A list of Working Papers on
the last pages

No. 92, 1983

EXPORT PERFORMANCE OF THE NORDIC COUNTRIES 1965-82

A Constant-Market-Shares Analysis

by

Eva Christina Horwitz

April, 1983, Revised Dec, 1983

CONTENTS

		Page
Introduction		2
1	The Data and Coverage of the Study	4
2	Market Shares of the Nordic Countries in OECD Imports 1965-82	5
3	The Commodity and Market Mix of Exports from the Nordic Countries as Compared to the One of Foreign Demand in 1970 and in 1980	8
	The Commodity Composition of Exports	8
	The Country Composition of Exports	16
4	A Constant-Market-Shares Analysis	17
	A Constant-Market-Shares Calculation for the 1970s	18
	A Constant-Market-Shares Analysis for Yearly Data 1965-82	22
NOTES		31
REFERENCES		32
APPENDIX		33

EXPORT PERFORMANCE OF THE NORDIC COUNTRIES 1965-82

A Constant-Market-Shares Analysis

Introduction

This paper describes and compares the export market shares over the 1965-1982 period for the four Nordic countries; Denmark, Finland, Norway and Sweden. We measure export performance as the market shares in imports to a selection of OECD countries and bring out the differences between the Nordic countries in commodity specialization and market dependencies.

By applying a so called constant-market-shares technique we investigate to what extent the change in the Nordic share in world trade during the 1970s, roughly illustrated by Figure 1, can be explained by the particular commodity or country composition of that export. The analysis is based on yearly figures covering the 1965-82 period of each country's exports to 14 OECD countries. A detailed breakdown into commodity groups has been used.

The justification for a market shares analysis along these lines as compared to a measure of market shares from more aggregate figures is that a country's commodity composition of exports influences the results of conventional market shares calculations. A country whose exports increase less than the average increase in world trade can lose market shares in overall trade even if it doesn't lose in the markets for its own exports.

In the same way a country that has a geographical concentration of exports to slowgrowing markets might also increase its exports less than the average without losing market shares in a strikter sense.

We compare the export performance of the four Nordic countries starting from the assumption that they should show simularities in export performance. However, at all levels of the analysis we find that the four Nordic countries show quite individual patterns of market shares in international trade. Aggregate market shares have continuously declined for Sweden and Denmark during the 1970s whereas exports from Finland and Norway have increased faster than total imports in the latter half of the 1970s.

In the detailed analysis i.e. when we calculate the growth of the total market based on the commodity and country composition of exports from each country, we find that these so called structural factors account for most of the changes in market shares. In the case of Norway, Finland and Denmark the actual increase in exports has been <u>above</u> the increase implied by the constant market share assumption. Sweden is the <u>only</u> Nordic country to have made substantial losses in export market shares between 1970 and 1980.

The constant market shares is certainly not an uncontested method of describing a country's export performance (See Richardson 1971). One default in particular is the dependency of the results on the period chosen. The analysis of changes between the two checkpoints 1970 and 1980 therefore only constitutes a way of getting an overview of the results. In the more detailed analysis we calculate yearly changes in export performance between 1965 and 1982. The latter exercise summarized in Figure 2 largely confirms the results for the 1970-80 period.

The yearly data obviously bring out more information about the changes that have occurred during the period. In the case of Denmark we find largely unchanged export performance in the 1970s although yearly fluctuations have been important. The the substantial improvement in the Finnish export performance from the mid 70s, found also in aggregate data in Figure 1, is supported also by the yearly calculations. The Norwegian export performance has been much above the growth of the markets mainly due to the increase in oil exports. And finally Swedish exports increase substantially below the growth of the Swedish export markets during the latter part of the period.

1 THE DATA AND COVERAGE OF THE STUDY

For the purpose of this paper the world market for each country is represented by imports to 14 OECD countries. Exports to these markets from the Nordic countries are assumed to be identical to imports from Denmark, Finland, Norway and Sweden respectively as reported by the importing countries.[1]

The data cover the dollar-value of imports to each of the 14 other markets from the four Nordic countries for 41 commodity groups listed in Appendix 2. The level of aggregation has been chosen so that commodity groups should be as homogenous as possible. A two digit SITC classification has been used, except in the case of SITC 0-1 (foodstuff etc.), SITC 3 (mineral fuels, lubricants and related materials), SITC 4 (animal and vegetable oils fats and waxes) and SITC 9 (unclassified goods) where one-digit data are used. Data for 1978-82 published in SITC rev.2 have been crudely reclassified to be compatible with the longer series.[2]

This study consequently covers all commodity groups in exports from the Nordic countries but a limited number of geographical markets accounting for about 75 percent of total exports.

The aggregated market share developments obtained in this study (Figure 1), however, closely follow the pattern obtained for market shares of each of the four countries in total world exports. Due to the method of calculation and the need for detailed breakdown by commodity and country a more limited market than total world trade had to be chosen. We have concentrated on the traditional export markets in Western Europe, the U.S., Canada and Japan. The study consequently leaves out trade with the Eastern European countries, of particular interest to Finland and trade with newly industrialized countries etc. that could be of particular interest in an assessment of recent trends in foreign trade.

2 MARKET SHARES OF THE NORDIC COUNTRIES IN OECD IMPORTS 1965-80

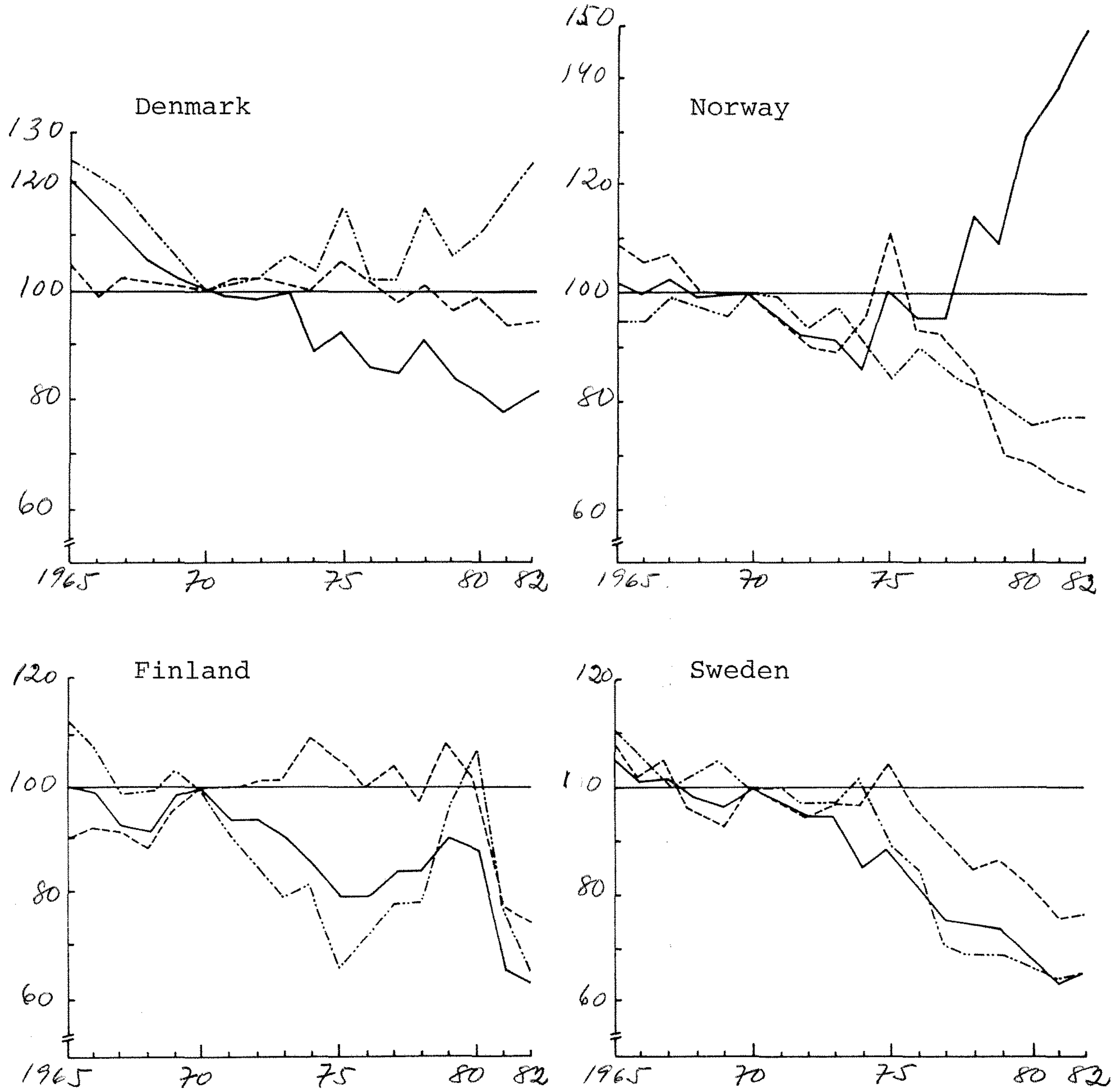
When we look at the aggregates we find that the four Nordic countries show substantial differencies as to the patterns of total import market shares to the OECD countries. Market shares have continuosly declined for Sweden and Denmark during the 1970s, whereas exports from Finland and Norway have increased faster than OECD imports in the latter half of the 70s.

