpayer.
  - If it wasn't viable for the company, it wasn't viable for the government.
  - The losses amounted to 500 M SEK ($ 100 Million).

Current Swedish situation

[Molin p. 11]

- M.I.T. made an interesting presentation to Swedish industry.
  - Argued that they needed a better structure in capital markets.
  - Utterback pointed out the "time frame" for restructuring.

[Molin p. 10]

- A small country like Sweden is forced to live on other countries' markets.
- AVESTA has 83% of its invoices outside of the country.
- In the long term, in the steel industry you need volume.
- Have now allowed ourselves to develop unacceptable cost developments.

Need for further restructuring

[Johanisson p. 9]

- Further restructuring will be required: the process will never end. Steps still need to be taken, subsequently to the merger.

[Molin p. 10]

- Restructuring is an ongoing process; fewer and fewer producing industries have to produce more.

[Molin p. 11]

- A TOTALLY DIFFERENT INDUSTRIAL MODEL IS NEEDED

  1) Better educated, more skilled workers
     - not skilled as steelworkers, but as operators.
     - totally new concept of how to produce steel using computers.

  2) Long term perspective: both capital and employees must be loyal.

  3) Address markets
     - integrated flexible production with guaranteed high quality product.

- SSAB

[Ullberg p. 5]

- SSAB: today 48% government owned
  52% private investors
- In one year, SSAB will be entirely privatized.
- Today, SSAB is one of the more efficient steel companies in Europe. The two stage restructuring was successful.

[Beckeman p. 3]

- commercial steel/Carbon (non-alloy)
- (do in fact produce some special (alloy) steel.
- direction has been toward flat products.

- AVESTA

[Molin p. 11]

- Is concerned that they may not be making the right analysis.
- Must get the unions to see the industrial perspective.

- Labour

[Molin p. 10]

- Labour is highly organized at all levels, from professionals to blue collar workers.

International developments

[Molin p. 11]

- NUCOR
  - Can increase value added profits.
  - Are aware of the important role of computers controlling quality and efficiency.
  - NUCOR has simplified the process. They bought knowledge, computerized the system. They have targeted 20% of the product range of the large market.

- Japan
  - Nippon is the biggest and best.
  - By 1999, Nippon will be producing 50% non-steel products; they are moving into the production of computers.
  - Financial Times noted that Nippon had ruined prices in the computer industry by cutting prices by 30%.
  - Nippon can't keep its workers occupied in the steel industry.
  - The Japanese are not exporting their future knowledge; we don't see how fast the developments are coming.

- There is no industry in the world with as high a degree of computerization as the steel industry.

- International developments are taking two directions:
  1) NUCOR: flat rolled (Algoma)
  400 employees produce 1,000,000 tons.
  2) Japanese: the rate of cutting costs is decreasing; they are now achieving competitive advantage through increased profits from investments.

Labour/employment strategies

[Lindstrom p. 7]

- One of the most challenging tasks was the rationalization of sales force.

[Larson p. 2]

- Employment strategy
  - appeals to working people.
  - has strong political meaning.

Bring together

Benefits -----> Job <------ Retraining

- Close down the U.I. office one day a week to look for jobs.
- The idea is to restructure the labour force.

[Johanisson p. 9]

- Part of industrial life is to look for more efficient structures, and reduction of units.
- All locations had their share of reductions.

APPENDIX G

NOTES BY MEETING

1. **Meeting with Allan Larsson** 29-01-92

Minister's Approach

70s case
- was UnderSecretary of Labour
- advisor to Government
- study of Industry 1977 - overcapacity, structure too old.
- took part in discussions among 3 owner groups.
- it was necessary to restructure all 3 groups together.

1) Start with restructuring ownership, can't restructure plants without first doing this.

- ran into restructuring blind alley in specialty steel, because they hadn't first restructured ownership.
- looked at what needed to be closed down first.
- must have a plan for the whole industry.
  1) Better prices
  2) Reduce costs - diminished overhead
     don't need to close down good plants
  3) Enhanced competitiveness with U.S. - having one large company.

2) What is the government prepared to do?

Both
a) tough job of closures
b) stimulating job of creating investment:
   i) Credit facilities
   ii) Retraining of workforce
   iii) Redundancy help - active labour market plan
   iv) R+D - e.g. support for Institute of Steel Research

(These should be compatible with free trade policy.)

(AMS policies are consistent with EC subsidy rules and GATT obligations.)

3) Get the Labour Market working.

- AMS has tough rules on labour.
- if you have a passive (LMP) Labour Market Policy, you can't be tough on benefits, i.e. the worktest, retraining.
- if you have an active LMP, you can be tough on benefits: i.e workers must accept work or lose benefits.

Sweden/Germany	Denmark/Ireland	Spain
2.5 % of GDP	5%	
70% active	70-80% passive	
30% passive		

- Employment strategy
  - appeals to working people.
  - has strong political meaning.

