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The Baltic Connection Industrial Structure in and Integration between Southern Sweden and Northern Germany

by

Magnus Lagnevik, Konrad Lammers et al.

July 1992

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Magnus Lagnevik, Konrad Lammers et al.

July 1992

Authors:

Kristina Genell, Claus-Friedrich Laaser, Magnus Lagnevik, Konrad Lammers, Göran Lundin, Karl-Johan Lundqvist, Lars-Olof Olander

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Prefatory Note

This study is the outcome of a common research project between the Institute for Economic Research at the school of Economics and Management in Lund and the Kiel Institute of World Economics. The authors would like to thank Hans Medin for his initiatives and enthusiasm in the creation of cooperation between the two Institutes through the German-Swedish Research Association.

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Part 1

Background, Purpose and Problem

Many people and politicians see the Baltic rim as a region with promising economic prospects. Even the picture of a new "Hanse" region is drawn. It is true that the political upheaval in Eastern Europe has changed the situation in the Baltic rim substantially: Poland, Russia and the Baltic states are on the way to becoming market economies which will presumably bring more scope for trade with - not only, but especially - the other countries around the Baltic Sea. Changes in the economic environment are not limited to the former central planned economies. At the end of 1992 the common internal market between EC member countries should be completed. The EC and the EFTA countries have agreed that the same internal market conditions will mainly be valid for EFTA countries. Furthermore the EFTA countries Sweden and Finland have applied for membership of the EC. All this means that the countries in the Baltic region will presumably face far reaching changes in their established trade and other economic relations.

Undoubtedly the changing economic environment will lead to new patterns of trade, cooperation and competition around the Baltic. All regions will not be affected in same manner and the reactions in the regions may be different. In this study we consider two regions of the Baltic rim - Southern Sweden and Schleswig-Holstein which is the most northern German Bundesland.

Our attention is centered on these regions because Sweden and Germany are the leading export countries in the Baltic rim belonging to different economic areas, the EFTA and the EC. Southern Sweden and Schleswig-Holstein are border-regions between these economic areas and more or less peripheral regions to their respective national centres (figure 1). Therefore one can expect that the effects of integration of the EFTA and EC should be more distinctly noticeable in Southern Sweden and Schleswig-Holstein.¹ Besides the effects resulting from integration in Europe the regions are of course confronted - as any region which is involved in the international division of labour - by the challenge of increasing global competition.

In our study we consider the economic performance and structure of the regions and we ask how the regions have managed structural change in the seventies and eighties. Furthermore we investigate the economic networks between the regions

¹ From a point of view which gives priority to geographic distance Mecklenburg-Vorpommern is the German region nearest to Sweden. But investigating economic structure and performance in the past and existing trade relations assessing integration effects for Mecklenburg-Vorpommern does not seem very promising. In the former GDR all determinants of economic development were the result of planning decisions influenced by the idea of intra-Comecon socialistic division of labour. The situation has substantially changed by the German unification indeed, but the period since 1990 is too short to draw any conclusions. Besides this any reliable data on Mecklenburg-Vorpommern suitable for the investigation are still lacking.



Figure 1. The Baltic rim.

and the "rest of the world", especially the trade patterns and the investment relations. As far as possible we focus on the links between Southern Sweden and Schleswig-Holstein. Based on these issues we draw conclusions on the prospects of the two regions in a changing economic environment that is characterized by the various integrative efforts in Europe.

The study consist of four parts. In the second part Southern Sweden is investigated as described above. In the third part the same is done for Schleswig-Holstein. A comparative analysis of the two regions based on the main findings forms the fourth part.

We have tried to consider the two regions by the same method. However, the availability of comparable data restricted our efforts. Furthermore the interests of the involved researchers may have led to slightly different focal points in the second and the third part of our study. The study may leave more questions open than it gives answers. In spite of that we hope that we can stimulate the discussion and further research efforts on what can be called "the Baltic Connection".

Part 2

Structure and Networks - Southern Sweden

The Southern Swedish Region

There are at least two main principles for defining a region, both satisfying theoretically but also less satisfactory from a practical point of view. One method is of course to rely on existing administrative boundaries, the other to use one or a number of social and economic criteria, thereby arriving at a "functional region" independent of administrative boundaries. While the "administrative region" seldom is quite suitable for any but a few specific purposes, it has one distinct advantage over functional regions: and that is the availability of statistics.

Therefore, in the present study, Southern Sweden has been defined as the six southernmost counties (Malmöhus, Kristianstads, Hallands, Blekinge, Kronobergs and Kalmar counties). The reason for picking out just these six, is that they are the southernmost counties "bordering" more or less to present EC countries (figure 2). There is an increasing amount of cooperation between these counties in matters such as regional development projects public transport, etc. Recent discussion have been held on the issue of creating some kind of "Regional Parliament" including at least two and possibly more of the six counties.

It could, of course, be argued that the northern parts of Hallands and Kalmar counties should not belong to "Southern" but rather to "Mid" Sweden. Again, such a delimitation would be possible by using municipalities or labour-market regions instead of counties, but due to Swedish data security regulations, a sufficiently detailed classification of industries would then in some cases be-come impossible.

For the purpose of this study, however, the exact definition of the region is not crucial. It should, therefore, not cause any analytical or other problems.

Thus defined, Southern Sweden had in 1988 a population of 1,857,336, or almost exactly 22% of Sweden's total population. More than half of this population (slightly over one million) lives in Skåne (Malmöhus and Kristianstads counties).

Tables 2 to 4 will give a rough picture of the structure of employment in the region.



Figure 2. Southern Sweden and its six counties.

	Southern Sweden	Sweden	Southern Sweden in % of Sweden
Population (1,000)	1,857	8,459	22.0
Area (km ²)	39,051	410,929	9.5
Population density (inh/km ²)	47.5	20.6	230.5
GNI (million SEK)		1,192,628	
GDP (million SEK) ^a		1,221,189	
Total income per capita (SEK)	76,799	80,759	95.1
Employed in % of population	51.4	52.6	97 .7
Mfg employed/1,000 inhabitants	122.2	111.9	109.2

Table 1. Some basic indicators for Southern Sweden 1988. Source: Calculations from various SCB publications

a. Current prices 1989, in purchaser's values, not available for regions.

Table 2. Employment in Southern Sweden as compared to Sweden 1988. Source: Calculations from SCB ÅRSYS 88.

	Southern Sv	veden			Sweden
	Number	%	% of Swedish employment in each industry	Number	%
Agriculture	54,837	5.9	29.4	186,561	4.2
Mining	1,249	0.1	10.5	11,853	2.7
Manufacturing	226,879	24.2	24.0	947,230	21.3
Energy & Water	8,133	0.9	23.7	34,287	0.8
Construction	57,902	6.2	21.0	276,272	6.2
Commerce	131,718	14.1	21.1	624,607	14.0
Transport	61,391	6.5	19.9	307,962	6.9
Financing	61,642	6.6	17.4	354,666	8.0
Services	333,594	35.6	20.4	1,631,759	36.7
TOTAL	937,345	100.0	21.1	4,448,410	100.0

Table 3. Employment in Southern Sweden by county and industry 1988. Percentages of total employment in each main industry.

	Malmöhus	Kristianstad	Halland	Blekinge	Kronoberg	Kalmar	TOTAL
Agriculture	25.1	21.0	17.0	7.2	12.2	17.5	100.0
Mining	23.1	32.3	17.1	9.4	9.9	8.2	100.0
Manufacturing	35.5	16.1	12.1	9.7	11.4	15.2	100.0
Energy & Water	37.1	8.1	23.0	5.8	5.6	20.4	100.0
Construction	40.2	16.3	15.8	7.4	8.7	11.6	100.0
Commerce	45.2	14.4	15.0	5.9	9.5	10.0	100.0
Transport	49.2	13.5	12.9	6.0	7.6	10.8	100.0
Financing	51.3	11.7	13.1	6.1	8.4	9.4	100.0
Services	42.5	14.6	13.6	8.4	9.3	12.1	100.0
TOTAL	41.0	15.1	13.6	7.9	9.7	12.6	100.0
Population	41.1	15.3	13.3	8.1	9.4	12.8	100.0

Source: Calculations	s from SCB Å	RSYS 88.					
	Malmöhus	Kristianstad	Halland	Blekinge	Kronoberg	Kalmar	TOTAL
Agriculture	3.6	8.1	7.3	5.3	7.3	8.1	5.9
Mining	0.1	0.3	0.2	0.1	0.1	0.1	0.1
Manufacturing	20.9	25.8	21.6	29.8	28.2	29.1	24.2
Energy & Water	0.8	0.5	1.5	0.6	0.5	1.4	0.9
Construction	6.1	6.6	7.1	5.8	5.5	5.7	6.2
Commerce	15.5	13.4	15.4	10.5	13.7	11.1	14.1
Transport	7.9	5.9	6.2	5.0	5.1	5.6	6.5
Financing	8.2	5.1	6.3	5.1	5.7	4.9	6.6
Services	36.9	34.3	34.4	37.7	33.8	34.1	35.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

 Table 4. Employment in Southern Sweden by county and industry 1988. Percentages of total employment in each county.

The nine main groups of industries used are:

Agriculture (agriculture, forestry, hunting and fishing etc.)

Mining (mining and quarrying etc.)

Manufacturing

Energy & water (electricity, gas, water and sewage services, including energy production)

Construction (not including mfg of construction materials etc.)

Commerce (wholesale and retail trade, hotels and restaurants etc.)

Transport (transport, storage and communications, including postal services and telecommunications etc.)

Financing (financing, banks, insurance, real estate and business services etc.) **Services** (mainly public services including education, health and social care etc.)

("Unknown activities", roughly 1.5% of total employment in Sweden are not included in the tables)

As can be seen from a comparison between columns two and five, the general distribution of employment over the nine main industries does not differ in any dramatic way between Sweden as a whole and the six southern counties. Southern Sweden has a slightly higher percentage employed in agriculture and manufacturing, reflecting a "southern bias" in the location of these industries, and not surprisingly a lower percentage in mining.

Table 3 shows the percentage shares of Southern Sweden's employment for each county and main industry. As can be seen, total employment roughly follows the distribution of population, and consequently, for most industries, a major share of employment is found in Malmöhus and Kristianstad counties. This southern bias within the region is especially pronounced for construction, transport, commerce and financing.

The structural differences between the counties are more evident from table 4, showing the distribution of employment in each of the six counties. While manufacturing industry has the highest percentage of employment in Blekinge, Kalmar and Kronoberg, these three together do not have more than approximately 35% of the manufacturing industry employment of the entire region, or almost exactly the same share as Malmöhus county alone.

Similarly, Malmöhus county has a low percentage of its employed in agriculture but still a quarter of the total agricultural employment of Southern Sweden or about the same share as Kronobergs and Kalmar counties taken together.

Manufacturing Industry in Southern Sweden: Structural Changes 1970-1987

The aim of this section is to present a brief and comprehensive analysis of South Swedish manufacturing industry, its structure and development during the last two decades.

In "traditional" analyses, industry is usually classified and grouped after the types of goods produced, but here another principle is used, where classification is based on factor intensities and competition. Thus it is possible to carry out a more dynamic analysis of both growth potentials and competitiveness. The main principles of this classification are outlined below.

The analysis is based upon a large and detailed statistical material. In its present context it will only be given a limited presentation and comment. The main ambition here is to focus and clarify certain general and important characteristics of the industrial structure and its changes.

Another aim is to relate industrial structure in this region to a wider regional and national context. The analysis therefore starts off at the national level.

Comparisons are also made with the Stockholm and Gothenburg regions. Within Southern Sweden the Malmö region is treated separately. The main reason for this is that these three "metropolitan" areas differ considerably from the rest of the country.

Employment figures are used throughout as a measure of industrial change. This is by no means undisputable. A firm or an industry may show a positive development without increasing its employment and, conversely, increasing employment is not always a sign of positive development. The main, but not the only, reason for using employment as a measure is that other economic data are not always available at a regional level.

STATISTICAL BASIS

The study is based on employment figures from official Industrial Statistics produced by the Central Bureau of Statistics for the years 1970, 1980, 1985 and 1987. Work places with less than five employees are excluded.

Swedish Industrial Statistics are based on the so-called SNI system, by which all work places are given a code after its main type of production. The degree of detail varies. In most cases it is sufficiently precise for the purpose of this analysis, but in others clearly less than satisfactory. This in turn affects the possible analytical precision.

As an example of the latter situation, it may be mentioned that the SNI system does not make a distinction between such diverse products as cars, buses, and armoured fighting vehicles!

Another problem arises when a plant manufactures products belonging to more than one SNI code. In such cases, the entire work place is coded after the main product, i.e. the product which has the largest employment. In effect, this means, that the rest of the employment is given the "wrong" SNI code. It should also be mentioned, that the SNI system is not always fully compatible with the classification used later in the German part of this study.

ANALYTICAL METHOD: SECTORS AND SUB SECTORS

Industry is divided into five main sectors and a number of sub sectors, according to their main factors of production and their international competition characteristics. In addition to classical factors (Labour and Capital) two "new" ones are defined: technological Knowledge/skill and Research and Development (R&D).²

It is not possible here to give a full description of the delimitation and content of the sectors, so the following presentation is limited to main principles and examples of the types of industry belonging to each sector. The general development tendencies for the five main sectors are also discussed briefly. A more detailed description of the classification system is given in appendix 1, including the different sub sectors. In the following presentation of the data emphasis will be put on development at the sectoral level.

"Sheltered" industry (S-sector) includes parts of food, wood, and building materials industries. It is delimited by its actual exposure to international competition (export should be less than 10% of total production and import less than 10%. of total domestic consumption), not primarily by formal limits to competition. Thus the S-sector also includes industries, which are "protected" by their reliance on a national or even regional market. Examples from this category may be found in building materials industry and in the food industry. It is not self evident how, or even if, these industries will be affected by a Swedish EC membership, especially in a short perspective. Parts of the building industry may, for instance, "enjoy" continued protection not only from national differences in technical standards, but also from national building traditions. On the other hand, those S-sector industries that are now protected by formal restrictions and subsidies, will undoubtedly experience much harder competition as a result of Swedish EC membership. This will especially affect the food industry as a consequence of changes in agricultural policy.

A general prediction is that Sheltered industry employment as a whole will continue to decrease, probably at an even higher pace than before. It is important to emphasize, that tougher competition will affect different sub sectors in different ways. In a longer perspective, the consequences may not be singularly negative.

Labour intensive industry (L-sector) as opposed to Capital intensive industry, employs a large number of (blue-collar or unskilled) workers. It is composed mainly of parts of food and wood industries, and two other mixed groups of industry which face competition mainly from other industrial countries or from developing countries. A similar prediction can be made for the L-sector as for the S-sector, although it is already exposed to international competition. The contractive impulses stem partly from remaining low-wage countries and regions

 $^{^2}$ English terminology for the classification scheme used here is based on Ohlsson, L: Industry and EC. Federation of Swedish Industries 1988.

within the EC, although differences in wage levels can be expected to gradually wither away, and partly from Eastern Europe. The latter impulses may not be important in the nearest future, and will probably be most noticeable in certain low and medium technology industries.

Capital intensive industry (C-sector) is, as the name implies, characterised by its comparatively high capital input. It comprises the "traditional", heavy primary industry. Its future development is difficult to foresee. A strong raw materials orientation, dependence on international raw material prices and high export orientation make it highly dependant on business cycles in other industrial countries. The C-sector can hardly be expected to expand its employment, because its competitiveness is based on a high and probably increasing capital intensity.

The Knowledge intensive industry (K-sector) includes industries with a high percentage of engineers and other qualified technicians. Examples of these include consumer durable goods and investment goods industries.

The **R&D** intensive **R**-sector industries have a high percentage of employees with a formal scientific education and comparatively high R&D costs. The Rsector is subdivided into two groups, one mainly electronics-based and the other comprising pharmaceuticals, electric equipment and aircraft production.

In the K- and R-sectors, Sweden has certain comparative advantages due to a wage structure with relatively small differences between highly educated and less qualified categories. This is one reason why continued growth should be expected at least in parts of these two sectors. Another reason is that both sectors, almost by definition, have inherent growth potential stemming from the fact that high investments in technical competence and R&D usually result in a high output of new products and new production technology. In other words, these industries have the necessary prerequisites to remain at the expansive end of the product life cycle for a longer period than others.

It would be false to say that there are no problems facing the K- and R-sector industries. For one thing, the comparative advantages created by Swedish wage relations may very well be of a temporary nature. It is also a well-documented fact that Swedish industry, in spite of its high investments in R&D, has proved less capable of implementing the results into domestic production. Instead, there has been an increasing export of technology in the form of patents, production licenses etc. Several explanations have been put forward; one is a lack of venture capital mainly during the 1980s, another is an almost permanent lack of highly educated personnel.

Source: SCB's Industrial Statistics. (Work places with less than 5 employees are not included.)							
	1970	1980	1985	1987			
R-sector	8.0	10.1	11.6	11.3			
K-sector	26.9	29.0	30.3	30.7			
C-sector	14.2	15.7	14.2	13.9			
L-sector	27.9	23.2	22.6	22.3			
S-sector	20.1	19.3	18.7	19.0			
Unclassified	2.9	2.7	2.5	2.8			
TOTAL	100.0	100.0	100.0	100.0			

 Table 5. Industrial employment by sector in Sweden 1970, 1980, 1985 and 1987. Percentages of total industrial employment.

 Table 6. Industrial employment in Sweden. Average annual change (%).

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Source: SCB's mousinal S	tansues. (work places with less than	5 employees are not include	su.)
	1970-1987	1970-1980	1980-1987
R-sector	1.1	1.8	0.1
K-sector	-0.2	0.1	-0.7
C-sector	-1.1	0.3	-2.9
L-sector	-1.9	-2.2	-1.9
S-sector	-1.2	-1.0	-1.6
TOTAL	-0.9	-0.6	-1.5

Therefore, the R-sector should have been capable of an even higher growth, and the technological renewal within K-sector industry has been less than it could (and should) have been. The latter circumstance may be one reason for the stagnation tendencies in several K-sector industries.

Finally, the Ohlsson and Vinell scheme also identifies a small number of "manufacturing industries", which have a craft-based rather than industrial production. They do not fit into any of the sectors. This "unclassified industry", which in most regions has a very limited portion of total employment, is not commented upon in the following analyses.

STRUCTURE AND CHANGE ON A NATIONAL LEVEL

In 1970 Swedish industry employed approximately 910,600 persons. By 1987 this figure had fallen to circa 767,000 (these figures do not include work places with less than 5 employees). As can be seen in table 5, the relative distribution of employment over the main sectors has, with few exceptions, been fairly stable during the 1970s and 1980s. The more pronounced changes that can be observed, mainly in Labour intensive and R&D intensive sectors, occurred during the 1970s.

Source: SCB's l	Industrial	Statistics. (W	ork places v	with less than	5 employee	s are not inclu	uded.)	
		1970		1980		1985		1987
	Stock- holm	Gothen- burg	Stock- holm	Gothen- burg	Stock- holm	Gothen- burg	Stock- holm	Gothen- burg
R-sector	23.2	2.0	29.1	3.9	36.0	6.0	33.7	6.7
K-sector	28.9	52.2	29.1	56.0	24.6	54.6	25.5	53.0
C-sector	3.3	6.2	4.6	8.3	4.0	9.3	4.5	9.5
L-sector	13.1	20.5	9.9	12.2	8.5	11.0	8.7	10.8
S-sector	28.0	16.5	23.3	16.6	22.8	16.2	23.1	17.0
Unclassified	3.5	2.6	4.0	3.0	4.1	3.0	4.6	3.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	_100.0

 Table 7. Industrial employment by sector in the Stockholm and Gothenburg regions 1970, 1980, 1985

 and 1987. Percentages of total industrial employment.

 Table 8. Industrial employment in the Stockholm and Gothenburg regions. Average annual change (%).
 Source: SCB's Industrial Statistics. (Work places with less than 5 employees are not included.)

		1970-1987			1970-1980		
	Stockholm	Gothenburg	Stockholm	Gothenburg	Stockholm	Gothenburg	
R-sector	0.5	11.7	0.7	8.5	0.2	8.7	
K-sector	-2.0	-0.7	-1.3	0.0	-3.4	-1.8	
C-sector	0.1	1.9	2.2	2.6	-2.2	0.7	
L-sector	-3.0	-3.2	-3.5	-4.4	-3.4	-2.6	
S-sector	-2.2	-0.6	-2.8	-0.6	-1.9	-0.7	
TOTAL	-1.5	-0.8	-1.4	-0.7	-1.8	-1.1	

Table 6 illustrates the average annual change in employment, during the periods 1970-1987, 1970-1980 and 1980-1987.

The earlier period is characterised by a marked decline in L- and S-sector employment, a weak growth in C- and K-sectors, and last but certainly not least, a strong expansion in the R&D intensive industry.

Since 1980 the only growth has occurred in the R-sector, but at a much slower rate than during the 1970s. During the last two years there has even been a quite marked decline in the R-sector, but this period is really too short to provide a basis for any firm conclusions.

If we look at the entire period 1970-1987, the only employment growth is found in the R&D industry.

The industrial structure and development differs greatly between different types of regions. Two rather extreme examples are given in tables 7 and 8.

The most striking characteristic of the Stockholm region is the very high (and at least up to 1985 growing) percentage employed in the R&D intensive industry. In this respect, Stockholm is quite exceptional not only in Sweden, but also in Europe. Surprisingly, the S-sector also has a percentage of employment well above the national level. This could be explained to a great extent by the fact that in Stockholm the S-sector is dominated by printing and publishing industry to a much greater extent than in other regions.

While R-sector industry has accounted an extremely high percentage of employment, its rate of growth has not been quite as impressive (table 8). On the contrary, it has been well below the national average during both the 1970s and 1980s. The growing percentage of employment in R&D industry is more a consequence of the decreasing employment in other sectors. Furthermore, if we look at the employment change 1985-1987, the R-sector shows a marked decline, but again, the period is too short to enable any definitive conclusions.

The **Gothenburg region** is, not surprisingly, dominated by Knowledge intensive industry including the automobile and (earlier) shipyard industries. The R-sector percentage has been below national average during the entire period. In gross figures, the K-sector has suffered from heavy employment reductions caused by the shipyard crisis during both the 1970s and 1980s. These reductions have been counteracted to a great extent by expansion within other parts of the K-sector, mainly in the automotive industry. It should be noted, that this expansion took place entirely before 1980.

SOUTHERN SWEDEN

Table 9 shows the percentages of employment in the six sectors for the region here defined as "Southern Sweden", excluding the Malmö region, which is treated separately. In 1987 total industrial employment in this region amounted to around 145,000, which is approximately 18,000 less than in 1970.

As can be seen, the Labour intensive sector has been markedly larger than the national average during the entire period, slightly more so in 1970 than in following years. The biggest Labour intensive subsector is those industries under competition form other industrial countries. While L-sector employment as a whole has declined this subsector has, contrary to national trends, grown by approximately 2% a year during the 1980s.

Source: SCB's Industrial S	Statistics. (Work places wit	h less than 5 employee	es are not included.)	
	1970	1980	1985	1987
R-sector	3,1	4.6	4.5	4.9
K-sector	25.0	27.3	28.1	28.0
C-sector	8.9	10.1	9.9	9.9
L-sector	39.8	34.6	34.6	34.1
S-sector	· 21.4	22.1	22.0	22.4
Unclassified	1.8	1.5	0.9	0.8
TOTAL	100.0	100.0	100.0	100.0

Table 9. Industrial employment by sector in Southern Sweden 1970, 1980, 1985 and 1987 (Malmö region excluded). Percentages of total industrial employment.

 Table 10. Industrial employment in Southern Sweden (Malmö region excluded). Average annual change (%).

 (%).

Source: SCB's Industrial S	tatistics. (Work places with less than	5 employees are not include	:d.)
	1970-1987	1970-1980	1980-1987
R-sector	2.4	4.3	-0.2
K-sector	0.0	0.6	-0.8
C-sector	0.0	1.0	-1.3
L-sector	-1.4	-1.5	-1.3
S-sector	-0.4	0.0	-0.9
TOTAL	-0.6	-0.2	-1,1

The S-sector percentage of employment has been fairly constant during the entire period. Its biggest sub sector is the food industry, but no sub sector can be said to dominate. The S-sector as a whole has, as can be seen from table 10, decreased slightly during the 1980s.

Neither Capital- nor Knowledge intensive sectors have changed much if we only compare employment figures for 1970 and 1987. Both sectors grew during the 1970s, but this growth was almost entirely outweighed by a decline in the 1980s. As in the Gothenburg region, the South Swedish K-sector was heavily affected by the decline in shipyard industry which is now almost extinct in the region.

The percentage of employment in the R-sector has increased slightly, especially between 1970 and 1980. After 1980, it has more or less been stable at just below 5%. R&D industry showed a good rate of growth during the 1970s, and although this has been succeeded by a slight decline in the 1980s. The R-sector still has been the most expansive part of industry during the entire 1970-1987 period. In spite of this, the sector did not employ more than 9,000 in 1987.

Industrial employment in the Malmö region (which here also includes Lund, Trelleborg and four other, smaller municipalities) has decreased from 50,000 in 1970 to about 36,000 in 1987. The distribution among sectors does not differ

Source: SCB's Industrial Statistics. (Work places with less than 5 employees are not included.)								
	1970	1980	1985	1987				
R-sector	2.0	4.8	7.1	6.9				
K-sector	29.9	31.5	28.6	28.3				
C-sector	5.8	6.2	4.9	5.6				
L-sector	29.7	23.9	25.3	25.0				
S-sector	29.2	30.9	31.8	31.5				
Unclassified	3.4	2.6	2.3	2.7				
TOTAL	100.0	100.0	100.0	100.0				

Table 11. Industrial employment by sector in the Malmö region 1970, 1980, 1985 and 1987. Percentages of total industrial employment.

 Table 12. Industrial employment in the Malmö region. Average annual change (%).
 Source: SCB's Industrial Statistics. (Work places with less than 5 employees are not included.)

boliete. Seb's multistrial statistics: (Work places with less than 5 employees are not included.)							
	1970-1987	1970-1980	1980-1987				
R-sector	8.6	10.0	3.4				
K-sector	-1.9	-1.2	-3.2				
C-sector	-1.8	-1.1	-3.3				
L-sector	-2.3	-3.3	-1.4				
S-sector	-1.3	-1.2	-1.7				
TOTAL	-1.7	-1.7	-2.0				

very much from the rest of Southern Sweden. The L-sector has been slightly smaller throughout the period, but on the other hand the S-sector has been considerably bigger. If we sum these two sectors, we end up at approximately the same percentage of industrial employment in the Malmö region as in the rest of Southern Sweden.

The biggest subsector within Sheltered industry was in 1987 food industry, while Labour intensive food industry had a much smaller share of total employment.

Both S- and L-sector employment have declined steadily since 1970. However, since the rates of decline have been roughly equal to the general decline in industrial employment, changes in percentage have been rather insignificant.

The same can roughly be said for Capital- and Knowledge intensive industries. The decline, more accentuated during the 1980s, was further aggravated by the closing down of several shipyards and related industries. The only expansive part of the K-sector has been the "household durable goods industry" where employment growth has been especially strong during the 1980s. Since this sub sector accounts for only approximately 10% of K-sector employment (approximately 1,100 in 1987), its growth has only had a marginal effects on industrial employment.

In the Malmö region, the R&D intensive industry is the only sector that actually has increased its employment during the period studied here. The rate of growth has been nothing short of spectacular, but again it must be remembered that absolute changes have been quite modest. In 1987 the R-sector had around 2,500 employees, most of them within the electronics-based industry. The earlier extremely high rate of growth has been considerably slower since 1980. This in turn has had an adverse effect on the rate of growth of the entire R-sector. Over the last two years (1985-1987), both sub sectors of the R&D industry have in fact decreased. The actual decrease is very small, and the period very short, but it might be an alarming sign of stagnation tendencies. On the other hand, there is a question of the validity of the data created by the exclusion of work places with less than five employed, which may affect R&D industry more than other sectors.

Conclusions

The purpose of this section has been to give a brief analysis of the structure and changes of South Swedish manufacturing industry since 1970. The sectorial model employed is intended to provide a basis for a discussion of probable the effects of changes in competition, which may be faced by Swedish industry as a consequence of both EC membership and generally tougher international competition. As with other similar models, the effects can mainly be discussed in terms of which industries may be positively or negatively affected, rather than in terms of specific changes in employment.

The basic input into the analysis is the present relative distribution of employment over the five industrial sectors. In Sweden as a whole, this has been fairly stable during the 1970s and very stable during the 1980s. Slightly over 40% of total industrial employment are still to be found in the S- and L-sectors, and only 11% in the R-sector. If we include those industries of the K-sector, which so far have been expansive, another 12% can be added to the part of manufacturing industry which we can reasonably expect to grow in the future.

The industrial structure and development differ greatly among different regions. The most striking characteristic of the Stockholm region is the very high percentage (almost 34%) employed in the R&D intensive industry. In this respect Stockholm is quite exceptional not only in Sweden, but, according to a recent study, also in Europe. S- and L-sectors amount to just under 32% of industrial employment. The Gothenburg region is dominated by Knowledge intensive industry, with 53% of the industrial employment. This, in turn is dominated by the automobile industry. The R-sector percentage has been below national average during the entire period. The S- and L-sectors at approximately 28% are even smaller than in the Stockholm region.

In Southern Sweden, excluding the Malmö region, the Labour intensive industry has been markedly above national average during the entire period. In 1987 it comprised 34% of total industrial employment. Its dominant subsector contains industries under competition from other industrial countries. While L-sector employment as a whole has declined, this subsector has grown by approximately 2% a year during the 1980s. This may indicate, that at least this part of the South Swedish L-sector will also have better prospects for the future.

The S-sector percentage of employment has been fairly constant during the last 20 years. S- and L-sectors today constitute just over 56% of the region's industrial employment.

Although South Swedish K-industry was negatively affected by the decline in shipbuilding, it still had 28% of employment in 1987. R&D industry showed a good rate of growth during the 1970s, although this has been followed by a slight decline in the 1980s. Seen over the entire twenty years period the R-sector still remains the most expansive part of industry. In spite of this, the sector only employed 5% in 1987.

Industrial employment in the Malmö region does not differ very much structurally from the rest of Southern Sweden. The L- and S-sectors together add up to approximately the same percentage of employment as in the rest of Southern Sweden.

The changes in Capital- and Knowledge intensive industries have also been moderate. The only expansive part of the K-sector has been the "household durable goods industry", especially during the 1980s. Since this subsector only accounts for approximately 10% of K-sector employment, its growth has had a marginal effect on total employment.

In the Malmö region, as in the rest of Southern Sweden, R&D intensive industry is the only sector that actually has increased its employment during the period studied. The rate of growth has been spectacular, but absolute changes have been quite modest. Furthermore, over the last two years (1985-1987), both subsectors of the R&D industry have, in fact, decreased. This might be interpreted as a sign of stagnation. The same tendencies can be seen in Swedish R&D intensive industry as a whole.

A general assumption is, that the "Sheltered" and Labour intensive industries will face greater difficulties than the rest of the manufacturing industry in adjusting to tougher international competition. To some extent the S-industries will loose their "protection" and have to face a competitive situation to which they are not accustomed, and perhaps not prepared. Those S-sector industries that are now protected by formal restrictions and subsidies, will undoubtedly experience a much harder competition as a result of a Swedish EC membership. Since the S-sector also includes industries which have been and in all probability will continue to be sheltered by their reliance on a domestic market, it is not clear how these industries will be affected by a Swedish EC membership.

A general prediction therefore is, that **Sheltered industry** employment as a whole will continue to decrease, probably at a higher rate than before. A point to be made is that this decline is only partly caused by an EC membership.

Similar predictions can be made for the Labour intensive industry. The contractive impulses stem partly from competition from low-wage countries and regions within the EC, partly from Eastern Europe and other low-wage countries in the world. With more than 55% of its industrial employment in the S- and L-sectors, there is of course a clear risk that Southern Sweden will face greater strain than the rest of Sweden, certainly greater than the Gothenburg and Stockholm regions.

The future of the **Capital intensive** sector is difficult to foresee. The C-sector can, however, hardly be expected to expand its employment.

In the **K- and R-sectors**, Sweden has, at least until now, had certain comparative advantages due to a wage structure with relatively small differences between highly educated and less qualified categories. This is one reason why a continued growth should be expected in at least parts of these two sectors. Another reason is the fact that high investments in technical competence and R&D usually result in a high output of new products and new production technology, thus creating competitive advantages.

In discussing the Swedish K- and R-sectors it should be remembered that the advantages are of a potential nature. They probably have not been exploited in full during the last decade. The K-sector has only been partly expansive, and R-sector growth has been insufficient in all but a few metropolitan and/or university regions.

Even though we have good reasons to "believe" in the future competitiveness and growth of K- and R-industries, there is nothing automatic in such positive development. Furthermore, potentially expansive parts of South Swedish R- and K-industry are so small that even if growth should continue and increase, it is hard to imagine that it will be sufficient to counteract the negative tendencies of the much larger S- and L-sectors.

Notes on the Empirical Material

The empirical analysis in the study is mainly based on two extensive surveys of Swedish industry. The first one was carried out during the spring of 1990 and deals with export and international specialization of Swedish industrial firms. The survey was designed and administered by the Department of Social and Economic Geography, University of Lund.

The other survey was carried out a year later by the Department of Business Administration, University of Lund. The purpose of this survey was to investigate supplier patterns and the international relations of industrial firms in Southern Sweden.

Both surveys were in the form of a mail survey. Contents, design, selection of respondents and response rates will be discussed below.

SURVEY I: "EXPORT AND INTERNATIONAL SPECIALIZATION"

In this survey the export intensity and production abroad of firms and industrial sectors was analysed in detail. Areas of production and destination countries were studied providing an unique picture of the competitiveness and international specialization of industry in different regions. The survey furthermore included a parallel study of information flows, forms of cooperation and international contacts.

The 1,100 Swedish industrial firms targeted in the study are located in different labour market regions (daily urban regions) and account for a third of the Swedish industry, both in terms of employment and production. The distribution of responses is representative, and the rate of response allows generalized interpretations. The survey includes background data on ownership structure,

	Response rate (%)	Number of responding firms
R-sector	56	73
K-sector	52	202
C-sector	70	79
L-sector	57	274
TOTAL	56	628

Table 13. Response rate and number of responding firms. Survey I.

Table 14. Response rate and number of responding firms. Survey II.

	Response rate (%)	Number of responding firms
R-sector	35	7
K-sector	42	64
C-sector	42	16
L-sector	41	100
S-sector	48	100
TOTAL	43	290

educational profile of the employees and R&D investment. The survey covers the firms' export behaviour in detail, direct investments abroad and various forms of joint ventures, alliances and networks with foreign firms.

The labour markets in Southern Sweden included in the survey are: Malmö, Helsingborg, Kristianstad, Växjö, Kalmar, Karlskrona, Halmstad and Falkenberg.

Other Swedish regions included are: Stockholm, Gothenburg, Uppsala, Linköping, Norrköping, Karlstad, Örebro, Borlänge, Sundsvall, Härnösand and Umeå.

A questionnaire was sent to all industrial firms within these regions, with more than 25 employees. The total response rate was 56% (table 13).

SURVEY II: "SUPPLIER PATTERNS AND INTERNATIONAL RELATIONS"

The purpose of this survey was to investigate factors that stimulate competitive strength by mapping the supplier networks of industrial companies in Southern Sweden as well as some of their international relations. This was done in the form of a mail survey. Questions were asked about purchases, domestic as well as international supplier relations, exports, establishments abroad etc. We also asked questions about what actions the companies have taken or planned to take because of the economic and political events within the EC and in Eastern Europe. The questionnaire was designed in close cooperation with researchers from the Department of Social and Economic Geography in order to complement and allow comparison with their survey.

Questionnaires were sent to all industrial companies with more than 20 employees in six counties in Southern Sweden: Malmöhus, Kristianstad, Blekinge, Kronoberg, Kalmar and Halland. This amounted to a total of 673 companies. The questionnaires were sent out in February, 1991. The final response rate was 43% (290 companies). There were some differences in response rate among the industrial sectors. For companies belonging to the four competing sectors the response rate was 40%, while the companies in the Sheltered sector had a response rate of 48% (table 14).

The analysis of these survey results was based on the same categorization of the companies into different industrial sectors, as the first survey.

Export Intensities and Geographical Distribution

This chapter deals only with the competition exposed sectors of Swedish industry exposed to competition. The Sheltered manufacturing sector, that exports a very small fraction of its production, is not included in the following analysis.³

Export intensity is defined as the percentage of the different sectors' domestic production that is exported to foreign countries.

The competitiveness of a manufacturing sector in a specific region is defined as its export intensity compared to the corresponding national performance of that sector. Thus a sector in a specific region with an export intensity that is higher than the national sector's is said to have comparative advantage for that production. This revealed comparative advantage is assumed to depend partly on factor advantages in the region.

Stockholm, Gothenburg and Malmö are represented by all firms investigated in each specific region. Southern Sweden (Malmö excluded), Middle Sweden (Stockholm and Gothenburg excluded) and Northern Sweden are represented by firms from a sample of labour market regions within each part of the country.

³ This sector is based on "Survey I".

The first section of this chapter provides a background for the analytic section on the export patterns of manufacturing sectors in various regions that follows. It deals with R&D intensities and the concentration of the sectors' R&D emloyment and production in various regions. A brief analysis of firm ownership in different regions is included. The purpose is to give an idea of the linkages between manufacturing sectors and their "home bases", i.e. their home regions. As mentioned, it is assumed that regional factor qualities of the home-bases are important to competitiveness and export intensities.

R&D SHARE, CONCENTRATION OF PRODUCTION AND OWNER-SHIP OF INDUSTRIAL FIRMS IN A REGIONAL PERSPECTIVE

The firms studied vary considerably in regional concentration of different kinds of firm functions. This depends on ownership, regional composition and organization of corporation networks. It also depends on differences in regional quality and accessibility of factor conditions as well as the firm's sector possession.

Focus is set on the regional concentration of firm functions such as management, R&D and production. Management is always assumed to be located in the firms' home region as it is defined by the SCB (Swedish Bureau of Statistics). Production of goods and R&D efforts can be managed inside or outside the home region to varying degrees.

The R&D level in Swedish industry is one of the highest in the world. Industrial countries like Japan, West Germany and Great Britain have a lower level. On the other hand, Swedish firms have not been successful in their ability to exchange this high level of R&D into high technology products produced inside the country.