Figure 1 shows the Nordic countries share in total OECD imports as well as the shares of imports of raw-materials excluding fuels etc (SITC 1, 2 and 4) and of imports of manufactured goods (SITC 5-9).

The heterogenity of the Nordic countries export performance is evident already at this simple disaggregation. The Norwegian increase in import market shares by 30 % between 1970 and 1980 is entirely due to the very rapid increase in oil-exports. From a very modest level in the mid 70s they made up 55 % of the Norwegian export value in 1980. When we exclude oil-exports, Norwegian market shares have declined substantially i.e. by about 25 % in the 1970s.

The Norwegian and the Swedish losses of market shares in the OECD-area for raw materials as well as for manufactured goods is contrasted by the development of Danish and Finnish exports. Danish export market shares have increased for raw-materials and the share in manufactured goods has remained about constant in the 1970s. Finnish market shares in raw-materials declined dramatically, by over 30 %, during the first half of the 1970s but have since recovered. Exports of manufactured goods from Finland have also increased more than the average growth of imports of these commodities.

Figure 1 **Nordic countries shares of imports to the OECD market 1965-82**[3]
(Index 1970=100)



——— Total (SITC 0-9)
-·-·-· Raw materials excl. fuels (SITC 0-4 excl.3)
- - - - Manufactured goods (SITC 5-9)

3 THE COMMODITY AND MARKET MIX OF EXPORTS FROM THE NORDIC COUNTRIES AS COMPARED TO THE ONE OF FOREIGN DEMAND IN 1970 AND IN 1980

Countries that have specialized in commodities for which the increase in world trade is above the average growth are in a position to gain market shares at the very aggregated level of the previous section. We will now use a further breakdown by commodities to see whether the more favorable market share development for Denmark and Finland can be attributed to a concentration in exports into products, the demand for which increases relatively fast.

The Commodity Composition of Exports

Tables 1-4 give the commodity composition of total exports from the Nordic countries as compared to the commodity distribution of total imports to the OECD countries.

The changes in commodity composition of OECD imports between 1970 and 1980 is heavily influenced by the increased value of oil imports. For this reason we look at the commodity distribution of OECD demand in 1970 and 1980, excluding mineral fuels etc (SITC 3). In the table for Norway, however, we present the figures including oil since oil exports constitute more than 50 % of total Norwegian exports to the markets included in this study.

Tables 1-4 should be read as follows. Col. 1 gives the distribution of the share of the 41 selected

Table 1 Commodity specialization of Denmark's exports and commodity pattern of demand growth.
excl. SITC 3 mineral fuels etc.

SITC classification of commodities	1970 OECD demand[a]	1970 Denmark's exports	1970 Special ratio (2/1)[b]	Growth in OECD demand (1970=100)	1980 OECD demand[a]	1980 Denmark's exports	1980 Special ratio (6/5)[b]
	1	2	3	4	5	6	7
0+1	16.3	39.6	2.4	410	13.3	34.0	2.5
21	0.6	1.7	3.1	363	0.4	2.0	5.1
22	1.0	0.1	0.1	403	0.8	0.8	1.0
23	0.7	0.0	0.0	388	0.5	0.0	0.0
24	2.4	0.6	0.2	461	2.2	0.4	0.2
25	1.2	0.3	0.3	378	0.9	0.2	0.3
26	2.0	0.1	0.0	239	1.0	0.1	0.1
27	1.1	0.8	0.7	389	0.9	0.4	0.4
28	4.4	0.5	0.1	369	3.3	0.9	0.3
29	0.7	3.0	4.2	444	0.6	2.8	4.4
3	-	-	-	-	-	-	-
4	0.8	1.3	1.6	352	0.6	0.8	1.5
51	2.8	1.3	0.5	437	2.4	1.2	0.5
52	0.0	0.0	0.0	..	1.3	0.1	0.1
53	0.5	0.6	1.1	480	0.5	0.6	1.4
54	0.8	1.4	1.8	546	0.9	2.0	2.3
55	0.4	0.8	1.9	562	0.5	0.7	1.5
56	0.3	0.0	0.0	679	0.5	0.1	0.1
57	0.0	0.0	0.0	314	0.0	0.0	0.1
58	1.4	1.1	0.8	691	1.9	1.3	0.7
59	0.9	1.0	1.2	583	1.0	0.9	0.9
61	0.4	0.3	0.7	513	0.4	0.2	0.5
62	0.7	0.5	0.7	654	0.9	0.4	0.5
63	0.7	1.0	1.4	476	0.7	1.6	2.2
64	2.0	0.9	0.4	507	2.0	1.3	0.6
65	3.9	3.4	0.9	451	3.5	2.7	0.8
66	2.5	1.4	0.6	705	3.5	1.9	0.6
67	5.4	1.4	0.3	394	4.2	2.2	0.5
68	5.4	0.7	0.1	408	4.4	1.0	0.2
69	2.1	2.1	1.0	583	2.5	2.8	1.1
71	11.3	11.9	1.0	528	11.9	12.8	1.1
72	5.8	7.0	1.2	564	6.6	5.3	0.8
73	10.2	2.2	0.2	573	11.6	2.9	0.3
81	0.3	0.5	2.0	473	0.3	0.5	2.1
82	0.6	2.2	4.0	844	0.9	3.1	3.3
83	0.1	0.2	1.1	906	0.3	0.1	0.5
84	2.5	3.7	1.5	714	3.6	2.5	0.7
85	0.8	0.4	0.5	692	1.1	0.5	0.4
86	2.0	1.2	0.6	737	2.9	2.5	0.8
89	3.4	3.9	1.1	543	3.7	5.0	1.3
9	1.6	0.9	0.6	558	1.8	1.4	0.8
Total	100.0	100.0		502	100.0	100.0	

a Defined as imports to the 14 OECD countries.
b This ratio is higher (lower) than the unity whenever a product weighs more (less) in the countries exports than it weighs in OECD demand.
c See footnote 2 concerning SITC Rev 1 and 2.