Bring together

Benefits Job Retraining

- Close down the U.I. office one day a week to look for jobs.
- The idea is to restructure the labour force.

4) Industrial Relations

- Includes both management and unions --> organizational structure within firm.

[see Comparative Study of Steel in Canada/Sweden]

- according to Larson:
  - Canada: narrow job description
  - Sweden: much broader job description
- We try to balance security for the worker with flexibility for the company.
- MBL
  - Co-determination Act 1976
  - base for workers to be part of changes in company:
    - right to information
    - union has right to obtain information - consultant
- There are reports about how this worked from Labour side:
  - Ovar Nyquist
  - Working Life Centre
  - Metalworkers

2. Meeting with Jan Beckeman- JERNKONTORET 30-01-92

Government investigation

- Oil price shock stimulated government study (Task force) which was published in 1977 - Carbon Steel.
- 1976: demand and prices dropped.
- Jernkontoret did a study on specialty steel (object was to result in company measures) - not published.

Different cases

- 2 categories - commercial steel and specialty steel
- SSAB - commercial steel/Carbon (non-alloy)
  - (do in fact produce some special (alloy) steel.
  - direction has been toward flat products.

3. **Meeting with Anders Ullber - SSAB** 03-02-92

SSAB - 2 step restructuring process.

1) Phase I 1978-1981

Three companies:

NJA	- state owned
GRANLES	- going bankrupt
DOMNARVET	- owned by pulp + paper companies; was losing money

Merged to form SSAB - goal was to find a more efficient company.

Process required:

- Specialization - kept the whole range of products, in principle; specialized.
- Reduction of employees (17,000 to 12,000)
- Labour (Alan Larson as rep) participated at Board level in restructuring.

(SSAB was a pilot project for co-determination; restructuring of SSAB coincided with introduction of Co-determination).

Tension created: middle management felt left out; top management - unions made decisions.

1986: price problems; SSAB was not sufficiently profitable - they realized restructuring was not enough

2) Phase II - 1987-1989

New owners, new Board of Directors, new top management.

- Asked to produce a more efficient structure:

  1) Concentrated on product range
     - heavy plate and strip mill products
     - left long products.

  2) Lay down mining operations (idea was to close it).

  3) Rationalization - concentrated production, shut down plants

- Thought it would lead to:

· investments	1000 M SEK
· increased cost	1060 M SEK
· increased profit	440 M SEK
. decreased employees	2500

Top management operation (no union); very quick; plan presented in one month.

Added a fourth item:

4) Strategy - invited unions to come up with a more profitable plan; if not, they would go ahead with company plan. This was severe on union.

They were fortunate: the steel and labour markets were good. Prices were rising and opportunities for workers were increasing. The restructuring may not have gone so well (profits were greater than expected), had the conditions been worse.

Mining operations

- Company suggested to close mining operations.
- The government wanted to keep the operation.
- Company paid government the costs it would require for closure and sold to government for one krona.
- It was a catastrophe, because it let down the workers, the community and the taxpayer.
- If it wasn't viable for the company, it wasn't viable for the government.
- The losses amounted to 500 M SEK ($ 100 Million).

Current situation

- SSAB: today 48% government owned
  52% private investors
- In one year, SSAB will be entirely privatized.
- Today, SSAB is one of the more efficient steel companies in Europe. The two stage restructuring was successful.

Canada

1) Communicate clear and simple message to people, workers, middle management, community and media.
2) Do it quickly.
3) Have to implement plan without vacillating.

OVAKO, for example, which is now restructuring, changed the plan and is in chaos.

4. **Meeting with Benkt Lindstrom - AVESTA 05-02-92**
Vice President of Finance and Economics for both AVESTAs

- Restructuring involved four companies:
  - Avesta
  - Uddeholm
  - Sandvik
  - Fagersta

- Company characteristics:
  - These companies all exported 75% of their product.
  - 50% import of steel.
  - Well established, international players, highly competitive.
  - Very rich companies, had other resource interests.

- 1977
  - Uddeholm in trouble; started discussions with Avesta; no result.
  - Uddeholm, Fagersta and SKF started merger discussion; no result.
  - The firms were competitors looking out for their own interests.

- 1982
  - Uddeholm (industry flagship in Sweden) came into severe financial difficulty.
  - Anders Wall, an aggressive financier, took over.
  - An agreement was reached between Avesta and Uddeholm.
  - Fagersta felt threatened and wanted to join.
  - Everyone was groping in the dark, looking for ways to come together.
  - Firms looked to the government for funds; this eventually fell through.

- 1983
  - Avesta sold the idea to obtain bank loans, issue shares, and buy the other companies, who became shareholders in Avesta.
  - Set up Board of Directors and new management.
  - One task was to make the new AVESTA profitable: vested interests now gone, and decisions were economically based.
  - This restructuring occurred during an economic boom.
  - Profitability guided the degree of restructuring.
  - One of the most challenging tasks was the rationalization of sales force.