Even though the national R&D level is high, it varies widely among different kinds of regions in Sweden. The variation depends on the fact that in general the most R&D intensive industrial sector (R-sector) is concentrated in certain kinds of regions. It is also due to the fact that identical industrial sectors in different regions show quite a different levels of R&D.

Not surprisingly, the region with the highest level of industrial R&D is found in Stockholm. This condition is explained by the high concentration of the R-sector in the Stockholm region. Other industrial sectors in Stockholm have a lower R&D levels compared with the national average for these sectors.

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	9.6	4.0	7.4	3.1	22.1	0.0	10.3
K-sector	7.2	10.0	6.9	2.5	4.3	3.0	7.6
C-sector	1.2	7.8	2.1	0.8	1.3	0.6	2.0
L-sector	1.1	2.3	0.5	0.8	0.7	0.5	1.1
TOTAL	8.0	7.9	2.4	1.2	6.7	1.2	5.7

Table 15. R&D level (share of R&D employees of total employees) of industrial lead sectors in different Swedish regions.

Table 16. Share of R&D performed inside the home region of the firm in different industrial lead sectors and Swedish regions.

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	88	87	80	40	70	-	82
K-sector	84	97	80	78	91	91	94
C-sector	100	89	62	68	58	63	82
L-sector	67	20	72	84	90	87	59
TOTAL	86	92	78	75	73	83	85

Table 17. Share of production inside the home region of the firm in different industrial lead sectors and in Swedish regions.

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	37.8	33.7	60.7	80.7	45.7	100.0	40.2
K-sector	57.4	84.7	90.5	91.5	88.7	96.2	83.6
C-sector	52.1	93.4	59.9	36.6	55.1	93.5	63.8
L-sector	36.3	24.1	81.8	77.9	83.5	91.7	65.1
TOTAL	42.8	75.3	80.5	69.0	67.2	92.6	65.8

The Gothenburg region is the opposite of Stockholm. It has a low R&D level in the R-sector but in all other sectors a much higher R&D level compared to other regions and the national average. This gives the region a strong R&D profile. Especially the K-sector in Gothenburg has an outstanding R&D intensity. Other than Stockholm and Gothenburg, Middle Sweden is the only region that has an R&D intensive profile. This is a result of the high share of employment in the Rsector, and most importantly, the R-sector in the region has an outstanding R&D performance, more than twice as high as the sector on national level.

Malmö, the third metropolitan area in Sweden, has a very weak R&D profile. One reason is the mixture of sectors (low share of R-sector and high share of Lsector). A second reason is that the regional R&D level in most sectors is lower than the national level. Only the C-sector in Malmö has an R&D performance that is equal to the national level. In Malmö the K-sector, that has the greatest share of employment in the region, is not far from the national R&D level for the sector.

In Southern Sweden (excluding Malmö) the R&D level is a dilemma, compared with other regions in Sweden and with the national average. Not one of the sectors in this region is even close to the national R&D levels.

The R&D level of the sectors in different regions is not necessarily generated inside the home region. Parts of the R&D may be carried out in plants outside the home region of the firm. The highest concentration of R&D in the home region are found among firms in Stockholm and Gothenburg. This reinforces the picture of these regions as the industrial R&D centers of Sweden. Middle Sweden, as was pointed out earlier, has a high total level of R&D as a result of its very competitive R-sector. However, the firms show a considerably lower concentration of R&D efforts inside their home region. About 30% of the R&D of Middle Swedish firms is performed by firm units in other regions.

However, in general firms in different sectors and regions have their R&D activities highly concentrated to their home region. One exception is the L-sector with a considerably higher degree of R&D units outside the home regions. This performance of the L-sector is especially notieable in Gothenburg.

Firms in Malmö and Southern Sweden in general have a lower concentration of R&D inside the home region, with some exception for the L-sector. These conditions reinforce the picture of Southern Sweden as a very poor R&D region compared with other regions and the national average.

The variation among the industrial lead sectors concerning concentration of the firms' production to the home region is much larger than was the case for R&D variation. Firms included in the K-sector have a high concentration of production inside the home region. The concentration to their home region is more than twice as high in the K-sector compared with the R-sector. The shares of production inside the home region among firms included in the L- and C-sectors is around 65% of the national average.

Evidently, firms belonging to the K-sector are especially dependent on the close proximity of production plants and the headquarter activities. This is probably explained by the fact that the technology of the sector is very much based on tight linkages between technical skilled workers on the shop floor and R&D units. The possibility for a firm to direct, coordinate and evaluate the different parts of its activities is facilitated by an agglomeration of management, R&D and production units. In Stockholm all sectors have a distinctly lower concentration of production to the home region compared with the national average. Earlier it was pointed out that nearly all the R&D units of the Stockholm firms were kept inside the home region. These circumstances show that industrial firms in Stockholm put the vast majority of the routine production and assembling outside the home region and keep all advanced functions such as R&D, strategic planning, and management inside the home region.

The L-sector in Gothenburg and the C-sector in Southern Sweden have very low concentrations of production compared with the national averages of these sectors.

Tables 18-20 give a regional perspective of different ownership patterns distributed over the lead sectors.

On a national level the R-sector is dearly different from the other sectors with its very high degree of independent regionally controlled companies. On regional level, however, the pattern of the R-sector is quite varied. In regions, where the R-sectors is dominant (Stockholm, Gothenburg and Middle Sweden), the sector has a much higher share of employment in independent regionally controlled companies compared with regions with a weak R-sector (Malmö, Southern Sweden and Northern Sweden).

The K- and C-sectors consist in general of Swedish corporately owned subsidiary firms, with the corporate head office outside the home region. In all regions the K-sector has a very small share of employment among independent regionally controlled companies.

Ownership among firms in the L-sector shows a strong regional variation. Stockholm and Northern Sweden have large shares of employment in independent regionally controlled firms, while this share is extremely low in Malmö. It is obvious that the industry in Stockholm consists mainly of independent regional firms. This is not the case in the other regions where the industry is dominated by subsidiary firms connected to national network of corporations, controlled outside the home region.

About 13% of the employees work in firms that are controlled or owned by foreign companies. Foreign companies have their strongest positions in the R-and L-sectors. Southern Sweden as a region is quite different from the national average. More than twice as high share of industrial employment is controlled

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	73	66	8	2	81	0	70
K-sector	8	4	6	6	6	46	7
C-sector	45	2	11	8	0	0	10
L-sector	64	. 32	3	26	17	74	30
TOTAL	63	13	4	18	28	34	33

Table 18. Share of employment in independent regionally controlled firms. Different industrial lead sectors and Swedish regions.

Table 19. Share of employment in Swedish corporately owned subsidiary firms. Different industrial lead sectors and Swedish regions.

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	10	23	92	11	19	100	14
K-sector	83	96	65	69	77	25	84
C-sector	47	86	60	86	95	100	83
L-sector	36	63	46	44	67	23	55
TOTAL	24	84	87	54	62	58	55

Table 20. Share of employment in firms owned or controlled by foreign companies.

	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	17	11	0	87	0	0	17
K-sector	9	1	29	25	16	29	9
C-sector	9	11	27	6	5	0	7
L-sector	1	5	2	30	16	3	15
TOTAL	13	3	9	28	_ 11	9	13

by foreign companies. The share of the R-sector controlled by foreign companies is close to 90% in Southern Sweden.

EXPORT INTENSITIES

The R&D intensive and Knowledge intensive sectors are the most export orientated ones on national level. The R-sector, however, has struggled against an increasing export deficit during the last ten years, mainly because of competitive disadvantages of the electronics based industry and a greater share of imported parts within this industry. The rest, and most competitive part, of the R-sector has a tendency to use licensing instead of competing on export markets, which affects the sectors' trade balance negatively. The reasons for licensing are often said to be problems with the initial financing of new and small high technology firms and a chronic shortage of highly educated engineers.
The K-sector has produced a substantial export surplus on national level for many years. It has levelled out in the 1980s because of growing problems of the automobile industry and the diminishing export surplus in the investment goods industry. The K-sector's smallest fraction is the industry producing parts and consumers' goods, an industry with a continuously increasing export deficit since the 1970s.

The C-sector (Capital intensive) is exporting half of its production and has had a large export surplus for many years, although fluctuating from time to time. The trade surplus comes from the wood industry (pulp and paper) and the metal industry. The chemical, petroleum and food industries are all suffering from trade deficits.

The L-sector is the least export intensive sector of the manufacturing industry. Its competitiveness on export markets is very weak and its trade deficit has been steadily increasing since the middle of the 1970s. The most competitive industries are the wood industry and the industry that produces Labour intensive products in competition with other developed economies. The food industry and the Labour intensive industry competing with less developed economies both are facing permanent and growing trade deficits.

With reference to this national background the export performance of the sectors in various regions will now be scrutinized (table 21).

In Stockholm there is only one sector (the R-sector), with an export intensity comparable with the national level. All other sectors have comparative disadvantages. They are not very specialized in international competition. Thus the Stockholm industry is over all less export orientated than Swedish industry in general.

Gothenburg has very high export intensities in all sectors except the Labour intensive industry. The Gothenburg industry is more export orientated than Swedish industry in general.

Malmö has comparative advantages in the K- and L-sectors. The Malmö industry in total has the same export figures as does the Swedish industry as a whole.

Southern Sweden (Malmö excluded) has comparative disadvantages in all sectors compared to national standards except for the R&D intensive sector. However, the R&D intensive sector in Southern Sweden includes several independent large factories for final assembly before export (compare with

1790.							
	Stockholm	Gothenburg	Malmö	Southern Sweden	Middle Sweden	Northern Sweden	TOTAL
R-sector	62	69	36	75	64	1	63
K-sector	36	79	70	54	53	59	68
C-sector	25	58	35	44	67	66	49
L-sector	11	21	55	26	30	42	29
TOTAL	48	68	55	39	53	61	54

Table 21. Export intensities of lead sectors, defined as percentage of domestic production exported in 1990.

foreign production below), so there is doubt whether Southern Sweden really has a comparative advantage in any sector.

The competitiveness of Middle Sweden (Stockholm and Gothenburg excluded) is much stronger than that of Southern Sweden. The R- and C-sectors are performing very well on export markets. Gothenburg and the rest of Middle Sweden make complete a very strong manufacturing belt with high export intensities in the R-, K- and C-sector. These are the most important Swedish exporting sectors.

Northern Sweden has, not surprisingly, specialized in the Capital and Labour intensive sectors. Both sectors have comparative advantage, especially the wood industry and the metal industry. The export intensity from the total of all sectors outranks the corresponding national figures.

THE "HOME BASE" AND ITS IMPORTANCE

Competitiveness on export markets and the productivity of the firm, even the multinational firm, is to some extent founded on the factor endowments of the home base, i.e. the nation and the region. In this study the region is in focus. The knowledge base in a broad sense of its term such as business services and networks for communication, development work and production could in some sectors be a regional factor of importance, as could the regional labour market and transport possibilities to choose just a few examples. The factor demand of firms in different sectors varies and so do the factor endowments of regions in a country.

Porter's diamond model may provide useful insights.⁴ The diamond model is a model of how industrial sectors can create or lose competitiveness through different ways of connecting with their production environments. A fundamental

⁴ The model is put forward in his book The Competitive Advantage of Nations, MacMillan, London, 1990.



Figure 4: The Porter Diamond - Sources of competitive advantage. Source: Porter (1990) p 127.

concept is that conditions of the home base (nation or region) are of decisive importance for the capacity of firms to create and maintain competitive advantage in international markets.

In short, Porter says that the competitiveness of firms and sectors is determined by four main aspects which together constitute the conditions of production in a nation or region. These are:

Firm strategies, structure and rivalry: distinctive national features concerning how firms are created, organized and led; domestic rivalry between firms in the same sector.

Demand conditions: the demand structure of the domestic market for products of the sector.

Factor conditions: the work force profile, infrastructure, necessity to compete in a certain sector.

Related and supporting industries: presence or absence of inter-nationally competitive agents.

These four aspects or factors are complemented by Government and Chance. Government could have an important influence on competitive advantage in some industries through its ability to upgrade or downgrade the factors mentioned. Chance events outside any control could also influence competitive advantage. Examples are unplanned political developments or technological breakthroughs in products or processes.

The four factors are mutually connected and influence, strengthen or weaken each other. For instance, advantageous demand conditions do not necessarily lead to competitive advantage if the domestic rivalry is not strong enough to bring about investments in the sector. Competitive advantage based on only one or two of these factors is feasible only in an industry based on raw materials and characterized by a low level of technological development. Such advantages are generally of short duration. Sustained competitive advantage in a Knowledge intensive sector requires a combination of several advantageous conditions of production. Interaction between advantages in different factors have a reinforcing effect on competitiveness which is very difficult for foreign competitors to equalize.

The firm strategies, structure and rivalry as well as government and the demand conditions are important factors in explaining competitive advantage of sectors on a national level. Then the home base is equal to the national economy. However, firm strategies and demand conditions can be considered as constant factors when the analysis deals with differences in the competitive advantage of regions within an economy, which is the issue in this paper. Here factor conditions and supporting industries come more naturally into focus as important factors in explaining regional economic performance. Thus, factor conditions and supporting industries are highlighted in the following brief analysis of the importance of regional home bases.

When comparing factor demands and factor endowments it is not surprising that Stockholm, Gothenburg and Middle Sweden (with university regions like Uppsala and Linköping as outstanding examples) have a great share of competitive R&D intensive industry. The factor quality for this kind of industry is very high in these regions. The firms can easily build up the main part of their Knowledge intensive networks within the regions and make them complete through international networks. Moreover the firms are given access to advanced business service and high technology components in these regions. The home base is often the site of the sector's qualified production, while assembly and routine production is carried out in peripheral regions with a less qualified and cheaper labour force (compare the share of R&D and production performed inside the home regions in table 16 and 17). In Stockholm and Gothenburg less competitive manufacturing sectors are squeezed on factor markets between the expanding R&D intensive industry with its ability to pay and the protected sector with its rather low sensitivity for costs. These circumstances may explain to some extent why the Capital intensive and Labour intensive sectors are so small and comparatively non-competitive in Stockholm and Gothenburg.

The Knowledge intensive sector is not dependent on home bases with excellence in all factor markets. Firms within this sector are often one of many organisations linked together by ownership. R&D results, business services and new technology filter down from top to bottom and from centre to periphery. This can make firms competitive in less dynamic and smaller regions as well, provided that these smaller regions have technically skilled blue-collar labour forces. Competitive firms within the sector very often have a substantial part of their production in their home bases, i.e. their headquarter regions. Malmö, Gothenburg and the most prominent manufacturing regions in Northern Sweden offer such labour markets, resulting in Knowledge intensive sectors with high export intensities.

What has been said about the Knowledge intensive sector and its organizational networks also applies for the Capital intensive sector. However, the competitive wood industry and metal industry are restricted to special areas of Northern and Middle Sweden by tradition and their dependance on raw material and transport links. In contrast to these industries the competitive chemical industry and the food industry are located closer to the well equipped regions in Southern and Middle Sweden.

Some parts of the Labour intensive sector like the Knowledge intensive sector depend on a technically skilled labour force. The two sectors very often compete on the same labour markets. Malmö has a long tradition in both sectors and a sustained advantage in its technically skilled labour force. Therefore, it is not sur-prising that Malmö has high export intensities in both these sectors. Other parts of the Labour intensive sector are much more dependent on a cheap and less qualified labour force. The competitive Labour intensive industry in Northern Sweden is mainly based on such advantages.

A special analysis of local and regional supplier networks, which is an important part of related and supporting industries, follows in a later section.⁵

³⁴

⁵ The Purchasing Patterns and Purchasing Networks.

	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic Countries:					
Denmark	4.6	2.0	5.5	9.3	4.1
Finland	4.1	3.9	4.8	8.6	4.8
Iceland	0.1	0.1	0.3	0.5	0.2
Norway	2.9	2.6	5.5	11.0	4.3
EFTA:					
Switzerland	2.9	4.2	2.9	7.9	4.2
Austria	1.0	0.8	1.1	1.4	1.0
EC:					
Belgium	1.1	6.6	5.2	2.7	4.5
France	4.4	4.3	8.9	4.3	5.2
Greece	0.7	0.3	0.6	0.5	0.5
Ireland	0.6	0.8	0.6	1.2	0.8
Italy	4.4	3.2	5.3	3.6	3.9
Luxemburg		0.1			
Netherlands	4.2	2.5	5.3	3.6	3.5
Portugal	0.4	0.9	0.3	0.2	0.6
Spain	6.7	1.7	2,2	3.1	3.2
Western Germany	11.4	4.5	16.6	11.5	9.3
Eastern Germany	0.2	0.4	0.4	0.3	0.3
Great Britain	11.4	15.2	15.4	14.7	14.3
Eastern Europe	2.0	1.8	1.4	0.8	1.6
North America	10.7	29.0	5.9	5.2	17.5
Oceania	3.5	1.9	0.5	0.7	1.8
Asia	13.7	8.7	5.7	5.3	8.9
South America	6.3	1.3	0.7	0.3	2.3
Africa	2.3	1.4	0.6	2.1	1.6
Undistributed	0.4	1.8	4.3	1.2	1.6
TOTAL	100.0	100.0	100.0	100.0	100.0

Table 22. Sweden. Export of lead sectors distributed on countries or country groups in 1990.

GEOGRAPHICAL DISTRIBUTION

The sectoral distribution of exports to foreign countries varies remarkably (table 22). The export from the R- and K-sectors has a more far reaching geographic pattern than the export from other sectors. North America and South East Asia for instance are export markets that are of much greater importance to the R- and K-sectors than to the other sectors. The products of these sectors are differentiated products with high value-added competing with quality more than price. This means that they are less sensitive to trade barriers and transport costs than the more or less price competing standardised products of the C- and L-sectors.

Germany is Sweden's most important single export market, although Germany is ranked second after Great Britain in the table based on a sample of regions. The greatest exported share from any single sector comes from the Capital intensive sector. This is followed by the R&D intensive and Labour intensive sectors. The

_	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic Countries					
Denmark	4.7	1.6	7.9	10.5	5.5
Finland	2.1	1.9	11.4	6.9	4.4
Iceland		0.1		1.5	0.6
Norway	15.8	3.8	6.3	10.2	7.0
EFTA					
Switzerland	4.6	41.9		40.1	36.2
Austria	. 3.5	2.3			1.3
EC					
Belgium	4.0	0.8			0.6
France	8.4	1.2		0.7	1.2
Greece		0.8			0.4
Ireland		0.4		0.1	0.2
Italy	4.4	2.6	3.9	0.7	2.1
Luxemburg					
Netherlands	3.6	0.9	15.8		1.8
Portugal	6.2	1.5			1.0
Spain	0.9	0.8	3.5		0.7
Western Germany	14.6	2.6	9.2	2.1	3.6
Eastern Germany		1.2	10.2	0.2	1.4
Great Britain	7.9	2.2	11.5	5.4	4.4
Eastern Europe	5.0	8.9	9.9	0.1	5.6
North America	5.1	2.0	0.1	1.2	1.8
Oceania	1.2	0.4		0.1	0.4
Asia	5.0	10.3	7.7	9.7	9.5
South America		2.3	2.6	1.1	1.8
Africa	3.1	9.3		8.6	8.0
Undistributed	0.0	0.2	0.0	0.8	0.5
TOTAL	100.0	100.0	100.0	100.0	100.0

Table 23. Malmö. Export of lead sectors distributed on countries or country groups in 1990.

K-sector only exports a minor share to Germany. The former DDR had a very small share of Swedish export.

Comments on exports from different regions will be restricted to Malmö and Southern Sweden. The export from Malmö's less competitive R&D intensive and Capital intensive sectors is not as far reaching as from the same sectors on national level (table 23). North and continental Europe have greater shares than North America and South East Asia, for instance. However, the Knowledge intensive and Labour intensive sectors, both competitive, export to a wide range of countries and longer distances compared to the national geographic pattern.

Malmö's industry is exporting a surprisingly small share to Germany compared to Sweden's total export. While the exported share to Germany of R&D intensive and capital intensive products is relatively great, the export of Knowledge intensive and Labour intensive products to Germany amounts to a very small percentage of exported value. Thus to a great extent the exports from

	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic Countries				2 00000	
Denmark	3.8	5.4	7.3	9.7	7.3
Finland	8.7	6.1	3.7	10.3	6.6
Iceland		0.1	0.3	0.6	0.3
Norway	3.1	8.5	6.1	11.3	8.2
EFTA					
Switzerland	3.0	1.5	6.7	3.0	3.8
Austria	1.4	1.1	2.8	3.1	2.3
EC	-				
Belgium	1.4	1.9	2.6	1.0	1.9
France	2.5	4.0	11.7	3.4	6.3
Greece	0.2	0.3		0.4	0.2
Ireland	0.2	0.4		0.3	0.2
Italy	2.0	3.6	7.6	4.9	5.2
Luxemburg		0.6			0.1
Netherlands	2.4	1.1	4.3	4.1	3.1
Portugal	0.3	0.7	0.5	0.3	0.5
Spain	2.3	1.5	2.8	2.5	2.4
Western Germany	5.7	4.7	22.9	12.0	13.1
Eastern Germany			0.6	0.4	0.3
Great Britain	30.8	35.0	9.7	13.9	20.2
Eastern Europe	4.2	2.2	1.3	0.8	1.5
North America	11.4	10.6	1.6	7.7	5.8
Oceania	2.9	1.0	0.7	1.4	1.1
Asia	7.6	6.2	5.2	4.8	5.7
South America	1.9	1.6	1.0	0.4	1.1
Africa	0.3	1.1	0.6	2.2	1.3
Undistributed	4.1	0.8	0.0	1.5	1.5
TOTAL	<u> 100.0</u>	100.0	100.0	100.0	100.0

Table 24. Southern Sw	eden. Export of lead sec	ctors distributed on countri	ies and country groups in 1990.

Malmö to Germany consist of products for which the industry of the region has the least comparative advantage. However, to the Malmö industry the former DDR was more important as an export market than it was to Swedish industry considered all together. The exports were dominated by capital intensive products.

Southern Sweden outside Malmö has hardly any comparative advantage production compared to national standards. The distribution of the region's export supports this statement (table 24). No other region has its exports as concentrated to Northern Europe as Southern Sweden. Only its Labour intensive sector exports in a geographic pattern similar to that of the national sector. Germany is a very important export market with a greater share than Germany receives from Malmö or Sweden. R&D intensive as well as Knowledge intensive products contribute very little to the exports to Germany from Southern Sweden. More important are Capital intensive products (mainly from the wood industry) and advanced Labour intensive products. In contrast to Malmö, the former DDR was not an important export market for Southern Sweden.

Foreign production

The largest foreign production as a percentage of domestic production can be seen in the R&D intensive and Knowledge intensive sectors (table 25). The Knowledge intensive sector, for instance, produces abroad a value corresponding to about one third of the sector's domestic production.

One issue to be raised is whether domestic sectors and regions with the highest export intensities are the most active in foreign production as well. If this is not the case, maybe it can be shown that weak sectors and regions compensate for their shortcomings in exporting by intensive direct-investments and foreign production. Put in another way, the question is whether it is the home base advantages that get completed through foreign activities or whether it is the home base disadvantages that get compensated in that way.

The Stockholm industry seems to complete or for that matter compensate the home base's advantages or disadvantages only to a minor degree. Not even its competitive R&D intensive sector produces much abroad. As a whole Stockholm industry stands out as less internationalized than many other regions. Stockholm has, of course, a much more important role in decision making and as an importer of service, technology and products.

In Malmö and Gothenburg the Knowledge intensive sector makes complete a very competitive export by a substantial foreign production. Middle Sweden has a very strong home base for the R&D sector. It can be seen that their very competitive export is complimented by foreign production to a great extent. The R&D intensive sector in Middle Sweden is the most internationalized sector in any region.

The final example of a sector complimenting the home base's advantages with foreign production rather than compensating its disadvantages is the Capital intensive sector in Southern Sweden. Its export intensity is just below the national sector's but with foreign production included the total international commitment is rather impressive.

The only obvious case of compensating the home base's disadvantages can be found in Gothenburg. The export intensity of the Labour intensive sector is very low but its foreign production turns the sector into one of the most internationalized sectors found.

	Stockholm	Gothenburg	Malmö	Southern	Middle	Northern	TOTAL
·				Sweden	Sweden	Sweden	
R-sector	6	0	0	3	49	0	11
K-sector	6	45	54	12	0	14	30
C-sector	8	0	0	15	0	0	6
L-sector	0	23	2	3	5	1	7
TOTAL	6	31	13	9	14	4	16

Table 25. Foreign production as percentage of domestic production. Lead sectors and regions in 1990.

It seems to be most frequent that the home base's advantages actually get complimented by foreign production. The firms win their comparative advantage at home then scan their international environment for completing opportunities. Winners at home seem to have the best chances of becoming winners abroad.

GEOGRAPHICAL DISTRIBUTION

The EC is relatively more important to Sweden's foreign production than to its export. Beside the EC, North America has an important share of Sweden's foreign production. However, the geographical distribution of foreign production varies between sectors. The R&D intensive sector, for instance, produces more in North America than within the EC. Even the Nordic countries and the rest of the world have more important shares than the EC. The Knowledge intensive sector has developed quite another geographical pattern. The major share of foreign production is in the EC. Production in North America is not very important. To the Capital intensive and Labour intensive sectors the Nordic countries and the EC come out as the most important parts of the world for foreign production. The percentage of foreign production in Germany seems to be smaller than the percentage of Swedish exports going there.

Comments on different regions and the geographical distribution of their foreign production will be restricted to Malmö and Southern Sweden.

The EC is not quite as important to Malmö industry as it is to Swedish industry all together. The Nordic countries and North America have substantial shares of the region's foreign production, which is predominantly within the region's two competitive sectors (i.e. the K- and L-sectors). The K-sector, however also has an important part of its foreign production within the EC. Half of this production is in Germany. The surprisingly weak export from the competitive K-sector in Malmö to Germany seems to be balanced by extensive production in this country. Finally it can be noticed that the foreign production of Malmö's Labour intensive sector is almost entirely restricted to the Nordic countries.

rame for oweden. Foreign	production of icau se	<u>ctora</u> uisti ibut	cu on country	groups in 1770	•
	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic countries	16.6	3.4	24.4	20.1	8.7
EFTA, the other countries		0.2			0.2
EC, the other countries	10.8	90.1	75.6	73.1	74.7
of which Western Germany		(3.0)	(6.8)	(8.2)	(3.5)
of which Eastern Germany					
North America	. 64.1	3.2		4.0	12.7
The rest of the world	8.5	2.9		2.8	3.7
TOTAL	100.0	100.0	100.0	100.0	100.0

Table 26. Sweden. Foreign production of lead sectors distributed on country groups in 1990.

Table 27. Malmö. Foreign production of lead sectors distributed on country groups in 1990.

	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic countries				84.3	14.5
EFTA, the other countries					
EC, the other countries		68.2			56.4
of which Western Germany		(37.0)			(30.7)
of which Eastern Germany					
North America		28.9		15.7	26.7
The rest of the world		2.9			2.4
TOTAL	100.0	100.0	100.0	100.0	100.0

Table 28. Southern Sweden. Foreign production of lead sectors distributed on country groups in 1990.

	R-sector	K-sector	C-sector	L-sector	TOTAL
The Nordic countries		3.7	32.3	34.1	22.6
EFTA, the other countries		6.8			2.3
EC, the other countries	100.0	37.3	67.7	65.9	57.5
of which Western Germany		(12.1)	(9.4)		(9.4)
of which Eastern Germany					
North America		22.1			7.5
The rest of the world		30.1			10.1
TOTAL	100.0	100.0	100.0	100.0	100.0

The foreign production of Southern Sweden is rather small compared to the production of Malmö and the country as a whole (table 28). The Nordic countries and the EC stand out as important areas for production as does the area listed as the rest of the world. North America is not very important to Southern Sweden. Investments in Germany from the Knowledge intensive and Capital intensive sectors seem to be important, more important than for Sweden as a whole, but a little less important than it is to Malmö.

Conclusions

The export intensities vary widely among national sectors. The R- and K-sectors have export quotas around 80%, the C- and L-sectors around 50 and 30%

respectively. Swedish industry has comparative advantages in foreign trade within the K- and C-sectors.

With reference to the national background it has been shown that the export quotas of identical sectors in various regions differ substantially. These patterns of regional specialization can partly be explained by sectorial factor demand and regional factor endowments. To support this explanation the distribution of R&D employment and production inside and outside the home region has been analysed.

The highest total export quotas are generated within Gothenburg, Malmö and North Sweden.

The sectoral distribution of national exports also varies widely. Exports from the R- and K-sectors have a wider geographic pattern than the other sectors.

Germany is Sweden's most important market. The greatest export share to Germany from any single sector comes from the C-sector (17%) and the lowest from the K-sector (4.5%). The former DDR receives a very small share of Swedish export (0.3%).

Malmö industry is exporting a surprisingly small share to Germany compared with Sweden's total export. Moreover, the main export from Malmö to Germany consists of products for which the industry of the region has the least comparative advantage. The weak exports from the competitive sectors in Malmö to Germany seems to be balanced by extended investments and production in Germany. In contrast to Malmö, Southern Sweden is much more linked to Germany. Germany is a very important export market to Southern Sweden, with a greater share than those Germany receives from Malmö as well as from Sweden. Direct investments from Southern Sweden into Germany are worth noticing.

Purchasing Patterns and Purchasing Networks

In the structural analysis of the companies in Southern Sweden one important aspect - the export and the internationalization of the sales and production organization has been described in the previous section. In this section of the paper we focus on another important aspect of the industry structure and internationalization - purchasing patterns. The reason for studying purchasing patterns is that we want to get a picture of the networks of industries in Southern Sweden. Our framework for analysis in this section is Porter (1990) who describes the network as consisting of production factors, local markets and customer demand, supporting and related industries, and rivals. All these factors interact in a framework regulated by the infrastructure created by govern-ment and the irregularities created by chance.

The purchasing patterns and purchasing networks of the producing industry in Southern Sweden were investigated in Survey II. Questions were asked concerning the amount and origin of the purchased goods used in the production. We also investigated the nature and direction of supplier relations, regionally, nationally and internationally.

If we start with the number of suppliers used, we find that companies on the whole have many suppliers. There is a difference between the competition exposed sectors where the average company has more than 100 suppliers, while the corresponding figure in the Sheltered sector is around 50. This reflects the fact that a fair part of the companies in the Sheltered sector are cooperatives with an express goal to cater for to needs of the local farm industry and to find outlets for its products.

LONG TERM BUYER RELATIONS

We can also learn that the buyer relations are clearly long term. In the competition exposed sectors 58% of the purchasing relationships last between 6 and 15 years. As many as 34% of the purchasing relationships are more than 16 years old. Only 8% of the suppliers have delivered for a shorter time than 6 years.

Perhaps one could guess that the supplier relations in the Sheltered sector would be even more long term. This is not the case, however. In this sector the supplier relations older than 16 years are 34%. However, "only" 51% of the relations are between 6 and 15 years old, while "new" relations have the almost double frequency compared to the other sectors - a bit over 14%.

Even though the supplier relations in the Sheltered sector are somewhat shorter, it is still very relevant to regard the relations as very stable, long term commitments.

LOCAL AND REGIONAL SUPPLIER NETWORKS

Looking at the spatial aspects, we find that the supplier networks are very local/regional by nature. In the Sheltered sector 36% of the companies buy 5% or less of their volume outside Sweden. 21% buy 6-10% and 14% of the companies buy 11-15% of their purchasing volume outside Sweden. It is interesting to note, however, a group of companies with quite another profile in this sector 20%. In the competitions exposed sectors the imported volume varies more between the companies. 13% of the companies import less than 10%. 21% of the companies import between 11 and 20% of the volume and 17% import between 21 and 30%. Also in these sectors we have a cluster of companies that import a large portion of the supplies. 23% of the companies import more than 50% of the volume. The high import share companies are more often from the R-, K- and C-sectors than from the Labour intensive sector.

PURCHASING NETWORKS WITH GERMANY, EUROPE AND THE REST OF THE WORLD

In the competition exposed sectors the average company buys 15-20% of its purchased volume from Europe and around 10% from the rest of the area listed as the world. In the Sheltered sector, it was quite uncommon to have suppliers outside Sweden. Those who bought from other geographical areas bought a small part of their volume there - below 10%.

The most common trading partner countries outside the Nordic countries were Germany, Great Britain and the Netherlands in the competition exposed sectors.

Germany takes a clear lead as the clearly most frequent trade partner country. In the Sheltered sector, Germany also takes a clear leading position with the USA as the second most important country. In all the sectors, however, the supplier networks in Germany more often than not end in central or Southern Germany. The links with Northern Germany are not very frequent - only nine of the relations were with Northern Germany. This can be compared with 64 supplier relations with the other parts of Germany.

In the regional mobilization programme in Southern Sweden, special attention has been given to the opportunities that cooperation with Schelswig-Holstein's industry could offer. In our sample only one company named a supplier in Scheswig-Holstein as one of its five most important suppliers. It is obvious that the advertised advantages of cooperation with Schleswig-Holstein have not yet been discovered and exploited by the producing companies in Southern Sweden.

EXPECTED CHANGES IN VOLUME PURCHASED ABROAD

In the Sheltered sector the expectation for the future was to continue to buy locally/regionally. 50% of the companies that answered about their future expectations believed that less than 10% would be bought abroad in the future. This does not mean that 50% had plans to increase their internationalization, because 1/3 of the companies did not respond. This failure to respond can be interpreted as a lack of vision and plans for the future.

The companies in the competition exposed sectors were not more optimistic regarding the possible internationalization of purchasing networks. If anything, it was believed that a smaller part of the total volume would be purchased abroad in the future.

The companies that planned for increased internationalization of purchases were found in the Research intensive and Knowledge intensive sectors of industry. In these sectors quite a few companies also believed in buying a smaller amount abroad in the future.

An interpretation of the research data on purchasing in general terms is the following:

The purchasing pattern and the purchasing relations are at present long term supplier-customer relations. The networks are frequently local, rather often national. In addition to supply relations inside Sweden, purchases from the Nordic countries are rather frequent.

On the whole there are few suppliers abroad. The most frequent supplier country outside the Nordic countries is Germany with a concentration of the suppliers in central and Southern Germany.

A large portion of the companies envisage a stable or reduced purchasing volume abroad. However, one small segment of the companies takes a reverse stand and plan for a substantially increased internationalization of their purchasing networks

Company Actions and Plans as an Answer to Environmental Changes

During the past few years Europe has changed considerably in a number of respects, both politically and economically. The changes we are referring to are the European Community and the European Single Market, which will become a reality within two years, as well as the political and economic upheavals in the Soviet Union and the countries in what used to be called Eastern Europe. What has happened in the eastern countries within a few years was probably expected by few analysts. These changes in different parts of Europe imply altered conditions for Swedish companies on the whole in several ways, but especially, which is evident from earlier parts of this report, for companies in the southern part of Sweden. It is geographically very close to those regions where the great changes are going on and will continue to appear in the future.

At present it seems obvious that Sweden will become a member of the European Community within a few years. Whether this will be the case or not, the Swedish companies will be influenced by the single market, particularly in terms of the competitive situation. Then, what are the companies in Southern Sweden doing and what are they planning to do considering developments within the European community?

Sweden's neighbouring countries in Eastern Europe have changed considerably in terms of the possibilities for Swedish and other foreign companies to invest and establish businesses. Furthermore, only a couple of months ago three new neighbouring countries gained their independence from the Soviet Union. All of them appear very interested in obtaining economic relations with countries in Western Europe. In what ways have the companies in Southern Sweden exploited these possibilities?

In the daily press in Sweden as well as in the business press and other types of media, a lot of space is devoted to the above mentioned environmental changes and how they affect Swedish companies. It is easy to get the impression that most Swedish companies are very active in adapting themselves to the requirements of the European community and also as actors on the immense, newly opened Eastern European market.

The second survey questionnaire posed questions concerning these environmental changes and what actions are being taken or planned in response to the single market and the political and economic changes in Eastern Europe. The overall result was that the majority of the companies taking part in the survey had neither taken any actions nor planned to do so. This result applies to both actions regarding the single market and to those aimed at Eastern Europe. Nevertheless, it was possible to distinguish differences between the regions and between the different industrial sectors. In this part of the report we will describe the differences and also speculate on why the interest to the above mentioned changes seems to be so small, considering the extent of the changes and their potential significance for Swedish companies. This part of the report is based on the results from the second survey questionnaire.

THE EUROPEAN COMMUNITY AND THE SINGLE MARKET ACTIONS AND PLANS

In the questionnaire we posed two questions about company actions regarding the European community and the single market. The first one asked what actions the companies had taken owing to the changed market situation, which can be expected as a result of the completion of the single market. The other question concerned whether any such actions were planned within the companies. Surprisingly, the result was that the majority of the companies had not taken any actions whatsoever and did not plan any either.

When looking at the companies that had reacted to the environmental changes, the most frequent action taken or planned seemed to be cooperation with companies within EC countries. A rather large share of the companies had also changed their marketing strategy or planned to do so. Changes in company organization and structure were quite common and so were changes in products and production technology. It is remarkable that very few of the companies mentioned alterations in the raising of capital or capital management as issues since the EC single market also will exert a great influence on the capital markets all over Europe. Changes in research and development were not reported to any great extent, neither concerning business in Sweden nor in EC countries. This fact could also be considered surprising since it is often declared by researchers as well as by journalists, that one of the main problems of the industry in Southern Sweden is that the research and development intensive sector is too small a part of the industry. Moreover, the single market will imply a different competitive situation for Swedish companies, and, therefore, increased investments in research and development will have to be considered in many companies.

Differences Between Industrial Sectors

When we focus on the five industrial sectors: Research and development intensive (R), Knowledge intensive (K), Capital intensive (C), Labour intensive (L) and the Sheltered sector (S), it is possible to perceive certain tendencies. One obvious difference is that companies within the Sheltered industrial sector seem less prone to carry out changes as a result of the altered market situation than the internationally competing sectors. On the one hand, this is natural because the companies within the Sheltered sector are by definition internationalized to a very small degree. But on the other hand, a large share of the companies in the Sheltered sector will probably be affected by deregulations and increased competition. In this respect it seems strange that the majority of the companies in the Sheltered sector not even have plans to carry out any changes.