Table 2 Commodity specialization of Finland's exports and commodity pattern of demand growth.
excl. SITC 3 mineral fuels etc.

SITC classification of commodities	1970 OECD demand[a] 1	1970 Finland's exports 2	1970 Special ratio (2/1)[b] 3	Growth in OECD demand (1970=100)c 4	1980 OECD demand[a] 5	1980 Finland's exports 6	1980 Special ratio (6/5)[b] 7
0+1	16.3	3.8	0.2	411	13.4	2.0	0.2
21	0.6	2.6	4.7	378	0.4	4.7	11.2
22	1.0	0.0	0.0	397	0.8	0.0	0.0
23	0.6	0.0	0.0	387	0.5	0.0	0.0
24	2.4	13.0	5.7	458	2.2	13.0	5.8
25	1.2	13.6	11.4	377	0.9	7.4	8.3
26	2.0	0.3	0.2	238	1.0	0.2	0.3
27	1.1	0.3	0.3	386	0.8	0.4	0.5
28	4.4	0.5	0.1	366	3.2	0.5	0.1
29	0.7	0.1	0.2	441	0.6	0.1	0.1
3	-	-	-	-	-	-	-
4	0.8	0.2	0.3	354	0.6	0.1	0.2
51	2.8	0.8	0.3	433	2.4	1.3	0.5
52	0.0	0.0	0.0	..	1.3	0.5	0.3
53	0.5	0.2	0.4	478	0.5	0.3	0.7
54	0.8	0.1	0.1	547	0.9	0.2	0.2
55	0.4	0.2	0.4	561	0.5	0.2	0.4
56	0.3	0.0	0.0	665	0.5	0.1	0.2
57	0.0	0.1	3.0	312	0.0	0.0	1.6
58	1.4	0.4	0.3	687	1.9	1.5	0.8
59	0.9	0.3	0.4	583	1.0	0.4	0.4
61	0.4	0.2	0.5	507	0.4	0.4	0.9
62	0.7	0.2	0.4	641	0.9	0.3	0.4
63	0.8	6.6	8.8	471	0.7	4.4	6.3
64	2.0	25.4	12.5	504	2.1	22.9	11.2
65	3.9	2.1	0.5	446	3.5	1.6	0.5
66	2.5	0.7	0.3	700	3.5	1.2	0.3
67	5.4	4.0	0.7	394	4.2	5.1	1.2
68	5.4	3.4	0.6	407	4.4	3.8	0.9
69	2.1	1.3	0.6	578	2.5	1.8	0.7
71	11.3	4.9	0.4	524	11.8	6.5	0.6
72	5.9	2.6	0.4	558	6.5	3.4	0.5
73	10.2	3.6	0.4	569	11.6	2.8	0.2
81	0.3	0.3	1.2	465	0.3	0.4	1.6
82	0.6	0.8	1.3	832	0.9	1.3	1.4
83	0.1	0.1	0.4	904	0.3	0.1	0.4
84	2.5	4.5	1.8	710	3.6	6.3	1.7
85	0.8	0.7	0.9	686	1.1	0.8	0.7
86	2.0	0.1	0.1	728	2.9	0.7	0.2
89	3.4	1.6	0.5	541	3.7	2.8	0.8
9	1.6	0.3	0.2	566	1.8	0.4	0.2
Total	100.0	100.0		499	100.0	100.0	

a, b, c See table 1.

Table 3 Commodity specialization of Norway's exports and commodity pattern of demand growth.

SITC classification of commodities	1970 OECD demand[a]	1970 Norway's exports	1970 Special ratio (2/1)[b]	Growth in OECD demand (1970=100)c	1980 OECD demand[a]	1980 Norway's exports	1980 Special ratio (6/5)[b]
	1	2	3	4	5	6	7
0+1	14.6	11.2	0.8	411	9.8	5.3	0.5
21	0.5	1.3	2.6	380	0.3	0.5	1.5
22	0.9	0.0	0.1	396	0.6	0.0	0.0
23	0.6	0.0	0.0	388	0.4	0.0	0.0
24	2.2	0.5	0.2	463	1.6	0.8	0.5
25	1.1	5.3	5.0	375	0.7	0.9	1.4
26	1.8	0.4	0.2	239	0.7	0.2	0.3
27	1.0	1.8	1.8	387	0.6	0.7	1.1
28	3.9	4.5	1.2	368	2.3	1.2	0.5
29	0.6	0.3	0.5	442	0.5	0.1	0.3
3	10.5	2.0	0.2	1554	26.7	55.3	2.1
4	0.7	1.7	2.4	360	0.4	0.5	1.1
51	2.5	2.8	1.1	441	1.8	0.4	0.2
52	0.0	0.0	0.4	..	1.0	1.0	1.0
53	0.4	0.5	1.1	477	0.3	0.2	0.6
54	0.7	0.1	0.2	544	0.6	0.2	0.3
55	0.4	0.1	0.4	563	0.3	0.2	0.5
56	0.3	2.2	7.0	663	0.3	1.1	3.1
57	0.0	0.0	0.4	300	0.0	0.8	1.9
58	1.3	1.5	1.2	686	1.4	1.8	1.3
59	0.8	0.4	0.5	584	0.7	0.3	0.4
61	0.4	0.3	0.8	509	0.3	0.1	0.5
62	0.6	0.5	0.8	641	0.6	0.2	0.3
63	0.7	0.6	0.9	471	0.5	0.3	0.5
64	1.8	6.5	3.5	503	1.5	3.0	2.0
65	3.5	1.5	0.4	447	2.6	0.6	0.3
66	2.2	0.8	0.3	702	2.5	0.4	0.1
67	4.8	7.0	1.4	392	3.1	4.2	1.4
68	4.9	22.9	4.7	408	3.2	8.6	2.7
69	1.9	2.2	1.2	576	1.8	1.1	0.6
71	10.1	5.1	0.5	524	8.7	3.4	0.4
72	5.3	3.4	0.6	558	4.8	1.6	0.3
73	9.0	8.1	0.9	579	8.5	2.5	0.3
81	0.2	0.3	1.2	465	0.2	0.1	0.7
82	0.5	0.7	1.5	827	0.7	0.5	0.7
83	0.1	0.0	0.1	910	0.2	0.0	0.1
84	2.2	0.7	0.3	713	2.6	0.4	0.1
85	0.7	0.2	0.3	685	0.8	0.1	0.1
86	1.8	0.3	0.1	728	2.14	0.5	0.3
89	3.1	1.8	0.6	540	2.7	0.9	0.3
9	1.4	0.7	0.5	566	1.3	0.9	0.7
Total	100.0	100.0		611	100.0	100.0	

a, b, c See table 1.

Table 4 Commodity specialization of Sweden's exports and commodity pattern of demand growth.
excl. SITC 3 mineral fuels etc.