- Lessons for Canada

1) Remove vested interests.
2 Calculate and ensure you have enough financial resources for the transaction period.
3) Establish a management team that has a focus on the new company (team members were given shares).
4) Involve labour from the beginning; show them the facts.

5. **Meeting with Dan Johanisson - AVESTA 06-02-92**

President of AVESTA Sand

- Joined AVESTA as VP 1981.
- Has participated in many discussions re stainless steel/competitiveness.
- Has been a part of many negotiations on finding new company structure.
- Was on ownership and management side.

- 1980s
  - Changes in ownership structure at AVESTA and SANDVIK; also a change in Uddeholm.
  - Business conditions were very severe from 1980 to 1983.
- 1) Value
  - Each company was taken at the same value.
  - This was also done with Speedsteel.
  - Otherwise, you get lost in future profits and estimating historic assets.

  2) Understanding that this had to be done.
- 1983: negotiations did not lead to a final agreement.
- 1984: AVESTA bought out the stainless steel operations of Fagersta and Uddeholm.
- New structure/outline for the Company
  - Look at the most cost competitive structure
  - Equipment available (very important)
  - Investments made
  - Size of the market
- Merger process
  - one location one product
  - multisite operation
  - full range of products
- The company is now profitable.
- Without restructuring, there would be no industry today.
- Return on capital does not give all the answers, i.e. in order to reach the same rate of return, you must have greater efficiency (productivity, marketing, etc.).
- Further restructuring will be required: the process will never end. Steps still need to be taken, subsequently to the merger.
- Labour:
  - Part of industrial life is to look for more efficient structures, and reduction of units.
  - All locations had their share of reductions.
  - Product "A" in Algoma = the people from Algoma.

6. **Meeting with Per Molin, AVESTA 10-02-92**
President

- Swedish steel
  - Perspective on labour is rather important.
  - Love-hate relationship.
  - Has deepest respect for the best of union leaders both in steel and in his company.
  - Labour is highly organized at all levels, from professionals to blue collar workers.

- Restructuring
  - Labour organized in 3 parallels: union, politics, co-operatives.
  - Labour was a strong driving force in the restructuring of the industry.
  - Restructuring resulted in equalized wages, throughout the country.
  - Very strong unions.
  - A strong work ethic prevailed in the 1960s and 1970s; society was very productive.
  - Welfare state became more and more expensive; taxes were increased.
  - Localization represents a drive to keep regional communities alive.
  - This resulted in more and more obstacles to restructuring, which took longer.
  - Restructuring is an ongoing process; fewer and fewer producing industries have to produce more.
  - The restructuring period covers two governments: the Conservatives were in power from 1976 to 1982, when the Social Democrats took over.
  - 1975-1985 restructuring period:
    - SSAB FLAT
    - long process FUNDIA
    - AVESTA -> stainless
    - UDDEHOLM
    - SANDVIK

    | restructured per product line
  - Was not a good decision; companies were under pressure and had to find their strength.
  - A small country like Sweden is forced to live on other countries' markets.
  - AVESTA has 83% of its invoices outside of the country.
  - In the long term, in the steel industry you need volume.
  - The Swedish restructuring developed volume in single products.
  - Have now allowed ourselves to develop unacceptable cost developments.
  - The Swedish experience is the most promising and most interesting example of restructuring analysis.

- NUCOR
  - Can increase value added profits.
  - Are aware of the important role of computers controlling quality and efficiency.

- AVESTA
  - Is concerned that they may not be making the right analysis.
  - Must get the unions to see the industrial perspective.
  - A TOTALLY DIFFERENT INDUSTRIAL MODEL IS NEEDED
    1) Better educated, more skilled workers
       - not skilled as steelworkers, but as operators.
       - totally new concept of how to produce steel using computers.
    2) Long term perspective: both capital and employees must be loyal
    3) Address markets
       - integrated flexible production with guaranteed high quality product.
  - NUCOR has simplified the process. They bought knowledge, computerized the system. They have targeted 20% of the product range of the large market.

- The developments in Sweden at the end of the 1980s were predictable.

- M.I.T. made an interesting presentation to Swedish industry.
  - Argued that they needed a better structure in capital markets.
  - Utterback pointed out the "time frame" for restructuring.

- Japan
  - Nippon is the biggest and best.
  - By 1999, Nippon will be producing 50% non-steel products; they are moving into the production of computers.
  - Financial Times noted that Nippon had ruined prices in the computer industry by cutting prices by 30%.
  - Nippon can't keep its workers occupied in the steel industry.
  - The Japanese are not exporting their future knowledge; we don't see how fast the developments are coming.

- There is no industry in the world with as high a degree of computerization as the steel industry.

- North American steel is backward when it comes to industry efficiency.

- International developments are taking two directions:
  1) NUCOR: flat rolled (Algoma)
     400 employees produce 1,000,000 tons.
  2) Japanese: the rate of cutting costs is decreasing; they are now achieving competitive advantage through increased profits from investments.