About one third of the total number of companies taking part in the survey state that they have taken any actions at all (table 29). The sector that differs most from the rest is the R-sector, in which the majority of the companies (71%) alleged to having taken actions concerning the EC and the single market. However, only a small portion of the companies answering belong to this sector, so these figures should be regarded with a certain scepticism. The shares of the other competing sectors are, with some variation, very close to the figures of the total material. It is worth mentioning that in the K-sector, which is considered to be the industrial base in Sweden, only 34% of the companies have taken any actions. This sector had the lowest share of the competing industrial sectors. In the C-sector 41% of the companies declare that they have taken actions. This result agrees with the fact that the C-sector is one of the most export-oriented sectors. In the L-sector the share is 37%, and the S-sector has, as we mentioned earlier, a considerably lower share than the competing sectors. In the last sector only 21% of the companies have acted because of the changes within the EC.

Regarding different types of actions which could be taken, the R-sector has a high share on most types. Within the K-sector very few companies have made changes in production technology and organization/structure. In the C-sector, on the contrary, 35% of the companies have made organizational changes. The L-sector does not distinguish itself in any certain respect. It agrees on most types of actions with the average of all companies. The S-sector has very low shares on all types of actions, except on organizational and structural changes, which have been carried out by 16% of the companies in the sector.

How, then, is the situation on the planning side? Totally, fewer companies reported are planning to take actions concerning the altered situation that will be brought about by the EC single market (table 30). 29% of the companies alleged

TOTAL	R-sector	K-sector	C-sector	L-sector	S-sector
32 n=285	71	34	41	37	21

 Table 29. Taken measures concerning the EC and the single market. Differences between industrial sectors (%).

 Table 30. Planned measures concerning the EC and the single market. Differences between industrial sectors (%).

TOTAL	R-sector	K-sector	C-sector	L-sector	S-sector
29	43	29	29	30	25
n=283					

to plan such actions. Also in this respect the R-sector has a high share (43%), while the other competing sectors have about the same share as the total amount of companies. The S-sector has the lowest share. 25% of the companies in this sector are planning this kind of action, a somewhat higher share compared to those that had already taken such measures.

Regarding the different types of actions, the R-sector has a high response rate in most areas. The only exceptions are changes in purchases and supplies in both Sweden and EC countries. The K-sector responses are almost the same as for the total material, but changes in production technology seem to be a measure only slightly considered in this sector. In the C-sector planned changes in production technology appear to be more common than are changes in products. The L-sector does not distinguish itself in any respect. The S-sector continues to have low shares on most types of actions, even though changes in products, marketing strategy, organization/structure and cooperation with companies in EC countries seem to be planned to a certain extent.

Conclusions

The most pronounced trend concerning the changes among the different industrial sectors is that the R-sector to a greater extent has both taken and plan actions regarding the EC and the single market. This observation corresponds to the fact that this sector is the most internationalized. The three other competing sectors differ surprisingly little from each other. The S-sector has very low responses in most respects and, therefore, seems to be less prone to change.

Table 51. Taken actions concerning the EC and the single market. Daterences between counties (%).				
	R-, K-, C- and L-sectors	S-sector		
Malmöhus county	42	24		
The rest of the region	34	18		

Table 31. Taken actions concerning the EC and the single market. Differences between counties	(%).
R-, K-, C- and L-sectors	S-sector

Table 32. Planned actions concerning the EC and the single market. Differences between counties (%).			
	R-, K-, C- and L-sectors	S-sector	
Malmöhus county	42 ·	24	
The rest of the region	34	18	

Malmöhus County Compared to the Rest of the Region

When we focus on the actions taken by the companies, it is evident that a considerably greater share of the companies in Malmöhus county have taken actions in relation to the new competition compared to the rest of the region (table 31). This applies principally to the competing sectors R, K, C, and L (42%) in Malmöhus county compared to 34% in the rest of the region), but also to the S-sector (24% in Malmöhus county and 18% in the rest of the region).

Looking at the different types of actions, we can see that a greater share of the companies in Malmöhus county have made investments in EC countries, changes in marketing strategy, changes in organization or structure and cooperation with companies in EC countries. The companies in Malmöhus county also reported changes in research and development in Sweden to a greater extent compared to the other counties and to the total material. A larger share of the companies in the rest of the region have taken actions concerning investments in Sweden and production technology. However, the S-sector in Malmöhus county has a rather high share of companies that have made changes in production technology (16% compared to 8% in the rest of the region).

The companies in Malmöhus county to a greater extent also plan actions concerning the single market. The difference is not as large as for the actions already taken (table 32). A greater share of the companies in Malmöhus county are planning a number of different types of actions. The actions concerned are the same types as for the total material, that is changes in products, marketing strategy, organization, structure and cooperation with EC countries. The companies in the other counties have a higher share for planned changes in production technology. In Malmöhus county a somewhat larger share of the companies have plans concerning changes in the raising of capital and capital management, but this is still very few companies (less than 10% of the answering companies).

Conclusions

It is possible to discern a somewhat greater inclination to change because of the single market among the companies in Malmöhus county than in the rest of the region. This applies both to actions taken or planned by a large share of companies, and also to some extent to actions that have low shares in the total amount of companies, like changes in the raising of capital, capital management and research and development. It is, however, important to remember that in the total material as well as in Malmöhus county the majority of the companies have neither taken nor planned any actions concerning the EC single market.

ACTIONS AND PLANS CONCERNING THE ECONOMIC AND POLITICAL DEVELOPMENTS IN EASTERN EUROPE

In the survey questionnaire we also asked questions about the unifying of Germany and the economic and political developments in Eastern Europe. These questions were formulated as those discussed in the previous sections. Accordingly, we asked what actions the companies had taken or planned to take concerning the events in Eastern Europe. The results showed that the companies have done or plan to do even less than in the case of the EC and the single market. This was most obvious in the S-sector, in which hardly 10% of the answering companies declared to have taken or planned any actions regarding the developments in Eastern Europe.

What actually had been done concerned changes in marketing strategy and cooperation with companies in Eastern European countries. The latter could be regarded as natural since many of the restrictions in the former eastern bloc concerning the establishment of foreign companies have been relaxed. Compared to the questions about the EC and the single market few companies have made, or plan to make, changes in products or production technology. One explanation of this finding could be that a majority of the answering companies consider changes in their production or technology unnecessary in order to export to or establish themselves in Eastern Europe. Something that could have been expected is for Swedish companies to establish supplier relations with companies in Eastern Europe. However, only about 10% of the companies in the companies in the Sheltered sector.

Differences Among the Industrial Sectors

It is possible to distinguish differences between the industrial sector concerning the developments in Eastern Europe. Also in this case it is the R-sector and the C-sector that have considerably higher shares compared to the other sectors, for both taken and planned actions. The K-sector and the L-sector have about the same shares as the total material.

Regarding the actions already taken, 23% of the total number of answering companies repored having taken actions (table 33). In two of the sectors the majority of the companies stated that such changes have been made. These sectors are the Capital intensive sector (59%) as well as the research and development intensive sector (57%). These high shares may seem surprising, but the two sectors are the most export oriented industrial sectors in Sweden. The Labour intensive sector and the Knowledge intensive sector are close to the average figures for all companies with 27% and 25% respectively. The Sheltered sector has the lowest share, hardly 10% have made changes concerning the developments in Eastern Europe.

If we look closer at the different types of actions, it is evident that the R-sector has the highest share of companies reporting changes for investments in Eastern Europe, changes in marketing strategy, organizational and structural changes as well as cooperation with companies in Eastern Europe. The share for changes in products, production technology, purchases and suppliers is considerably lower. The companies in the C-sector have high shares on most types of actions and especially on those concerning changes in marketing strategy, purchases and suppliers in Eastern Europe, organizational and structural changes. The K-sector and the L-sector companies are close to the average figures for all companies.

Only 19% of the companies plan any actions at all concerning the developments in Eastern Europe (table 34). The pattern looks somewhat different compared to the actions already taken. The C-sector still has the largest share (41%), while the R-sector has a considerably lower share (29%). The K-sector (27%) is close to the R-sector, while the L-sector remains close to the average for all companies (19%). The S-sector has a very low share with only 8% of the companies planning to take any measures concerning the changes in Eastern Europe!

Finally, let us examine the priorities of the planned actions. The R-sector has high shares for investments in Eastern Europe, changes in purchases or suppliers in Eastern Europe as well as organizational or structural changes. It is also characterized by low shares for changes in products, production technology and purchases or suppliers in Sweden. The K-sector is above the average figures

TOTAL	R-sector	K-sector	C-sector	L-sector	S-sector
23	57	25	59	27	10
n=284					

 Table 33. Taken actions concerning the developments in Eastern Europe. Differences between industrial sectors (%).

 Table 34. Planned actions concerning the developments in Eastern Europe. Differences between industrial sectors (%).

TOTAL	R-sector	K-sector	C-sector	L-sector	S-sector
19	29	27	41	19	8
<u>n=285</u>					

regarding marketing strategy, purchases or suppliers in Eastern Europe, and cooperation with companies in Eastern Europe. The C-sector also in this respect has high shares on most of the different types of actions, while the L-sector without exception has low shares. We can in this respect ignore the S-sector, since not one single type of measure reaches a 10% yes response from the answering companies.

Conclusions

What is most remarkable is that the companies in the C-sector have both taken and planned measures in response to changes in Eastern Europe to a much greater extent than they have concerning the EC and the inner market. The companies in the R-sector seem to be more prone to changes than the L- and Ksectors. The most striking fact is that so few companies have plans to establish themselves in Eastern Europe and to export to or import from these countries. There are certain tendencies that companies within some industrial sectors plan to establish supplier relations with companies in Eastern Europe, but only a minority of the answering companies are involved. In the Sheltered sector, as we mentioned earlier, hardly 10% of the companies have made any changes or planned to do so at all. This is strange since Eastern Europe could be regarded as an interesting market when the companies become exposed to fiercer competition from a customer's as well as a supplier's point of view. This will probably be the case for many companies within the protected sector.

Table 35. Actions concerning the developments in Eastern Europe. Differences between counties (%).		
	R-, K-, C- and L-sectors	S-sector
Malmöhus county	34	7
The rest of the region	27	12

Table 36. Planned actions concerning the developments in Eastern Europe. Differences between counties (%).

	. R-, K-, C- and L-sectors	S-sector
Malmöhus county	26	4
The rest of the region	23	12

Malmöhus County Compared to the Rest of the Region

When considering the actions already taken because of the development in Eastern Europe, the result is that the companies in the competing industrial sectors in Malmöhus county have done more than the companies in the rest of the region (table 35). However, the difference is smaller than for the questions concerning the EC and the single market. In the case of Eastern Europe, 34% of the companies in Malmöhus county have taken such actions compared to 27% in the rest of the region. In the protected sector the relation is the opposite. In Malmöhus county 7% of the companies in this sector have acted while 12% of the companies in the rest of the region declare having done so. One explanation to this might be that the Sheltered industry in Malmöhus county mainly consists of the food industry and the printing and publishing industry. Companies within these types of industries are probably not pressed to go abroad to the same extent as other types of Sheltered industry. In the case of the protected sector very few companies have taken any actions at all. Therefore, we will ignore the Sheltered sector in the rest of this section.

Few differences were found among the different types of actions. What can be said is that a greater share of the companies in Malmöhus county have made changes in marketing strategy, organization and structure, and cooperation with companies in Eastern Europe. In the rest of the region more changes regarding production and production technology have been made. The results for planned actions are similar (table 36). Even here Malmöhus county has a somewhat higher share, 26% compared to 23% for the rest of the region.

Conclusions

The main result when comparing the different counties is that Malmöhus county seems to be somewhat more prone to changes in the competing industrial sectors. The opposite seems to apply to the Sheltered sector.

Expectations and Preparations for the Future

One very relevant aspect of the competitiveness of the industry of Southern Sweden is its readiness for change and its attitudes towards the changing business environment.

In the previous section we have seen that the most common approach to the ongoing turmoil in the European Community is to ignore it. Very little is being done and very little is planned as a response to the development or as a preaction to the development. Even less is being done or planned as a result of the developments in Eastern Europe.

This evaluation of actions, plans and attitudes in the Southern Swedish industry is relevant for an attempt to analyse the effects in the production industry of regional mobilization efforts. Several initiatives for restructuring and internationalization have been taken in the region and on the national level.

THE REGIONAL MOBILIZATION

In the debate concerning the construction of a bridge or a tunnel across Öresund, several local governments, chambers of commerce and individual businessmen have expressed great concern and awareness of the importance of developing the competitiveness of the industry of Southern Sweden. Several local communities have launched projects aiming at improving the infrastructure for international business.

In planning for the deregulation of the food and agriculture industries several projects have been launched to promote change and development in the industry. The government has released funds directed to this purpose. The farmers' association (LRF) has invested in change programmes both for forestry and farm industries, as has the regional employment agency.

The regional governments in all the five counties in Southern Sweden have special programmes and efforts directed towards industrial development, internationalization and improvement of industrial competitiveness.

The development of the industry in Southern Sweden has also been supported by politicians and officials in Northern Germany - especially Schleswig-Holstein. A special campaign for the Öresund area was launched in the Financial Times in June 1991. At Lund University a special research group has studied the industrial future of the biggest town, Malmö. Positive results from this research have been communicated in the local press. The general feeling among politicians and civil servants is one of awareness, mobilization and ability to act on several levels.

THE CORPORATE BEHAVIOUR

What are the actual plans, actions and attitudes to change as reported in the questionnaire from the producing companies in Southern Sweden? In the previous section were presented figures showing that the overwhelming majority of companies had not taken any actions in the face of the new situation with increasing market dynamics and the sudden appearance of several closely located low cost labour markets.

Most of the companies have not made plans to do anything either. The gap between the mobilization efforts among politicians and civil servants and the plans and actions in the companies is clearly visible.

What about the expectations of companies for the future? One question asked about the expected sales volume in 1995. This question is an operationalization of one perspective of the "hope for the future" in the companies.

It was observed that the companies had rather high hopes concerning their future sales volumes. Very few companies expected in a decline in business volume. In the competition exposed sector this figure was 6%. It was only 1% in the Sheltered sector. As a comparison we also asked the companies about their profit expectations for the future. In all sectors 70-75% of the companies expected increased profits during the same period, while 25% expected declining profits.

A conclusion from these figures is that there is a general belief in increased sales volume in the future. In one part of the industry there seems to be an awareness that cost control can become a problem in a situation with increased competitiveness.

At the same time it is obvious that a large portion of those who responded had faith in the future. It should be noted that more than 50% of the companies choose not to answer to this question. Here we can trace a genuine uncertainty about the future profits of the companies.

Differences Between Industrial Sectors and Counties

The hopes for growth in the future differed among the industrial sectors. The most positive view of the future occurred in the research intensive R-sector, where an increase in turnover of more than 50% was expected by a majority of the companies. In the Knowledge intensive sector and the Capital intensive sector 33% of the companies expected growth greater than 50%. The lowest expectations were found in the Labour intensive sector, 28%. The Sheltered sector had as high hopes for the future as the K-sector and the C-sector.

Malmöhus county is more urban and more densely populated than the other counties in the region. In a comparison between Malmöhus county and the other counties in the region there is a difference in expectations between the sectors within the competition exposed sector and the protected sector. In Malmöhus county the competition exposed sectors have higher hopes for the future than the protected sector. 34% expected growth greater than 50% in the competition exposed sector expected sector expected such a large growth in volume. In the other counties the relation was the reverse. 33% of the Sheltered sector expected large growth, while only 28% of the companies in the competition exposed sectors expected large growth (table 37).

The differences between different counties within the Southern Swedish region that we have found in our analysis will create a special problem in the regional development. These findings are supported by results in a study by our colleagues⁶ who describe the following situation:

Malmöhus county has an industrial- and service sector which shows good developmental characteristics, even if the sector starts from a rather weak position.

Skåne, seen as a whole, is a much weaker region. The structure of industry and services in Kristianstad county will demand substan-tial efforts to sustain its competitiveness in an international context.

⁶ Alsén et al. (1991) pp. 140 ff.

	Competition exposed sectors	Sheltered sector
Malmöhus county	34	28
Other counties	28	33

Table 37. Companies believing in sales volume growth bigger than 50% 1991-1995 (%).

It should be noted that Alsén et al. studied only two of the five counties included in the present study. However, their study covered both goods producing industry and services. Thus, our findings may have some relevance even for the service sector.

It should be noted that these differences are so small that significant conclusions in stricter meaning cannot be drawn. The tendency is in itself so interesting, though, that we still, with some hesitation, want to mention the results.

The outlook is similar in all the sectors. Around 25% of the companies expect employment reductions in personnel. The highest figure in this respect occurs in the competition exposed Labour intensive sector - 28%. The figure in the Sheltered sector is close to the average - 25%.

The positive aspect of this is that around 75% of the companies expect to increase the number of employees during 1991-1995 with 1-50%. The realism of these expectations can of course be compared with the different efforts that the corporations plan in order to secure a sustainable competitive edge. In our view the companies have underestimated the need for restructuring in the present market situation. Their response to the employment question is an indication of this, which triggers the need for a further investigation of the employment effects following a restructuring and increased internationalization of the industry of Southern Sweden.

Only a small segment of the companies - around 15% expect a growth in the number of employees abroad during this period. This fits well with the research data reported earlier that only a minority of the companies plan to act as a result of the development within the European Community and in Eastern Europe.

We expected different results regarding future industrial employment. Given the integration of the European Community and Sweden's application for membership in the EC we had expected more planning for a bigger market and more efforts to meet increased foreign competition.

Likewise we had expected that the radical opening of the Eastern European markets and the ambitions in the various Eastern European national governments to improve business conditions in their countries, would lead to action by Swedish companies.

Especially in the Labour intensive sector we can see some distinct advantages with low cost labour markets in our neighbouring countries. This advantage could be exploited if production is moved to these countries. On the other hand, the low cost labour market can be a threat to the industry of Southern Sweden if companies from other countries exploit this advantage or if local companies in the East European countries increase their exports. In our research concerning the industrial future of Southern Sweden it seems relevant to supplement the aggregated data for the whole region with a number of in-depth studies of companies and communities that use approaches to competitiveness which deviate from the average.

NO EXPECTED CHANGES IN IMPORT AND EXPORT

There are no notable ambitions among the companies in the survey to increase their exports in the period between 1991 and 1995. More than 90% of the companies have no plans to change their purchasing patterns. These purchasing patterns are very stable long term relations. Around 50% of supplier relations are between 6-15 years old and more than 30% are more than 16 years old.

To this it can be added that the main supplier networks are located within Southern Sweden, both in the competition exposed and the protected sectors of the industry. The second layer in the network cobweb is located within Sweden and the other Nordic countries.

International supplier networks are spread over several countries. We cannot find any specific network structure developed around the Baltic. Germany is an important supplier market, but the main connections are with the central and southern parts of Germany. It could be noted that among foreign supplier relations there are only 9 connections with Northern Germany in the total material. Only one of these relations is with the Schleswig-Holstein region.

The Development of Competitiveness - an Emerging Pattern

One emerging pattern is that most business in Southern Sweden is local. Most companies believe in future growth and increased employment. Most companies are not concerned about the emerging market developments in our neighbouring countries.

Few companies have reacted to the changing market dynamics. There is slightly more awareness in Malmöhus county than in the other counties. On the whole, the regional mobilization programme have passed by the majority of the companies. The ambitious efforts to create networks and business relations across the Baltic have not yet led to many results - judged by the whole population of companies.

In the interpretation of this material we can supplement the general averages with comparisons between the sectors and between companies of different sizes. We find that the willingness to act and plan to meet the market changes is bigger in the competition exposed sectors than in the Sheltered sector. In the Sheltered sector only 20% of the companies have taken measures regarding the European Community and 25% planned to do something in the future. In the competition exposed sectors 37% had acted and 30% planned to do so. We interpret the lower figure to mean that those who had already acted interpreted the "planquestion" as "other plans not already in progress".

Concerning Eastern Europe, only 10% of the companies in the S-sector had acted in any way, such as changing the company's products, sales or organization. In the other sectors the corresponding figure was 29%.

If we make a comparison between small and large companies we also find clear differences. In the Sheltered sector 12% of the small companies had taken measures in response to the challenge of the EC 1992 scenario. 25% of the large companies in this sector had done so.

In the competition exposed sectors 33% of the small companies had acted with regard to EC, while the corresponding figure for the large companies was 50%.

For Eastern Europe 8% of the small companies and 25% of the large companies in the Sheltered sector had taken action. In the competition exposed sectors the corresponding figures were 23% and 42%.

	Sheltered sector	Other sectors
Actions vs EC	20	36
Plans vs EC	25	30
Actions vs E. Europe	10	30
Plans vs E. Europe		23

Table 38. Actions and plans - Sheltered sector and competition exposed sectors (%).

Table 39. Actions and plans - differences between small and large companies (%).

	Small companies	Large companies
Actions EC, S-sector	12	25
Plans EC, S-sector	15	50
Actions EC, Other sectors	33	50
Plans EC, Other sectors	32	33
Actions E. Europe, S-sector	9	25
Plans E. Europe, S-sector	9	13
Actions E. Europe, Other sectors	23	42
Plans E. Europe, Other sectors	20	17

In these figures we can see greater awareness and more action in the larger companies compared to the smaller ones. We can also see more activity in the competition exposed sectors than in the Sheltered sector.

The problem of stimulating activity in the companies remains. In the region, the Sheltered sector has a strong position in number of companies, in volumes of business and in employees. Likewise the small and medium sized companies are many, have large proportion of the business volume and employ about half the total volume of employees.

Even among the large, competition exposed companies the amount of activity is surprisingly low. One half of the large competition exposed companies have not taken any measure to face the new market situation.

Conclusions

Even after controlling for these differences between different types of companies, the overall picture still remains - a picture of little proaction and a limited amount of awareness in the everyday life of the companies in spite of the interest level among policy makers and regional planners is high.

It might be interesting to compare our results with results from a survey with 1,800 Danish companies and 160 trade and peak associations, except associa-

tions of agriculture and fishing. This study by Niels Chr. Sidenius found that Danish industry also has high hopes concerning the completion of the inner market. 40% of the industry estimates that the inner market will have a positive effect on the export performance of the Danish companies. 32% of the companies also assess that the effects on profitability will be positive.

However, 62% of the companies in that survey also declared that they have not developed any EC strategy. Only 28% of the companies have given higher priority to the EC as a result of the inner market. 55% have no intention to change their market priorities. Only 1% of the producing companies have internationalized themselves in other EC countries by setting up production companies or trade companies.

In short, the level of internationalization of Danish manufacturing firms is low when measured on these three dimensions.⁷

A conclusion from comparison with the Danish study is that the companies in Southern Sweden are not at all unique in having a hopeful view of the future and doing relatively little to prepare for it. If this tendency is more general it could mean that those companies and those countries which have a proactive or interactive approach will create the future for the others.

But what explanations can be found for the rather passive way that the industry in Southern Sweden tackles the future?

One explanation could be that the international situation has so many different and sudden developments that the managers in the companies in Southern Sweden find the market situation difficult to interpret. Therefore, the common reaction is to wait and see what happens next. Perhaps the situation will be a bit more stable and create a solid ground for competitive analysis in the near future?

A complementary explanation could be the recession. Companies have problems enough in their daily activity. Perhaps the times should be a little better and more money should be earned before it is invested in foreign ventures or export or restructuring? Two circumstances, however, contradict this explanation. One is that the survey was made before the recession was clearly noticed. One other circumstance is that the companies have rather high hopes for the future.

A third explanation could be that there are segments of the companies in Southern Sweden which have a very domestic orientation. If the vast majority of

⁷ Sidenius (1991) pp. 6-7.

the customers are local, and the international context creates obstacles for business for the companie's products, international it is sometimes understandable that the working hypothesis of the corporate top managements of such companies is one that views the market as local. If that is the case, these companies of Southern Sweden are not interested in changes in surrounding markets. Perhaps the general feeling is that deregulation will not be a reality after all. Perhaps companies in the Sheltered sector devote their time and energy to lobbying in the political system. The approach would then be to invest in sustainable regulation rather that to develop sustainable competitiveness.

A fourth explanation would be that the market developments around us are exaggerated by mass media and the politicians and that the implications in real industrial life will be negligible.

The way we understand the developments abroad, it must be clearly stated that it is real effort to change the global competitive situation. Several governments, including the Swedish government, have invested a lot of time and money in the development of a Europe with industrial strength. This is done against the background that the United States and several Pacific states have developed a lead in this area.

We also know that there are several international companies - including some Swedish companies - which do not wait and see. They take an active part in the creation of the new market conditions. At the same time they move their own business frontiers ahead. The purpose of the European integration is to increase the competition between European companies. Many companies have received that signal.

This leads us to two general conclusions:

The first conclusion is that market development in the coming years will create great surprises to many companies in Southern Sweden. For those who have not chosen pre-action, the demand for adaptation can be sudden and difficult. It is our belief that quite a number of companies will suffer in this process.

The second conclusion is that in the search for models and patterns for development of global competitiveness in a regional context, it is necessary to supplement studies of the whole population of companies and the average figures. This is the next phase of our research. We will search for unique combinations of productions factors, customers, supporting and competing industries and unique strategies. These factors will be related to the regional infrastructure and governmental actions. Thus we will analyse patterns of corporate development and success for the minority group of companies - those who analyze and act early. Findings from these companies can create insights that may support the regional development in a broader sense.

Our second conclusion has theoretical as well as methodological consequences. In the introduction to this paper we described our theoretical platform. In the analysis of the industry structure and the description of the present actions and plans in the industry of Southern Sweden we use the product cycle theory and Michael Porters work in a neoclassical context. This static approach is very clear and concise in that it works very well for structural analysis and for present state snapshots of the industry activities and plans.

In addition to this structural analysis, we search for explanations to successful development processes and well working competitive behaviour. Therefore, we will realize the need to use the theories and concepts in a more dynamic approach. This increased focus on dynamism and change processes also means that we include methods that can capture important aspects of these processes. Examples of such methods are historical analysis, in-depth case descriptions, analysis of critical choices in development processes, analysis of dominating actors, scenario-writing, Delphi techniques, interactive seminars and field experiments.

Part 3

Structure and Networks - Schleswig-Holstein

Position and Performance of Schleswig-Holstein's Economy 1970-1990

Schleswig-Holstein represents a small part of the Federal Republic of Germany. Just 4.1% of West Germany's population live in Schleswig-Holstein and 6.3% of the land area belongs to the most-northern Bundesland (figure 3). As the portion of the population is smaller than portion of the land area, population density is significantly lower than in the Federal Republic as a whole.⁸

The Schleswig-Holstein economy produces 3.4% of the Gross Domestic Product of Germany. The share in Gross National Product amounts 3.8%, showing that the people's income exceeds value added deriving from the region. This is mainly due to the fact, that a considerable number of people living in Schleswig-Holstein earn their money in Hamburg, which is its own Bundesland.⁹

Both Gross National Product and Gross Domestic Product per inhabitant are below national averages. Manufacturing and the export sector are of less importance than in Germany as a whole. Unemployment is higher than the national average.

Schleswig-Holstein's economic growth during the last twenty years shows significant differences from the pattern of national development (table 41 and figure 4):

In the first period (1970-1977), the average annual growth rate of Gross Domestic Product in this region was higher than in Germany. As a result the income level in Schleswig-Holstein gained considerably and approached the national average.

In the second period (since 1977), economic growth in Schleswig-Holstein has lagged behind the development in Germany. In 1988, the overhang from the first period was exhausted.¹⁰

⁸ Here and in the following sections Schleswig-Holstein is always compared with the Federal Republic of Germany in the boundaries before Oct. 3 1990.

⁹ 146,000 persons (13% of the employed persons) live in Schleswig-Holstein having their working place in other regions, alone 143,000 in Hamburg. In the other direction, only 34,000 persons are coming to Schleswig-Holstein for work living outside the region.

¹⁰ In 1990, economic growth in Schleswig-Holstein was about average. This effect partly results from full utilization of capacities in the rest of Germany and partly from the German unification. In a short view - the regions nearby the former border to the GDR were favoured, because the high demand of consumer goods from the former GDR increased turnover and value-added of retail trade extraordinary.


e 3. Schleswig-Holstein and its counties.

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Table 40. Basic indicators for the Schleswig-Holstein economy.

Source: Statistisches Landesamt Schleswig-Holstein (current volumes). Statistisches Bundesamt (current issues). Own calculations.

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•	Schleswig-Holstein	Federal Republic of Germanya	Schleswig-Hol in % of the F	stein RGa
Inhabitants (1,000)	2,574b	62,636		4.1
Area (km2)	15,729	248,621		6.3
Population density (inhabitants per km2)	163.6b	251.9		64.9
Gross National Product (million DM)b	66,688	1,766,000		3.8
Gross Domestic Product (million DM)e	62,600	1,828,480		3.4
Per capita income (Gross National				
Product in DM per inhabitant)d	25,908	28,195		91.9
Employed persons in % of inhabitants	45.3b	44.1	1	02.7
Unemployment rate (annual average)	8.7c	7.2	1	20.8
Persons employed in manufacturing per				
1,000 inhabitants	65.6b	112.2		58.5
• Export rate (exports in % of Gross				
domestic product)c	16.6	28.7		57.8
a. In the boundaries before Oct. 3, 1990 (West	Germany). b. 1988.	c. 1989. d. 1987	. e. 1990.	

Table 41. Gross Domestic and Gross National Product^a in Schleswig-Holstein and the Federal Republic of Germany 1970-1990.

Source: Statistisches Landesamt Schleswig-Holstein. Own calculations.

	Schleswig-Holstein	Federal Republic
		of Germany
Gross Domestic Product		
average annual growth rate		
1970-1977	3.5	2.7
1977-1983	1.2	1.6
1983-1990	2.3	2.9
index: 1970=100		
1977	127	120
1983	136	132
1990	160	161
Gross National Product		
average annual growth rate		
1970-1977	3.1	2.7
1977-1983	3.7	1.6
1983-1990	3.7b	3.0
index: 1970=100		
1977	124	120
1983	141	132
1990	161c	154c
a. In prices of 1980. b. In prices of 1983-1989. c. In prices of	f 1989.	

Table 42. Gross Domestic Product and Gross National Product per capita^a in Schleswig-Holstein and Federal Republic of Germany 1970 and 1990.

Source: statistisches Landesamt Schles	swig-Holstein. Own calcula	ations.	
	Schleswig-Holstein	Federal Republic of Germany	Schleswig-Holstein in % of the FRG
Gross Domestic Product per capita			
1970	15,700	18,678	84.1
1990	22,357b	26,691 ^b	83.8 ^b
Gross National Product per capita			
1970	16,605	18,697	88.8
1990	24,781 ^b	26,691 b	92.8 ^b
	100m		

a. In prices of 1980. b. In prices of 1987.

Table 43. Persons in employment and investment 1970-1990.

Source: Statistisches Landesamt Schleswig-Holstein. Own calculations

	Schleswig-Holstein	Federal Republic	Schleswig-Holstein
		of Germany ^a	in % of the FRG
Persons employed (thousand) ^b			
1976	679.5	19,939.3	3.41
1980	733.2	20,953.9	3.50
1984	704.7	20,040.3	3.52
1988	742.4	21,265.0	3.49
1990	779.9	22,368.1	3.49
Gross investment (million DM) ^C			
1970	10,146	295,270	3.4
1976	11,557	284,640	4.1
1980	15,082	339,410	4.4
1984	13,286	319,570	4.2
1988	12,282	355,670	3.5

a. Federal Republic in the boundaries before Oct. 3, 1990 (West Germany). b. The underlying statistics reports not before 1976. c. Investment in capital goods in prices of 1980.

The growth pattern of the Gross National Product differs from that of Gross Domestic Product (table 41 and figure 5). One can observe above average growth rates until 1983. The lag behind the national development since 1983 is much less pronounced for GNP.

The level of economic activity per inhabitant in Schleswig-Holstein was not higher at the end of the eighties than in 1970 when compared with the national average (table 43). Value added per inhabitant reached round about 84% of value added per inhabitant in Germany as a whole. However, the average income of the population had improved clearly: from 88.8% to 92.8% of the national average. This is remarkable given that the population growth in



Figure 4. Growth of Gross Domestic Product, 1970-1990 (1970=100)



Figure 5. Growth of Gross National Product, 1970-1990 (1970=100)

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Figure 6. Persons employed, 1976-1990 (1976=100).



Figure 7. Schleswig-Holstein's share in gross investment in the Federal Republic of Germany, 1970-1988.

Source: Statistisches Bundesamt (varie	ous issues). Statistisches L	andesamt (various issue	s). Own calculations.
	Schleswig-Holstein	Federal Republic of Germany ^a	Schleswig-Holstein in % of the FRGa
Gross value added (million DM)a			
1970	9,410	392,580	2.40
1977	11,968	453,120	2.64
1983	12,410	469,360	2.64
1989	12,529	532,750	2.35
Persons employed (thousand)			
1970	191.0	8,293.0	2.30
1977	164.7	7,018.7	2.35
1983	165.5	6,699.7	2.47
1990	176.7	7,239.0	2.44
Gross value added per employed person (million DM)a			
1970	49,268	47,339	104.07
1977	72,666	64,559	112.56
1983	74,973	70,057	107.02
1990	74,172	75,785	97.87
Gross investment (million DM)a			
1970	1,390	66,120	2.10
1980	2,083	59,680	3.49
1988	1,453	66,810	2.17

Table 44. Economic performance of manufacturing, 1970-1990.

a. In prices of 1980.

Schleswig-Holstein was higher than in Germany.¹¹ It seems that Schleswig-Holstein is developing more as a region in which people like to live than as an attractive region for economic activities.

More evidence of Schleswig-Holstein's changing economic position during the last twenty years can be derived from studying the absorption of people into the workforce within the region and the level of investment undertaken (table 43). As far as the number of employed persons is concerned, there are only slight differences from the national trend (figure 6). Until 1980, employment in the region grew faster, and in the period 1980 to 1984 the decrease was more moderate. Since 1984, national employment has grown at a slightly greater rate than in Schleswig-Holstein.¹² Greater differences exist in development of investments.

¹¹ From 1970 to 1987, population grew in Schleswig-Holstein by 2.35%, in the Federal Republic of Germany by 0.70%.

¹² In connection with the less favourable development of Gross Domestic Products this means, however, that the possibilities to gain a certain income by employment in Schleswig-Holstein lagged behind compared with the Federal Republic as a whole.



Figure 8. Value added per employed person in manufacturing, 1970-1989.



Figure 9. Schleswig-Holstein's share in gross invetment of manufacturing in the FRG, 1970-1988.

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In the seventies, there was very dynamic investment-development in Schleswig-Holstein (figure 7). The region's share of investment in West Germany was 1% higher at the beginning of the eighties than in 1970. But in the following years Schleswig-Holstein has not maintained this position. By 1988 Schleswig-Holstein's share of investments is not higher than at the beginning of the seventies.

All in all the Schleswig-Holstein economy made remarkable progress toward catching up to the national income level in the first half of the seventies; but since 1983 the region's economy has lagged behind and lost the gains made during the seventies. This marks the beginning of the upswing in the Federal Republic which has continued until the present.

It is well-known that the economic performance of regions has become more dependent on developments in other regions of the world. This is due to new developments in the international division of labour which consist in increasing possibilities to separate the several functions of firms and to localize them in different places. If regions are interested improving their economic positions, or even to maintain an existing one, they must be attractive for mobile capital. They must also be open for restructuring processes. The sector concerned mostly in this context is, of course, the manufacturing sector. Searching for an explanation of Schleswig-Holstein's first improving and then deteriorating economic position, a detailed consideration of this sector may be helpful.

The economic performance of the manufacturing sector in Schleswig-Holstein has deteriorated significantly. Until 1977 the gross value added grew faster than the nation. During an interim period, 1977-1983, neither Schleswig-Holstein nor Germany experienced an increase in value added. Since 1983, Germany has experienced remarkable growth, whereas value added in Schleswig-Holstein remained on the level of 1983 (table 44). The importance of differences between the national and regional development can be seen if gross value added per employed person is considered. This indicator for Schleswig-Holstein was 104% of the national average in 1970, it reached 112% in 1977 but fell to only 98% in 1990 (table 44 and figure 8). Regarding investment, we can observe a strong increase in the seventies and a similar upswing in the eighties, compared with the national development (table 44 and figure 9).

As the performance of Schleswig-Holstein's manufacturing sector differs clearly from the national development, the locational conditions for firms and the structure of this sector in Schleswig-Holstein should be considered more in detail. This will be done in the following chapters.

CONDITIONS FOR ECONOMIC ACTIVITIES IN SCHLESWIG-HOLSTEIN

The lagging behind of Schleswig-Holstein's economy and especially its manufacturing sector since the second half of the seventies can probably be traced back to two underlying factors. One explanation may be an unfavourable industrial structure with a local concentration on less dynamic and low-income industries. This will be discussed in detail later. The second explanation could be a relatively unfavourable set of what is called "locational factors". They form the base for the whole economy of a region. This may be of importance for a region's position in the interregional locational competition for attracting mobile factors of production.

Theoretically this set of locational factors might also include the institutional (legal and fiscal) framework in which enterprises operate, at least to the extent that regulations and tax rates differ between locations. Regulations and most tax rates, however, are the same for Schleswig-Holstein and the Federal Republic as a whole - with a few exceptions concerning local taxes. Enterprises in Schleswig-Holstein, therefore, share the competitive position of others located elsewhere in the Federal Republic. Clear differences within the Federal Republic can be observed with other locational factors. What is still more important, these differences have changed over time. They may well account for the different economic performance in Schleswig-Holstein in the seventies and eighties.

Locational factors can be divided into "hard" factors (as the stock of public infrastructure or factor costs) and "soft" factors (as the endowment with cultural and leisure accommodations). The exact ranking of the importance of individual locational factors is unknown. However, the results from the questionnaires indicate that there exists a number of core factors underlying investment decisions with respect to the question of where to invest. The most prominent among these core factors are an efficient transport infrastructure (esp. uncongested motorways and easy access to airport facilities), the proximity to universities and research institutions, a well-educated labour force, and the availability of land for industrial purposes.¹³ In the following paragraph, we shall mainly concentrate

¹³ When factor (in particular labour) costs are lacking among most of the answers to these questionnaires this may be due to the fact that the labour market in Germany is heavily regulated (with nearly completely levelled and downward-sticky wage rates as bargained in collective agreements de facto valid nearly all over the country). Thus, the wage-rate for most enterprises is a data rather than a price governing supply and domand. The latter argument shows that for fostering economic growth in a country or region the institutional framework may be as important as the hard factors.

on hard factors.¹⁴ After that the main lines of institutional framework (including the tax- and subsidy-system) will be analysed.