SITC	1970			Growth	1980		
classification of commodities	OECD demand [a]	Sweden's exports	Special ratio (2/1)[b]	in OECD demand (1970=100)c	OECD demand [a]	Sweden's exports	Special ratio (6/5)[b]
	1	2	3	4	5	6	7
0+1	16.4	2.3	0.1	413	13.5	1.9	0.1
21	0.6	0.4	0.8	381	0.4	0.4	1.0
22	1.0	0.1	0.1	396	0.8	0.1	0.1
23	0.7	0.1	0.1	391	0.5	0.0	0.1
24	2.5	7.6	3.1	453	2.2	5.3	2.4
25	1.2	9.2	7.5	376	0.9	5.5	6.0
26	2.1	0.2	0.1	240	1.0	0.1	0.1
27	1.1	0.4	0.4	389	0.9	0.4	0.4
28	4.4	5.3	1.2	370	3.3	3.0	0.9
29	0.7	0.2	0.3	445	0.6	0.2	0.3
3	-	-	-	-	-	-	-
4	0.8	0.1	0.2	358	0.6	0.2	0.3
51	2.8	1.3	0.5	439	2.4	0.7	0.3
52	0.0	0.0	0.6	..	1.3	1.0	0.7
53	0.5	0.2	0.4	484	0.5	0.3	0.6
54	0.8	0.5	0.6	548	0.9	1.1	1.3
55	0.4	0.3	0.7	566	0.5	0.3	0.6
56	0.3	0.1	0.1	674	0.5	0.0	0.1
57	0.0	0.1	1.9	305	0.0	0.1	2.0
58	1.4	1.2	0.9	694	1.9	2.1	1.1
59	0.8	0.6	0.6	589	1.0	0.7	0.7
61	0.4	0.3	0.8	516	0.4	0.3	0.8
62	0.7	0.9	1.4	646	0.9	0.9	1.0
63	0.7	0.9	1.2	473	0.7	1.3	1.8
64	2.0	9.0	4.4	506	2.1	11.0	5.3
65	3.9	1.6	0.4	453	3.5	1.3	0.4
66	2.5	0.9	0.4	707	3.5	1.3	0.4
67	5.4	8.8	1.6	394	4.2	8.2	2.0
68	5.4	2.7	0.5	412	4.4	2.9	0.7
69	2.1	3.5	1.6	582	2.4	4.3	1.8
71	11.2	15.9	1.4	526	11.8	17.8	1.5
72	5.8	5.7	1.0	566	6.5	5.8	0.9
73	10.2	13.0	1.3	571	11.6	13.2	1.1
81	0.3	0.8	3.0	465	0.3	0.5	2.1
82	0.6	0.9	1.6	831	0.9	2.0	2.1
83	0.1	0.1	0.6	912	0.3	0.0	0.1
84	2.5	1.4	0.6	721	3.6	1.0	0.3
85	0.8	0.2	0.3	695	1.1	0.2	0.2
86	2.0	0.9	0.5	741	2.9	1.7	0.6
89	3.4	1.7	0.5	544	3.7	2.4	0.6
9	1.6	0.8	0.5	563	1.8	0.8	0.5
Total	100.0	100.0		502	100.0	100.0	

à, b, c See table 1.

commodities in OECD imports. The commodity distribution of each Nordic country's exports to this market (col. 2) is then compared to the distribution of total imports. This ratio (col. 2 divided by col. 1) indicates the degree of specialization in the country's exports (col. 3). The specialization ratio is higher than the unity whenever a product weighs more in the country's exports than it weighs in total demand for imports to the OECD countries. Specialization ratios are calculated for 1970 and 1980.

Col. 4 gives the market increase, i.e. the change in OECD imports, for each commodity over the period. We find from the bottom row in col. 4 that the value of total imports has increased fivefold over the period. Including oilimports the value of total OECD imports in 1980 was six times the value in 1970. The difference in definition of commodity markets in this table between Norway and the three others is evident from the difference in the sum of col. 4. Other differences in col. 4 is due to the slight difference in geographical markets due to the Nordic countries trade among themselves.

A detailed study of tables 1-4 shows that the four Nordic countries differ substantially as to the commodity pattern of trade. If we look at the five most important commodities in the trade of each country in the sense of a high specialization ratio, they are in no way identical. Finland, Sweden and Norway have in common that exports from the forest sector are important. But, apart from this group of commodities, specialization ratios differ even at this comparatively high level of aggregation.

When we look closely at all commodity groups for which the specialization ratio exceeds one we find that the Nordic countries have in general specialized in exports of goods, the demand for which increase less than the average increase in OECD imports.

The Swedish pattern of specialization is, however, more favourable than the commodity pattern of exports from the other Nordic countries, in the sense that about 50 % of the Swedish export value in 1980 was covered by groups of commodities with a specialization factor above one and growth rates between 1970 and 1980 above the average. Only 20 % of the export value was made up of commodities with a specialization ratio of more than one and growth rates below the average.

An examination of the tables shows that the success of Denmark and Finland as compared to Sweden in maintaining market share is not explained by their commodity composition. They have "specialized" in slowgrowing commodities in the 1970s but nevertheless showed a better overall export-market performance.

The export value for Denmark is dominated by exports from the agricultural sector. The demand for food and related products increase less than world trade over the period. But the table also shows that Danish exports are specialized in some fast growing chemicals (SITC 54 and 55) as well as consumer goods like furniture and clothing, demand for which has increased substantially above the increase in exports in general. These fast growing commodities, however, only make up about 20 % of total Danish exports as compared to 50 % for fast growing commodities in Swedish exports.

The Finnish pattern of specialization also has a heavy weight for slowgrowing products. Exports from the forest industry made up over 50 % of the export value in 1980. Less than 10 % of exports with a specialization factor above one were in products that grew more than average imports. Like in Denmark these were consumer goods, furniture and clothing. In general Finnish exports are concentrated to slowgrowing product markets but the export performance in the latter half of the 1970s has been so much better than the average that overall markets shares have been gained.

If we exclude the 50 % of Norwegian exports that are now made up of oil-exports we find a concentration to slowgrowing products in exports. About 45 % of the important commodities in exports increase less than the average in the 1970s. Only 5 percent are products with a specialization ratio above one and an increase in demand above the average. Market shares have been lost in all categories during the 1970s. The losses for the manufacturing sector as a whole has been even bigger than the Swedish losses since 1975. They are particularly pronounced for the engineering sector where market shares were increasing until 1978 but have since been halved.

The reason for the difference between Swedish export performance and that of Denmark and Finland is that exports from the engineering sector (SITC 69, 71, 72 and 73) weigh more heavily in Swedish exports and that Swedish exports have not kept up with the rate of growth of total imports of these products. About 20 % of the market share has been lost between 1975 and 1980. The share of the engineering sector in the country's total trade is much less in Denmark and Finland, but in contrast to the Swedish case they have gained shares in the 1970s.

The Country Composition of Exports

When we look closer into the country distribution of exports from the Nordic countries we find that much of their total exports go to relatively slow-growing markets. About 30 % of exports covered in this study go to the other Nordic countries. Another 30 to 35 % are exported to Germany and the UK. The non-European markets included take only a small fraction of the total. It should of course be kept in mind that the data collected for this paper only covers 14 importing countries covering about 75 % of total exports. There are substantial differences between the four countries as to the trade not covered in this analysis, the trade between Finland and the Eastern European countries being the most obvious source of discrepancies as compared to an analysis of total trade in all markets. 1980 figures show that the 14 markets included take 73 % of total Swedish exports, 80 % of Danish exports, 87 % of Norweigan exports (incl. oil) but only 65 % of Finish exports.

Looking at the market mix of the Nordic countries using the same method as for the commodities we find that intranordic trade is important. The market dependence-ratio, i.e. the share of the Nordic countries exports to the other Nordic countries is between 2 and 7. Imports to the UK are about twice as important to the Nordic countries as they are to other countries on the average. Imports to Germany take about the same share in the Nordic countries exports as they do for other countries. The dependence of the Nordic countries on each other differs between the countries. Sweden is the largest market for Norway and Finland as it takes about 20 % of total exports.

The Nordic countries have thus in common that they depend on exports to the relatively slowgrowing Nordic market. A relatively smaller share of their total exports goes to the European countries, that have increased imports faster than the import growth of the whole area. The differences in market mix between the countries will not justify a detailed description. Detailed figures are presented in Appendix 4. In the final section of the paper, the constant market shares analysis, the country as well as the commodity-composition will be included in the market shares calculations.

4 A CONSTANT-MARKET-SHARES ANALYSIS

In this section we proceed the analysis of the Nordic countries market shares by using all the information in our data i.e. the commodity and the country composition of exports. The method used is based on a constant-market-shares analysis. The norm used is to assume that exports of each good could increase at the same rate as foreign demand of that particular good to each individual market and calculate the "potential" export growth. The difference between the observed increases and the "estimated" is attributed to changes in competitiveness.[4]

The change in world market shares is divided by a structural component i.e. the part of the total change in exports that can be explained by the commodity and country composition and the competitiveness factor, calculated as the difference between the actual level of exports and a potential export level under the assumption of constant market shares. This method fully takes into consideration that growth rates differ between different kinds of commodities and between different countries. Countries, like the Nordic countries whose exports are specialized in slowgrowing commodities and countries, will then have their export markets adjusted downwards as compared to the growth of total OECD imports.

The results from a constant market shares analysis are affected by the selection of a base period and the level of disaggregation of commodity and market groups. Its implications will therefore only apply to the specified time period and the particular break down of commodities and markets.

The problem of choosing an appropriate commodity and market aggregation has been solved in this paper by using a breakdown into 41 commodities which gives substantially more details than other studies in this field (Ponte Ferreira (1981), Leamer Stern (1970) OECD (1981)). The calculations are performed on yearly data for the 1965-82 period.

A Constant-Market-Shares Calculation for the 1970s

In order to introduce the method of calculation and facilitate some general conclusions we start by presenting results of a constant market shares calculation using data for 1970 and 1980. Table 5 gives the summary data for the export performance of the Nordic countries in the 1970s.

Lines (1) and (2) are basic data from the trade statistics. They may differ marginally from national export statistics. 1980 exports are the sum of total imports from the country concerned as reported by the 14 other countries in the analysis. Line (3) is the calculated increase in exports between 1970 and 1980 had exports grown at the same rate as world trade in general. (2)-(3), the difference between actual increases in exports and the increase had no market losses occurred, describes essentially the same fact as Figure 1.

Lines (4) to (6) are the results of the constant market shares analysis. Line (4) indicates the extent to which exports are concentrated in commodities with growth rates more (or less) favorable than the world average. A positive sign indicates that exports are concentrated to relatively fast growing commodities. A negative sign indicates a concentration to slowly growing commodity markets.

In a corresponding way line (5) is positive if exports are concentrated to markets that are experiencing relatively rapid growth and negative if important export markets are relatively stagnant. Line (4) and line (5) are, however, not invariant as to the order of calculation. Since we found that the commodity composition differed much more between the Nordic countries than the country composition, the structural effects have been calculated starting by the commodity adjustment.

Table 5 The Nordic countries export performance 1970 to 1980

Million US dollars

		Denmark	Finland	Norway	Sweden
(1)	Exports 1980	13 479	9 950	16 671	23 815
(2)	Actual change 1970-1980	10 768	8 110	14 551	18 195
(3)	Calculated increase assuming no market loss	13 884	9 364	10 836	28 838
(2)-(3)	Difference actual and calculated	-3 116	-1 254	3 714	-10 643
(4)	Change due to commodity composition	-2 446	-2 107	-2 615	-5 649
(5)	Change due to market distribution	-1 307	-735	-929	-1 760
(6)	Change due to "competitiveness"	637	1 587	7 259	-3 234

Finally line (6) shows outcome of the constant market shares calculations, i.e. the difference between the actual level of exports and that that should have been attained had market shares to every market and every commodity been maintained between 1970 and 1980.

From Table 5, lines (2) and (3), we see, as in Figure 1, that Norway is the only country for which overall market shares have been gained in the 1970s. The actual increase in exports is 30 % above the increase needed to keep market shares in OECD imports. The other three countries have lost market shares, the actual increase in exports being only 60 % of the increase needed to maintain overall market shares for Sweden, 80 % for Denmark and 90 % for Finland.

From lines (4) and (5) we find that the composition of exports has been unfavourable for all countries. The conclusions from the table is that this structural effect of the export composition is more important than the market losses that have actually occurred for Denmark and Finland, and it makes the gain in Norwegian exports even more impressive. For these three countries the market share developments between 1970 and 1980 have been much better than could have been expected given the composition of their exports.

The magnitude of the gains in markets share is rather small in Denmark where it accounts for 6 % points of the increase in exports. For Finland the competitiveness effect accounts for 20 % of the increase, and for Norway 50 %.

In the case of Sweden there has been substantial losses of competitiveness as well as an unfavourable country and commodity composition. On the basis of this 1970-80 summary one third of the 30 % decline can be explained by losses in competitiveness and two-thirds are attributed to an unfavourable structural composition of exports.

A Constant Market Shares Analysis for Yearly Data 1965-82

In Tables 6 to 9 we present the result of a constant-market-shares calculation for yearly data between 1965 and 1982, in order to remove bias introduced by choosing endpoints that might correspond to different phases of the business cycle in the four countries.

The conclusions from the summary table in Table 5 are not contradicted by the more detailed analysis. The structural composition of exports have worked in a negative way for most of the years observed. For an occasional year the sum of the commodity and the country effect can be positive, but in general it is negative. Very often, however, one or the other is positive. The commodity composition effect is particularly interesting in the case of Norway where it has been negative throughout the period except for the last two years, obviously a result of the heavy weight given to oil exports in total exports recently. The change in the commodity factor for Sweden from a predominantly positive contribution in the 1960s to a negative contribution in the 1970s is also interesting. In the 1960s Swedish exports gained overall market shares due to its commodity composition. In

Table 6 Danish export performance 1965-82

Annual data. Million U.S. dollars

	Danish exports[a] (1)	Actual change in exports (2)	Calculated increase, assuming no market loss (3)	Change due to commodity composition (4)	Change due to market distribution (5)	Change due to "competitiveness" (6)
1966	1 973	123	207	-10	-65	-9
1967	2 027	54	112	-41	-14	-3
1968	2 139	124	264	-72	-86	6
1969	2 399	262	330	-5	-45	-22
1970	2 711	312	362	1	25	-76
1971	2 980	269	307	6	55	11
1972	3 524	544	566	62	-109	25
1973	4 942	1 417	1 310	-43	-82	232
1974	6 051	1 109	1 977	-856	213	-47
1975	6 624	573	79	246	217	31
1976	7 016	393	1 036	-111	-257	-275
1977	7 791	775	973	84	-53	-229
1978	9 984	2 193	1 378	169	-363	1 009
1979	11 722	1 737	2 829	-640	182	-634
1980	13 479	1 758	2 277	-771	91	161
1981	12 301	-1 178	-570	-128	-618	138
1982	12 077	-224	-781	274	109	174

[a] To 14 countries. Values for 1981 and 1982 estimated without actual data for the Netherlands.

<u>Note:</u> (1) The calculations in the columns above correspond to the symbols used in Appendix 1 in the following way:

col.1.	$V_{..}$	col.4	$\sum_{i}(r_i - r) x V_{i.}$
col.2	$V'_{..} - V_{..}$	col.5	$\sum\sum_{ij}(r_{ij} - r_i) x V_{ij}$
col.3	$r x V_{..}$	col.6	$\sum\sum_{ij}(V'_{ij} - V_{ij} - r_{ij} x V_{ij})$

(2) col. 2 = sum of col. 3-6.