LOCATIONAL FACTORS

Geographical Situation and Transport Infrastructure Facilities

With respect to central Europe Schleswig-Holstein belongs to the more peripherical regions. Producers and consumers residing within its borders have to overcome greater distances when engaging in international and interregional trade with relevant selling and purchasing markets. Investigations by Adlung et al. (1979), Keeble et al. (1981), and by Hoffmeyer et al. (1990) have provided evidence that Schleswig-Holstein's location relative to relevant markets is inferior compared with that of other German regions. Its proximity to Hamburg and its situation near the Baltic Sea are favourable.

A peripheral location by itself, however, is not necessarily an impediment to economic development. Otherwise countries like Hongkong would never had have any chance to participate successfully in the international division of labour. The location should be taken into account in its interaction with other factors. Locational disadvantages can be overcome, if economic integration processes take place. In this respect, Schleswig-Holstein's economy has gained a lot from the enlargement of the European Community in 1973, when Denmark, the United Kingdom, and Ireland joining the Community. One can indeed infer from foreign trade data that Schleswig-Holstein gained more from this trade liberalisation towards the northern and northwestern neighbouring countries than the Federal Republic did as a whole.

In the eighties, the EC was enlarged at its southern border. This southward tendency was enhanced by the location of the economic centres themselves moving southward during the last twenty years, e.g. in West Germany the Rhein-Main-Neckar-Isar area is more and more outperforming the Ruhr area. Thus, Schleswig-Holstein's relative economic location in space somewhat improved in the seventies but deteriorated in the eighties.

Closely connected to the question of location is the endowment of a region with transport and communication infrastructure facilities. In this respect, one can detect a similar development showing differences between the seventies and

¹⁴ For a detailed analysis of Schleswig-Holstein's locational factors see Hoffmeyer et al. (1990, chapter C.)

eighties. The completion of the A7 highway and the Elbe tunnel near Hamburg connecting Schleswig-Holstein to the German highway network in the middle of the seventies was a major step forward in improving the country's relative location in space. In the eighties, these were major improvements of transport infrastructure facilities on road and rail only southward from Hamburg, not in Schleswig-Holstein. Furthermore, congestion on the existing road on rail links grew substantially. Schleswig-Holstein now has a pronounced disadvantage to other regions in the Federal Republic. As southward bound traffic flows have to pass to a large extent through Hamburg and its Elbe tunnel and bridges, the Elbe river as southern border forms a kind of natural barrier. Because of this the manufacturing industry in Schleswig-Holstein faces difficulties in engaging in the inter-regional division of labour in Germany. "Just-in-time" logistic concepts cannot work here without deficiencies. Even the nearby Hamburg-Fuhlsbüttel airport often is not reachable without serious delays. An additional disadvantage for Schleswig-Holstein is the severe transport regulation in the Federal Republic leading. This leads to excessive transport prices, a fact with unfavourable consequences to peripheral regions where transport costs matter most.

In the field of telecommunications telephone tariffs discriminate against medium range calls (from 100 to 200 km). Data transmission has to be performed via the telephone network with tariffs higher than in mere data transmission networks. Schleswig-Holstein has always been in a relatively less favourable position.

Research and Development

Enterprises from Schleswig-Holstein willing to turn basic research results to useful products have to rely on research facilities located elsewhere. The state's public research facilities in the region are very limited compared with those in other German states. Universities and independent research institutions are few in number, smaller, and have more limited budgets at their disposal. This is especially true in the field of engineering science and research. The research atmosphere is not as intensive as in other regions. This has been true for the period of the seventies and eighties as well. However, structural change has stressed this disadvantage, because R&D intensive industries were among those with the best growth prospects in the eighties.

The lack of basic research is reflected in a similar shortcoming of applied research and development in enterprises. Measured by input quantities Schleswig-Holstein's enterprises performed R&D activities at only 2/3 to half the level compared with the Federal Republic (old West-German states only) in

	R&D manpower ^a as % of labour force		R&D expenditures as % of revenue			
	1983	1985	1987	1983	1985	1987
Schleswig-Holstein	2.5	2.3	2,2	1.3	1.2	1.3
Hamburg	5.3	5.4	7.2	1.2	1.2	2.0
Lower Saxony	2.5	2.5	2.6	1.6	1.3	1.7
Bremen	4.4	- 5.3	3.9	2.5	3.4	2.1
Northrhine-Westphalia	2.7	2.8	2.7	1.8	1.6	1.9
Hesse	4.1	5.3	5.3	2.8	3.6	3.8
Rhineland-Palatine	3.1	4.0	4.3	1.5	2.1	2.5
Baden-Württemberg	4.3	4.5	4.6	3.0	3.1	3.4
Bavaria	4.4	4.8	5.3	3.0	3.4	4.1
Saar	0.6	0.6	0.4	0.5	0.4	0.3
West Berlin	3.1	3.9	4.7	1.4	1.6	2.4
Federal Republic	3.5	3.8	4.0	2.2	2.3	2.0

Table 45. Percentage of R&D manpower and expenditures in German manufacturing and mining for states, 1983, 1985 and 1987.

a. Fulltime-equivalent.

1983 and 1985 and at nearly half that level in 1987 (table 45).¹⁵ The same comes true with external research commissioned by local enterprises. Among manufacturing branches there is no industry at the two-digit industrial classification level where Schleswig-Holstein's enterprises would employ more R&D personnel than the Federal average.¹⁶ At the three-digit level published data provide evidence of a higher percentage of R&D personnel in Schleswig-Holstein only for the manufacture of machinery and equipment (242).¹⁷ A tentative estimate by Legler (1991) for all other three-digit-level industries exhibits a similar advantage of Schleswig-Holstein for manufacture of petroleum products (205), of fabricated metal products (240), shipbuilding (246), manufacture of medical, precision and optical instruments (252), of musical instruments, sport goods and games and toys (258), and of textiles (275; see table 46).

Labour Force Human Capital

The labour force for the aggregated manufacturing sector in Schleswig-Holstein seems quite well educated. As far as skilled workers are concerned, the percentage of labour force in 1987 was 3.5% above that in the Federal Republic and

¹⁵ Regional data for Schleswig-Holstein are not available for years before.

 $^{^{16}}$ At state level only data on R&D manpower are available. Regional data on R&D expenditures are published only for aggregated manufacturing.

¹⁷ Numbers in brackets represent WZ-code-numbers. WZ means "Systematik der Wirtschaftszweige" - branch classification.

WZ-codeb	Branch	R&D Manpower a	s % of labour force
		Schleswig-	Federal Republic
		Holstein	of Germany
200	M.o. chemicals and chemical products	1.2	10.2
201	Processing of nuclear fuel		10.8
205	M.o. refined netroleum products	16.1	9.5
20	M o chemicals chemical nuclear and refined	10.1	7.5
20	petroleum products	2.2	10.2
210	M o. plastic products		1.2
213	Mo rubber products	•	2.7
21	M o, rubber and plastic products	0.8	15
221	Cutting shaping and finishing of stone and clay	0.0	0.5
221	M o of cement lime plaster and articles thereof and		0.5
	of concrete	0.2	0.8
223	M or refractory and structural non-refractory ceramic	0.2	0.0
وحم	ware	-	23
224	M o non-structural pon-refractory ceramic ware	_	0.6
226	M.o. grinding materiale	_	13
110 117	M.o. glass and glass products	11	1.5
227	Extraction and monsterne and clay products	1,1	1.5
22	M o basic iron and steel	0.1	1.0
230-232	M.o. basic from and steel M.o. basic presions and for farrous metals	-	1.0
233	Conting of iron and steel	-	1.0
234	Casting of non-femous metals	-	0.9
230	Casing of non-terrous metals	•	0.4
237	Drawing and ron-torning		0.7
238	Forging, pressing, treatment and coating of metals	0.0	1.3
239	Locksmithing, welding, grinding, forging, n.e.c.	-	0.1
23	Generation and m.o. metal	0.1	0.9
240	M.o. fabricated metal products	1.3	1.2
241	M.o. tanks, reservoirs and boilers	0.9	1.1
242	M.o. machinery and equipment	5.8	3.5
243	M.o. office, accounting and computing machinery	6.2	8.5
244	M.o. motor vehicles	1.0	5.4
245	M.o. road transport equipment, n.e.c.		0.9
246	Building and reparing of ships and boats	1.2	1.1
247	M.o. railway and tramway locomotives and rolling		
•	stock	-	1.6
248	M.o. of aircraft and spacecraft	14.0	19.9
249	Repairing of vehicles		0.0
24	M.o. steel products, machinery and vehicles	3.3	4.1
250	M.o. electrical and electronical machinery and		
	apparatus n.e.c.	2.0	8.8
252	M.o. medical, precision and optical instruments	4.0	2.4
254	M.o. watches and clocks	-	3.7
256	M.o. tools, weapons, thin plate and metal products		
	n.e.c.	1.0	1.4
257	M.o. pencils, stamps, modelling and curving ware,		
	processing of films	-	0.9
258	M.o. musical instruments, games and toys, sport goods		
	and jewellery	2.6	0.9

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Table 46. R&D manpower as % of labour force^a in manufacturing branches in Schleswig-Holstein and the Federal Republic of Germany, 1987. Source: Legler (1991).

Table	46	contin	ued.

WZ-code ^b	Branch	R&D Manpower as	% of labour force
		Schleswig-	Federal Republic
		Holstein	of Germany
25	M.o. of electrical and electronical machinery,		
	precision instruments, thin plate and metal products	2.3	5.9
260	Sawmilling and planing of wood, m.o. wooden inter-		
	medieate products	•	0.3
261	M.o. wooden products	0.5	0.6
264	M.o. cellulose, pulp, paper and paperboard	0.2	0.7
265	M.o. paper and paperboard products	-	0.3
268	Printing, publiching and reproduction of recorded		
	media	0.0	0.1
26	M.o. wooden and paper products, printing	0.2	0.4
270	Tanning and dressing of leather	-	0.9
271	M.o. leather products	-	0.6
272	M.o. footwear	. –	0.1
275	M.o. textiles	0.4	0.3
276	M.o. wearing apparel, dressing and dyeing of fur	0.1	0.1
27	M.o. leather, textiles and wearing apparel	0.1	0.2
28/29	M.o. food products, beverages and tobacco products	0.4	0.4
2	Manufacturing ^e	1.7	3.4

a. Labour force according to plant and employment census 1987. b. Code of branches provided by Statistisches Bundesamt. d. Not elsewhere classified. e. Figures differ somewhat from those in table 45 due to employing other labour force figures as stated in footnote a.

even 5.5% above that in Baden-Württemberg, one of the states with the best economic performance. However, this difference has decreased during the seventies and eighties, in 1970 the difference amounted to 4.2 resp. 7.6%. Less favourable for Schleswig-Holstein's manufacturing is the share of qualified technical and commercial employees. In most industries their share in Schleswig-Holstein lies below the federal average, sometimes, however, higher than in Baden-Württemberg.

The picture is even worse if one analyses the share of engineers and technicians and their educational level. Schleswig-Holstein, with the exception of the Hamburg belt¹⁸ and the old industrial central regions around Kiel, is lagging behind the federal average to a much greater and increasing extent (around one fifth). The number and the rate of increase of jobs for highly qualified personnel in the field of advanced technical services is much lower than in the Federal Republic.¹⁹

 $[\]frac{18}{18}$ This is defined by the area of the counties adjoining to Hamburg.

¹⁹ Cf. Hermann (1989).

Labour Costs

As already mentioned in the introductory remarks of this chapter, labour cost differentials in the Federal Republic do not reflect regional productivity differentials. A high level of regional unemployment in peripheral regions indicates serious disturbances in the labour costs/productivity ratio. Wage rates, being collectively bargained by employers' organizations and labour unions, are nearly the same all over the Federal Republic.²⁰ Up to the middle of the seventies, we still could observe a certain amount of wage differentiation, but since then bargained wage rates have converged. Effectively paid wage rates still differ to some extent, but - with the exception of the municipal states - this margin does not exceed 5% in most cases.²¹ Schleswig-Holstein in all has not offered very favourable labour costs, especially in the eighties.²² This may not be true for the booming Hamburg belt, where higher effective wages are justified by a higher productivity and the bargained wage rates which are below the effective rates do not act as minimum wages. This latter is the case, however, in more periphe-ral regions of Schleswig-Holstein as in the German-Danish border regions, where unemployment is highest on average in the region.

Other Local Costs

A somewhat favourable picture can be drawn in the field of land prices and availability of industrial and commercial sites. Land prices are lower in interregional comparison, and available industrial sites seem to be sufficient. Shortages can be observed, however, in the booming Hamburg belt and in Kiel, Lübeck and Flensburg.

Energy costs were relatively high in the seventies and at the beginning of the eighties. Since that time rates for electrical energy have much more increased elsewhere, so that Schleswig-Holstein has now energy costs near the federal average.

 $[\]frac{20}{21}$ Only Bavarian bargained wage rates are still lagging behind those in the rest of the Federal Republic.

²¹ Cf. Paqué (1989, p. 33).

 $^{^{22}}$ This should not be mixed with the evidence that the income per head is lower in Schleswig-Holstein than in the Federal Republic. This can be explained by structural reasons: In Schleswig-Holstein low-income branches are dominating. See next section of the paper.

"Soft" Factors

Soft locational factors can be difficult, because their assessment and classification often depends on personal tastes and preferences. What can be said is that Schleswig-Holstein's natural environment has advantages with its lower level of pollution. Similarly the region's role as holiday resort is unquestioned, and in the field of cultural activities there have been major steps forward in the last years. With respect to soft factors Schleswig-Holstein's position seems favourable, but - though soft factors are to gain more and more importance - one should not forget the decline in the hard factors in the eighties.

INSTITUTIONAL CONDITIONS

General institutional conditions as the legal framework, regulations and taxes are nearly the same all over the Federal Republic. What counts in international comparisons between Schleswig-Holstein and regions in other countries are the differences between the Federal Republic and locations abroad.

Legal framework and Regulations

Measured by its basic legal framework the Federal Republic is constituted on the principle of the social market economy. It can best be characterized as a kind of mixed economy with a large public sector involvement in many areas. From a liberal economic perspective some of these would be called market domains. Similarly, public regulation of industries is widespread and most prominent in branches that have been categorized as "exempted from competitive pressures". Examples of these are agriculture, coal mining, steel production, public utilities, transportation, communication and banking.23 Another relevant issue in this respect is the high level of subsidization that some industries (agriculture, coal mining, steel production, shipbuilding, manufacture of air- and spacecraft, transportation and other service sectors) enjoy. All these things taken together account for more than 50% of aggregated value added and employment that are not subject to internal or external competition.²⁴ As far as Schleswig-Holstein is concerned, the public sector together with regulated and subsidized industries' share is even higher than the federal average due to the structural composition of

²³For details see Möschel (1982, p. 605 ff.); Soltwedel et al. (1986; 1987).
²⁴ Cf. Donges, Schatz (1986, p. 58).

the economy.²⁵ Agriculture, shipbuilding and transportation are prominent branches in Schleswig-Holstein's structural mix.

Thus, Schleswig-Holstein is in a relatively unfavourable position concerning incentives to structural change and dynamic economic performance. Empirical results as well as theoretical considerations lead to the conclusion that the more an economy is governed by competition the more intensive incentives are to search for new income opportunities and to act as dynamic Schumpeterian entrepreneurs. If, on the other hand, more and more jobs can be found in branches which are not subject to competition, the incentives for structural change will decline over time with the consequence that resources, especially skilled workers, remain in suboptimal uses and are not at the disposal of dynamic future-oriented branches.

Tax System

The national and local aspects of the tax system have to be separated. In general, the German tax system is constituted in such a way that tax rates do not differ over regions. So Schleswig-Holstein's competitive position is defined by that of the Federal Republic in international comparisons. There exist regional differentiations for only a few taxes. These are the real estate tax and the commercial tax, the latter's basis of valuation includes invested capital and plant profits as well. As far as the Federal Republic's relative position in business taxation is concerned, profits from joint stock corporations are taxed higher than in most other industrial countries.²⁶ This is due to the double taxation by business and commercial tax. Foreign companies engaging in subsidiary corporations in Germany are taxed for these domestic activities higher than elsewhere. The Federal Republic - and Schleswig-Holstein as a part of it - does not belong to the most favourable tax locations. Its relative position in the international locational competition for mobile capital funds is less favourable than that of other industrial countries like the United Kingdom.

In a regional domestic comparison Schleswig-Holstein's position is not unfavourable. Those tax rates being locally differentiated were near or above the

²⁵ One should further keep in mind that the federal average itself is distorted by a few states with serious structural problems (e.g. Northrhine-Westfalia and Saar with coal-mining and steel production). So the difference between Schleswig-Holstein and most other West German states is even larger. Only in one respect Schleswig-Holstein is in a favourable position. External (tariff and non-tariff) protection is less for the state's average, because heavily protected branches as textiles or steel production are lacking in the structural mix. Cf. Hoffmeyer et al. (1990, pp. 42 ff.).

²⁶ For details cf. Boss (1988).

federal average at the beginning of the seventies, but were lower at the end of the eighties.²⁷

Summarising the balance of locational factors and institutional framework, it seems that Schleswig-Holstein's position in interregional and international locational competition improved during the seventies. Since then has worsened compared with that of other regions in the Federal Republic.

MAIN LINES OF INDUSTRIAL STRUCTURE AND STRUCTURAL CHANGE IN SCHLESWIG-HOLSTEIN IN THE SEVENTIES AND EIGHTIES

Data Problems

The end of analysing industrial structure and structural change would best be served by a data set which is highly disaggregated and which provides data for as many years as possible in order to identify sub-periods of structural change. Unfortunately we do not have a data set which fits in with both criteria. A highly disaggregated data set with respect to employment in industries is provided by the plant and employment censuses, which took place in 1970 and 1987. There are no data for years inbetween or after 1987. Data on a yearly basis for employment and revenues as well are provided by the normal industrial census. These data, however, are only available at such an aggregated level that any categorization with respect to factor intensities, as will be done later in this chapter, does not make analytical sense.²⁸ In order to get useful results we decided to rely on the highly disaggregated plant and employment censuses. This means that we cannot discriminate between sub-periods and possibly different phases of structural change therein. We can only identify the structural change between 1970 and 1987.

The Overall Structural Pattern

The overall structural pattern of the economy of Schleswig-Holstein exhibits clear differences from that of the Federal Republic as a whole. The share of

²⁷ Cf. Hoffmeyer et al. (1990).

²⁸ Extremely speaking, one would have to split the aggregated groups of industries according to one's own prejudices just to arrive at the results one would expect.

Mill. DMShare (%) schleswig-Holstein in relation to the Federal Republic (=1)198819701988Agriculture, Forestry, Fishing3,1196.55.42.442.49Energy and Water Supply, Mining2,6563.74.61.001.39Manufacturing12,17724.821.00.680.68Construction3,3059.35.71.131.01Wholesale and Retail Trade6,3149.810.90.971.08Transportation, Communication3,7525.26.50.961.01House Renting4,9656.58.61.241.28Other Private Services, Business Activities8,21711.214.21.020.90Public Sector9,90618.41.711.591.48Private Households, Non-Profit Organizations1,2281.82.10.930.99All Sectors57,905100.0100.01.001.00Employment according to National Account Statisticsb1,000 DMShare %Schleswig-Holstein in relation to the Federal Republic (=1)19881970198819701988Agriculture, Forestry, Fishing267.021.727.31.591.37All Sectors977.0100.0100.01.001.00Employment according to Compulsory Social Security Statisticse1.9819781.37All Sectors977.0100.0100.01.001.00	Gross value added ^a					
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		Mill, DM		Share (%)	Schleswi	g-Holstein
Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 3,119 6.5 5.4 2.44 2.49 Benergy and Water Supply, Mining 2.656 3.7 4.6 1.00 1.39 Manufacturing 12,177 24.8 21.0 0.68 0.68 Construction 3.305 9.3 5.7 1.13 1.01 Wholesale and Retail Trade 6.314 9.8 10.9 0.97 1.08 Transportation, Communication 3,752 5.2 6.5 0.66 1.01 House Renting 4.965 6.5 8.6 1.24 1.28 Other Private Services, Business Activities 8,217 11.2 14.2 1.02 0.90 All Sectors 57,905 100.0 100.0 1.00 1.00 1.00 Employment according to National Account Statistics ^b 1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) Manufacturing 291.0 37.4 </td <td></td> <td></td> <td></td> <td></td> <td>in rela</td> <td>tion to the</td>					in rela	tion to the
$\begin{array}{c c c c c c c c c c c c c c c c c c c $					Federal Rep	oublic (=1)
Agriculture, Forestry, Fishing 3,119 6.5 5.4 2.44 2.49 Energy and Water Supply, Mining 2,656 3.7 4.6 1.00 1.39 Manufacturing 12,177 24.8 21.0 0.68 0.68 Construction 3,305 9.3 5.7 1.13 1.01 Wholesale and Retail Trade 6,314 9.8 10.9 0.97 1.08 Transportation, Communication 3,752 5.2 6.5 0.96 1.01 House Retning 4.965 6.5 8.6 1.24 1.23 Other Private Services, Business Activities 8,217 11.2 14.2 1.02 0.90 Public Sector 9.906 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations 1,228 1.8 2.1 0.93 0.99 All Sectors 57,905 100.0 100.0 1.00 1.00 1.00 Employment according to National Account Statistics ^b 1.900 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) Agriculture, Forestry, Fishing<		1988	1970	1988	1970	1988
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Agriculture, Forestry, Fishing	3,119	6.5	5.4	2.44	2.49
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Energy and Water Supply, Mining	2,656	3.7	4.6	1.00	1.39
Construction 3,305 9.3 5.7 1.13 1.01 Wholesale and Retail Trade 6,314 9.8 10.9 0.97 1.08 Transportation, Communication 3,752 5.2 6.5 0.96 1.01 House Retning 4,965 6.5 8.6 1.24 1.28 Other Private Services, Business Activities 8,217 11.2 14.2 1.00 0.90 Public Sector 9,906 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations 1,228 1.8 2.1 0.03 0.99 All Sectors 57,905 100.0 100.0 1.00 1.00 Employment according to National Account Statistics ^b 1.000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7	Manufacturing	12,177	24.8	21.0	0.68	0.68
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Construction	3,305	9.3	5.7	1.13	1.01
Transportation, Communication $3,752$ 5.2 6.5 0.96 1.01 House Renting $4,965$ 6.5 8.6 1.24 1.23 Other Private Services, Business Activities $8,217$ 11.2 14.2 1.02 0.90 Public Sector $9,906$ 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations $1,228$ 1.8 2.1 0.93 0.99 All Sectors $57,905$ 100.0 100.0 1.00 1.00 Employment according to National Account Statistics ^b Imployment according to National Account Statistics ^b Transportation, Communication 1910 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00	Wholesale and Retail Trade	6,314	9.8	10.9	0.97	1.08
House Renting 4,965 6.5 8.6 1.24 1.28 Other Private Services, Business Activities 8,217 11.2 14.2 1.02 0.90 Public Sector 9,906 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations 1.228 1.8 2.1 0.93 0.99 All Sectors 57,905 100.0 100.0 1.00 1.00 Employment according to National Account Statistics ^b I,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C Intervent Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C Intervent House Index Forestry, Fishing 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting c Compulsory 5.7 4.5 4.8 0.96 1.00 House Renting c Computation 35.7 4.5 4.8 0.96 1.00 House Renting c Computation 35.7 4.5 4.8 0.96 1.00	Transportation, Communication	3,752	5.2	6.5	0.96	1.01
Other Private Services, Business Activities $8,217$ 11.2 14.2 1.02 0.90 Public Sector 9,906 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations $1,228$ 1.8 2.1 0.93 0.99 All Sectors $57,905$ 100.0 1.00 1.00 1.00 Employment according to National Account Statistics ^b $I,000$ DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1.900 DM Schleswig	House Renting	4,965	6.5	8.6	1.24	1.28
Public Sector 9,906 18.4 17.1 1.59 1.48 Private Households, Non-Profit Organizations 1,228 1.8 2.1 0.93 0.99 All Sectors 57,905 100.0 100.0 1.00 1.00 Emptoyment according to National Account Statistics ^b Schleswig-Holstein in relation to the Federal Republic (=1) 1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manafacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1.988 1978 ^d 1988 1978 ^d	Other Private Services, Business Activities	8,217	11.2	14.2	1.02	0.90
Private Households, Non-Profit Organizations 1,228 1.8 2.1 0.93 0.99 All Sectors 57,905 100.0 100.0 1.00 1.00 Employment according to National Account Statistics ^b 1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1970 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5	Public Sector	9,906	18.4	17.1	1.59	1.48
All Sectors 57,905 100.0 100.0 1.00 1.00 Employment according to National Account Statistics ^b 1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1,000 DM 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1,000 DM 1988 1978d 1988 1978d 1988 <td< td=""><td>Private Households, Non-Profit Organizations</td><td>1,228</td><td>1.8</td><td>2.1</td><td>0.93</td><td>0.99</td></td<>	Private Households, Non-Profit Organizations	1,228	1.8	2.1	0.93	0.99
Employment according to National Account Statistics ^b 1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75	All Sectors	57,905	100.0	100.0	1.00	1.00
1,000 DM Share % Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 Employment according to Compulsory Social Security Statistics ^c 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978d 1988 1978d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14	Employment according to National Account 5	Statistics ^b				
1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^e 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0	······································	1.000 DM		Share %	Schleswi	ig-Holstein
Federal Republic (=1) 1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5		1,000 2011			in rela	ntion to the
1988 1970 1988 1970 1988 Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14					Federal Re	(=1)
Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communica		1088	1070	1988	1970	1088
Agriculture, Forestry, Fishing 68.0 11.5 7.0 1.35 1.43 Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DMShare (%)Schleswig-Holstein in relation to the Federal Republic (=1)1988 1978^d 1988 1978^d 1988Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e e e e e e		1700	1770	1/00	1270	1200
Manufacturing 291.0 37.4 29.8 0.77 0.74 Transportation, Communication 191.0 18.0 19.5 1.01 1.05 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting	Agriculture, Forestry, Fishing	08.0	11.5	7.0	1.35	1.43
Transportation, Communication 191.0 18.0 19.3 1.01 1.03 Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.59 1.37 All Sectors 977.0 100.0 100.0 1.00 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978^d 1988 1978^d 1988 1978^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00	Manufacturing	291.0	37.4	29.8 10.5	0.77	0.74
Private Households, Non-Profit Organizations 267.0 21.7 27.3 1.39 1.37 All Sectors 977.0 100.0 100.0 100.0 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e e e e e e e	Fransportation, Communication	191.0	16.0	19.3	1.01	1.03
All Sectors 977.0 100.0 100.0 1.00 1.00 Employment according to Compulsory Social Security Statistics ^C 1,000 DM Share (%) Schleswig-Holstein in relation to the Federal Republic (=1) 1988 1978 ^d 1988 1978 ^d 1988 Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e <td< td=""><td>Private Households, Non-Profit Organizations</td><td>207.0</td><td>21.7</td><td>21.3</td><td>1.39</td><td>1.57</td></td<>	Private Households, Non-Profit Organizations	207.0	21.7	21.3	1.39	1.57
Employment according to Compulsory Social Security Statistics ^c 1,000 DMShare (%)Schleswig-Holstein in relation to the Federal Republic (=1)19881978 ^d 19881978 ^d 1988Agriculture, Forestry, Fishing20.12.72.52.592.56Energy and Water Supply, Mining10.91.31.50.560.68Manufacturing213.632.228.80.770.75Construction56.010.47.51.301.14Wholesale and Retail Trade116.015.915.61.141.15Transportation, Communication35.74.54.80.961.00House Rentingeeeeee	All Sectors	977.0	100.0	100.0	1.00	1.00
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Employment according to Compulsory Socia	I Security Sta	tistics ^C			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		1,000 DM		Share (%)	Schlesw	ig-Holstein
Federal Republic (=1)19881978d19881978d1988Agriculture, Forestry, Fishing20.12.72.52.592.56Energy and Water Supply, Mining10.91.31.50.560.68Manufacturing213.632.228.80.770.75Construction56.010.47.51.301.14Wholesale and Retail Trade116.015.915.61.141.15Transportation, Communication35.74.54.80.961.00House Rentingeeeeee					in rel	ation to the
19881978d19881978d19881978d1988Agriculture, Forestry, Fishing 20.1 2.7 2.5 2.59 2.56 Energy and Water Supply, Mining 10.9 1.3 1.5 0.56 0.68 Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e e e e e e					Federal Re	public (=1)
Agriculture, Forestry, Fishing20.12.72.52.592.56Energy and Water Supply, Mining10.91.31.50.560.68Manufacturing213.632.228.80.770.75Construction56.010.47.51.301.14Wholesale and Retail Trade116.015.915.61.141.15Transportation, Communication35.74.54.80.961.00House Rentingeeeeee		1988	1978 ^d	1988	1978 ^d	1988
Energy and Water Supply, Mining10.91.31.50.560.68Manufacturing213.632.228.80.770.75Construction56.010.47.51.301.14Wholesale and Retail Trade116.015.915.61.141.15Transportation, Communication35.74.54.80.961.00House Rentingeeeeee	Agriculture, Forestry, Fishing	20.1	2.7	2.5	2.59	2.56
Manufacturing 213.6 32.2 28.8 0.77 0.75 Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e e e e e e e	Energy and Water Supply, Mining	10.9	1.3	1.5	0.56	0.68
Construction 56.0 10.4 7.5 1.30 1.14 Wholesale and Retail Trade 116.0 15.9 15.6 1.14 1.15 Transportation, Communication 35.7 4.5 4.8 0.96 1.00 House Renting e e e e e e e	Manufacturing	213.6	32.2	28.8	0.77	0.75
Wholesale and Retail Trade116.015.915.61.141.15Transportation, Communication35.74.54.80.961.00House Renting.e.e.e.e.e	Construction	56.0	10.4	7.5	1.30	1.14
Transportation, Communication35.74.54.80.961.00House Rentingeeeeee	Wholesale and Retail Trade	116.0	15.9	15.6	1.14	1.15
House Renting e e e e e	Transportation, Communication	35.7	4.5	4.8	0.96	1.00
	House Renting	e	e	.e	e.	e
Other Private Services, Business Activities 168.6 18.1 22.7 1.12 1.13	Other Private Services, Business Activities	168.6	18.1	22.7	1.12	1.13
Public Sector 76.2 9.7 10.3 1.47 1.51	Public Sector	76.2	9.7	10.3	1.47	1.51
Private Households, Non-Profit Organizations 18.8 1.9 2.5 1.13 1.13	Private Households, Non-Profit Organizations	18.8	1.9	2.5	1.13	1.13
All Sectors 742.4 100.0 100.0 1.00 1.00	All Sectors	742.4	100.0	100.0	1.00	1.00

 Table 47. Sector shares of value added and employment in the economy of Schleswig-Holstein.

 Source: Hoffmeyer et al. (1990, pp12-13)

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a. 1980-prices. b. All gainfully employed persons including persons running there own business. c. Only dependent employed persons, without civil servents. d. No earlier disaggregated data available for Schleswig-Holstein. e. Included in Other Private services, Business Activities.

Table 48.	Percentage share of manufacturing branches in Schleswig-Holst	ein and the Federal Republic
of German	ny, 1970 and 1987.	

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Source: Statistisches Bundesamt (1972, 1990). Own calculations.

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WZ-	Branch	Percentage of Aggregate Manufacturing				Schleswig-Holstein	
code		Schleswig-H	Holstein	Federal F	Republic	in relation to the	
				of C	lermany	Federal F	Republic
					,	of C	termany
		1070	1097	1070	1087	1070	1087
20	Ma shamingle shamingle sustant	1970	1967	1970	1707	1970	1707
20	M.O. Chemicals, chemical, nuclear	10	6.4	6.2	7 0	0.61	0.02
000	and refined petroleum products	- 3.9	0.4	0.3	6.9	0.61	0.93
200	M.o. chemicals and chemical	<u>.</u>					
• • •	products	3.4	5.9	5.9	6.6	0.56	0.90
201	Processing of nuclear fuel	•	0.0	0.0	0.0	-	0.39
205	M.o. refined petroleum products	0.5	0.4	0.3	0.2	1.50	2.08
21	M.o. rubber and plastic products	2.2	3.1	3.2	4.6	0.69	0.68
210	M.o. plastic products	1.6	2.7	1.9	3.6	0.85	0.76
213	M.o. rubber products	0.5	0.4	1.2	1.0	0.42	0.39
216	Retreading and rebuilding of						
	rubber types	0.1	0.0	0.1	0.0	1.03	0.12
22	Extraction and m.o. stone and clay						
	products	5.7	4.9	4.9	3.9	1.15	1.26
221	Cutting, shaping and finishing of						
	stone and clay	0.5	0.5	0.4	0.4	1.39	1.26
222	M.o. of cement, lime, plaster and						
	articles thereof and of concrete	3.5	2.9	2.3	1.6	1.53	1.84
223	M.o. refractory and structural non-						
	refractory ceramic ware	0.3	0.1	0.5	0.3	0.62	0.24
224	M.o. non-structural non-refractory						
	ceramic ware	0.9	0.8	0.7	0.7	1.29	1.19
226	M.o. grinding materials	0.1	0.1	0.1	0.1	0.58	0.76
227	M.o. glass and glass products	0.4	0.5	1.0	0.8	0.37	0.66
23	Generation and m.o. metal	4.0	4.1	9.0	8.0	0.45	0.52
230	M.o. basic iron and steel from						
	blast furnaces and rolling mills	0.8	-	3.1	1.8	0.27	-
231	M.o. steel tubes	-			0.4	-	-
232	M.o. basic iron from forging						
	presses and hammer-mills	-	-	0.1	01	-	-
233	M.o. basic precious and non-						
	ferrous metals	0.2	0.2	1.0	09	0.21	0.26
234	Casting of iron and steel	12	0.5	13	0.8	0.97	0.63
236	Casting of non-ferrous metals	03	0.3	04	0.5	0.88	0.58
237	Drawing and roll-forming	0.5	0.5	0.9	0.5	0.00	0.43
238	Forging pressing treatment and	0.1	0.2	0.0	0.4	0.15	0.45
230	costing of motols	0.5	0.5	17	1.8	0.28	0.29
220	Lockemithing welding grinding	0.5	0.5	1.7	1.0	0.20	0.29
237	forging n a c	0.8	24	07	1.2	1 15	1 84
24	Mo stal products machinery	0.0	4.4	0.7	1.5	1.15	1.04
24	and vahialas	20.0	20.0	36.9	20.1	1.20	0.06
040	and vehicles M.o. febricated metal medicate	30.9	20.9	20.0	50.1	1.20	U.90 0.91
240	M.o. tablicated metal products	1.0	1.2	1.5	1.4	1.19	0.04
241	Mo. mashing and bollers	0.3	0.5	0.7	0.8	0.43	1.03
242	Mo. office and equipment	12.4	14.1	12.4	13.2	1.00	1.07
243	M.O. Office, accounting and	~ ~	0.3	0.0		0.00	0.00
	computing machinery	0.2	0.3	0.9	1.2	0.23	0.23

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WZ-	Branch	Percentage of Aggregate Manufacturing			cluring	Schleswig-Holstein	
code		Schleswig-I	Holstein	Federal R	epublic	in relation to the	
		-	of			Federal Republic	
					•	of C	ermany
		1970	1987	1970	1987	1970	1987
244	M.o. motor vehicles	0.4	1.2	5.6	8.8	0.07	0.13
245	M.o. road transport equipment.						
L · 5	nec	0.1	0.1	0.1	0.2	0.89	0.40
246	Building and repairing of ships				0.2	0.07	
540	and hoats	82	43	07	05	11 14	8 78
247	M o railway and tramway loco-	0.4	7,5	0.7	0.5	11.14	0.70
247	motives and colling stock	0.0		0.0	0.2	0.80	_
249	Monores and forming stock	0.0	0.2	0.0	0.2	0.00	0.22
248	M.O. Of anotali and spacectare	0.2	0.2	0.5	0.7	0.29	0.52
249	Repairing of venicles	5.2	/.1	2.1	3.1	2.43	2.20
25	M.o. of electrical and electronical						
	machinery, precision instruments,		01.4	10.0	00 0	0.70	1.07
·	thin plate and metal products	14.8	21.4	18.8	20.0	0.79	1.07
250	M.o. electrical and electronical						0.00
	machinery and apparatus, n.e.c.	8.0	10.7	11.2	12,0	0.71	0.89
252	M.o. medical, precision and				_		
	optical instruments	3.3	6.3	1.8	2.5	1.87	2.57
254	. M.o. watches and clocks	-	•	0.3	0.1	-	-
256	M.o. tools, weapons, thin plate and						
	metal products, n.e.c.	3.3	2.9	4.7	3.9	0.69	0.74
257	M.o. pencils, stamps, modelling						
	and curving ware, processing of						
	films	-	0.3	-	0.3	-	1.28
258	M.o. musical instruments, games						
	and toys, sport goods and						
	icwellery	0.2	0.2	0.8	0.7	0.30	0.33
259	Repairing of consumer durables	0.0	0.8	0.0	0.5	1.52	1.65
26	M.o. wooden and paper products.	•					
	nrinting	13.5	12.9	10.4	99	1 30	1 30
260	Saw-milling and planing of woods	15.5	12.7	10		1.00	1,20
200	m o wooden intermediate						
	products	0.8	03	0.9	07	0.89	0.46
261	M a wooden products	0.0 4 4	20	4.4	42	1.01	0.10
261	M.o. celluloco pulp, peper and	4.4	5.7	4.4	7.2	1.01	0.75
204	Paper and paper and paper and	0.0	0.0	07	0.5	1.96	1 75
245	paperboard Monocompany and several several	0.9	0.9	0.7	0.5	1.40	1.75
205	M.o. paper and paperboard	16	10	15	12	1.04	1.20
0/0	products	1.0	1.8	1.5	1,5	1.00	1.50
268	Printing, publishing and repro-	F 0	<i>c</i> 0	2.0	2.1		1 00
A ()	duction of recorded media	5.8	5.8	3.0	3.1	1.96	1.89
269	Repairing of wooden consumer						
	durables	-	0.1	-	0.1	-	1.11
27	M.o. leather, textiles and wearing						
	apparel	7.6	3.7	12.1	7.3	0.63	0.50
270	Tanning and dressing of leather	0.1	0.0	0.2	0.1	0.37	0.57
271	M.o. leather products	0.2	0.0	0.5	0.3	0.40	0.16
272	M.o. footwear	0.7	0.2	1.2	0.6	0.58	0.34
275	M.o. textiles	2.9	1.1	5.4	2.8	0.55	0.40
276	M.o. wearing apparel, dressing						
	and dyeing of fur	3.7	2.0	4.8	3.4	0.77	0.59

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Table 4	18 continued.							
WZ.	Branch	Percentag	e of Aggre	gate Manufa	icturing	Schleswig-Holstein		
code		Schleswig-I	Holstein	Federal R	epublic	in relation to the		
		-		of G	ermany	Federal F	Republic	
						of C	Germany	
		1970	1987	1970	1987	1970	1987	
279	Repairing of shoes leather							
217	consumer durables and umbrellas	_	03	_	0.2	_	1.53	
28/29	M o food products beverages and		0.5		0.2		1,37	
20/2/	tobacco products	· 174	147	9.5	9.4	1.83	1.56	
281	M o grain mill products	0.7	0.5	0.2	01	3.06	3.83	
282	M.o. starches and starch products	0.1	• •	0.1	0.0	1.17		
283	M.o. farinacous products	0.0	-	0.2	0.0	0.18	-	
284	M.o. bakery products	4.7	5.0	2.6	3.1	1.84	1.58	
285	M.o. sugar	0.1	0.2	0.1	0.1	1.23	1.58	
286	Processing and preserving of fruit		0.2	0,1	•••			
	and vegetables	0.5	0.6	0.3	0.2	1.81	2.84	
287	M.o. cacao, chocolate and sugar,				•			
	confectionary	1.0	0.8	0.5	0.4	2.22	2.06	
288	M.o. dairy products	1.5	1.2	0.6	0.5	2,49	2.37	
289	M.o. vegetable and animal oils							
	and fats	0.2	0.0	0.2	0.1	1.35	0.10	
291	Production, processing and preser-							
	ving of meat and meat products	4.5	3.4	2.2	2.6	2.02	1.30	
292	Processing and preserving of fish							
	and fish products	1.1	0.9	0.1	0.1	8.48	7.04	
293	Brewery and m.o. mait	0.5	0.2	1.0	0.7	0.57	0.35	
294	Distilling, rectifying and blending							
	of spirits and liquors, m.o. wines	0.5	0.3	0.3	0.2	1.60	1.55	
295	Production of mineral waters, m.o.							
	soft drinks	0.4	0.4	0.3	0.3	1.23	1.36	
296	M.o. other food products n.e.c.	0.4	0.5	0.3	0.5	1.59	0.88	
297	M.o. prepared animal feeds	0.5	0.5	0.1	0.2	3.37	2.75	
299	M.o. tobacco products	0.3	0.3	0.3	0.2	1.07	1.51	

manufacturing with respect to gross value added and employment is at least a quarter lower than in the Federal Republic in the seventies and in the eighties as well. On the other hand, the agricultural and the public sectors play a more prominent role in the structural mix.²⁹ Among private services house, renting and hotel-keeping are interesting characteristics of the economy in Schleswig-Holstein (table 47). The latter reflect the region's role as holiday resort. The importance of recreational facilities illustrate the high quality of soft locational factors of Schleswig-Holstein.

 $^{^{29}}$ The relatively high share of energy supply in gross value added which goes along with quite a low share in employment is due to a concentration of electrical power plants that were constructed in the seventies and eighties.

The Industry Mix

With respect to manufacturing the high share of agriculture is reflected in the importance of food production in Schleswig-Holstein. The second largest industrial sector. Grain-mill products, preserving of vegetables, dairy products, preserving of fish and production of prepared animal feed are concentrated in Schleswig-Holstein. Mining is almost completely lacking. The only mineral resources of Schleswig-Holstein are sand and clay. So the extraction of sand and clay, cement production and related ceramic production play a more prominent role in the industrial pattern than in the Federal Republic (table 48).

The largest share of all sectors is occupied by the manufacturing of steel products, machinery and vehicles. This is due to a concentration of machinery production, the repairing of vehicles and especially shipbuilding. Similarly, the third main sector is the manufacture of electrical and precision instruments. Here the strong position of Schleswig-Holstein's industry is nearly completely due to a concentration on medical and precision instruments. The region's enterprises are among the most important on world markets.

STRUCTURAL CHANGE IN SCHLESWIG-HOLSTEIN

The process of structural change in the Federal Republic in the seventies and eighties is characterised - as in other countries at the top of the income pyramid - by a relative decline of manufacturing in favour of services. This is in agreement with Fourastié's and Clark's "three-sector hypothesis". For the Federal Republic there is only one branch at the two-digit-level of the WZ-code with positive employment growth rates from 1970 to 1987: rubber and plastic products (WZ-code 21), all other branches are indeed decreasing in employment (table 49).

For Schleswig-Holstein the data exhibit a somewhat different picture. Chemical products (20) and electrical and precision instruments (25) have grown in employment instead of shrinking as in the Federal Republic as a whole. For stone and clay products (22), generation of metal (23), and wooden products (26) the decrease in employment has been less pronounced in Schleswig-Holstein. Employment in the manufacture of steel products and machinery (24), leather and textiles (27), and food products (28/29) decreased even more than in the Federal Republic.

WZ-	Branch	Average ar	Index of	
code		Schleswig-Holstein	Federal Republic	relative growth
		1970-1987	1970-1987	1970-1987
20	Mo chemicals chemical nuclear			
20	and refined netroleum products	- 1.9	-0.7	1.55
200	M.o. chemicals and chemical		017	1100
200	products	2.3	-0.6	1.62
201	Processing of nuclear fuel		2.5	
205	M.o. refined petroleum products	-1.9	-3.9	1.41
21	M.o. rubber and plastic products	0.9	0.9	0.99
210	M.o. plastic products	2.0	2.5	0.91
213	M.O. rubber products	-2.9	-2.5	0.93
216	Retreading and rebuilding of	17.0	<i>E</i>	0.11
22	Futboer types	-10.8	-5.5	0.11
22	Extraction and m.o. stone and clay	1.0	0.6	1.10
221	products Cutting, shaping and finishing of	•1.9	-2.0	1.12
221	stope and alou	12	0.0	0.02
	Mo of coment lime plaster and	-1.5	-0.9	0.95
222	articles thereof and of concrete	_? ?	-3.4	1.22
223	Mo refractory and structural non-	-2.2	-5.4	1.22
220	refractory ceramic ware	-8.6	-3.5	0.40
224	M.o. non-structural non-refractory	0.0	5.5	0.10
	ceramic ware	-1.6	-1.3	0.94
226	M.o. grinding materials	0.5	-1.1	1.33
227	M.o. glass and glass products	1.2	-2.3	1.81
23	Generation and m.o. metal	-0.9	-1.9	1.19
230	M.o. basic iron and steel from			
	blast furnaces and rolling mills	-36.5	-4.4	-
231	M.o. steel tubes	-	-	•
232	M.o. basic iron from forging			
	presses and hammer-mills	-	-3.6	-
233	M.o. basic precious and non-			
	ferrous metals	-0.4	-1.8	1.27
234	Casting of iron and steel	-5.9	-3.7	0.67
236	Casting of non-ferrous metals	-2.3	0.0	0.67
237	Drawing and roll-forming	1.3	-4.7	2.83
238	Forging, pressing, treatment and			
	coating of metals	-0.7	-0.9	1.03
239	Locksmithing, welding, grinding,	_		
	forging, n.e.c.	5.4	2.5	1.63
24	M.o. steel products, machinery		_	
	and vehicles	-1.5	-0.3	0.81
240	M.o. fabricated metal products	-3.0	-1.1	0.72
241	M.o. tanks, reservoirs and boilers	1.4	-0.9	1.48
242	M.o. machinery and equipment	-0.4	0.8	1.08

Table 49. Average annual rate of growth and relative rate of growth of manufacturing branches inSchleswig-Holstein and the Federal Republic of Germany, 1970-1987Source: Statistisches Bundesamt (1972, 1990). Own calculations.

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WZ٠	Branch	Average an	Index of	
code		-	-	relative growth
		Schleswig-Holstein	Federal Republic of Germany	
		1970-1987	1970-1987	1970-1987
243	M.o. office, accounting and			
	computing machinery	0.3	0.2	1.02
244	M.o. motor vehicles	5.4	1.4	1.90
245	M.o. road transport equipment.			
	n.e.c.	-1.3	3.3	0.46
246	Building and repairing of ships			-
	and boats	-4.8	-3.6	0.80
247	M.o. railway and tramway loco-			
	motives and rolling stock	-	10.2	-
248	M.o. of aircraft and spacecraft	1.3	0.5	1.15
249	Repairing of vehicles	0.8	1.1	0.95
25	M.o. of electrical and electronical			
	machinery, precision instruments,			
	thin plate and metal products	1.1	-0.9	1.38
250	M.o. electrical and electronical			
	machinery and apparatus, n.e.c.	0.6	-0.8	1.28
252	M.o. medical, precision and			
	optical instruments	2.7	0.7	1.40
254	M.o. watches and clocks	-	-6.8	-
256	M.o. tools, weapons, thin plate and			
	metal products, n.e.c.	-1.7	-2.3	1.10
257	M.o. pencils, stamps, modelling			
	and curving ware, processing of			
	films	-	-	-
258	M.o. musical instruments, games			
	and toys, sport goods and			
A F A	jewellery	-0.9	-1.5	1.10
259	Repairing of consumer durables	17.2	16.6	1.10
26	M.o. wooden and paper products,			
A .co	printing	-1.4	-1.5	1.02
260	Saw-milling and planing of woods,			
	m.o. wooden intermediate	<i>(</i>)	0.5	0.52
261	products	-0.1	-2.5	0.53
201	M.o. wooden products	-1.8	-1.5	0.95
404	M.o. cenulose pulp, paper and		2.1	1.40
765	Mo paper and repet cond	-1.1	-3.1	1.42
203	M.o. paper and paperboard	0.4	17	1.25
268	products Drinting, publiching and serve	-0.4	-1./	1.25
200	duction of recorded media	1.1	.10	0.08
260	Repairing of wooden consumer	-1.1	-1.0	0.20
209	durables		_	
<u>77</u>	unables Moleather textiles and meaning	-	-	-
4 7 1	upporal	_< 2	-4 1	0.61
270	apparts Tanning and dressing of leather	-3.3 _2.7		0.01
271	M.o. leather products	-9.3	-4.5	0.41

••

Table 49 continued.

Table	49 continued.			
WZ.	Branch	Average a	nnual rate of growth	Index of
code		Schleswig-Holstein	Federal Republic of Germany	relative growth
		1970-1987	1970-1987	1970-1987
272	M.o. footwear	-8.4	-5.6	0.60
275	M.o. textiles	-6.6	-5.0	0.75
276	M.o. wearing apparel, dressing and			
	dyeing of fur	-4.6	-3.2	0.77
279	Repairing of shoes, leather			
	consumer durables and umbrellas	-	-	-
28/29	M.o. food products, beverages and			
·	tobacco products	-2.1	-1.2	0.86
281	M.o. grain mill products	-3.3	-4.6	1.27
282	M.o. starches and starch products	-	-6.2	-
283	M.o. farinacous products	-	-11.3	-
284	M.o. bakery products	-0.8	0.0	0.87
285	M.o. sugar	-0.5	-2.0	1.31
286	Processing and preserving of fruit			
	and vegetables	-0.2	-2.9	1.60
287	M.o. cacao, chocolate and sugar,			
	confectionary	-2.6	-2.3	0.94
288	M.o. dairy products	-2.5	-2.3	0.97
289	M.o. vegetable and animal oils and			
	fats	-18.6	-5.3	0.08
291	Production, processing and preser-			
	ving of meat and meat products	-2.8	-0.4	0.66
292	Processing and preserving of fish			
	and fish products	-2.5	-1.5	0.85
293	Brewery and m.o. malt	-5.6	-3.0	0.63
294	Distilling, rectifying and blending			
	of spirits and liquors, m.o. wines	-3.6	-3.5	0.98
295	Production of mineral waters, m.o.			
	soft drinks	-1.9	-2.6	1.13
296	M.o. other food products n.e.c.	-0.8	2.6	0.56
297	M.o. prepared animal feeds	-1.0	0.1	0.83
299	M.o. tobacco products	-2.0	-4.1	1.44

At the three-digit-level a number of industries can be identified which grew in the Federal Republic in the seventies and eighties. These are:

- nuclear fuel (201),
- plastic products (210),
- office, accounting, and computing machinery (243),
- motor vehicles (244),
- other road transport equipment (245),
- railway equipment (247),
- aircraft and spacecraft (248),

- repairing of vehicles (249),
- medical and precision instruments (252),
- repairing of consumer durables (259),
- other food products (296).

Nearly stagnating were:

- casting of non-ferrous metals (236), and
- prepared animal feeds (257).

A somewhat faster employment growth in Schleswig-Holstein than in the Federal Republic can be detected only for office, accounting and computing machinery (243), motor vehicles (244), aircraft and spacecraft (248), medical and precision instruments (252) and repairing of consumer durables (259). In most of these cases, however, the basis, i.e. the actual percentage share of these branches, is so low as to account for a major structural shift (table 48). The manufacture of railway stock (247), for example, is completely missing in the region. Only the manufacture of medical and precision instruments (252) belongs, as already noted, to the prominent industries in Schleswig-Holstein. Furthermore, it should be noted that a number of those other industries with relatively high percentage shares in Schleswig-Holstein, such as petroleum products (205) and machinery (242), decreased to a smaller extent than in the Federal Republic (table 49). Shipbuilding (246), however, was shrinking much faster than in other German states, but still plays a major role in the region's industry mix.

So far only descriptive methods have been used for outlining the structural changes. Now more analytical methods will be used. Branches are to be classified on certain criteria to analyse the forces lying behind the structural shifts observed in the data. In the course of economic development structural change in highly industrialized countries (HICs) should lead to a shift in employment from raw-material-, labour-, and to some extent even from fixed capital intensive branches to the production of human capital intensive goods. Comparative advantage of highly industrialized countries can be expected in this kind of production because of their factor proportions. At the top of an imagined income pyramid a permanent flow of innovation may be the source of future economic wealth in these countries.³⁰ The question arises as to how the economy of Schleswig-Holstein has performed in this respect. To answering this question the total number of employed persons as collected by the plant and employment cencuses 1970 and 1987 was classified according to certain criteria.

 $^{^{30}}$ Giersch (1979) interpreted the pyramid as a "volcano" with technology when becoming public domain being the "lava" flowing down the slope.

In order to get comparable results to those from Southern Sweden, the first classification that has been used here is the one provided by Ohlsson and Vinell (1987). Both authors tried to classify industries by factor intensities. Structural change in HICs should perform in such a way that traditional branches, employing mostly unskilled labour or fixed capital, decrease over time in favour of human capital intensive branches.

Ohlsson and Vinell further distinguished between different categories of human capital: productive knowledge and skills on one hand and research and development (R&D) on the other hand. One could say that human capital intensive goods are classified according to their contents of either craftsman's skills or development engineer's inputs.31

The second classifying scheme employed here has been provided by Klodt.³² Klodt's classification among industries intends to identify those industries which might be subject to more intensive competitive forces from developing and especially Newly Industrialized Countries (LDCs and NICs). As far as rawmaterial, labour, and capital intensive goods are concerned, this scheme follows the traditional lines of Ricardo, and Heckscher, Ohlin and Samuelson.³³ Concerning human capital intensive (=Schumpeter) goods, however, industries are distinguished by the criterion of the local mobility of production. Schumpetermobile-goods are defined by the possibility of separating development and production in different locations, while Schumpeter-immobile-goods are characterised by the need of locational proximity between development and production. In other words: with Schumpeter-mobile-goods production is "foot-loose". Its location depends on relative factor-endowment and may be subject to intensive competition from following-up countries. This may lead to a "locational innovation" even in high technology industries with development and engineering remaining in the advanced country, while production is being transferred to NICs or even LDCs. Technology transfer between both plants - the "think-tank" and the "work-shop" - can easily be performed by fax. With Schumpeterimmobile-goods production has to remain - so to say - at the development engineers' arm's length. Prototypes have to be constructed, redesigned and adjusted to new conditions, or there is some need of permanently combining

³¹ For a more detailed description of the Ohlsson and Vinell classification scheme see the Swedish part of this paper and annex 1. ³² Cf. Klodt (1987); Klodt, Schmidt et al. (1989).

³³ It should be noted here that Klodt's original classification for these goods only provides the category of "Heckscher-Ohlin-goods". This has been augmented for purposes of comparability here by the somewhat older classifying scheme of Hufbauer and Chilas (1974).

(1767). 0					
Branch	Branch group		SI	are (%)	
group code		Schleswig-	Federal Republic of Germany		
		1970	1987	1970	1987
	Ohlsson and Vinell				
S	Subsidized, protected and domestically oriented				
	industries	28.0	26.2	17.0	16.6
L	Labour intensive industries	31.3	27.2	35.9	30.5
С	Capital intensive industries	8.3	6.5	15.4	12.0
К	Knowledge (skill) intensive industries	23.5	23.4	21.2	26.3
R	R&D intensive industries	9.0	16.8	10.6	14.6
	Klodt				
R	Raw-material intensive industries	6.7	5.4	3.9	3.1
L	Labour intensive industries	49.5	43.6	43.5	37.9
С	Capital intensive industries	15.2	10.6	13.2	11.8
М	Schumpeter-mobile industries	9.2	10.9	14.7	17.0
I	Schumpeter-immobile industries	19.5	29.5	24.7	30.2

Table 50. Manufacturing sector of Schleswig-Holstein and the Federal Republic of Germany classified by Ohlsson and Vinell, and Klodt respectively, 1970 and 1987.

Source: Statistisches Bundesamt (1972: 1990). Ohlsson, Vinell (1987). Klodt (1987) Klodt, Schmidt et al. (1989). Own calculations.

engineering and manufacturing. Plant relocations are less likely with these goods. There may remain a true domain of highly developed countries.³⁴

Both classification schemes exhibit certain similarities, especially in the Heckscher-Ohlin-portion. Furthermore, one may draw some parallels between skill intensive goods and Schumpeter-immobile-goods on the one side and R&D intensive goods and Schumpeter-mobile-goods on the other side. However, as can be seen from appendix 1, the classification of several important industries does not fit this design. Both models have been employed here as having in their original forms. In most cases, industries were classified analogously to the way they were treated by Ohlsson and Vinell,³⁵ and Klodt respectively. So the results for the models differ somewhat.

The results of this classification are presented in table 50. The findings in general coincide with what can be derived from trade theory and from basic results of the analysis of locational factors. While traditional Heckscher-Ohlin

 $^{^{34}}$ Klodt's classification scheme is described in detail in appendix 3.

³⁵ There have been made only minor corrections with the Ohlsson and Vinell scheme which are due to different definitions of industry groups between the Swedish SNI- and the German WZ-branchcode.

branches have decreased over time in Schleswig-Holstein and in the Federal Republic, the human capital industries gained employment shares.

This shift is true for the Federal Republic as well as for Schleswig-Holstein and is shown by applying both classification schemes. However, although the employment shares of subsidized, protected and domestically oriented industries, the raw-material intensive, and the labour intensive decreased in Schleswig-Holstein in the seventies and the eighties, it remained behind the Federal Republic in terms of the industry mix. These industries, which were the losers in the structural changes, are more important in Schleswig-Holstein than in the Federal Republic.

In terms of the human capital intensive industries Schleswig-Holstein lost its good position in the skill intensive K-sectors. The share of productive-knowledge intensive employment stagnated while it was increasing at the federal level. This development is heavily influenced by the relative decline of shipbuilding (246), as will be shown later. On the other hand, the R&D intensive Rsector has grown faster in Schleswig-Holstein and even bypassed the growth rate of the Federal Republic between 1970 and 1987. This is mainly due to four industries: pharmaceutical products (20031),³⁶ communication equipment and electronical appliances for measuring, checking, testing and navigating (2506), precision instruments (2525), and medical equipment (2527). Their shares alone in Schleswig-Holstein account for 2.6 resp. 5.1 resp. 0.8 resp. 4.4%, but only 1.1 resp. 3.8 resp. 0.4 resp. 1.1% in the whole Federal Republic. In the other industries of the R-sector,³⁷ Schleswig-Holstein has substantially lower employment shares.

Employing the Klodt-scheme, additional aspects can be revealed. It shows an impressive upward shift for Schleswig-Holstein of the share of production of Schumpeter-immobile-goods (I-sector), 10% in Schleswig-Holstein, but only 5.5% in the Federal Republic (table 50). A closer look at the data shows again that pharmaceutical products (20031) and communication equipment and electronical appliances for measuring, checking, testing and navigating (2506) account for this development. Also the production of machinery (242), optical and optometrical equipment (2521), precision instruments (2525) and especially

³⁶ It has to be noted that the 1970 census does not provide informations at the five-digit-level of the WZ-code. For this year data on pharmaceutical products are contained in the number for the three-digit category "Manufacture of chemicals and chemical products" (200), which for 1970 completely and for 1987 with the exception of 20031 belongs to the C-sector. So the reported faster structural shift for Schleswig-Holstein in this sub-branch may be somewhat overstated.

³⁷Office, accounting and computing machinery (243), aircraft and spacecraft (248), electrical power station equipment (2503), and consumer electronics (2507) make up for the rest of the R-sector.

medical instruments and equipment (2527) have contributed, where Schleswig-Holstein's industry has a quantitative and qualitative focus as noted above.³⁸

Applying the Klodt scheme as well as the Ohlsson and Vinell scheme shows a rapid structural change to modern human capital intensive industries (Schumpeter-immobile industries and R&D intensive industries respectively), which was clearly faster than in the Federal Republic. This is mainly due to a few "diamonds" among the region's manufacturing industries and firms. On the other hand, the structural shift to Knowledge intensive industries (Ohlsson and Vinell) and to the Schumpeter-mobile industries (Klodt) was distinctly less pronounced than in the Republic or did not take place. It seems clear from the above that insufficient wage differentiation in the region does not offer very favourable conditions for the production of Schumpeter-mobile industries. Also research in these branches takes place at other locations, as the data on research inputs show. The overall shift towards modern industries is mainly due to machinery and precision instruments, where there seems to be a concentration of inputs and efforts in Schleswig-Holstein. These branches employ more R&D personnel than the average in the Federal Republic (table 47). So, the picture according to the Klodt-scheme exhibits a dual structure in the R&D sector: Few diamonds that have driven forward structural change, but a lack of "foot-loose" firms which could strengthen the human capital intensive sector.

We have made additional calculations to look at Schleswig-Holstein's manufacturing when the fastly shrinking, but still prominent, shipbuilding industry (246) is excluded. The data are presented in table 51.

In the human capital intensive industries the region remains behind in the share of the K-sector using the Ohlsson and Vinell model. The lag is even larger without shipbuilding because of its minor importance on the federal level. What counts, however, is the fact that Schleswig-Holstein now exhibits a positive structural change in the K-sector, too, though it still remains smaller than in the Federal Republic. Taken together the strucutural change in the K- and R-sectors towards the modern sectors was even faster in Schleswig-Holstein than in the rest of the country.

According to the Klodt-scheme there remains a widening gap between the share of Schumpeter-mobile-goods of Schleswig-Holstein and the Federal Republic, but this tendency is slightly less pronounced. The increase of the Schumpeterimmobile-goods in Schleswig-Holstein, however, is not only faster than in the

 $^{^{38}}$ Just to explain the differences between the two classification schemes employed here: Ohlsson and Vinell do not - as Klodt does - classify the latter branches as belonging to the R-sector but to the K-sector, while the former are a central part of the R-sector.

Branch	Branch group			St	nare (%)
code		Schleswig-	Federal Republic of Germany		
		1970	1987	1970	1987
	Ohlsson and Vinetl				
S	Subsidized, protected and domestically oriented				
	industries	29.0	27.3	17.0	16.7
L	Labour intensive industries	34.1	28.5	36.1	30.7
С	Capital intensive industries	9.0	6.7	15.5	12.0
Κ	Knowledge (skill) intensive industries	16.6	19.9	20.6	26.0
R	R&D intensive industries	9.8	17.5	10.7	14.7
	Klodt				
R	Raw-material intensive industries	7.3	5.6	3.9	3.1
L	Labour intensive industries	53.9	45.6	43.8	38.1
С	Capital intensive industries	7.6	6.7	12.6	11.4
М	Schumpeter-mobile industries	9.9	11.4	14.8	17.1
I	Schumpeter-immobile industries	21.3	30.8	24.9	30.4

 Table 51. Manufacturing sector of Schleswig-Holstein and the Federal Republic of Germany classified

 by Ohlsson and Vinell, and Klodt respectively, shipbuilding excluded, 1970 and 1987.

Source: Statistisches Bundesamt (1972: 1990). Ohlsson, Vinell (1987). Klodt (1987) Klodt, Schmidt et al. (1989). Own calculations.

Federal Republic, but Schleswig-Holstein even outperformed the Federal Republic with respect to the absolute level of the share.

Notwithstanding the differences between the models they show the same results. The modern Human capital intensive sector as a whole (K- and R-sectors in Ohlsson and Vinell, M- and I-sectors in Klodt) grew faster between 1970 and 1987 in Schleswig-Holstein (by 11% with both models) than in the Federal Republic (by 9.4 resp. 7.8%). However, it is still smaller in Schleswig-Holstein (3.5 resp. 5.3%).

Conclusions

From these results one may conclude that in the course of structural change in manufacturing Schleswig-Holstein indeed had caught up in the seventies and the eighties. However, the country's economy is still lagging behind that of other, more prosperous German states with respect to the overall share of modern human capital intensive industries. At the top of the R&D intensive industries indeed the gap to the other states was only of minor importance in 1987 or has even disappeared. However, deficits can be detected with industries, where craftman's skills are called for or where production sites ought to be transferred

to locations with a favourable labour-costs-productivity-ratio. Schleswig-Holstein may be on the right way, but it has not reached a level of industry mix as other more prosperous German states. Very interesting is the observation that the results for Schleswig-Holstein's manufacturing sector look more favourable if shipbuilding, which, though it employment-share decreased in the seventies and eighties for nearly 4%, still accounts for 4.3% of manufacturing employment. So this branch may account for a large part of the unsatisfactory performance of Schleswig-Holstein's manufacturing sector in the eighties.

Networks: Export Structures and Direct-Investment Relations

Investigating the economic interactions between Schleswig-Holstein and foreign regions the following subjects are considered: exports by categories of products, exports by regions, direct-investments of enterprises from Schleswig-Holstein in foreign countries and direct investments from abroad in Schleswig-Holstein.³⁹ As far as possible a special view is put on the economic interactions between Schleswig-Holstein and Sweden.

EXPORT STRUCTURES BY CATEGORIES OF PRODUCTS

Schleswig-Holstein's export structure is characterized by a comparatively high share of food products. The share of food products in total exports is more than tree times as high as the respective share in the Federal Republic of Germany (table 52).

Moreover raw materials and primary products are more important in Schleswig-Holstein's export-mix than in the Federal Republic. Correspondingly Schleswig-Holstein's economy sells less intermediate and end-use products in foreign countries. Especially the backlog concerning end-use products is remarkable. Whereas share of end-use products in Germany increased during the seventies and the eighties, the respective share in Schleswig-Holstein decreased. The worsened position of the end-use products in Schleswig-Holstein's export mix is a result of the poor performance of the shipbuilding industry. The export of

³⁹ Data for Schleswig-Holstein's imports which remain in the region are not available.

Table 52. Exports of Schleswig-Holstein and the Federal Republic of Germany by type of product 1970-1990.

Source: Statistisches Landesamt Schleswig-Holstein, Statistischer Bericht G III 1, Die Ausfuhr Schleswig-Holsteins im Jahre 1990. Statistisches Bundesamt, Fachserie 7: Aussenhandel, Reihe 3: Aussenhandel nach Ländern und Warengruppen (current volumes).

	Exports (million DM)		Average increase per year (%)			Share (%)	
	1970	1990	1970-77	1977-83	1983-90	1970	1990
			Schle	eswig-Hols	tein		
Food products	285.3	1,744.4	17.9	7.3	3.4	13.2	14.6
Living animals	5.1	- 25.7	-1.0	57.4	-13.7	0.2	0.2
Food products of animal							
origin	98.9	947.4	21.7	6.8	7.3	4.6	7.9
Food products of							
vegetable origin	139.6	626.9	14.8	8.2	0.9	6.4	5.2
Beverages, tobacco	41.7	144.4	19.2	-0.0	0.2	1.9	1.2
Non-Food products	1,880.4	10,220.6	15.6	4.5	6.1	86.8	85.4
Raw materials	46.2	176.9	13.6	5.3	2.0	2.1	1.5
Primary products	153.4	743.9	11.7	12.9	1.1	7.1	6.2
Intermediate products	171.2	1,464.7	10.4	14.6	9.6	7.9	12.2
End-use products	1,509.5	7,835.1	16.5	2.6	6.2	69.7	65.5
Vessels	214.5	629.7	27.5	-21.2	12.2	9.9	5.3
End-use products without							
vessels ^a	1,255.7	7.041.8	13.9	7.4	5.7	58.0	58.9
All products	2,165.7	11,965.0	15.9	5.0	5.6	100.0	100.0
			Federal R	epublic of (Germany		
Food products	4.379.6	31.143.2	17.7	. 9.5	4.0	3.5	4.8
Living animals	432.3	952.8	0.8	11.7	1.1	0.3	0.1
Food products of animal							
origin	1,330.0	11,052.0	20.7	10.6	2,9	1.1	1.7
Food products of	-						
vegetable origin	1,992.1	14,319,1	18.0	7.4	5.7	1.6	2.2
Beverages, tobacco	625.1	4.819.3	17.8	12.5	2.8	0.5	0.7
Non-Food products	120,194.1	609,461.5	11.5	7.8	6.0	95.9	94.8
Raw materials	3,187.8	7,204.0	8.5	4.1	0.0	2.5	1.1
Primary products	9,576.7	33.833.7	9.7	11.1	-0.2	7.6	5.3
Intermediate products	23,034.2	104,455.2	10.6	7.6	5.4	18.4	16.3
End-use products	84,395.5	463,968.6	12.1	7.6	6.9	67.4	72.2
Vessels	1,107.6	2,942.3	19.4	-7.0	2.5	0.9	0.5
End-use products without							
vessels ^a	82,845.7	458,533.5	11.9	7.9	6.9	66.1	71.3
All products	125,276.2	642.783.7	11.8	7.9	5.8	100.0	100.0

a. And without other vehicles.

vessels decreased sharply at the end of the seventies. The Schleswig-Holstein economy was not able to raise sales of other end-use products on the world market thus closing the gap left by depressed export possibilities of the shipbuilding industry. Table 53. Exports of Schleswig-Holstein and the Federal Republic of Germany by regions 1970-1990.

Source: Statistisches Landesamt Schleswig-Holstein, Statistischer Bericht G III 1, Die Ausfuhr Schleswig-Holsteins im Jahre 1990. Statistisches Bundesamt, Fachserie 7: Aussenhandel, Reihe 3: Aussenhandel nach Ländern und Warengruppen (current volumes).

	Exports (mi	Exports (million DM)		Average increase per year (%)			Share (%)		
	1970	1990	1970-77	1977-83	1983-90	1970	1990		
			Schle	swig-Holst	ein				
Western Europe	1,482.3	8,258.7	13.6	6.3	6.9	68.0	69.0		
EC 12	1,026.6	6,110.4	13.3	6.9	7.5	47.4	51.1		
Scandinavian countries	365.0	1,823.9	15.9	4.7	4.4	16.9	15.2		
Denmark	134.7	931.4	18.5	7. 7	4.4	6.2	7.8		
Sweden	101.4	213.8	12.5	-0.4	-0.7	4.7	1.8		
Norway	105.6	479.1	9.3	7.5	6.8	4.9	4.0		
Finland	23.3	199.7	31.3	-2.3	5.7	1.1	1.7		
Austria, Switzerland	160.6	916.9	10.3	9.3	7.7	7.4	7.7		
Eastern Europe	101.9	531.6	17.9	2.4	5.2	4.7	4.4		
Sovjet Union	21.4	223.9	27.8	-2.1	11.4	1.0	1.9		
United States	153.6	662.9	0.5	13.8	9.8	7.1	5.5		
Japan	38.5	270.2	11.1	5.3	13.7	1.8	2.3		
Asiatic NICs	20.6	282.8	19.4	10.1	12.2	0.9	2.4		
India	24.9	52.7	5.0	23.0	-11.2	1.2	0.4		
Peoples Republic of China	4.2	288.3	19.8	39 <i>.</i> 0	14.9	0.2	2.4		
World	2,165.7	11,965.0	15.9	5.0	5.6	100.0	100.0		
			Federal R	epublic of (Germany				
Western Europe	86,926	469,999	11.0	8.3	7.1	69.4	73.1		
EC 12	62,377	350,442	11.2	8.8	7.0	49.8	54.5		
Scandinavian countries	10,991	41,237	9.6	5.6	5.1	8.8	6.4		
Denmark	2,910	11,937	11.0	6.1	4.8	2.3	1.9		
Sweden	1,861	5,534	11.2	4,3	1.4	1.5	0.9		
Norway	4,688	16,650	9.4	4.3	5.7	3.7	2.6		
Finland	1,532	7,11 7	5.6	10.9	7.9	1.2	1.1		
Austria, Switzerland	13,357	75,284	10.6	8.6	7.8	10.7	11.7		
Eastern Europe	4,746	23,399	18.3	4.2	2.5	3.8	3.6		
Sovjet Union	1,546	10,361	22.6	9.7	-1.2	1.2	1.6		
United States	11,437	46,870	6.9	10.3	5.2	9.1	7.3		
Japan	1,956	17,415	6.4	10.9	17.6	1.6	2.7		
Asiatic NICs	1,090	15,038	13.7	13.7	14.6	0.9	2.3		
India	571	2,732	10.4	10.9	3.7	0.5	0.4		
Peoples Republic of China	612	3,879	9.5	15.5	5.0	0.5	0.6		
_World	125,276	642,785	11.8	7.9	5.8 _	100.0	<u> </u>		

EXPORT STRUCTURES BY REGIONS

Schleswig-Holstein's exports are concentrated to West European countries (table 53). Nearly 70% of exports are sold on markets in Western Europe; the export share of the Federal Republic to West European countries is even a little bit higher than this. Within Western Europe the following deviations from the

		Schleswig-Holstein		Federal Republic of Germany		
	1970	1980	1990	1970	1980	1990
France	15.2	20.2	17.7	24.8	26.1	23.9
Belgium, Luxemburg	8.8	7.3	7.8	16.5	15.4	13.6
Netherlands	22.1	17.5	20.1	21.3	18.6	15.5
Italy	·17.3	9.3	12.2	17.9	16.8	17.1
United Kingdom	14.8	15.0	14.9	7.1	12.8	15.6
Eire	0.5	1.0	1.2	0.6	0.7	0.8
Denmark	13.1	19.5	15.2	4.7	3.7	3.4
Greece	4.1	6.6	2.3	2.1	2.1	1.8
Portugal	0.9	0.8	1.4	1.6	0.9	1.7
Spain	3.1	2.3	7.3	3.3	2.8	6.5
EC 12	100.0	100.0	100.0	100.0	100.0	100.0

Table 54. Exports of Schleswig-Holstein and the Federal Republic of Germany in EC countries 1970-1990 (%).

Source: Statistisches Bundesamt, Fachserie 7: Aussenhandel. Reihe 3: Aussenhandel nach Ländern und Warengruppen (current volumes).

German export pattern can be observed:

Schleswig-Holstein's exports to EC countries are a little bit less important,

the Scandinavian countries are comparatively important markets for Schleswig-Holstein,

Schleswig-Holstein's exports are less concentrated on the southern EFTA-countries Austria and Switzerland.

As far as intra-EC-trade is concerned Schleswig-Holstein's economy is relatively specialized on the Dutch and the Danish markets (table 54). One can conclude that the relative importance of an export market for Schleswig-Holstein is negative correlated with the geographic distance between Schleswig-Holstein and the respective country.

EXPORTS TO SWEDEN

As already shown Scandinavia is much more important as an export market for Schleswig-Holstein than for the Federal Republic as a whole. The same is true in the case of exports to Sweden. Nevertheless, compared with other export markets firms from Schleswig-Holstein are not very successful in Sweden. In all EC countries with the exception of Ireland, Portugal and Greece more goods with origins in Schleswig-Holstein are sold than in Sweden. This is specially
Table 55. Exports to Sweden by type of product 1970-1990.

Source: Statistisches Landesamt Schleswig-Holstein, Statistischer Bericht G III 1, Die Ausfuhr Schleswig-Holsteins im Jahre 1990. Statistisches Bundesamt, Fachserie 7: Aussenhandel, Reihe 3: Aussenhandel nach Ländern und Warengruppen (current volumes).