Table 7 Finnish export performance 1965-82

Annual data. Million U.S. dollars

	Finnish exports[a] (1)	Actual change in exports (2)	Calculated increase, assuming no market loss (3)	Change due to commodity composition (4)	Change due to market distribution (5)	Change due to "competitiveness" (6)
1966	1 143	91	118	-30	-48	51
1967	1 145	2	66	-41	-20	-3
1968	1 268	122	150	-1	-42	15
1969	1 575	307	195	14	-23	121
1970	1 841	266	235	-52	49	34
1971	1 930	89	207	-77	-67	26
1972	2 285	355	364	27	-69	33
1973	3 063	778	856	65	53	-196
1974	4 049	986	1 212	-338	139	-27
1975	3 786	-263	50	-329	103	-87
1976	4 392	606	605	173	-107	-2
1977	5 281	890	608	-107	-71	460
1978	6 175	893	936	93	-471	335
1979	8 661	2 486	1 736	43	135	572
1980	9 950	1 289	1 644	-552	168	29
1981	9 140	-810	-423	-357	-318	288
1982	8 249	-891	-578	11	-31	-293

[a] See Table 6.

Table 8 Norwegian export performance 1965-82

Annual data. Million U.S. dollars

	Norwegian exports[a] (1)	Actual change in exports (2)	Calculated increase, assuming no market loss (3)	Change due to commodity composi-tion (4)	Change due to market distribu-tion (5)	Change due to "compe-titive-ness" (6)
1966	1 343	106	138	12	-52	9
1967	1 460	117	74	-32	-34	110
1968	1 587	132	191	18	-38	-44
1969	1 834	245	248	-5	-5	8
1970	2 120	290	273	-13	25	0
1971	2 237	118	237	-169	-64	114
1972	2 596	359	426	-46	-61	40
1973	3 557	961	970	14	2	-25
1974	4 670	1 113	1 418	-89	44	-260
1975	5 515	845	53	-277	251	818
1976	6 005	490	868	-88	-395	105
1977	6 839	834	822	-99	-157	268
1978	9 741	2 902	1 238	-53	-317	2 034
1979	11 897	2 157	2 765	444	372	-1 424
1980	16 671	4 773	2 274	930	-327	1 896
1981	17 296	625	-712	107	-630	1 860
1982	16 303	-993	-1 103	-647	235	522

[a] See Table 6.

Table 9 Swedish export performance 1965-82

Annual data. Million U.S. dollars

	Swedish exports[a] (1)	Actual change in exports (2)	Calculated increase, assuming no market loss (3)	Change due to commodity composition (4)	Change due to market distribution (5)	Change due to "competitiveness" (6)
1966	3 585	222	384	37	-166	- 33
1967	3 803	218	208	30	- 27	7
1968	4 118	314	494	75	-196	- 59
1969	4 693	574	639	101	4	-170
1970	5 621	928	702	70	144	12
1971	6 100	479	649	-145	-137	112
1972	7 094	995	1 159	- 35	-181	52
1973	9 774	2 680	2 668	- 49	222	-161
1974	12 353	2 578	3 863	-1 037	146	-394
1975	12 789	437	118	-392	543	168
1976	13 869	1 080	2 052	192	-240	-924
1977	14 592	723	1 942	-251	-240	-728
1978	16 861	2 269	2 630	553	-1 063	148
1979	21 438	4 577	4 721	-341	131	66
1980	23 815	2 377	4 123	-935	374	-1 184
1981	21 152	-2 663	-965	-406	-948	-344
1982	20 630	-522	-1 345	327	328	168

[a] See Table 6.

the 1970s exports were concentrated in more slow-growing commodities relative to world demand.

The last column indicates the part of the total change in exports that can be attributed to an improvement in competitiveness. When comparing this more detailed analysis with the 1970-80 results we find that, in the case of Denmark, the favourable development over the 1970-80 period is somewhat modified. After 1973 the gains in competitiveness have decreased although one observation, for 1978, indicates an important increase in market shares. We see a reversal of the negative trend of Finnish export performance in the beginning of the 1970s. Market shares have only been lost in three years during the period and after 1973 there has been a substantial improvement, the trend of which has however been reversed during the latter part of the period.

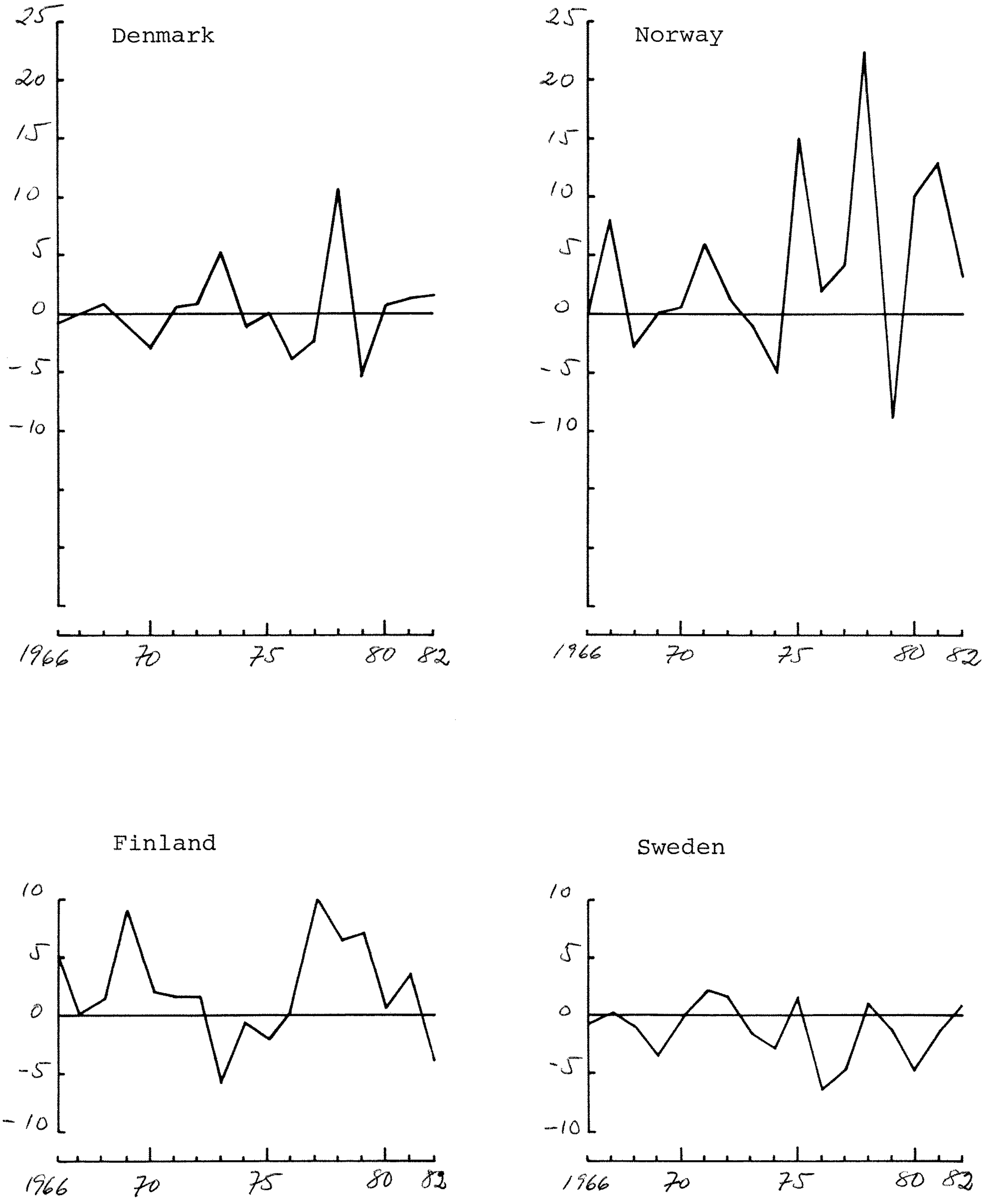
Norway's exports, now made up of oil to 50 %, are of course dominated by this one commodity. The improvement in competitiveness during the last years in the table is entirely due to the increase in oilexports.