	Exports (m	illion DM)	Average	increase pe	er year (%)	Share (%)	
	1970	1990	1970-77	1977-83	1983-90	1970	1990
			Schl	eswig-Hols	stein		
Food products	8.1	45.3	13.5	13.3	1.2	7.6	9.4
Living animals	0.0	1.0	7.5	2.2	42.5	0.0	0.2
Food products of animal							
origin	0.2	1.3	9.0	-0.3	24.4	0.2	0.3
Food products of							
vegetable origin	7.3	35.4	11.5	10.3	3.4	6.9	7.4
Beverages, tobacco	0.6	7.5	29.5	23.7	-7.6	0.6	1.6
Non-Food products	97 <i>.</i> 6	433.8	8.8	6.8	7.5	92.4	90.6
Raw materials	1.3	19.8	39.5	-0.3	6.1	1.2	4.1
Primary products	13.2	47.4	1.9	4.3	13.6	12.5	9.9
Intermediate products	13.6	45.5	-1.6	8.6	12.6	12.9	9.5
End-use products	69.4	321.2	10.1	7.4	6.3	65.7	67.0
Vesseis	1.7	0.3	-26.8	-36.2	59.9	1.6	0.1
End-use products without							
vessels ^a	61.1	300.0	11.7	7.3	5.8	57.9	62.6
All products	105.6	479.1	9,3	7.5	6.8	100.0	100.0
			Federal R	epublic of	Germany		
Food products	70.1	386.4	19.7	2.2	4.6	1.5	2.3
Living animals	0.8	2.7	-16.8	7.0	33.9	0.0	0.0
Food products of animal							
origin	4.9	50.6	8.7	13.4	15.2	0.1	0.3
Food products of							
vegetable origin	52.6	264.1	21.6	0.6	3.0	1.1	1.6
Beverages, tobacco	11.7	69.0	14.7	8.0	5.1	0.3	0.4
Non-Food products	4,598.6	16,206.4	9.1	4.3	5.8	98.1	97.3
Raw materials	66.8	175.5	13.0	-0.9	2.4	i .4	1.1
Primary products	219.8	757.8	12.0	4.2	2.8	4.7	4.6
Intermediate products	874.7	2,430.7	7.3	4.2	4.1	18.7	14.6
End-use products	3,437.3	12,842.3	9.3	4.4	6.4	73.3	77. 1
Vessels	51.9	28.9	23.3	-32.4	4.3	1.1	0.2
End-use products without							
vessels ^a	3,365.6	12,668.3	8.9	5.1	6.4	71.8	76.1
All products	4,688.0	16,649.6	9.4	4.3	5.7	100.0	100.0

a. And without other vehicles.

true in comparison with Denmark, a country with a population half the size of Sweden. Schleswig-Holstein's exports to Sweden seems to be very small (214 million DM compared to 931 million DM in 1990).

The Swedish market is decreasing in importance for producers in Schleswig-Holstein over time. Whereas in 1970 nearly 5% of the region's exports were sold in Sweden this figure was less than 2% in 1990. On no other important export market have sales relatively decreased as much as on the Swedish market.

The product mix sold on the Swedish market from Schleswig-Holstein is specialized on the following products (in comparison with the export-pattern of the Federal Republic to Sweden, as well as in comparison with the export-pattern of Schleswig-Holstein to the world):

- food products of vegetable origin
- raw materials
- primary products (table 55)

The poor performance of exports to Sweden could be caused by a low Swedish import demand. Another explanation could be that the access to other markets became relatively easier, for example Denmark, the United Kingdom and Spain joined the common market.

DIRECT INVESTMENT RELATIONS

The balance of Schleswig-Holstein's direct investment links with foreign countries suggests that the region is behind in economic development compared with the Federal Republic. The German direct investment in foreign countries exceeds direct investment from abroad in Germany. This is to be expected in an economy with a high per-capita-income (table 56). The opposite is true in the case of Schleswig-Holstein. The stock of investments from abroad in Schleswig-Holstein is higher than the stock of investments in foreign countries from Schleswig-Holstein.

During the eighties the region's direct investments in foreign countries accelerated more than the national average. This shows that the ability of Schleswig-Holstein's firms to locate production plants or build up distribution systems in other countries increased. But this is true only for some industries: machinery (non electric), precision mechanics, optic, wholesale and retail trade. Besides machinery (non electric) Germany's direct investments in foreign countries are concentrated in the following industries: chemicals, road motor vehicles, electrical machines and equipment, and banking (table 57).

In the case of Schleswig-Holstein as well as in the case of the Federal Republic, firms undertaking investment abroad belong to industries which had a good economic performance in the eighties. That indicates that a precondition for foreign engagements is a strong home base.

Table 56. Direct investment of Schleswig-Holstein and the Federal Republic of Germany 1980-1989.^a Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternehmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

	Direct investment from	Direct investment in	Balance
Į	home in foreign countries	the region from abroad	
	Schle	swig-Holstein (million D	M)
1980	352	1,336	-984
1981	532	1,428	-896
1982	547	1,532	-985
1983	652	1,616	-964
1984	702	1,474	-772
1985	545	1,455	-910
1986	644	1,517	-873
1987	742	1,494	-752
1988	885	2,157	-1,272
1989	1,016	2,020	-1,004
Average increase per year (4	%) 12.5	4.7	
	Federal Re	epublic of Germany (milli	on DM)
1980	74,353	71,758	2,595
1981	88,429	74,739	13,690
1982	95,400	76,359	19,041
1983	106,573	81,106	25,467
1984	125,875	84,791	41,084
1985	130,512	90,885	39,627
1986	135,791	95,637	40,154
1987	141,031	102,345	38,686
1988	167,205	109,534	57,671
1989	184,952	124,954	59,998
Average increase per year (76) 10.7	6.4	

a. Stock at the end of the year.

Foreign firms have expanded their investment activity comparatively moderately in Schleswig-Holstein. In the Federal Republic (table 56) and especially in the EC as a whole, direct investment from abroad increased at a higher rate (Heitger, Stehn, 1989; Klodt, Schmidt et al., 1989). It seems that the region, compared with other locations, lost attractiveness for international mobile capital. Especially manufacturing is affected by this development. Investors from abroad have lowered their engagement in all manufacturing industries except machinery (non electric). The relatively good position of machinery (non electric) indicates once more, that this industry seems to be a "diamond" in the Schleswig-Holstein economy (table 58). The diminishing activity in manufacturing as a whole, and the favourable development in trade, may show that the comparative locational advantage of Schleswig-Holstein is shifting from production to trade and distribution activities - at least in the judgement of foreign investors. Table 57. Direct investment of Schleswig-Holstein and the Federal Republic of Germany in foreign countries by industry 1980-1989.^a

Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternehmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

			Schleswig-l	Holstein	F	ederal Rep	ublic of Ge	ermany
	1980	1989	1980	1989	1980	1989	1980	1989
	million	DM	%		millio	n DM	%	
TOTAL	352	1,016	100.0	100.0	74,353	184,952	100.0	100.0
Mining	•	-	-	-	3,058	3,808	4.1	2.1
Manufacturing	192	477	54.5	46.9	43,403	100,474	58.4	54.5
among that:								
Chemicals	13	n.a.	3.7	п.а.	12,751	36,842	17.1	19.9
Mineral oil	-	-	-	-	695	712	0.9	0.4
Rubber and plastic								
products	n.a.	n.a.	n.a.	n.a.	816	2,620	1.1	1.4
Stones and earthen goods,								
precision ceramics, glass								
and glass products	п.а.	п.а.	n.a.	n.a.	1,614	2,591	2.2	1.4
Iron and steel, ferrous								
foundries	n.a.	•	n.a.	-	1,938	1,611	2.6	0.9
Machinery non-electric	82	248	23.3	24.4	5,207	12,676	7.0	6.9
Office, accounting and								
computing machinery	n.a.	п.а.	п.а.	n.a.	996	1,552	1.3	0.8
Road motor vehicles	-	-	-	-	7,618	12,294	10.2	6.6
Electrical machines and								
equipment	п.а.	n.a.	n.a.	n.a.	7,256	16,954	9.8	9.2
Precision mechanics, optic								
fabricated metal products ^b	56	105	15.9	10.3	1,205	3,316	1.6	1.8
Food industry	5	n.a.	1.4	n.a.	657	920	0.9	0.5
Construction	-	-	-	-	667	1,131	0.9	0.6
Wholesale and retail trade	37	109	10.5	10.7	3,167	6,639	4.3	3.6
Traffic and communication	-	15	-	1.5	1,015	1,985	1.4	1.1
Banking	п.а.	n.a.	n.a.	п.а.	5,994	15,630	8.1	8.5
Holding companies and								
other investment firms	17	151	4.8	14.9	8,854	26,992	11.9	14.6
Other services ^C	1	62	0.3	6.1	3,862	18,702	5.2	10.1
Private households	51	99	14.5	9.7	3,450	6,680	4.6	3.6

a. Stock at the end of the year. b. Including musical instruments, toys, sport goods and jewelry. c. Including insurance companies, housing and real estate field.

Preferred regions for investors from Schleswig-Holstein are the United States and other Western industrialized countries (table 59). The share of the West European countries amounts more than 55%. Within Europe France, the United Kingdom, Netherlands and Switzerland are countries with a significant share of direct investments from Schleswig-Holstein. In comparison to the Federal Republic, investors from Schleswig-Holstein are relatively more present in

Table 58. Direct investment from abroad in Schleswig-Holstein and the Federal Republic of Germany by industry 1980-1989.^a

Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternehmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

			Schleswig-I	Holstein	Federal Republic of Germany			
	1980	1989	1980	1989	1980	1989	1980	1989
	million	DM	%		millio	n DM	%	
TOTAL	1,336	2,020	100.0	100.0	71,758	124,954	100.0	100.0
Mining	•	п.а.	-	n.a.	337	151	0.5	0.1
Manufacturing	1,059	878	79.3	43.5	42,606	49,142	59.4	39.3
among that:								
Chemicals	446	271	33.4	13.4	6,933	10,052	9.7	8.0
Mineral oil	•	-	•	-	8,514	4,977	11.9	4.0
Rubber and plastic								
products	90	68	6.7	3.4	2,052	1,954	2.9	1.6
Stones and earthen goods,								
precision ceramics, glass								
and glass products	п.а.	28	n.a.	1.4	725	792	1.0	0.6
Iron and steel, ferrous								
foundries	31	n.a.	2.3	n.a.	2,579	735	3.6	0.6
Machinery non-electric	155	267	11.6	13.2	3,197	3,718	4.5	3.0
Office, accounting and								
computing machinery	-	n.a.	-	n.a.	3,252	5,484	4.5	4.4
Road motor vehicles	n.a.	n.a.	n.a.	n.a.	3,159	5,598	4.4	4.5
Electrical machines and								
equipment	124	80	9.3	4.0	3,767	6,442	5.2	5.0
Precision mechanics, optic								
fabricated metal products ^D	65	52	4.9	2.6	1,915	2,450	2.7	2.0
Food industry	61	34	4.6	1.7	2,633	2,655	3.7	2.1
Construction	4	5	0.3	0.2	205	235	0.3	0.2
Wholesale and retail trade	224	458	16.8	22.7	11,038	20,429	15.4	16.3
Traffic and communication	8	20	0.6	1.0	690	880	1.0	0.7
Banking	-	n.a.	-	п.а.	4,614	9,741	6.4	7.8
Holding companies and								
other investment firms	27	519	2.0	25.7	8,400	36,585	11.7	29.3
Other services ^C	n.a.	107	n.a.	5.3	3,343	7,271	4.7	5.8

a. Stock at the end of the year. b. Including musical instruments, toys, sport goods and jewelry. c. Including insurance companies, housing and real estate field.

France and especially in Sweden. However, one has to keep in mind that investment from Schleswig-Holstein is very small in absolute terms. E.g. direct investment in Sweden amounts to only 23 million DM in 1989.

More than 95% of foreign direct investment in Schleswig-Holstein has its origin in western industrialized countries (table 60). The most important countries of origin are the United States (21.3%), Sweden (20.1%), Japan (12.6%) and the

Table 59. Direct investment of Schleswig-Holstein and the Federal Republic of Germany by regions of destination 1980-1989.^a

Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternchmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

·	1980	1985	1989	1980-1989	1980	1989
			million DM	average		share (%)
				increase per		
		-		year (%)		
			Schleswig	-Holstein		
World	352	545	1,016	12.5	100.0	100.0
Western industrialized						
countries	337	563	999	12.8	95.7	98.3
Western Europe	259	378	564	9.0	73.6	55.5
Belgium	6	7	18	13.0	1.7	1.8
France	35	73	176	19.7	9.9	17.3
United Kingdom	46	74	67	4.3	13.1	6.6
Italy	13	14	15	1.6	3.7	7.0
Netherlands	27	32	71	11.3	7.7	7.0
Austria	13	14	34	11.3	3.7	3.3
Sweden	10	19	23	9.7	2.8	2.3
Switzerland	37	56	62	5.9	10.5	6.1
Other western						
industrialized countries	78	185	435	21.0	22.2	42.8
Canada	7	22	15	8.8	2.0	1.5
United States	44	123	253	21.5	12.5	24.9
Other countries	15	-18	17	1.4	4.3	1.7
		Fe	ederal Republ	lic of Germar	ıv	
World	74,353	130,512	184,952	10.7	100.0	100.0
Western industrialized	,	- /-	- 1			
countries	61,542	112,284	167,563	11.8	82.8	90.6
Western Europe	40.264	63,729	99,795	10.6	54.2	54.0
Belgium	2,933	4.893	9,195	13.5	3.9	5.0
Françe	8,253	10,867	15,252	7.1	11.1	8.2
United Kingdom	3,063	6,381	11,947	16.3	4.1	6.5
Italy	2,002	4,937	7,701	16.1	2.7	4.2
Netherlands	4,711	7,968	14,184	13.0	6.3	7.7
Austria	2,669	3,931	63,700	10.1	3.6	3.4
Sweden	433	605	828	7.5	0.6	0.4
Switzerland	6,628	9,665	11,065	5.8	8.9	6.0
Other western						
industrialized countries	21,278	48,555	67,768	13.7	28.6	36.6
Canada	2,781	5,016	5,632	8.2	3.7	3.0
United States	15,541	38,819	54,546	15.0	20.9	29.5
Other countries	12,811	18,228	17,389	3.5	17.2	9.4

a. Stock at the end of the year.

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Table 60. Direct investment in Schleswig-Holstein and the Federal Republic of Germany by regions of origin 1980-1989.^a

Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternehmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

	1980	1985	1989	1980-1989	1980	1989
			million DM	average		share (%)
				increase per		
				year (%)		
			Schleswig	g-Holstein		
World	1,336	1,455	2,020	4.7	100.0	100.0
Western industrialized						
countries	1,098	1,417	1,932	6.5	82.2	95.6
Western Europe	582	787	1,174	8.1	43.6	58.1
France	6	13	. 9	4.6	0.4	0.4
United Kingdom	86	235	217	10.8	6.4	10.7
Netherlands	14	13	77	20.9	1.0	3.8
Sweden	159	214	406	11.0	11.9	20.1
Switzerland	66	45	109	5.7	4.9	5.4
Other western						
industrialized countries	516	630	- 758	4.4	38.6	37.5
Japan	70	174	254	15.4	5.2	12.6
Canada	61	15	20	-11.7	4.6	1.0
United States	365	411	431	1.9	27.3	21.3
Other countries	238	38	88	-10.5	17.8	4.4
		Fe	ederal Repub	lic of Germany	,	
World	71,758	90,885	124,954	6.4	100.0	100.0
Western industrialized						
countries	68,116	86,462	119,195	6.4	94.9	95.1
Western Europe	35,705	46,011	68,434	7.5	49.8	50.6
France	4,508	5,516	7.857	6.4	6.3	6.1
United Kingdom	5,964	8,069	10,817	6.8	8.3	8.9
Netherlands	8,489	11,584	17,121	8.1	11.8	12:7
Sweden	1,479	1,904	2,761	7.2	2.1	2.1
Switzerland	10,004	12,712	17,767	6.6	13.9	14.0
Other western						
industrialized countries	32,411	40,451	50,761	5.1	45.2	44.5
Japan	2,359	5,295	9,239	16.4	3.3	5.8
Canada	533	581	1,363	11.0	0.7	0.9
United States	29,498	34,195	39,812	3.4	41.1	37.6
Other countries	3,642	4,423	5,759	5.2	5.1	4.9

a. Stock at the end of the year.

United Kingdom (10.7%). Direct investment from Sweden and Japan increased considerably, at a rate above average in the eighties. Both countries were more represented in Schleswig-Holstein than in the Federal Republic of Germany as a whole. This is especially true in the case of Sweden (20.1% in Schleswig-Holstein against 2.1% in the Federal Republic). Schleswig-Holstein seems to be

a preferred location for Swedish firms wishing to be present on the German market.⁴⁰

Effects of the Completion of the European Single Market on the Economy of Schleswig-Holstein

METHODICAL CONSIDERATIONS

Usually the question of the effect of the ESM-program answered by what is called the "top-down-sectoral-approach". To begin with one looks at the regional concentration of those industries that may be substantially affected by measures of the ESM-programme.⁴¹ If these industries are of some importance for the local industry mix the region as a whole is said to be affected by the completion of the ESM. Furthermore, dynamic effects are to be captured by providing information on the competitiveness as measured by the economic performance of a region in the past.⁴² Concerning the sectoral effect on Schleswig-Holstein's manufacturing sector we shall follow a similar process in the following two parts of this chapter.⁴³ The more sophisticated classification of ESM related effects provided by Buigues and Ilzkowitz (1988) and Buigues, Ilzkowitz and Lebrun (1990) is used. In the second part of this chapter we present the views and judgements of Schleswig-Holstein's enterprises themselves as expressed in a questionnaire performed by the Schleswig-Holstein Chambers of Industry and Commerce in January 1992.

 $^{^{40}}$ Whether Schleswig-Holstein is also a preferred location within the EC is still open. An answer needs informations concerning the Swedish pattern of direct investments in the EC countries.

⁴¹ These are (i) the abolition of border controls, (ii) the dismissal of non-tariff-barriers (like technical or health provision norms) as far as they discriminate against suppliers from other EC member countries, by establishing the country-of-origin-principle, (iii) deregulating major service markets like transportation or insurance markets by permitting entry of firms from other EC member countries to domestic markets, (iv) liberalisation of public procurement to bidders from all EC member countries and - probably - (v) harmonisation of indirect taxes.

⁴² Cf. Döhrn (1989), empirica (1989), Richert and Thiel (1989), Nerb, Reuter and Weichselberger (1990), Sinz and Steinle (1989), Buigues and Ilzkowitz (1988), Buigues, Ilzkowitz and Lebrun (1990). The latter three provide more sophisticated analyses concerning regional competitiveness resp. regional affectedness.

 $^{^{43}}$ Also the service sector will be largely affected because of major deregulating steps. These will come in here with respect to overall effects of the ESM.

"SECTORAL AFFECTEDNESS" OF SCHLESWIG-HOLSTEIN'S MANUFACTURING SECTOR

According to Buigues and Ilzkowitz (1988) and Buigues, Ilzkowitz and Lebrun (1990), there are five categories of affected industries with different features respect to the effect of the completion of the ESM, and one residual group of less affected industries:

More Price Competition group. The largest group is formed by industries, whose markets are moderately protected by non-tariff barriers, which are intensively involved on the EC level and with markets outside, too. These enterprises exhibit strong economies of scale. In this group sales systems will adjust to larger market areas and price competition will increase (PC-group).⁴⁴

De-Monopolization group. In the second group high non-tariff-barriers coincide with high price differentials at the EC level and a low level of market involvement inside and outside the EC. There are high economies of scale and a high dependency on sales to public procurement agencies. In this group structural change will be intensive. National monopolies will cease to exist, and concentration processes may be necessary to take advantage of scale economies (DM-group).

More Structural Change group. In the third group, there are high non-tariff barriers, a low level of market involvement in the EC, high scale economies, and a high dependency on sales to public procurement agencies, too. There are, however, only marginal price differentials between EC markets. Furthermore, market intervolvement with markets outside the EC is somewhat higher. In this group structural change is expected to intensify (SC-group).

Good Growth Prospects group. In the fourth group, there are high non-tariff barriers as well, combined with a high level of market involvement inside the EC and with markets outside, low price differentials and a high dependency on sales to public procurement agencies. Scale economies tend to be of some, but not overall, importance. Insofar scale economies are important, certain concentration processes may occur. For the industries of this group growth prospects look quite favourable (GP-group).

National Pecularities group. In the last group of affected industries, there are no common features. All industries belong to this group, which might be affected because of national peculiarities (NP-group).

 $^{^{44}}$ For the branches belonging to the various groups see appendix 3.

Not Affected group. The residual group is formed by those industries that are expected not to be substantially affected by the completion of the ESM (NA-group).

If one looks at Schleswig-Holstein's manufacturing sector, at least in 1987, the share of the NA-group was 5% larger than in the whole Federal Republic (table 61). So Schleswig-Holstein's manufacturing sector would not be as affected as that of the Federal Republic. A closer look at the data, however, reveals that this result is due to the markedly lower share of the PC-group which overcompensates the higher shares of all other groups. Within the PC-group we find only 5 of probably 20 affected branches with higher employment shares in Schleswig-Holstein:

- chemical fibres (2004),
- non-structural non-refractory ceramic ware (224),
- machinery and equipment (242),
- electrical household appliances (2505),
- pencils, stamps, modelling and curving ware (2571-5).

Machinery and equipment cannot compensate the lower share in the other 15 industries including motor vehicles (244), road transport equipment (244), and aircraft and spacecraft (248), which together account for 9.8% on the federal level, but only for 1.5% in Schleswig-Holstein. The markedly lower share of industries which might be subject to a more intensive price competition under ESM circumstances thus may indicate lower adjustment costs for Schleswig-Holstein's manufacturing sector, at least in the first phase of adjustment needs.

The markedly lower shares of the bulk of the PC-industries, on the other hand, hides the higher effect to all other groups in Schleswig-Holstein. In the second group (DM-group) which will face a de-monopolization and mutual involvement of market segments the higher affectedness is due mainly to the prominent role which pharmaceuticals (20031) play in Schleswig-Holstein's industry mix. The effect would be even higher if railway equipment (247) was not lacking in Schleswig-Holstein. Especially the pharmaceutical industry may have to cope with additional competitive pressures, if the ESM measures will be installed in time.

As can be concluded from the third and fourth column in table 61, in the SCgroup it is mainly shipbuilding which accounts for the higher impact in Schleswig-Holstein. Schleswig-Holstein's manufacturing sector faces adjustment needs from this sector that once could be interpreted as the central industry that now, however, is one of its main problem industries. Among the industries for

für Weltwirtschaft Kiel

Table 61. Sectoral affectedness of the manufacturing sector in Schleswig-Holstein and the Federal Republic by the European Single Market program as measured by employment shares, 1987 (%). Source: Deutsche Bundesbank, Die Kapitalverflechtung der Unternehmen mit dem Ausland nach Ländern und Wirtschaftszweigen. Beilage zu "Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank", Reihe 3, Zahlungsbilanzstatistik. Informations proviced by Landeszentralbank Schleswig-Holstein. Own calculations.

Group	Branch group with	All manu	facturing branches	Manufacturing wi	thout shipbuilding
code		Schleswig-	Federal Republic	Schleswig-	Federal Republic
		Holstein	of Germany	Holstein	of Germany
PC	More Price Competition	25.4	40.2	26.6	40.3
DM	De-Monopolization	3.6	3.1	3.8	3.1
ŚC	More Structural Change	14.3	10.2	10.5	9.7
GP	Good Growth Prospects	9.8	6.1	10.2	6.2
NP	National Pecularities	3.4	1.9	3.5	2.0
А	Affected	56.5	61.5	54.6	61.3
NA	Not Affected	43.5		45.4	38.7

which good growth prospects can be expected (GP-group), we find communication equipment and electronical appliances for measuring, checking, testing and navigating (2505). The higher share of GP-industries in Schleswig-Holstein thus could be a sign of hope with regard to the overall prospects after completion of the ESM.

Summarizing, one could argue that the markedly lower share of PC-industries and the higher share of GP-industries in Schleswig-Holstein offer favourable prospects for the manufacturing sector, while the higher shares of the DM- and the SC-industries worsen the picture. With respect to these branches Schleswig-Holstein's manufacturing sector will face major and intensive adjustment needs. One should keep in mind with these findings that (i) the mere criterion "affectedness or non-affectedness" would have been insufficient to assess the adjustment needs and (ii) the method employed here can detect at best the first-round effects. Those industries under heavy competitive pressures in the first round may perform a much better in the longer run if they adjust themselves to the new circumstances. On the other hand industries with growth prospects have to realise their chances.

"REGIONAL COMPETIVENESS" OF SCHLESWIG-HOLSTEIN

With respect to regional competitiveness one could argue - as has been done that the location of Schleswig-Holstein reveals certain deficiencies which could account for a low ability to adjust to new and more competitive circumstances in the eighties. The R&D intensity in Schleswig-Holstein, the human capital intensity and the export shares are low for many industries. So according to other studies dealing with the effects of the ESM-program, Schleswig-Holstein's manufacturing would find itself in a somewhat less favourable situation concerning its adjustment ability. On the other hand, our analysis of structural change in Schleswig-Holstein in the seventies and the eighties has shown that the shift towards modern human capital intensive industries was faster than in the Federal Republic. This would lead to the conclusion that the ability to adjust to new circumstances is not bad at all. However, the problem is whether past trends can be prolonged into the future. This is at least an open question. How much Schleswig-Holstein can gain from the ESM-program depends on the competitive attitude of its enterprises and their willingness to avail themselves of the opportunities the Schumpeterian event of the internal market is offering. Furthermore the deregulation of border crossing transportation, which is a part of the ESMprogram, will lead to a deregulation of domestic transport markets. This will lower transport costs substantially which should turn out to be favourable for a peripheral region like Schleswig-Holstein. Last but not least the region would gain from the beneficial effects of further lowering the economic barriers of its northern border to Denmark and - as a result of the treaty of the European Economic Space - to the other Scandinavian countries.

Potential Effects of the ESM-Program in the Judgement of Enterprises from Schleswig-Holstein

The insights gained from the general analysis of the preceding part of this chapter are supported by the views and judgements of manufacturing enterprises from Schleswig-Holstein. This can be seen from the results of a questionnaire performed by the Schleswig-Holstein Chambers of Industry and Commerce (SHCIC) in January 1992, which are presented on the following pages.

Three questions on the effects of the ESM-program were posed in addition to the normal business cycle questionnaire of the SHCIC:

1. Which consequences of the ESM-program do you expect for your own competitiveness on EC markets?

- a. on average positive consequences,
- b. no or neglectable consequences,
- c. negative consequences.

2. Have you taken special actions in response to the ESM-program?

- a. provisions already completed,
- b. provisions planned or prepared,
- c. no provisions considered.

3. Which provisions as reaction to the ESM-program have or had priority for your management strategy?

- a. further rationalization,
- b. innovations,
- c. improved marketing,
- d. relocation of economic activity to countries with lower factor costs,
- e. other provisions.

As membership with Chambers of Industry and Commerce is mandatory the data base should be representative.⁴⁵

Taken together, all manufacturing and mining firms⁴⁶ share the opinion that they will be affected of the ESM-program to a lesser extent than those in other regions. More than three of four enterprises do not expect any change of their competitiveness on EC markets (table 62). Among those who feel affected by the ESM-program the optimists with 13% slightly outweigh the pessimists with 11%. Perceived affectedness, as well as positive and negative expectations are not evenly distributed among branches and branch groups. The most affected and the most optimistic group is that of investment goods industries (I). For the remaining three groups the level of perceived affectedness lies around 80%. Food products industries (N), however, are optimistic while basic materials industries (G) and consumer goods (V) industries seem pessimistic. Consistent with this picture is the fact that the majority of Schleswig-Holstein's manufacturing enterprises do not see a need for any special measures or provisions in reaction to the ESM-program to meet the competitive challenges. Again the share of no reactions is lowest for investment goods and food product industries. The latter, however, only plan provisions and have not completed any so far.

 $^{^{45}}$ Some branches are missing. The employment shares from 1987 add up to some 89%. See appendix 4, where the complete database is presented.

⁴⁶ In the database only this category is reported, not manufacturing without mining, which in Schleswig-Holstein is mainly represented by the extraction of crude oil. The database furthermore comprises answers of enterprises from the construction, service, trade and transportation sector, which are omitted here.

Table 62. Expected effects of and reactions to the ESM-program by enterprises from Schleswig-Holstein. Results from the industrial sector (%).^a

Source: Schleswig-Holstein Chambers of Industry and Commerce, Business Cycle Questionnaire 1/92, Additional Questions concerning the ESM-program. Data provided by Kiel Chamber of Industry and Commerce.

Industry	Industry		Expecte the ES	ed effects of M-program	· · · · =	Provisions in the ES	n reaction to M-program
9.00P		Positive	None	Negative	Completed	Planned	None
	Industry			Ū	•		
	(manufacturing and						
	mining) ^b	13	. 76	11	12	32	56
	whereof						
-	Mining	0	100	0	0	0	100
G	Basic materials						
	industries	8	80	12	8	34	58
I	Investment goods						
	industries	17	71	12	16	29	55
V	Consumer goods						
	industries	7	81	12	17	14	69
Ν	Food products						
	industries	14	79	7	0	57	
					Kind of ta	ken or planne	d provisions
			Rationali-	Innovation	Improved	Relocation	Other
			zation		marketing		
	Industry				-		
	(manufacturing and						
	mining) ^b		38	17	38	5	2
	whereof						
-	Mining		0	100	0	0	0
G	Basic materials						
	industries		52	15	25	2	6
I	Investment goods						
_	industries		29	22	40	8	1
V	Consumer goods						
	industries		45	11	39	4	1
N	Food products		22		40	-	~
	industries		- 55	12	48	5	2

a. Results of the questionnaire of the Schleswig-Holstein Chambers of Industry and Commerce from January 1992. b. Results only for industry as a whole, manufacturing without mining not reported.

Puzzling with this result is the fact that in the analysis of Buigues et al. only a limited number of food product industries should be affected by the ESM-program, such as brewery, soft drinks (both DM-group), farinaceous products and cocoa, chocolate and sugar confectionary (both SC-group). The bulk of food product industries belongs to the NA (Not Affected)-group (appendix 3 and table 63). This impression is further strengthened if one looks at the single branches which feel either positively or negatively affected by the ESM-program (table 63). The seven branches or groups of branches which judge themselves having

promising competitive chances on EC markets include not only two separable food industries groups (beverages and the aggregate of animal feeds and of oils and fats) but also the rest of the food products sector. Moreover the same is true for thin plate and metal products, which includes the most optimistic subindustry, heating and air conditioning. On the pessimistic side, there are some industries which are said not to be affected but which feel uncomfortable when thinking of 1993. These include plastic products and generation, manufacturing and the casting of metals. These results seem to back our hypothesis, posed in the first part of this chapter, that beyond all theoretical reasoning on affectedness and competitiveness it depends on the single enterprises whether they react dynamically to the competitive challenges of the ESM-programme.⁴⁷

Concerning positive and negative expectations we find interesting the fact that the manufacture of machinery and equipment, which we already learned to be one of Schleswig-Holstein's leading branches, is among the most optimistic branches. On the other hand, electrical and electronical machinery including medical and precision instruments tend to be more pessimistic. Whether the specific manufacturers of medical and precision instruments share thus view, cannot be inferred from the data-base because of its high aggregation level.

If one looks at the responses to the second question, whether enterprises have taken or plan provisions to maintain their competitive position, one gets the impression that optimists and pessimists equally plan to react (table 64). The various food industries are among these. They plan to react, but have not completed any provisions so long. Besides textiles, thin plate and metal products, casting, electric industries and machinery seem to be the best prepared best already. Three extreme cases may be mentioned: (i) heating and air conditioning equipment, whose manufactures apparently expect to harvest windfall profits from the Single Market so that they do not intend to do anything, (ii) highly subsidized shipbuilders who, despite pessimistic outlooks do not feel forced to react in any way either, and (iii) the few fur dressers and dyers who are absolutely pessimistic and do not think it worthwhile to take any actions against the unpromising prospects.

⁴⁷ Also the other way round can be found: branches which should be affected according to Buigues et al., but whose members do not feel any change of their competitive situation to come with the ESM-program, e.g. rubber products, road transport equipment, air- and spacecraft and wearing apparel. While the general explanation should come true here, too, there may be the additional reason that all of them play only a minor role in Schleswig-Holstein and are to a greater extent only pre-product manufacturers. They either may defend their market shares independently who is the end-product manufacturer or they might already have serious problems in engaging in the interregional division of labour because of the traffic congestions preventing just-in-time logistics concepts.

tional Questi	ons concer	ning the ESM-program. Data provided by Kiel Chambe	er of Industry and C	ommerce.
WZ-code	Industry	Branch	Share of	Schleswig-
	group		labour	Holstein
			force 1987	relative to
				the Federal
				Republic
		Branches with optimistic expectations		
2565, 2566	1	Heating and air conditioning equipment/NA		
256 with-	1	M.o. tools, weapons, thin plate and metal		
out 2565,		products n.e.c. (without heating and air		
2566		conditioning equipment)/NA	2.9	0.74
293-295	Ν	M.o. alcoholic and non-alcoholic beverages/		
		DM	0.9	0.75
242	Ι	M.o. machinery and equipment/PC	14.1	1.07
297, 289	Ν	M.o. prepared animal feed, vegetable and		
		animal oils and fats/NA	0.5	1.67
20 without	G	Mo. chemicals, chemical and nuclear		
205		products/PC, DM, NA	6.0	0.90
Rest of	N	M.o. food products (all remaining branches)/		
28/29		NA	12.5	2.54
		Branches with more pessimistic expectations		
246	1	Building and repairing of ships and boats/SC	4.3	8.78
250	Ι	M.o. electrical and electronical machinery		
		and apparatus n.e.c./SC, PC	10.7	0.89
210	v	M.o. plastic products/GP	2.7	0.76
22	G	Extraction and m.o. stone and clay products/		
		NP	0.4	2.08
275	V	M.o. textiles/PC	1.1	0.40
234, 236	G	Casting of iron, steel and non-ferrous metals		
		/NA	0.8	0.61
23 without	G	Generation and m.o. metal (without casting)/		
234, 236		NA	3.3	0.49
2766	V	Dressing and dying of fur/PC	•	

Table 63. Positive or negative affectedness of branches by the ESM-program in the judgement of Schleswig-Holsteins enterprises (%).

Source: Schleswig-Holstein Chambers of Industry and Commerce, Business Cycle Questionnaire 1/92, Additional Ouestions concerning the ESM-program. Data provided by Kiel Chamber of Industry and Commerce.

Besides these cases the general picture from the questionnaire seems to be that

there is no correlation between the level of (positive or negative) affectedness and the intentions to react,

important investment industries seem to be prepared best,

WZ-code	Industry	Branch	•	Expecte	d effects of
	group		Positive	Ine ESI None	M-program Negative
		Busseling with anti-right compared tions	i Usitive	none	Negative
		Branches with optimistic expectations			
2565, 2566	I	Heating and air conditioning equipment/NA	100	0	0
256 with-	I	M.o. tools, weapons, thin plate and metal			
out 2565,		products n.e.c. (without heating and air			
2566		conditioning equipment)/NA	30	56	14
293-295	N	M.o. alcoholic and non-alcoholic beverages/			
		DM	29	58	13
242	I	M.o. machinery and equipment/PC	24	69	7
297, 289	N	M.o. prepared animal feed, vegetable and			
		animal oils and fats/NA	23	77	0
20 without	G	Mo. chemicals, chemical and nuclear			
205		products/PC, DM, NA	19	67	14
Rest of	N	M.o. food products (all remaining branches)/			
28/29		NA	16	84	0
		Branches with more pessimistic expectations			
246	I	Building and repairing of ships and boats/SC	12	57	31
250	I	M.o. electrical and electronical machinery			
		and apparatus n.e.c./SC, PC	10	67	23
210	v	M.o. plastic products/GP	3	81	16
22	G	Extraction and m.o. stone and clay products/			
		NP	0	95	5
275	V	M.o. textiles/PC	0	64	36
234,236	G	Casting of iron, steel and non-ferrous metals/			
		NA	0	57	43
23 without	G	Generation and m.o. metal (without casting)/			
234, 236		NA	0	54	46
2766	<u>v</u>	Dressing and dying of fur/PC	0	0	100

Table (2 cardinad

food product industries plan to react but have not completed their activities up to now.

A closer look at the kind of actions taken or planned gives the impression that further rationalization and improved marketing are thought to be most important. The enterprises seem to have learned the lesson of the expected main effects of the single market: more competition and larger markets. However, innovations seem to be less important. Only food products, the electrical industry, chemicals, and machinery exhibit stronger intentions towards innovations (table 64). The Table 64. Provision taken or planned in enterprises in Schleswig-Holstein's manufacturing sector in Reaction to the ESM-program.

Source: Schleswig-Holstein Chambers of Industry and Commerce, Business Cycle Questionnaire I/92, Additional Questions concerning the ESM-program. Data provided by Kiel Chamber of Industry and Commerce.

WC-code	Industry	Branch	Expectations ^a		Provisions in the ES	reaction to M-program
	0F			Completed	Planned	None
275	v	M.o. textiles		50	0	50
256 with-	I	M.o. tools,			0	20
out 2565,		weapons, thin				
2566		plate and metal				
		products (without				
		heating and air				
		cond. equipment)	++	41	16	43
234, 236	G	Casting of iron,				
		steel and non-				
		ferrous metals		40	30	30
250	I	M.o. electrical and				
		electronical machi-				
		nery and apparatus,				
		n.e.c.	-	24	46	30
242	I	M.o. machinery				
		and equipment	++	15	36	49
23 without	G	Generation and				
234,236		m.o. metal (with-				
		out casting)		15	0	85
20 without	G	M.o. chemicals,				
205		chemical and				
		nuclear products	+	14	63	23
210	V	Plastic products	•	3	13	84
293-295	N	M.o. alcoholic and				
		non-alcoholic				
		beverages	++	0	90	10
297, 289	Ν	M.o. prepared				
		animal feeds, vege-				
		table and animal				,
		oils and fats	++	0	69	31
Rest of	Ν	M.o. food products				
28/29		(all remaining				
		branches)	++	0	51	49
22	G	Extraction and				
		m.o. stone and clay		_		
	_	produts		0	15	85
2565, 2566	I	Heating and air				
	_	cond. equipment	++	0	0	100
246	1	Building and				
		repairing of ships				
0.00		and boats	-	0	0	100
2766	V	Dressing and dying		_		
		of lurs		0	0	100

Lable of continued.	T:	ibi	e 64	conti	nued.
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WC code	Inductor	Branch			Kind of tal	can or planned	provisions
WC-Coue	muusuy	Branch	Pationali	Innovation	Improved	Paloention	Diport
	group		Rationali*	mnovation	mpioved	Relocation	Oulei
276	17	M. e. terreilen	24(10)	0	marketing	0	0
275	v T	M.o. textiles	43	U	57	U	U
256 with-	L	M.O. LOOIS,					
out 2565,		weapons, thin					
2566		plate and metal					
		products (without					
		heating and air	A .c	â			
	-	cond. equipment)	36	8	50	6	0
234, 236	G	Casting of iron,					
		steel and non-					
		ferrous metals	55	10	25	10	0
250	I	M.o. electrical and					
		electronical machi-					
		nery and apparatus,					
		n.e.c.	36	41	18	5	0
242	I	M.o. machinery					
		and equipment	19	18	48	13	2
23 without	G	Generation and					
234,236		m.o. metal (with-					
		out casting)	83	0	17	0	0
20 without	G	M.o. chemicals,					
205		chemical and					
		nuclear products	32	21	40	2	5
210	V	Plastic products	44	5	29	17	5
293-295	N	M.o. alcoholic and					
		non-alcoholic					
		beverages	20	10	66	0	4
297, 289	N	M.o. prepared					
-		animal feeds, vege-					
		table and animal					
		oils and fats	31	0	69	0	0
Rest of	N	M.o. food products	-			-	-
28/29		(all remaining					
,		branches)	29	50	0	21	0
22	G	Extraction and			-		-
	-	m.o. stone and clav					
		produts	55	13	13	0	19
2565 2566	ī	Heating and air	55		1.5	0	
2000,2000	•	cond equipment	-		-	-	-
246	T	Building and	-	•	-	-	-
4-1-Q		repairing of chipe					
		and boars	h	. b	h	ь	b
2766	v	Dressing and duing	_0	20	-0	20	••
2100	v	of fure					
		011012	-			-	-

a. For details see table 58. Explanation of symbols is ++: more positive than negative expectations and 20% or more pos. expect.; +: more pos. than neg. expect. and less than 20% pos. expect.; -: more neg. than pos. expect., however, still some pos. expect.; --: only neg. expect. b. Enries omitted, because answer before indicated that no provisions have been taken or planned. For existing answers in the original data see appendix 4.

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manufacture of machinery belongs to the R&D intensive industries in Schleswig-Holstein (table 53).⁴⁸

It is also interesting that quite a number of enterprises in several industries plan to relocate their production to regions or countries where factor costs - especially labour costs - are lower. It should be noted that the most prominent among them are food products - forming an important part of Schleswig-Holstein's manufacturing sector -, plastic products and the important manufacture of machinery. Given the high employment share of food products and machinery as well as the latter's role as technological leader, this tendency should give rise to serious consideration about improving Schleswig-Holstein's locational factors of which labour costs are an important issue.

Summing up one may infer from the results of the questionnaire that

Schleswig-Holstein's enterprises taken together feel affected by the ESMprogram to a lesser extent,

positive, negative, or non-affectedness are not always distributed along the lines one would forecast from theory, but that

most branches tend to behave as expected,

the level of preparedness among those who feel affected in general seems high, especially among the most positively or negatively affected branches,

cost cuts and improved marketing play the most important role among business strategies, while innovations seem limited to a few exceptions, to which the manufacture of machinery - one of the "diamonds" - belongs.

 $^{^{48}}$ A very high degree of planned innovations of 32% we find also with the R&D intensive manufacturing of medical, optical and precision instruments (see appendix 4), but the enterprises of this branch do not expect any change of competitiveness with respect of the ESM-program.

Part 4

Comparative Analysis - Southern Sweden and Schleswig-Holstein

Economic Performance and Structural Change

The investigated regions reveal several similiarities, but there can be found also important differences between them. The most apparent common characteristic of Schleswig-Holstein and Southern Sweden appears to be that neither belongs to the economic center of its home country. They are border regions to other countries and even to different economic areas (the EC respectively the EFTA). As in most other regions which do not belong to the economic core, income per capita is below the national average (table 65). A further common feature is that both regions have lagged behind the national development in terms of economic growth in the eighties.⁴⁹

The density of population in Schleswig-Holstein is distinctly below the national average. In Southern Sweden the opposite is true. However, the density of population in Schleswig-Holstein with 164 inhabitants per square kilometre is more than three times as high as in Southern Sweden. This reflects Sweden being a country with a low density of population in general. Compared with the economic centres in Gothenburg and Stockholm, Southern Sweden has a lower density of population. Thus the difference between Southern Sweden and Schleswig-Holstein in this respect is caused by national differences.

The regions, however, differ clearly with respect to the relative importance of manufacturing industry. Whereas in Southern Sweden the manufacturing sector employs 122 persons per 1,000 inhabitants and thus more than the Swedish average (112 persons), in Schleswig-Holstein the respective indicator only amounts to 66 persons (average in the Federal Republic is 112). Compared to Schleswig-Holstein, Southern Sweden could be characterised as an industria-lized region. However, the industry is widely dispersed and only concentrated in some urban areas such as Malmö and Helsingborg. The difference in the importance of the manufacturing industry between the regions is surprising. Schleswig-Holstein's lagging behind the national economic growth rate could be partly explained by the relative small manufacturing sector. In the eighties the Federal Republic and Sweden experienced a strong export driven upswing which led to what is often called "re-industrialization". Regions with a relatively large manufacturing sector were normally in a favourable position. If Southern Sweden is lagging behind the national development in terms of economic growth

⁴⁹ In the case of Schleswig-Holstein the available data clearly show a lagging behind the national development since the late seventies. Comparable figures for Southern Sweden do not exist, but the conclusion of a lagging behind could be based on a row of empirical evidence.

Source. Table I in part I and table -	to in part 9.			-		
	Southern	Sweden	Southern	Schleswig	Federal	Schleswig
	Sweden		Sweden in	-Holstein	Republic	- Holstein
			% of		of	in % of
			Sweden		Germany ^a	the FRG
Population (1,000)	1,557	8,459	22.0	2,574 ^b	62,636	4.1
Area (km2)	39,051	410,929	9.5	15,729	248,621	6.3
Population density (inh/km2)	47.5	20.6	230.5	163.6 ^b	251.9	64.9
GNI (million DM)				66,688 ^b	1,766,000	3.8
Total income per capita (DM)	22,003d	23,137d	95.1	25,908 ^c	28,195	91.9
Employed in % of population	51.4	52.6	97.7	45.3 ^c	44.1	102.7
Mfg_employed/1,000 inhabitants	122.2	111.9	109.2	65.6 ^b	112.2	58.5
The design of the second secon		2 1000 (11)		1 1000	1000	

Table 65.	Basic indicators	for Southern	Sweden a	and Schleswig-	Holstein	1988.
Source: T	able 1 in nart 1 ar	id table 40 in r	part 3.			

a. Federal Republic in the boundaries before Oct. 3, 1990 (West Germany). b. 1989. c. 1990. d. Calculated in DM by the average exhange rate in 1988.

although the manufacturing sector is relatively important in terms of employment shares, then the manufacturing sector itself has to be a weak point in this region.

Analysing and comparing the structure and the structural change of the manufacturing sector in the regions is only meaningful if the national developments in Sweden and the Federal Republic are taken into consideration. Applying the classification of Ohlsson and Vinell reveals that both countries have more or less comparable industrial structures with some important exceptions (table 66). In Sweden the Knowledge (skill-)intensive industries (Ksector) dominate (in terms of employed persons) whereas in Germany the most persons are employed in the Labour intensive industries (L-sector). K- and Lsector are followed by the subsidized, protected and domestically oriented industries (S-sector). The lowest shares of persons are employed by the R&D intensive industries (R-sector) in Sweden and by the Capital intensive industries (C-sector) in the Federal Republic. The Knowledge intensive sector and the protected, domestically oriented sector are more important in Sweden than in the Federal Republic. The shares of the R&D intensive industries and the Labour intensive industries in the Federal Republic exceed the respective ones in Sweden.⁵⁰ Structural change in the seventies and the eighties in both countries was in the same direction: the L-, S- and the C-sectors shrank, and the K- and the R-sectors were the clear winners. The rate of structural change seems to have been almost the same, perhaps the Federal Republic had a small lead.

⁵⁰ The differences should not be overinterpreted because they could be the result of differences in attributing the single industries to sectors (see in detail appendix 4).

Branch	Branch group		Swedem	Federal Republic		
code					of Germany	
		1970	1987	1970	1987	
R	R&D intensive industries	8.0	11.3	10.6	14.6	
К	Knowledge (skill) intensive industries	26.9	30.7	21.1	26.3	
C	Capital intensive industries	14.2	13.9	15.4	12.0	
L	Labour intensive industries	27.9	22.3	35.9	30.5	
S	Subsidized, protected and domestically					
	oriented industries	20.1	19.0	17.0	16.6	
	Unclassified	2.9	2.8	-	-	
	TOTAL	100.0	100.0	100.0	100.0	

Table 66. Industrial employment by sector in Sweden and the Federal Republic of Germany, 1970 and 1987 (%).

 Table 67. Industrial employment by sector in Southern Sweden and Schleswig-Holstein, 1970 and

 1987 (%)

Branch	Branch group	Southern Sweden		Schleswig-Holstein	
code		1970	1987	1970	1987
R	R&D intensive industries	3.1	4.9	9.0	16.8
Κ	Knowledge (skill) intensive industries	25.0	28.9	23.5	23.4
С	Capital intensive industries	8.9	9.9	8.3	6.5
L	Labour intensive industries	39.8	34.1	31.3	27.2
S	Subsidized, protected and domestically				
	oriented industries	21.4	22.4	28.0	26.2
	Unclassified	1.8	0.8	-	-
	TOTAL	100.0	100.0	100.0	100.0

Source: Table 9 in part 2 and table 50 in part 3.

The similar pattern of industry structure and structural change in both countries facilitates the comparison between the two regions, Southern Sweden and Schleswig-Holstein. A quick glance reveals important differences in the deviations of the regional industry mix from the national patterns: In Southern Sweden the S- and especially the L-sectors have been the losers in the structural changes of the last twenty years. They are more important (in terms of employment shares) than the respective national averages (table 66 and 67). Correspondingly the shares of the K- and R-sectors, the winners in the structural changes, are below the Swedish average in Southern Sweden.

In Schleswig-Holstein the sunrise sector of the Knowledge intensive industries is also of less importance than in the Federal Republic, and the employment share of the (sunset) S- sector is by far bigger than the national average. On the other hand, Schleswig-Holstein's share in R&D industries is distinctly above and in Labour intensive industries is clearly below the national shares. Taking the sunriseindustries together (R&D industries and Knowledge intensive industries), Schleswig-Holstein's economy is not behind the rest of the country. The opposite is true for Southern Sweden: The employment share of these two sectors amounts 33% in Southern Sweden, but 42% in the whole country. Due to the fact that Southern Sweden's economy relies on manufacturing industries to a much greater extent than this is the case in Schleswig-Holstein, the fact that Southern Sweden is behind gains still more importance. This means that Southern Sweden will be confronted with the loss of workplaces in traditional industries much more than other regions in Sweden. The only way to meet the problem is to be open for structural change, for new industries, new firms, new products and new forms of cooperation. If the region is not able to manage the need for restructuring, Southern Sweden will face a shrinkage in workplaces and the possibilities to earn money in the region will deteriorate relatively to other regions.

The impression that the manufacturing sector, seen as a whole, seems to be a weak point in Southern Sweden's economy is supported by direction and speed of structural change in the seventies and the eighties. The industry structure has only partially changed in the direction which is observable in Sweden and Germany as a whole. Against the national trend the Capital intensive industries and the protected, domestically oriented industries gained employment shares. The R&D sector and the Knowledge intensive sector indeed got more importance in line with the national development but the gains were comparatively small. Just the opposite has been true in the case of Schleswig-Holstein. The industry mix has changed in the same direction as in the Federal Republic.⁵¹ The regional change has in some ways been more pronounced than the national one. The fast growth of R&D sector's employment share is especially remarkable. Thus, one may conclude that the structure of the manufacturing sector in Schleswig-Holstein is more favourable than in Southern Sweden.

The conclusion that Schleswig-Holstein's manufacturing industry mix is more favourable than that of Southern Sweden needs some qualifications. The first one is that Southern Sweden's economy will no longer be confronted with the shipbuilding problem because the big yards of the region, engaged in building commercial ships, closed down their gates in the eighties (at Landskrona in 1980, at Malmö in 1986).⁵² Nearly 8,000 jobs at the yards were lost. In Schleswig-Holstein many workers at the yards lost their jobs in the eighties (6,000).⁵³ But in contrast to Southern Sweden, Schleswig-Holstein still has a

⁵¹ Only the share of the knowledge-intensive industries decreased very slightly (by 0.1%, whereas in the Federal Republic the share increased by 4.0%).

⁵² Still left are a submarine yard at Malm", a naval yard at Karlskrona with some 800 workplaces each and a very small yard at Landskrona.

⁵³ More than 7,000 workplaces were already lost in the seventics.

considerable shipbuilding industry with nearly 9,000 employees. The yards in Schleswig-Holstein would have been forced to close down their gates completely, as was the case in Sweden, if the federal government and the government of Schleswig-Holstein had not paid subsidies to a large extent. Facing severe price competition from Far East and other developing shipbuilding countries, the yards in Schleswig-Holstein can only survive if subsidization continues. Due to budgetary problems as a result of German unification, a fairly restrictive shipbuilding policy in Brussels and increased (highly subsidized) competition by the yards in Mecklenburg-Vorpommern this is highly doubtful. Thus, the Schleswig-Holstein economy presumably has to face a further shrinkage of the shipbuilding industry whereas Southern Sweden has already dealt with this problem. In this respect the economic prospects seem to be more favourable in Southern Sweden than in Schleswig-Holstein.

The different strategies to handle the shipbuilding problem in Southern Sweden and Schleswig-Holstein in the past are only partly shown by the figures of structural change (table 67). According to the classification of Ohlsson and Vinell we attributed the shipbuilding industry to the Knowledge intensive industries. Although in Southern Sweden nearly all jobs at the yards were lost, the share of the Knowledge intensive industries increased considerably. In Schleswig-Holstein only the much moderate lost of workplaces at the yards were compensated by new jobs in other Knowledge intensive industries. This means that structural change within the Knowledge intensive industries is much deeper and faster in Southern Sweden than in Schleswig-Holstein.

A second modification to the conclusion that Schleswig-Holstein's manufacturing industry mix is more favourable than Southern Sweden ones has to be seen in the fact that the industry structure in Schleswig-Holstein is more heterogeneous. The "modern" R&D industries play a considerable role in Schleswig-Holstein while the "old fashioned" subsidized, protected and home market oriented industries are relative important (in terms of employment shares), too. In some sense one could characterise Schleswig-Holstein's industry structure as a dualistic one. In Southern Sweden the industry mix is much more balanced with a considerable share of skill intensive industries, in spite of the fact that shipbuilding industry disappeared.⁵⁴

The share of Labour intensive industries which are not of the seemy side of structural change is far above the national average. But as the experience in other regions originally dominated by Labour intensive industries shows,

 $^{^{54}}$ From a dynamic point of view one could even argue that the disappearance of the shipbuilding industry has possibly caused the growth of this sector.

structural change from Labour intensive industries to other industries normally happened without severe frictions.

PROBLEM SECTORS AND PROSPEROUS SECTORS

In spite of a different industry mix in Southern Sweden and Schleswig-Holstein both regions exhibit a number of similarities with respect to problem sectors as well as to prosperous sectors.

Problem sectors

As far as problem sectors are concerned, both regions have quite a large share of agriculture compared to the level of national account statistics: 5.9% of aggregate employment in Southern Sweden, but 4.2% in Sweden as a whole, and 7.0% in Schleswig-Holstein in relation to only 4.9% in the Federal Republic.

As agriculture is confronted with low income elasticities of demand and price competition from countries with natural comparative and even absolute advantages in production, this sector could hardly be expected to be an engine of growth. This is all the more true as a reform of agricultural policy in Sweden as well in the EC consisting of a reduction of production subsidies seems to be inevitable. Either the Uruguay-round or budgetary constraints in Brussels and Stockholm will sooner or later force a cut of subsidies. Furthermore the high level of protection cannot be maintained if the West European countries make serious efforts to assist the economic recovery of the Eastern European countries. A serious step toward integrating these countries into a market orientated division of labour would consist of opening up the markets for agricultural products.⁵⁵

The figures render the impression, that the agricultural problem is not as distinct in Southern Sweden as in Schleswig-Holstein. The difference can be explained by the greater importance of manufacturing there. Southern Sweden has a larger manufacturing sector than Sweden as a whole (24.2% employment share in Southern Sweden, but only 21.3% in Sweden), whereas one of Schleswig-

⁵⁵ In any case Sweden has presumably to reduce agricultural subsidies if the country becomes a member of the EC. Until now the level of agricultural protection in Sweden still exceeds the level of the EC. It is very likely that the new members have to adjust their system to that of the community.

Holstein's problems is its rather small manufacturing sector (28.8 % relative to 38.4 % in the Federal Republic⁵⁶).

So one is inclined to describe Southern Sweden as an industrial region which faces some agricultural problems, too, whereas Schleswig-Holstein is more dependent on economic activities which are not market orientated and strongly influenced by state interventions. Schleswig-Holstein's economy relies to a large extent on public sector activities. The share of public sector value-added is 17.0%, one and a half times larger than in the Federal Republic. This rests on the concentration of military in Schleswig-Holstein. The high dependence of Schleswig-Holstein's economy on political influences became evident when the decision was taken to reduce the military man power in Germany by one third as a result of the agreement of German unification. Southern Sweden is not confronted with a similar problem; public sector activities are at the level of Sweden as a whole.

If one looks at the industries within manufacturing, a similarity is found in the importance of food product industries in both regions. In Schleswig-Holstein with an employment share of 14.7% which is more than one and a half times that of the Federal Republic, the predominance of food production is stronger than in Southern Sweden. There the employment share of 10% is only one ninth above that of Sweden. However, in the Malmö region we find the employment share at 21%, more than twice of the Swedish share.

As a result of the European Economic Space between EC and EFTA, existing trade barriers in the food business between EC and Sweden will be lowered. The opportunities for Swedish food industries might become more promising.⁵⁷ It should be noted, however, that an important competitor in this game is Denmark being EC member since 1972. The Danish food industry holds a supremacy in developing and marketing food products in the world market. Another interesting actor in the Baltic food game could be Poland with long agricultural traditions and a possibly strong, low cost position. The currently negotiated association contracts between EC and Poland, CSFR and Hungary may be judged as more far reaching in granting trade preferences even in the food business than any other deal before (Langhammer, 1992). It remains an open

 $[\]frac{56}{10}$ These latter figures are based on compulsory social security statistics.

⁵⁷ The lowering of trade barriers in the field of food products is a result of applying the "country-of-originprinciple", which is a constitutive element of the completion of the internal market and which - due to the EES-treaty - will also be valid between EFTA and EC countries. However, many regulations in the food area are the outcome of EC agricultural policy. A further liberalisation in trade with food products between Sweden and the EC is only possible if the EC will change the common agricultural policy. Of course, the trade barriers will no longer exist if Sweden becomes a member of the EC.

question how the EC will react if Poland should exhibit strong competitive threats for EC food producers. In any case chances for cooperation in the food business around the Baltic would probably be based on further specialization and making use of market niches.

Prosperous Sectors

A similarity between both regions can be seen in the non-existence of industries which are from a national point of view often seen as dynamic and prosperous. This is true, for example, with respect to office, accounting and computing machi-nery, railway equipment, and aircraft and spacecraft, which do not play a major role (or none at all) in the respective industry mix of both regions. In the area of manufacturing motor vehicles subcontractors to the major car producers have plants in Schleswig-Holstein and Sweden. There is a difference, however: while those subcontractors are of minor importance for Schleswig-Holstein (1.2% of employment, one eighth of that in the Federal Republic) they play a larger role in Southern Sweden. The absence of a certain industrys in a region does not mean that the industry structure as a whole is unfavourable. The region my have other prosperous industries which indicates that an efficient specialization has taken place.

Apart from this general restriction Southern Sweden and Schleswig-Holstein have some industries which are, no doubt, on the sunside of structural change. Both manufacturing sectors are characterised by what may be called a "diamond-gravel-structure". There exist a few "diamond" industries which account for prosperous development, competitiveness on world markets, advanced technology, and a high rate of innovations. In some cases a few enterprises within these "diamond" industries are able to compensate the weak performance of other industries or even their industry colleagues. They are occupying leading positions among world market suppliers. The only problem in Southern Sweden and Schleswig-Holstein is that they are not so numerous as to dominate aggregate manufacturing growth.

We find these companies in the areas of medical, optical and precision instruments and pharmaceuticals. They exhibit higher R&D shares, a better performance and a higher employment share than at the national average.⁵⁸

 $^{^{58}}$ Instruments account for 3.7% employment share in the Malmö region, 1.5% in the rest of Southern Sweden, and 1.3% in Sweden, for 4.0% in Schleswig-Holstein, and 2.4% in the Federal Republic. The respective figures for pharmaceuticals are 3.1% in the Malmö" region, 0.8% in the rest of Southern Sweden, and 1.3% in Sweden, 2.6% for Schleswig-Holstein, and 1.1% for the Federal Republic.

Moreover, there is a "diamond" in Schleswig-Holstein, machinery, which accounts for a lot of manufacturing performance in the region. This branch, however, is rather weak in Southern Sweden. Only in the Malmö-Lund area we can find a certain concentration of machinery enterprises.

Summing up, one could say that in both regions the same problem sectors as well as the same prosperous industries are of particular importance. The enterprises of the respective industries in Southern Sweden and Schleswig-Holstein should investigate whether the scope for cooperation on world markets exist.

Locational and production factors

Both regions - Southern Sweden as well as Schleswig-Holstein - can be characterised as border regions outside their respective national centres, but they are neighbours at the Baltic rim. As far as geographic distance to economic centres plays a role as determinant for economic activities, both regions have a disadvantage in their competitive position towards buying and selling networks. Schleswig-Holstein is farther from German and Middle European Centres - the so-called Euro-Banana - than, for example, Nordrhein-Westfalen, Hessen, Bayern, or Baden-Württemberg. Southern Sweden is (with the exception of regions in the very north of Sweden) the most distant region relative to the Stockholm agglomeration. However, it is situated near the Danish Copenhagen Centre. Furthermore, it can be viewed - as it is the case in Denmark for Sönderjyllands Amtskommune⁵⁹ as the most southward Swedish region thus being located nearest to the economic centres of the European Community.

As far as transport infrastructure connections are concerned both regions share the problem that Hamburg is a bottleneck in road and rail traffic to the middle and south of the continent. This is more important for Schleswig-Holstein because Southern Sweden has good connections to the national centres in Middle Sweden.⁶⁰ For the future, the Öresund-bridge and the Belt-bridge will improve the traffic connections between Southern Sweden and Schleswig-Holstein. Because of the deficiencies in the southward connections through Hamburg, however, Swedish shippers are pondering redirecting transport links away from Schleswig-Holstein and Hamburg, unless Elbe tunnel capacities are augmented and a new Elbe crossing at some distance from Hamburg will be built.

⁵⁹ See Bode, Holler et al. (1991).

 $^{^{60}}$ According to Lundquist and Olander (1992, p. 12) the attainability index - the normalised number of connections to other regions - for Southern Sweden is equal to the Swedish average.

Concerning the R&D environment both regions are by and large lagging behind the respective national averages. The exception is the Malmö-Lund county, where one can find even more researchers in universities and public research institutions per 1,000 employees than in Stockholm.⁶¹ Schleswig-Holstein is behind in general R&D and especially concerning the endowment with public and university research capacities in the field of technical and engineering sciences.⁶² Though efforts have been pursued by the state's government to add to these capacities, Schleswig-Holstein has not yet caught up. Not surprisingly R&D activities in enterprises are below national average.

In Malmö we only find slightly more than half of the number of researchers per 1,000 employees as in Stockholm (7 in Malmö, but 12 in Stockholm). The gap is even wider between the rest of Southern Sweden with 1 and Sweden with 8 R&D employees per 1,000 employees (cf. Lundquist and Olander, 1992, p. 12). In Schleswig-Holstein, too, the share of R&D personnel amounts to only half of that of the Federal Republic.

Another feature both regions have in common is the discrepancy between education level measured by successful passed high school examinations and the absorption of highly qualified people. The latter is a structural deficiency rather than a locational factor. Indeed, the number of highly qualified jobs is conciderably lower than the respective national average.⁶³

From the position of labour costs there are no distinct differences between bargained wages (minimum wages) in Schleswig-Holstein and the Federal Republic. Only effectively paid wages differ somewhat. For Southern Sweden similar tendencies are true. Furthermore, both regions share the fact that the respective national tax level concerning business taxation seems high by international comparison. In the Federal Republic this is despite a moderate business tax reform in 1990.⁶⁴ In Sweden, however, business taxes have been lowered markedly and substituted by higher indirect tax rates.

⁶¹ The figures are 6 public sector researchers per 1,000 employees in Malmö/Lund, 5 in Stockholm, 4 in Sweden, but none in Southern Sweden excluding Malmö/Lund. Cf. Lundquist and Olander (1992, p. 12).

⁶² 1987 there were 3.4 researchers per 1,000 employees in Schleswig--Holstein, but 3.6 in the Federal Republic. The share of university researchers in technical and engineering sciences in Schleswig-Holstein is only 6.9% compared to 17.2% on national level. Cf. Hoffmeyer et al. (1990, pp. 133 f.).

⁶³ For Southern Sweden see Lundquist and Olander (1992, p. 12), for Schleswig-Holstein see Hoffmeyer et al. (1990, pp. 70 ff.).

⁶⁴ Cf. Klodt, Schmidt et al. (1989, pp. 155 ff.).

All issues taken together, it looks like both regions have much in common concerning locational and production factors. They can be viewed as competitors in the international locational competition for more or less the same fields of production.

Interaction and Internationalization

Germany is the most important market for Swedish exports. Around 14% were sold in Germany in 1990, that is a little more than was suggested as a total share in the analysis above, based on a sample of regions. The Swedish export share to Germany increased in the 1980s, while on the other hand, the Swedish import share from Germany decreased during the same period. Nevertheless, Sweden's greatest trade deficit with any single country is still with Germany. More than 50% of Swedish exports to Germany are products from the C-sector (pulp, paper, chemical and mineral products). Remaining shares come mainly from the R-and K-sectors, such as electrical machines and equipment, other machines and cars. Machines of different kinds, private cars and trucks showed the highest export growth rate in the 1980s.⁶⁵

Swedish investments and production in Germany are impressing in absolute figures. However, Germany's relative share of Swedish investments is smaller than its export share. Germany is ranked fourth and seventh respectively among countries when Swedish foreign interests are measured in number of employees or value of fixed assets abroad. The figures suggest that Swedish firms have no severe problems to enter the German market without having production of their own or sales capacities in the country.

Germany is an even more important market to Southern Sweden than to Sweden in general. Especially direct investments from Southern Sweden to Germany are surprisingly high. In this case neither exports nor investments can be explained by the blend of manufacturing industries in Southern Sweden. It can be shown industry by industry that the general attraction to the German market is genuine.

Of course, Sweden as an export market is much less important to Germany than the other way round. Barely 1% of the German export is addressed to Sweden.

⁶⁵ Statistics Sweden: The export/import year 1990.

This share has been decreasing for quite some time whereas the shares of the EC, Japan and the expanding countries of Asia have been increasing. All Scandinavian countries, and Sweden most, are now receiving smaller German export shares than ten to twenty years ago.

More than 60% of the German export to Sweden come from the R- and Ksectors (electrical machines and equipment, motor vehicles and other kinds of machines).⁶⁶ Products from the C-sector (chemicals) dominate the remaining part. Also German direct investments in Sweden are small compared with the total German direct investments (about 0.5%). Sweden's share has diminished during the last decade.

Sweden as an export market is more important to Schleswig-Holstein than to the German republic. The Swedish export share from Schleswig-Holstein is twice as high as that from the Federal Republic. However, like the total export share from Germany it has decreased over the years. Export from Schleswig-Holstein has changed its geographic pattern more or less in the same way as the German export on the whole: an increased share to the EC and Asia and a smaller share to the Scandinavian countries except for Denmark. Denmark has become one of Schleswig-Holstein's most important single markets. Schleswig-Holstein has relatively more direct investment in Sweden than the republic (within precision mechanics, optic, machines and trade). However, its investments in Sweden have been rather sluggish during the last years.

Two conclusions can be drawn. Not surprising is that Sweden's interest in exporting to Germany is greater than Germany's interest in exporting to Sweden. The same goes for direct investments. These differences are by and large caused by the different magnitude of the countries and their markets. However, remarkable is that Schleswig-Holstein as well as the Federal Republic have more and more addressed their export to the fast growing countries of the world and their investments to the United States and Western Europe (mainly within the so called banana or boomerang reaching from South England across Belgium, southern parts of the Netherlands, through the Rhein valley and into North Italy). The diminishing share to Sweden and most of the other Scandinavian countries might be explained by the fact that all these countries except Denmark are outside the EC and that their separate national markets are considered to be too small and not very profitable. Being outside the EC Scandinavian countries cannot be regarded as one market where marketing and sales promotion can be coordinated. Moreover, there is no doubt that Sweden has increased its export to Germany and other EC members since the middle of the 1980s as a marginal and peripheral result of the international growth of the EC economies without a corresponding increase on the import side. Sweden has been considered a small and peripheral market by EC members whose increasing trade within Europe has, to a great extent, an internal affair. Probably Sweden will not get full advantage from the dynamic European trade until it becomes a member of EC, or at least the inner market.

The second conclusion that can be drawn is that the distance to Sweden from various parts of Germany has an impact on their commitment to the Swedish market, as was found the other way round from various parts of Sweden to the republic. Schleswig-Holstein is after all more oriented towards Sweden than Germany as a whole. Whether this distance decay goes on within Sweden from south to north cannot be revealed from data available.

Whether Swedish or South Swedish export and foreign production are relatively more headed for Northern Germany than for other parts of the republic will be discussed using data that has not yet been used in this paper (unfortunately data on the German relations with various parts of Sweden is not available). When exports and foreign production from Swedish regions were mapped, all the firms taking part in the investigation were asked to register all face-to-face contacts and foreign travel during a week.⁶⁷ The contacts were classified according to the purpose of the meetings and connected to city regions within the countries visited. Among the purposes classified were contacts with customers, suppliers, related industries, affiliated companies, conferences and exhibitions.

There is a rather well known strong correlation between contact patterns and economic relations in general.⁶⁸ Due to national corporate structure, however, the spatial correlation between the two variables is somewhat weaker. The correlation is usually significant and positive, but the spatial relation between the two variables is not completely linear. So, when using the data to investigate the relations between Sweden/South Sweden and various parts of Germany a critical mind is certainly recommendable.

The share of travel from Sweden/South Sweden to the republic in general exceeds the corresponding export shares, probably because face-to-face contacts have a steeper distance decay-curve compared with those of economic and

⁶⁷ Primary data from The Research Group in Economic Geography, Lund University.

⁶⁸ Goddard, J. B: Office Location in Urban and Regional Development, Oxford University Press 1975; Olander, L-O: Office activities as activity systems. In Daniels, J.W: Spatial Patterns of Office Growth and Location. John Wiley and Sons 1979; Törnqvist, G: Contact Systems and Regional Development, Lund Studies in Geography (B) No 35, 1970.

physical flows. Sweden's personal contacts with European countries are, for instance, probably more frequent than contacts with transoceanic countries, even in case of constant value of export flows. Moreover, Southern Sweden's contacts with the republic are somewhat more frequent than national contacts, which is similar to export patterns and direct investments.

Furthermore, the relative number of trips (both kinds) from Sweden as well as from Southern Sweden to Northern Germany is higher than was expected. Thus, a certain friction of distance within Germany can be detected. Whether this is true for travelling only and not for economic flows cannot easily be proved.

However, a bit more surprising, is the fact that travels from Southern Sweden to Northern Germany are not more frequent than travels from Sweden in general. On the contrary, there are figures supporting the opposite statement. The following explanation can be put forward: If Sweden's comparative advantages match Northern Germany's industry in a better way than the advantages of Southern Sweden this would lead to more intensive relations than expected considering the distance separating them. The industrial structure and comparative advantages of Southern Sweden and Northern Germany are in fact very similar. This might create less complementary and less interaction than otherwise expected between the two regions, considering only the cultural and physical distance. Using concepts from trade theory, one might say that trade between Southern Sweden and Northern Germany is limited by lack of dynamism within intra-industry trade, whereas trade between other parts of the two countries has somewhat more dynamism and consists of both Ricardo-trade and intra-industry trade.

The completion of the European Single Market will most certainly strengthen regional advantages and disadvantages. From this follows that the structural similarities between Southern Sweden and Northern Germany may not intensify trade as much as competition (on other markets) between the two regions. In turn this might lead to an increasing rate of direct investment across the border. Business firms on both sides may find it advantageous to coordinate production and marketing thereby increasing their competitive advantage in other parts of the single market. An interesting future for Southern Sweden and Northern Germany (pro-vided political efforts to upgrade infrastructure) may lie in creating strong inter-sected home bases through direct investments and cooperation rather than increasing trade across the border and compete on other markets. However, direct investments and cooperation generally make old industrial structures more productive and competitive but do not vitalize them. Certainly Southern Sweden and Northern Germany need a more dynamic industrial future, not likely to be created through direct investments and cooperation across their borders only. Southern Sweden and Northern Germany must be open to impulses and influences from other more dynamic regions scattered over the national and international economic landscape. Investments in transport linkages, and resources released from home based efforts to increase productivity and competitiveness are excellent starting points for a renewal on both sides of the Baltic.

EFFECTS OF THE COMPLETION OF THE EUROPEAN SINGLE MARKET

In the analysis of how the economy of Southern Sweden and Northern Germany will perform after the completion of the European Single Market we will again use Buigues and Ilzkowitz (1988) and Buigues, Ilzkowitz and Lebrun (1990). We will classify the companies into six groups:

PC-group - which will experience increased price competition,

DM-group - which will experience a substantial market deregulation, intense structural change and break-up of national monopolies,

SC-group - which will experience intensified structural change, but less so than the DM group,

GP-group - which will experience increased growth perspectives,

NP-group - a residual group of industries which are in some way national peculiarities,

NA-group - which will not experience a changed competitive situation as a result of the ESM.

It should be noted that the model describes changes in competitive situation caused by the completion of the ESM. This means that industries "not affected" by the completion of the ESM may experience an intense competition already before the completion of the ESM.

Furthermore, we remind the reader again that the model describes 'first-roundeffects'. This means that industries facing a difficult competitive situation can change their actions and structure and come out of the ESM process as very competitive players in the Single Market.
	Malmöhus county	Southern Sweden	Sweden	 Western Germany 	Schleswig- Holstein
PC	39	42	37	40	25
DM	1	1	1	3	4
SC	12	8	8	10	14
GP	6	3	7	6	10
NP	2	2	1	2	3
Α	60	56	54	62	57
NA	40	44	46	38	43
TOTAL	_ 100	100	100	100	100

Table 68. Effects of the European Single Market (%).

The fact that we have used a German structure for classification makes it somewhat difficult to make exact comparisons with other Swedish statistics. It is not possible to attain a full correspondence between Swedish and German classifications of industries. The method has been to use the German "affectedness groups" as a starting point, translate these as far as possible into Swedish SNIcodes and finally, in those cases where Swedish industries clearly will be affected differently from their German equivalents, modify the scheme accordingly. The resulting "affectedness classification" of Swedish manufacturing industries is given in appendix 2.

Still, even this rather crude analysis of the material gives interesting insights into the needs for industrial change. It also provides a ground for comparisons of effects of the ESM inside and outside the present EC border.

Conclusions

One important conclusion is that Sweden and Western Germany will experience about the same degree of change regarding the competitive situation as the ESM is completed. The overall need for change is about the same in Malmöhus county and the Federal Republic, 60-62%, while the degree of change is equally large in Schleswig-Holstein and Southern Sweden, 56-57%.

Price competition will increase in around 40% of the companies in Sweden as well as in Germany. The effects regarding price competition also seem to be the same in the different counties in Southern Sweden. In a comparison between Southern Sweden and Schleswig-Holstein one will notice a big difference between the two regions. 42% of the industry of Southern Sweden will experience increased price competition when Sweden joins the European Community. Only 25% of the industry in Schleswig-Holstein will face increasing price competition when the inner market is completed. The reason for this is that

Southern Sweden has a large part of its industry - more than 55% in the Labour intensive and Sheltered sectors. The productivity development need, thus, is bigger in Southern Sweden. The joining of the European Community will mean that a high pressure will put on the industry of Southern Sweden. The need for adjustment to the first round of effects can be used as a tool to restructure the industry and develop competitiveness for a strong position in the following rounds. It is not realistic to assume that industrial slack can be preserved in the long run with unilateral protective measures. Neither is it desirable to protect companies so that the incentives to be more effective and to compete are reduced.

The share of industries facing intensified structural change in the ESM is 50% greater in Malmöhus county than in Sweden as a whole. For Malmöhus county, the 12% structural change share of industry is similar to the 14% in Scheswig-Holstein. The need for structural change above the national average is a common feature for both Schleswig-Holstein and Malmöhus county.

Companies with increasing growth perspectives are most frequent in Schleswig-Holstein, 10%, while Malmöhus county is close to the national average both for Germany and Sweden. The rest of Southern Sweden constitutes a problem in this respect. Only 3% of the industry will experience increasing growth perspectives as a result of the completion of the ESM. Again we experience differences in the Southern Swedish region, concerning the competitiveness of the industry.

These results are important in relation to the debate in countries joining the European Community. There are many discussions about the effects that the ESM will have on the countries that are applying for membership in the European Community. Not as much attention is paid to the major changes that will occur inside the present EC as the ESM is completed. The results from our analysis remind us of the fact that the completion of the single market aims at the creation of a more competitive Europe. The increased competitiveness will not come as an immediate result of trade negotiations and political agreements. The increased competitiveness will arise from the ability of companies within the European community to improve their performance and increase their competitive edge. The contribution from the statesmen and politicians is to create a competitive posture will be rewarded. Rewards come from access to a larger capital base, removal of artificial barriers and national safety belts for low performing industries, and finally from access to a large home market.

Thus, the competitive companies inside the European Single Market shall flourish. The other side of the same coin is that casualties will occur. An

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inevitable effect of the support of competitive forces is that they actually do work if artificial barriers are removed. Thus, inefficient companies will go bankrupt, jobs will be lost and whole regions may get into serious trouble. The main emphasis of an economic and infrastructural policy under these conditions should be to continue the offensive and support the growth of strong industries. This is the outspoken agenda and strategy behind the ESM. When other countries join the EC, therefore, it means increased industrial ambitions and a certain amount of blood, toil, sweat and tears. The newcomers should remember that they play by the same rules as those who have already joined the competitive game. Supremacy in the world market is the goal and the road to that position is by no means simple.