The export performance of Sweden shows a cyclical pattern over the period. This is brought out more clearly in the diagrammatic presentation of col. (6) of Tables 6 to 9 in Figure 2. In order to facilitate comparisons between the countries, we compare the level of exports actually attained by the potential level to have been reached if market shares to each market and each commodity had been maintained. The figure brings out the differences in the four countries export performance over the period. It also underlines substantial changes in the trends during the period.

Looking at Figure 2 we can see that the cyclical pattern of the Swedish market shares holds fairly well until 1975. Market shares are lost in periods of high capacity utilization in the Swedish economy. The most pronounced losses were in 1969 and 1974 when the Swedish economy was characterized by a high pressure of demand. Losses in export market shares after 1975, however, follow closely the changes in the relative cost position of Swedish industry. There was a sharp increase in the relative unit labour cost index for Sweden in 1975-76. The relation has subsequently been restored by several devaluations but the effect as we see from the figure for Sweden has mainly been to arrest the decline and already in 1980 market shares were lost again.

The Norwegian industry has also lost market shares heavily in the latter half of the 1970s. The losses in market shares are, however, much less pronounced when we take the country and commodity composition into account as in Figure 2 as compared to the much more aggregate figures in Table 1. The decline between 1975 and 1978 in Figure 1 is entirely due to the structural factors. In 1979 and 1980 we find that Norwegian export growth was weaker than the market growth. Contrary to the case of Sweden this is not directly associated with a deterioration of the relative cost position during these years. The losses that are ascribed to a decline in competitiveness seem to be "related with the inability of fulfilling export orders rather than with a deterioration of the country's cost competitive position". (Ponte Ferreira 1982).

Figure 2. Measure of Competitiveness



A similar non-cost loss of competitiveness occurred in Finland in the mid-70s. Industrial production increased fast relative to the longer term trend during 1973-75. It is likely that export orders had to compete with demand from the domestic market, which illustrates the effects on export market shares of the high internal demand pressure in Finland during this period. The high utilization of capacity was partly due to an investment boom resulting in increased capacity and an ability for Finnish industry to gain substantial market shares in the latter part of the 1970s.

It is evident that the constant market shares calculations only indicate a starting point for an analysis of a country's competitiveness. In order to interpret the results we need to study several indicators of price and non-price competitiveness that could explain the differences in export performance between the Nordic countries found in this paper. Tentative efforts to relate the changes in the indicator of competitiveness in this study to changes in relative prices and unit labor costs only show significant relations in the case of Sweden and then only for the latter part of the period.

NOTES

[1] OECD Trade by Commodities, Ser. B. and Ser. C. Detailed 1982 data for the Netherlands by commodities were not available at the time of the updating of the present study. 1981-82 constant-market shares calculations are consequently based on 13 markets. 1980 has been retained in many of the overall tables for this reason.

[2] A list of commodity groups used is found in Appendix 2. The regrouping between SITC Rev 1 and Rev 2 taken into account in this paper only concerns SITC 7 commodities. The constant market shares analysis will be little affected by this approximation. Growth rates in col. 4 of Tables 1 to 4 are, however, subject to reservations.

[3] OECD being defined throughout the paper as the sum of the countries listed in Appendix 3.

[4] A detailed description of the method is found in Appendix 1.

REFERENCES

Horwitz, Eva Christina, Swedish Export Performance 1963-1980. A Constant-Market-Shares Analysis. IUI 1982 (Revised IUI Working paper 52).

Leamer, E., and Stern, R., 1970, Quantitative International Economics, Aldine Publishing Company, Chicago. Chapter 7.

OECD, OECD Economic Surveys, Austria, January 1981.

Ponte Ferreira, Margarida, Demand and Competitiveness in Norway's Exports. Research reports 36/81 and 27/82. Fondet for markeds- och distributionsforskning, Oslo 1981 and 1982.

Richardson, J.D., "Constant-Market-Shares Analysis of Export Growth". Journal of International Economics, May 1971.

APPENDIX 1 A CONSTANT-MARKET-SHARES ANALYSIS

The starting point for a constant-market-share analysis is that a country's export performance as compared to trade in general depends to a great deal on its specialization in commodities and the destination of its exports. World demand is buoyant for some goods and sluggish for others, and markets differ in respect to the growth rate of imports. Consequently, a country surrounded by slow growing neighbours is likely to perform less well than the world average.

Differencies between countries in export potential can be captured by three distinct factors: The overall export growth factor, The commodity composition export growth factor and The geographic-composition export growth factor.

The difference between actual exports and the calculation of the export level had the market share in every commodity in every geographical market been constant will result in an "unexplained" residual which is attributed to changes in the "competitive" position.

Following the method and notation used by Leamer and Stern (1970) the symbols used to describe the actual and "potential" changes being calculated are:

$V_{..}$ = Exports in base year (period 1)
$V'_{..}$ = Exports in period 2
$V_{.j}$ = Exports to country j
$V_{i.}$ = Exports of commodity i
r = Increase in total world exports

r_i = Percentage increase in world exports of commodity i from period 1 to period 2

r_{ij} = percentage increase in world exports of commodity i to country j from period 1 to period 2.

If we regard exports as a single good destined to a single market and consequently disregard the commodity and market composition the following identity will split the increase in exports into one part explained by the increase in total trade and one unexplained residual due to changes in competitiveness.

$$V'_{..} - V_{..} \equiv r \times V_{..} + (V'_{..} - V_{..} - rxV_{..}) \qquad (1)$$

This is of course a rather crude measure of market shares. Some improvement is obtained by a "second" level of analysis whereby the effect of commodity composition can be singled out. For every group of commodities

$$V'_{i.} - V_{i.} \equiv r_i \times V_{i.} + (V'_{i} - V_{i.} - r_i x V_{i.}) \qquad (2)$$

Summing over all commodities gives

$$V'_{..} - V_{..} \equiv \sum_i r_i \times V_{i.} + \sum_i (V'_{i.} - V_{i.} - r_i x V_{i.}) \qquad (3)$$

$$V'_{..} - V_{..} \equiv r \times V_{..} + \sum_i (r_i - r) V_{i.} + \sum_i (V'_{i.} - V_{i.} - r_i x V_{i.}) \qquad (4)$$

Proceeding to a "third level" analysis we are looking for country as well as commodity effects. In order to get this we start with the identity

$$V'_{ij} - V_{ij} \equiv r_{ij} \times V_{ij} + (V'_{ij} - V_{ij} - r_{ij} x V_{ij}) \qquad (5)$$

and summarize over countries and commodities, leading to

$$V'_{..} - V_{..} \equiv \sum_{i}\sum_{j} r_{ij} \times V_{ij} + \sum_{i}\sum_{j} (V'_{ij} - V_{ij} - r_{ij} x V_{ij}) \qquad (6)$$

$$\equiv r \times V_{..} + \sum_{i} (r_i - r) x V_{i} + \sum_{i}\sum_{j} (r_{ij} - r_i) x V_{ij}$$

$$+ \sum_{i}\sum_{j} (V'_{ij} - V_{ij} - r_{ij} x V_{ij})$$

This expression divides the increase in total exports into four components.