An important conclusion in this area is that Malmöhus county and Schleswig-Holstein are industrial development areas of great strategic importance. From our analysis follows that the need for structural change is clearly above the national averages in the two areas. At the same time there are growth prospects around the national averages in both areas. The implication is that regional efforts are of utmost importance for a rapid transformation of the parts of the industry that need restructuring. At the same time the growth prospect industries should be encouraged to capture and develop a strong competitive position. Regional efforts to promote change and dynamics in the allocation of resources, capital and labour as well as research and development in Malmöhus county and Schleswig-Holstein are crucial for the development and wealth of the regions. Federal/national laws are, of course, essential for the business and development climate. However, it is important that the national control measures do not create obstacles for regional dynamism and competitive actions in the regional markets.

An interesting part of the comparison is the evaluation of the effects of change in the agricultural sector. In Sweden joining the EC is expected to create an increased pressure on the food & agriculture businesses. In Schleswig-Holstein no such effect is expected. It has been said that the German agricultural sector has transformed and become more competitive than the corresponding Swedish industries. This argument is based on food prices. However, in direct comparison between different food-producing companies the picture is more diverse. In direct comparison several Swedish food companies are quite competitive, while the regulation system in Sweden seen as a whole creates competitive disadvantages. On the company level, therefore, the evaluation of effects is related to the company's attitude to future challenges and change. In the survey we noted that the attitude towards the future was rather inactive. Judging from the present debate and corporate activities in Southern Sweden, the level of awareness is increasing rapidly. This increasing awareness may be an important asset in the cost cutting, restructuring and market investments that are necessary for the development of the competitive posture and the future position of the Swedish agricultural sector.

Perhaps the McSharry plan with its low-price profile can change the picture also in Schleswig-Holstein? The position in the GATT negotiation when this report was written is that there seems to be a possibility to reach an agreement which would imply a price reduction inside the EC of 35% - compared with the prices 1986-1988. In Sweden the prices of agricultural products have increased compared to the rest of the world since. Thus, the price reductions will be larger than 35% on the Swedish market if an agreement is made.

A more general conclusion is that the completion of the ESM will create increased competitive pressure and needs for substantial industrial change both in Southern Sweden and Schleswig-Holstein. In both regions, however, there are important and competitive companies in industries with development possibilities like pharmaceuticals, instruments, food and specialized chemicals. These industries may in the two regions create important winners in the development of the European Single Market.

BALTIC COOPERATION - BASED ON WHAT?

In previous sections of this report we have described the increased interest in further cooperation among the countries around the Baltic. The political intentions exist and the feeling of joint interests exist. What about the conditions for cooperation? Is the idea of a new Hanse a dream without linkages to economic realities? We shall examine the evidence.

First, one must appreciate the fact that a substantial amount of trade already takes place in the Baltic rim. The trade between the Baltic rim states amounts to approximately 107,000 million USD which is equivalent to 3.7% of world exports.⁶⁹ The pattern of trade is further described in table 69.

From the table we see that the trade between Germany and former Soviet Union is an important part of the trade in the area. Furthermore, it can be noted that the trade between Germany, Denmark and Sweden is important. This trade amounts to around 32% of the total trade in the area. The measurement was made in 1988 when the Soviet Union still existed. After the downfall of the Soviet empire and

⁶⁹ Cornett, A.P & Iversen, S. P: Commercial relations in an integration/network perspective - the case of the Baltic Rim. Paper prepared for the Regional Science Conference in Sönderborg, Denmark 1991.

Source: United Nations:	urce: United Nations: Handbook on International Trade and Development Statistics 1989, New York							
From/To	Denmark	Sweden	Germany	Finland	Soviet U.	Poland	TOTAL	
Denmark	-	2.9	4.4	0.6	0,1	0.1	8.2	
Sweden	3.2	-	5.8	3.1	0.3	0.2	12.6	
Germany	6.1	9.2	-	3.4	15.5	2.1	36.3	
Finland	0.7	2.8	2.2	-	3.0	0.1	8.8	
Soviet Union	0.2	0.6	15.0	2.5	-	9.7	28.1	
Poland	0.2	0.3	2.3	0.2	3.2	-	6.0	
TOTAL	10.4	15.8	29.7	9.8	22.1	12.2	100.0	
Total million USD	11,160.8	16,875.6	31,736.5	10,503.8	23,588.1	12,994.7	106,859.5	

Table 69. International trade in the Baltic rim 1988 (%).

Table 70. Germany as a growth locomotive in 1990.

Source: United Nations COMTRADE data base and Deutsche Bundesbank.

	Relative importance of German market ^a		German im	port growth in 1990b
Origin		Q-111	October	November
Austria	34.7	14.9	14.5	24.5
Belgium	19.3	12.1	30.9	32.5
Denmark	16.5	23.3	34.1	39.3
France	16.2	15.2	11.8	19.5
fuly	17.5	16.9	10.7	28.9
Netherlands	24.7	8.7	20.1	26.4
Portugal	15.2	17.0	4.5	38.8
Spain	11.9	29.9	32.5	36.8
Sweden	12.4	5.5	-3.5	15.7
Switzerland	20.6	17.5	10.4	18.1
United Kingdom	11.8	7.1	9.5	20.1
CSFR		6.0	-1.6	12.0
Hungary		22.8	9.3	26.6
Poland		57.0	60.0	66.7
USSR		3.3	-1.2	10.0

a. Average share of German market in the total exports of each country in 1988-1989 b. Percentage change over corresponding period previous year. Imports valued at current prices in DM (special trade).

the restructuring into the CIS and the Baltic states, trade has declined drastically. It will take serious efforts in economic restructuring in the Eastern European states to reach the figures of 1988.⁷⁰ The changes in international trade structure from state monopoly traders to trading through independent corporations, from fixed exchange rates to market based exchange rates are enormous.

Furthermore, it should be noted that the trade between Germany, Denmark and Sweden is important in the Baltic area. The trade between the three countries

 $^{^{70}}$ In such a comparison it should also be noted that many of the trade statistics in the Eastern European countries and the Soviet Union did not reflect economic realities.

amounts to around 32% of the trade in the Baltic rim. A potential exists for more trade and economic exchange when the border transaction costs are reduced.

The German economy plays a crucial part in the development of the Baltic area. The German export amounted to more than one third of the region's total exports in 1988. Thus, Germany is the leading and focal economy of the Baltic network. This has also been described in a study by the United Nations and is illustrated in table $70.^{71}$

The fact that two areas are close to each other does not automatically create economic and social integration. A very interesting study of the border between Denmark and Germany has concluded that several social factors will limit interaction even if border barriers are removed.⁷²

We may conclude that between the two parts of the Danish border regions there seems to be only little integration in the sense of the type of economic relations such as one would find between comparable neighbouring areas without a border. ... The main factors behind the low degree of integration may be seen in differences in legislation with regard to indirect taxes, income taxes and corporation taxes, ... in different social security systems, ... in divergent educational systems, ... in different admissions to a trade or a profession, ... in different technical standards and so on. Also the different languages constitute barriers, which, as it seems are not easily overcome - ...⁷³

Although exports from Germany and especially from Schleswig-Holstein increased extraordinarily after Denmark joined the common market in the early seventies, several economic and social factors have limited further interactions. The integration took place in the trade area between the countries, but led to only limited cooperation between companies in the regions on both sides of the border. Krieger-Boden's conclusion is that the economic integration has many non-economic aspects that could create restrictions. The effect of Denmark joining the European Community has been quite noticeable in Schleswig-Holstein and has created economic growth. During the 1970s, when Denmark just had joined the European Community, Schleswig-Holstein experienced a growth in GDP of 3.5%, which was nearly 0.8% higher than the Federal

⁷¹ Economic Commission for Europe: Economic Survey of Europe in 1990-1991, United Nations 1991.

⁷² Krieger-Boden, C: The German-Danish Border Region: Does the Border Matter and Can It Be Overcome. Institut für Weltwinschaft, Kiel 1991.

⁷³ Ibid pp. 11-12.

Republic. The positive effects have been even larger in Sönderjylland and have lasted longer than in Schleswig-Holstein.

However, one major observation with regard to the German-Danish border region cannot be explained easily, namely the remarkably favourable performance of Sönderjylland.⁷⁴

One explanation to the positive performance of Sönderjylland is that companies that have important markets in central Europe locate as close to the border as possible. Thus they can gain through closer customer contacts, improved logistics and reduced distribution cost. At the same time they have the advantage of staying in the same regulatory environment. The increased dynamism in the region close to the border has also created opportunities for new firms in complementary businesses.

Another more possibility is an increased dynamism in the factor markets around the border. In the Danish-German case, the integration has been limited due to differences in regulatory environment, language and social security systems. If an increased dynamism in the factor markets is to occur when Sweden joins the EC, efforts must be made to stimulate the mobility of the labour market, e.g. through infrastructure for transportation. The biggest possibilities in this respect exist around the Swedish-Danish border in the Öresund area. The same comes true in the case of Denmark and Germany. Danish firms are much more present in Northern Germany and companies from Schleswig-Holstein are much more present in Southern Denmark.⁷⁵ Possibly the picture will change in the Balic rim when the EES is created and when Sweden joins the European Community. On the one hand, Swedish firms will not have to settle in Northern Germany to get inside the EC border. On the other hand, incentives for cooperation in the larger market will increase. As there are similarities in the industrial structure between Southern Sweden and Northern Germany there are opportunities for intensified interaction. Southern Sweden may improve its competitive position and attract foreign investors. Likewise companies in Southern Sweden may use the increased possibilities to build efficient production and sales units with the Baltic region as a home base. Southern Sweden will be the nearest Swedish region to the common market and central Europe. Judging from the Danish experience this can lead to good economic development.

We find possibilities for increased exchange in the future, but today a number of factors limits the integration of the economies around the Baltic. We can add to

⁷⁴ Ibid p. 14,

⁷⁵ See Krieger-Boden.

these difficulties and mention that we found in our own Survey II that the subcontractors for the manufacturing industry in Southern Sweden could be found in Germany - but unfortunately in central or Southern Germany. Only one company reported a supplier in Schleswig Holstein. We can also note that the efforts from Rendsburg to stimulate companies in Southern Sweden to make direct investments in Rendsburg has so far not given any results. Only two Danish companies have started in Rendsburg.

Looking at the statistics, we find that only 2.3% of Schleswig-Holstein's foreign direct investments in 1989 were made in Sweden - investments worth DM 23 million. The total German investment in Sweden was DM 828 million, corresponding to 0.4% of Germany's foreign direct investment. At the same time the Swedish direct investments in Schleswig-Holstein amounted to DM 406 million, which makes Sweden the second largest investor in Schleswig-Holstein, with twice the investment of Great Britain and almost twice the investment of Japan. The United States invested 21.3% of the total foreign direct investments in Schleswig-Holstein, while Sweden invested 20.1%. These figures deviate from the figures for Germany as a whole where Swedish investments are only 2.1% of total foreign investments. For Germany as a whole, France invests three times as much as Sweden, but in Schleswig-Holstein Sweden invests 45 times more than France.⁷⁶

So, there is evidence to support the view that Schleswig-Holstein is a favoured location for Swedish direct investments in Germany. The interest from companies in Schleswig-Holstein to move north is more limited. In the future, following the research results from the Danish-German border, the picture may change. Swedish companies will not invest any more in Schleswig-Holstein in order to get a location inside the European Community. When Swedish companies invest in Schleswig-Holstein in the future it will be for other reasons. One reason may be nearness to customers, another reason may be rationalizations in order to increase the effectiveness in a cross-border corporation. The same reasons may be valid in the future for German companies entering the Swedish market. Thus, the removal of the border transaction cost may stimulate German direct investments in Southern Sweden.

Substantial parts of Swedish exports to Germany go to the northern parts. Several Swedish companies are represented in the Hamburg area.⁷⁷ It is also reported that consumer tastes and preferences are more similar to the Swedish standards in the northern parts of Germany than in the Southern parts. The

⁷⁶ Statistics from Institut für Weltwirtschaft, table 102.

⁷⁷ Von Friesen, H: Ett land men tre olika marknader, Svensk Export 10/1988 p. 30-35.

successful introduction of the Swedish chocolate-bar Daim and other brands from the food-company Freia-Marabou in Hamburg has been based with a strong partner in distribution. This effort by Freia-Marabou is one of the few successful introductions of Swedish food-products on the German market.

Thus, we can find a solid Swedish interest in the Northern German region - at least until now. However there is no evidence to support a German industrial interest in Southern Sweden. We would also have liked to establish as a fact that the interest in Northern Germany primarily comes from companies in Southern Sweden. Unfortunately, we do not have evidence to support that hypothesis. Our belief is that the picture will change when Sweden joins the EC and new possibilities for agriculture and food businesses are created. For other parts of the industry, a successful EES-treaty may be a good platform.

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Appendix 1

Ohlsson and Vinell Classification of Manufacturing Industry.

"SHELTERED" INDUSTRY (S-SECTOR)

Includes those lines of industry which, for various reasons, are not or very little exposed to international competition. It should be emphasized, that the S-sector is not exclusively defined by formal or legal restrictions to competition, such as customs duties, taxes or government subsidies (see also below).

Sheltered food industry: Butchery, dairy and sugar industry, production of margarine and fats, flour and soft drinks.

Sheltered wood industry: Manufacture of wooden houses, building carpentry products and wooden packages.

Sheltered building materials industry: Cement, lime, plaster and mineral wool manufacture, manufacture of metal building components.

Other Sheltered industries: Printing and publishing, gas manufacture, foundries and manufacture of metal packages.

LABOUR INTENSIVE INDUSTRY (L-SECTOR)

As the name implies, this part of industry - as opposed to Capital intensive industry - employs a large number of (blue-collar or unskilled) workers.

Labour intensive food industry: manufacture of fruit and vegetable preserves, fish processing, manufacture of chocolate, starch, coffee, yeast and spices.

Labour intensive wood industry: Saw mills, manufacture of boards, plywood and veneers.

Industry under competition from other industrial countries: Manufacture of carpets, furniture, paper packages, rubber and plastic products, glass, bricks, boats, etc.

Industry under competition from developing countries: Manufacture of textiles, leather- and fur products, clothes, shoes, kitchen ware and porcelain, musical instruments, sport articles, toys etc.

CAPITAL INTENSIVE INDUSTRY (C-SECTOR)

The C-sector industry has a high content of capital in relation to its value-added, and is often raw materials based.

Capital intensive food industry: Manufacture of animal fodder, spirits, beer and tobacco

Capital intensive wood industry: Pulp, paper and cardboard manufacture.

Petroleum based industry: Refineries an manufacture of lubricants. Capital intensive chemical industry: Manufacture of chemicals an plastic materials.

Capital intensive metal industry: Manufacture of ferrous and non-ferrous metals.

KNOWLEDGE INTENSIVE INDUSTRY (K-SECTOR)

K-sector industry is characterised by a high proportion of engineers and other technically educated employees.

Consumer durable goods industry: Manufacture of domestic appliances, bicycles, cars and other vehicles.

Investment goods industry: Manufacture of stationary turbines and engines, agricultural machinery, metal, wood, pulp and paper processing machinery, building and mining machinery, various electrical products and rail vehicles.

Other Knowledge intensive industry: Manufacture of paints, detergents, tools, non-electronic office equipment, photographic and optical equipment.

R&D INTENSIVE INDUSTRY (R-SECTOR)

R&D industry is characterised by heavy investments in research and development, and by a high proportion of employees with a formal, scientific education.

Electronics-based industry: Manufacture of computers and other electronic office equipment, telecommunications equipment, scientific and medical equipment.

Other R&D intensive industry: Pharmaceutical industry, manufacture of electrical motors, generators and other electrical equipment, aircraft and aerial engines.

UNCLASSIFIED INDUSTRY

Includes a small number of "manufacturing industries", which although they are statistically classified as such, for several reasons do not fit into any of the sectors, such as craft-based rather than industrial production, home industries and repair work. Unclassified industry, which in most regions has a very limited portion of total employment, is not commented in the following analyses.

Appendix 2

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"ESM Affectedness Classification" of Swedish Manufacturing Industries.

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	PC (Increased Price Competition)
3111.1	Butchery
31112	Production of meat products
31121	Dairies and production of milk-based products
31122	Mfg of ice cream
3113	Production, processing and preserving of fruit and vegetables
3114	Production, processing and preserving of fish and fish products
31151	Mfg of margarine
31159	Mfg of oils and fats
3116	Mfg of grain mill products
3118	Sugar industry
31211	Mfg of starch
31212	Mfg of coffee
31219	Mfg of other food products (spices, yeast, chocolate etc.)
3122	Mfg of animal fodders
32111	Mfg of yarn
32112	Mfg of woven textiles
32113	Bleaching and dyeing of textiles
3212	Sewing industry
3213	Mfg of tricot
3214	Mfg of carpets
3215	Mfg of ropes etc.
3219	Mfg of other textile products
3220	Mfg of clothes (textile, leather and fur)
3232	Processing of furs
3240	Mfg of shoes
3511	Mfg of chemicals and gases
3512	Mfg of fertilizers, herbicides and pesticides
3513	Mfg of plastic, synthetic fibres
3523	Mfg of detergents and toilet preparat ions
3551	Mfg of rubber tyres and inner tubes
3559	Mfg of other rubber products
35609	Mfg of plastic products except packages
3610	Mfg of porcelain and ceramics
3620	Mfg of glass and glass products

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- 36919 Mfg of brick (incl. refractory ceramic ware) other than red nonrefractory brick. Mfg of stationary turbines and engines 3821 3822 Mfg of agricultural machinery 3823 Mfg of machinery for wood and metal processing Mfg of other industrial and mining machinery and equipment 3824 38259 Mfg of non-electronic office machinery 38291 Mfg of domestic appliances Mfg of other machinery 38299 Mfg of electrical household equipment 3833 Mfg of lamps and neon lamps 38393 Mfg of motorised road vehicles (except motor cycles), engines and 3843 other automotive parts 3844 Mfg of bicycles and motor cycles 38451 Mfg of aircraft Mfg of other vehicles and transport equipment 3849 3852 Mfg of optical and photo equipment Mfg of gold and silver products 3901
- 3902 Mfg of musical instruments
- 3903 Mfg of sporting equipment

SC (Increased Structural Change)

- 3117 Bakeries
- 3119 Mfg of chocolate and confectionery
- 3522 Pharmaceutical industry
- 3831 Mfg of electrical machinery
- 38391 Mfg of electrical wire and cable
- 38292 Mfg of accumulators cumulators and batteries
- 38399 Mfg of other electrical products
- 3841 Ship building, boat yards and mfg of marine engines

NA (Not Affected)

- 3131 Distilleries and mfg of liquors
- 3140 Tobacco industry
- 3231 Tanning of leather
- 3233 Mfg of leather products other than garments
- 3311 Sawmills, mfg of pre-fab wooden houses, wooden construction elements and carpentry

3312	Mfg of wooden packages
3319	Mfg of wooden products n. e. c.
3320	Mfg of wooden furniture
341	Pulp, paper and cardboard industry, mfg of paper, fibre and
	cardboard products incl packages
342	Printing and publishing industry
3521	Mfg of paints
3529	Chemical industry n. e. c.
3530	Petroleum refineries
35401	Mfg of lubricants
35409	Mfg of other petroleum- and coal-based products n. e. c.
35512	Repair and retreading of rubber tyres
35601	Mfg of plastic packages
36999	Mfg of mineral products n. e. c.
37	Mfg of iron, steel and non-ferrous metals, foundries, drawing and
	rolling etc.
3811	Mfg of tools .
3812	Mfg of metal furniture
3813	Mfg of metal construction elements
38191	Mfg of metal packages
38192	Mfg of metal wire, nets, cables etc
38193	Mfg of nails, screws, bolts etc
38194	Mfg of other metal construction elements
38194	Mfg of metal household products
38199	Mfg of other metal products n.e.c.
38292	Repair of machinery except household equipment
38394	Repair of electrical machinery and equipment except household eq.
38414	Fartygsupphuggning
38422	Repair of rail vehicles
38452	Repair of aircraft
3853	Mfg of clocks and watches
3909	Other mfg industries n.e.c.
	5

DM (De-Monopolization)

31312 Mfg	of	wine
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3133 Breweries

ς.

Mfg of soft drinks and mineral water Mfg of rail vehicles 3134

.

38421

NP (National Peculiarities)

- 36911 Mfg of red brick
- 3692 Mfg of cement, lime, plaster, concrete and products thereof, mfg of stone products

GP (Good Growth Prospects)

- 38521 Mf g of computers
- 3832 Mfg of telecommunications equipment
- 3851 Mfg of medical, scientific and other instruments

Appendix 3

Classification Schemes Provided by Ohlsson and Vinell, and Klodt and Sectoral Affectedness of Branches by the ESM-Program According to Buigues, Ilzkowitz and Lebrun.

Source: Ohlsson, Vinell (1987). Klodt (1987). Klodt, Schmidt et al. (1989). Hufbauer, Chilas (1974). Buigues, Ilzkowitz (1989). Buigues, Ilzkowitz, Lebrun (1990).

WZ-	Branch	Classi	Sectoral affectedness	
code				
		Ohlsson & Vinell ^a	Klodt ^b	by the ESM-program ^C
20	M.o. chemicals, chemical, nuclear			
	and refined petroleum products	-	-	-
200	M.o. chemicals and chemical			
	products	-	-	-
2001	M.o. basic chemicals	С	R/M	PC
2002	M.o. chemical products for			
	commercial use	С	М	PC
2003	M.o. consumer chemical products	•	-	-
20031	M.o. pharmaceuticals	R	. I	DM
20033	M.o. soaps and detergents, per-			
	fumes, cleaning, polishing and			
	toilet preparations	К	С	NA
20035	M.o. photochemical products	K	М	NA
20039	M.o. other consumer chemical			
	products n.e.c.	К	М	NA
2004	M.o. chemical fibres	С	М	PC
201	Processing of nuclear fuel	Ċ	М	NA
205	M.o. refined petroleum products	С	М	NA
21	M.o. rubber and plastic products	-		-
210	M.o. plastic products	L	. M	NA
213	M.o. rubber products	L	С	PC
216	Retreading and rebuilding of			
	rubber tyres	L	С	NA
22	Extraction and m.o. stone and			
	clay products	-		
221	Cutting, shaping and finishing of			
	stone and clay	S	R	NP
222	M.o. cement, lime, plaster and	-		
	articles therof and of concrete	S	R	NP
223	M.o. refractory and structural	-		
	non-refractory ceramic ware	L	L	PC
224	M.o. non-structural non-refractory	_	-	
	ceramic ware	L	L	PC
226	M.o. grinding materials	- S	Ē.	NA
227	M.o. glass and glass products	Ĺ	Ĺ	PC
23	Generation and m o metal		Č	NA
230	M o basic iron and steel from	-	C	1113
	blast furnaces and rolling mills	C	-	-
231	Mo steel tubes	Ċ	-	-
4.21		<u> </u>		

Appendix 3 continued

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WZ-	Branch	Classificat	Sectoral affectedness	
code			2	
		Ohlsson & Vinell ^a	Klodtþ	by the ESM-program ^C
222	M.o. hogio izan from foreing	Christon de Villen	Riout	by the Low-program
232	M.o. basic non from forging	0		
	presses and nammer mills	C	•	-
233	M.o. basic precious and non-	a		
	terrous metals	С	-	-
	coating of metals	С	-	-
234	Casting of iron and steel	- · S	•	•
236	Casting of non-ferrous metals	S	-	-
237	Drawing and roll-forming	С	•	•
238	Forging, pressing, treatment and			
	coating of metals	С	-	-
239	Locksmithing, welding, grinding,			
	forging, n.e.c.	S	-	-
24	M.o. steel products, machinery			
	and vehicles	-	-	-
240	M.o. fabricated metal products	L	L	NA
241	M.o. tanks, reservoirs and boilers	Š	Ľ.	NA
242	Mo machinery and equipment	ĸ	Ĩ	PC
243	Mo office accounting and		•	
245	computing machinery	P	м	GP
244	Mo motor vehicles	ĸ	IAT	DC DC
244	M.o. road transport aquipmant	ĸ	I	FC
243	n.o. ioad transport equipment,	K	C	D/7
246	N.C.C. Duilding and consisting of shine	ĸ	C	PL
240	Bunding and repairing of snips		0	
A 4 7	and boats	K	C	20
247	M.o. railway and tramway		-	
• • • •	locomotives and rolling stock	K	l	DM
248	M.o. aircraft and spacecraft	R	1	PC
249	Repairing of vehicles	L,	L	NA
25	M.o. of electrical and electronical			
	machinery, precision instruments,			
	thin plate and metal products	-	-	-
250	M.o. electrical and electronical			
	machinery and apparatus, n.e.c.	•	-	•
2501	M.o. accumulators, primary cells			
	and primary batteries	L	L	SC
2503	M.o. electricity distribution and			
	control apparatus, insulated wire			
	and cable	R	М	SC
2504	M.o. electric lamps and lighting			
	equipment	L	М	PC
2505	M.o. electrical household			
	equipment	К	М	PC
2506	M.o. communication equipment			
	and electronical appliances for			
	measuring checking testing and			
	navigating	R	Т	GP
2507	M o consumer electronics	R	1 NJ	סר
2507	Mounting and electronic	, IX	141	IC.
2000	equipment	K	т	<u>در</u>
ጎናጎ	Mo medical presision and	ñ	L	30
232	optical instruments			
<u></u>	optical insuluments		<u> </u>	<u> </u>

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Appendix 3 continued

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WZ-	Branch	Classification scheme by		Sectoral affectedness	
code					
		Ohlsson & Vinell ^a	Klodib	by the ESM-program ^C	
2521	M o. optical and optometrical				
2921	equipment	К	I	NA	
	and metal products n.e.c.	L	Ĺ	NA	
257	Mo pencils stamps modelling	-	-		
201	and curving ware, processing of				
	films	L	L	-	
2571-	M.o. pencils stamps, modelling		-		
75	and curving ware	-	-	PC	
2577	Processing of films	-	-	NA	
258	M.o. musical instruments, games				
200	and toys sport goods and				
	iewellerv	L	L	PC	
259	Repairing of consumer durables	– L	– L	NA	
26	M o. wooden and paper products.		_		
= 0	nrinting	-	-	NA	
260	Saw milling and planing of wood.			••••	
200	m.o. wooden intermediate				
	products	L	L	-	
261	M.o. wooden products	-	Ē	-	
2611	M.o. wooden construction		_		
	elements	S	-	-	
2612	M.o. wooden containers	S	-	-	
2613/9	M.o. furniture	Ĺ	-	-	
2614	M.o. other wooden products n.e.c.	L	-	-	
2615	M.o. mattresses	L	-		
2616	M.o. articles of cork, straw and				
	plaiting materials	L	-	-	
2617	M.o. brusches, brooms and whisks	L	-	-	
264	M.o. cellulose, pulp, paper and				
	paperboard	С	L	-	
265	M.o. paper and paperboard				
	products	L	L		
268	Printing, publishing and				
	reproduction of recorded media	S	L		
269	Repairing of wooden consumer				
	durables	S	L	-	
27	M.o. leather, textiles and wearing				
	apparel	-	-	-	
270	Tanning and dressing of leather	L	L	NA	
271	M.o. leather products	L	L	NA	
272	M.o. footwear	L	L	PC	
275	M.o. textiles	L	L	PC	
276	M.o. wearing apparel, dressing				
	and dying of fur	L	L	PC	
279	Repairing of shoes, leather con-				
	sumer durables and umbrellas	L	L	' NA	
28/29	M.o. food products, beverages				
	and tobacco products	-	-	-	
281	M.o. grain mill products	S	R	NA	
282	M.o. starches and starch products	L	R	NA	
283	M.o. farinaceous products	S	L	SC	

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Appendix 3 continued

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WZ-	Branch	Class	Sectoral affectedness	
code				
		Ohlsson & Vinell ^a	Klodt ^b	by the ESM-program ^C
284	M.o. bakery products	S	L	SC
285	M.o. sugar	S	R	NA
286	Processing and preserving of			
	fruit and vegetables	L	L	NA
287	M.o. cacao, chocolate and sugar			
	confectionery	、 L	L	SC
288	M.o. dairy products	S	R	NA
289	M.o. vegetable and animal oils			
	and fats	S	R	NA
291	Production, processing and pre-			
	serving of meat and meat	S	L	NA
	products			
292	Processing and preserving of			
	fish and fish products	L	L	NA
293	Brewery and m.o. malt	С	C	DM
294	Distilling, rectifying and blending			
	of spirits and liquors, m.o. wines	С	С	-
2941	Distilling, rectifying and blending			
	of spirits and liquors		-	NA
2945	M.o. wines	-	-	DM
295	Production of mineral waters,			
	m.o. soft drinks	S	C	DM
296	M.o. other food products n.e.c.	L	L	. NA
297	M.o. prepared animal feeds	C	С	NA
299	M.o. tobacco products	C	Ċ	NA

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a. S = Subsidized, protected and domestically oriented industries; L = Labour intensive industries; C = Capital intensive industries; K = Knowledge (skill) intensive industries; R = R&D intensive industries.

b. R = Raw-material intensive industries; L = Labour intensive industries; C = Capital intensive industries; M = Schumpeter-Mobile industries; I = Schumpeter-Immobile industries.

c. PC = More Price Competition; DM = De-Monopolization; SC = More Structural Change; GP = Good Growth Prospects; NP = National Peculiarities; NA = Not Affected.

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Appendix 4

Results of the 1992 Questionnaire of the Schleswig-Holstein Chambers of Industry and Commerce Among Enterprises in Schleswig-Holstein Concerning the Potential Results of the European Single Market, Results for Manufacturing Enterprises (%).

WZ-code	Branch	Share of labour force ^a	S-H in relation to FRGb
(ind.			
group)			
	Industry (manufact, and mining) ^C	-	-
11	Mining	-	-
116	Extraction of petroleum and		
	natural gas	•	•
(G)	Basic material industries		
	whereof	·	
205	M.o. refined petroleum products	0.4	2.08
22	Extraction and m.o. stone and		
	clay products	4.9	1.26
23 without	Generation and m.o. metal (with-		
234, 236	out casting)	3.3	0.49
234,236	Casting of iron, steel, and non-		
	ferrous metals	0.8	0.61
20 without	M.o. chemicals, chemical and		
205	nuclear products	6.0	0.90
213	M.o. rubber products	0.4	1.00
(I)	Investment goods industries		
	whereof		
242	M.o. machinery and equipment	14.1	1.07
244, 245,	M.o. motor vehicles, road		
249	transport equipment n.e.c., and		
	repair of vehicles	8.4	0.69
246	Building and repairing of ships		
	and boats	4.3	8.78
248	M.o. aircraft and spacecraft	0.2	0.32
250	M.o. electrical and electronical		
	machinery and apparatus, n.e.c.	10.7	0.89
252, 254	M.o. medical, precision and		
	optical instruments, watches and		
	clocks	6.3	2.42
256 with-	M.o. tools, weapons, thin plate		
out 2565,	and metal products n.e.c. (without		
2566	heating and air cond. equipment)	2.9	0.74
2565,	Heating and air conditioning		
2566	equipment	•	

Source: Schleswig-Holstein Chambers for Industry and Commerce, Business Cycle Questionnaire I/92, Additional questions concerning the ESM-program. Unpublished data, provided by Kiel Chamber of Industry and Commerce.

Appendix 4	continued			_			
WZ-code	Branch	Sha	ire of labou	ir forcea	S-H	in relation	to FRGb
(ind.							
group)							
(V)	Consumer goods industries						
	whereof						
268	Printing, publishing and						
	reproduction of recorded media			5.8			1.89
210	M.o. plastic products			2.7			0.76
275	M.o. textiles			1.1			0.40
276 with-	M.o. wearing apparel						
out 2766				2.0			0.59
2766	Dressing and dyeing of fur						
(N)	Food products industries						
	whereof						
287	M.o. cacao, chocolate and sugar						
	confectionery			0.8			2.06
297, 289	M.o. prepared animal feeds, vege-						
·	table and animal oils and fats			0.5			1.67
293-295	M.o. alcoholic and non-alcoholic						
	beverages			0.9			0.75
Rest of	M.o. food products (all remaining						
28/29	branches)			12.5			2.54
	,						
			Expected E	ffects of	Ртоу	isions in re	eaction to
			the ESM-	program		the ESM	-program
		Positive	None	Nega-	Comp-	Planned	None
				tive	leted		
	Industry (manufact, and mining) ^C	13	76	11	12	32	56
11	Mining	0	100	0	0	0	100
116	Extraction of petroleum and	Ū	- • • •	· ·	•	· ·	
	natural gas	0	100	0	0	0	100
(G)	Basic material industries	8	80	12	8	34	58
(-)	whereof	-			-		
205	M.o. refined petroleum products	0	100	0	0	0	100
22	Extraction and m.o. stone and	Ū		0	Ŭ		100
	clay products	0	95	5	0	15	85
23 without	Generation and m o metal (with-	Ŭ		5	Ŭ	~~	00
234 234	casting)	0	54	46	15	0	85
234 234	Casting of iron steel and non-	Ŭ	2,			v	
23 (, 23)	ferrous metals	0	57	43	40	30	30
20 without	M o chemicals chemical and	v	2,	15	.0	00	50
205	nuclear products	19	67	14	14	63	23
213	M o rubber products	Ő	100	0	0	Õ	100
 	Investment goods industries	17	71	12	16	29	55
(1)	where of	•,		12		-/	55
242	M o machinery and equipment	24	69	7	15	36	49
242	M.o. mator vehicles road	24	07		10	50	-72
277, 27J, 240	transport equipment p e c and						
247	renair of vehicles	n	100	n	Δ	11	80
246	Residence and repairing of shine	0	100	v	0	11	07
240	and house	12	57	21	Δ	Δ	100
248	M a aircraft and spacecraft	۲ <u>۲</u>	100	0	0	0 0	100
270	and spacerall	U U		v			100

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Appendix 4	continued		<u>.</u> .		••				
WZ-code		Expected Effects of			Provisions in reaction to				
(ind.		I	he ESM-pro	ogram	the ESM-program				
group)									
•		Positive	None 1	Nega- tive	Comp- leted	Planned	None		
250	M.o. electrical and electronical machinery and apparatus, n.e.c.	10	67	23	24	46	30		
252, 254	M.o. medical, precision and optical instruments, watches and								
	clocks	0	100	0	0	28	72		
256 with-	M.o. tools, weapons, thin plate								
out 2565,	and metal products n.e.c. (without								
2566	heating and air cond. equipment)	30	56	14	41	16	43		
2565,	Heating and air conditioning	• • • •	0	0	0	0			
2566	equipment	100	0	0	0	0	100		
(V)	Consumer goods industries whereof	/	81	12	17	14	69		
268	Printing, publishing and	•	.00	0		0			
A1 A	reproduction of recorded media	0	100	0	0	0	100		
210	M.o. plastic products	3	81	10	50	13	84		
275 276 with	M.o. textiles	0	04	20	50	U	50		
270 with-	M.o. wearing apparen	0	100	0	0	0	100		
2766	Dressing and dueing of fur	0	100	100	0	0	100		
2700 (N)	Food products industries	14	79	100	0	57	43		
007	whereof	14	,,	,	v	5,	40		
287	M.O. cacao, chocolate and sugar	0	100	0	0	0	100		
297, 289	M.o. prepared animal feeds, vege-	Ū	100	Ť	Ť	U	100		
·	table and animal oils and fats	23	77	0	0	69	31		
293-295	M.o. alcoholic and non-alcoholic								
	beverages	29	58	13	0	90	10		
Rest of	M.o. food products (all remaining								
28/29	branches)	16	84	0	0	51	49		
				Kind o	Kind of taken or planned provisions				
		Rationali- Inno- Imp		Impro	noroved Relocation Other				
		zation	vation	marke	ting				
	Industry (manufact, and mining) ^C	38	17		38	5	2		
11	Mining	0	100		0	Õ	Ō		
116	Extraction of petroleum and					•			
	natural gas	0	100		0	0	0		
(G)	Basic material industries	52	15		25	2	6		
	whereof								
205	M.o. refined petroleum products	-	-		- '	-	-		
22	Extraction and m.o. stone and								
	clay products	55	13		13	0	19		
23 without	Generation and m.o. metal (with-	_				_			
234, 234	out casting)	83	0		17	0	0		
234, 234	Casting of iron, steel, and non-	· · ·			<u>0</u> .5		~		
	terrous metals	55	<u> 1</u> 0		25	10	0		

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Appendix 4	continued						
WZ-code				Kind of taken or planned provisions			
(ind.		Rationali-	Inno-	Improved	Relocation	Other	
group)		zation	vation	marketing			
20 without	M.o. chemicals, chemical and						
205	nuclear products	32	21	40	2	5	
213	M.o. rubber products	0	0	100	0	0	
(1)	Investment goods industries whereof	29	22	40	8	1	
242	M.o. machinery and equipment	19	18	48	13	2	
244, 245,	M.o. motor vehicles, road						
249	transport equipment n.e.c., and						
	repair of vehicles	64	18	18	0	0	
246	Building and repairing of ships						
	and boats	11	22	67	0	0	
248	M.o. aircraft and spacecraft	0	0	100	0	0	
250	M.o. electrical and electronical						
	machinery and apparatus, n.e.c.	36	41	18	5	0	
252, 254	M.o. medical, precision and						
	optical instruments, watches and						
	clocks	44	32	24	0	0	
256 with-	M.o. tools, weapons, thin plate						
out 2565,	and metal products n.e.c. (without						
2566	heating and air cond. equipment)	36	8	50	6	0	
2565,	Heating and air conditioning						
2566	equipment	-	•	-	-	•	
(V)	Consumer goods industries whereof	45	11	39	4	1	
268	Printing, publishing and						
	reproduction of recorded media	63	0	37	0	0	
210	M.o. plastic products	44	5	29	17	5	
275	M.o. textiles	43	0	57	0	0	
276 with-	M.o. wearing apparel						
out 2766		50	0	0	50	0	
2766	Dressing and dyeing of fur	-	-	-	-	•	
(N)	Food products industries	33	12	48	5	2	
	whereof						
287	M.o. cacao, chocolate and sugar						
	confectionery	50	0	50	0	0	
297, 289	M.o. prepared animal feeds, vege-						
	table and animal oils and fats	31	0	69	0	0	
293-295	M.o. alcoholic and non-alcoholic						
	beverages	20	10	66	0	4	
Rest of	M.o. food products (all remaining						
28/29	branches)	29	50	0	21	0	

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a. Percentage share of branch labour force of aggregate manufacturing labour force 1987. b. Percentage share of branch labour force in Schleswig-Holstein relative to that in the FRG 1987. c. Results only for industry including mining available, manufacturing without mining not reported.