1. The overall trade growth factor: $r x V_{..}$

2. The commodity composition factor: $\sum_{i} (r_i - r) x V_{i.}$

3. The market factor: $\sum_{i}\sum_{j} (r_{ij} - r_i) x V_{ij}$

4. The competitiveness factor: $\sum_{i}\sum_{j} (V'_{ij} - V_{ij} - r_{ij} x V_{ij})$

APPENDIX 2 PRODUCT CLASSIFICATION (SITC 1)

0	**Food and live animals**
1	**Beverages and tobacco**
(2)	**Crude materials, inedible except fuels**
21	HIDES, SKINS AND FUR SKINS, UNDRESSED
22	OIL-SEEDS, OIL NUTS AND OIL KERNELS
23	CRUDE RUBBER INCLUDING SYNTHETIC AND RECLAIMED
24	WOOD, LUMBER AND CORK
25	PULP AND WASTE PAPER
26	TEXTILE FIBRES, NOT MANUFACTURED, AND WASTE
27	CRUDE FERTILIZERS AND CRUDE MINERALS, NES
28	METALLIFEROUS ORES AND METAL SCRAP
29	CRUDE ANIMAL AND VEGETABLE MATERIALS, NES
3	**Mineral fuels, lubricants and related materials**
4	**Animal and vegatable oils and fats**
(5)	**Chemicals**
51	CHEMICAL ELEMENTS AND COMPOUNDS
52	CRUDE CHEMICALS FROM COAL, PETROLEUM AND GAS
53	DYEING, TANNING AND COLOURING MATERIALS
54	MEDICINAL AND PHARMACEUTICAL PRODUCTS
55	PERFUME MATERIALS, TOILET & CLEANSING PREPTIONS
56	FERTILIZERS, MANUFACTURED
57	EXPLOSIVES AND PYROTECHNIC PRODUCTS
58	PLASTIC MATERIALS, ETC.
59	CHEMICAL MATERIALS AND PRODUCTS, NES
(6)	**Manufactured goods classified chiefly by material**
61	LEATHER, LTHR. MANUFS., NES & DRESSED FUR SKINS
62	RUBBER MANUFACTURES, NES
63	WOOD AND CORK MANUFACTURES EXCLUDING FURNITURE
64	PAPER, PAPERBOARD AND MANUFACTURES THEREOF
65	TEXTILE YARN, FABRICS, MADE-UP ARTICLES, ETC.
66	NON-METALLIC MINERAL MANUFACTURES, NES
67	IRON AND STEEL
68	NON-FERROUS METALS
69	MANUFACTURES OF METAL, NES
(7)	**Machinery and transport equipment**
71	MACHINERY, OTHER THAN ELECTRIC
72	ELECTRICAL MACHINERY, APPARATUS AND APPLICANCES
73	TRANSPORT EQUIPMENT
(8)	**Miscellaneous manufactured articles**
81	SANITARY, PLUMBING, HEATING AND LIGHTING FIXT.
82	FURNITURE
83	TRAVEL GOODS, HANDBAGS AND SIMILAR ARTICLES
84	CLOTHING
85	FOOTWEAR
86	SCIENTIFIC & CONTROL INSTRUM, PHOTOGR GDS, CLOCKS
89	MISCELLANEOUS MANUFACTURED ARTICLES, NES
9	**Commodities and transactions not classified according to kind**

APPENDIX 3 1980 DATA USED IN THE CONSTANT-MARKET-SHARE ANALYSIS FOR THE NORDIC COUNTRIES 1965-1980 EXPORT PERFORMANCE

Table 1. Market Breakdown
Million US dollars

		Total 1980 import	Of which imports from:			
			Denmark	Finland	Norway	Sweden
1	Denmark	19 904	-	735	794	2 476
2	Finland	15 629	374	-	329	1 885
3	Norway	16 948	1 040	632	-	2 791
4	Sweden	33 426	2 047	2 281	1 739	-
5	Germany	185 920	3 139	1 610	4 257	3 891
6	United Kingdom	117 903	2 520	1 830	3 127	3 339
7	France	134 284	862	704	1 267	2 070
8	Italy	98 438	872	371	281	1 224
9	Belgium	71 187	329	218	589	1 045
10	Netherlands	76 409	646	598	1 076	1 421
11	Austria	24 432	167	112	82	444
12	Switzerland	36 148	301	205	137	707
13	United States	250 280	765	479	2 732	1 705
14	Canada	57 703	97	56	65	356
15	Japan	139 893	320	118	186	461
	Total	1 277 904	13 479	9 950	16 671	23 815

APPENDIX 3 (continued)

Table 2. Commodities Breakdown

	SITC	Total 1980 imports of 15 countries	Of which imports from: Denmark	Finland	Norway	Sweden
1	0+1	125 108	4 371	191	876	435
2	21	3 983	261	444	78	96
3	22	7 291	99	0	0	24
4	23	4 711	1	0	0	10
5	24	20 744	58	1 215	130	1 194
6	25	8 345	32	698	153	1 237
7	26	9 043	14	23	30	28
8	27	8 009	45	37	118	82
9	28	30 169	113	43	207	678
10	29	5 978	354	6	22	37
11	3	339 486	623	584	9 215	1 205
12	4	5 187	108	10	77	35
13	51	22 712	153	118	63	151
14	52	12 446	16	42	166	216
15	53	4 044	83	32	33	60
16	54	8 182	252	19	34	253
17	55	4 325	88	19	30	57
18	56	4 322	7	9	178	6
19	57	269	0	4	6	12
20	58	18 232	170	140	301	464
21	59	9 428	113	35	47	151
22	61	4 168	28	36	25	77
23	62	8 172	55	29	30	202
24	63	6 644	203	416	42	293
25	64	19 147	165	2 148	499	2 480
26	65	32 959	349	149	108	299
27	66	32 200	245	111	62	285
28	67	39 890	282	476	704	1 860
29	68	41 274	127	357	1 440	658
30	69	23 251	355	166	189	970
31	71	111 864	1 645	612	559	4 018
32	72	61 558	682	318	269	1 305
33	73	108 439	374	266	410	2 981
34	81	2 390	68	39	21	120
35	82	8 825	398	121	78	442
36	83	2 380	15	9	5	7
37	84	33 783	325	592	63	221
38	85	9 974	58	71	9	50
39	86	27 199	317	65	89	392
40	89	34 906	641	264	149	539
41	9	16 502	178	40	158	188
	Total	1 277 904	13 479	9 950	16 671	23 815

APPENDIX 4

Table 4:1 Market dependency in Denmark's exports and market pattern of OECD demand growth.

(excl. SITC mineral fuels etc.)

EXPORT MARKETS	1970 OECD demand[a] 1	1970 Denmark's exports 2	1970 Depend ratio (2/1)[b] 3	Growth in OECD demand (1970=100) 4	1980 OECD demand[a] 5	1980 Denmark's exports 6	1980 Depend ratio (6/5) 7
1 Denmark	-	-	-	-	-	-	-
2 Finland	1.3	2.9	2.3	474	1.2	2.9	2.4
3 Norway	1.9	8.4	4.5	410	1.5	7.6	5.0
4 Sweden	3.4	18.2	5.3	405	2.7	13.2	4.8
5 Germany	14.8	15.4	1.0	529	15.6	23.8	1.5
6 United Kingdom	10.5	25.1	2.4	525	11.0	19.0	1.7
7 France	9.0	3.0	0.3	592	11.7	6.5	0.6
8 Italy	7.0	4.1	0.6	553	7.7	6.7	0.9
9 Belgium	5.6	1.6	0.3	569	6.4	2.5	0.4
10 Netherlands	6.5	3.3	0.5	485	6.3	4.8	0.8
11 Austria	1.8	1.8	1.1	637	2.2	1.3	0.6
12 Switzerland	3.3	3.1	0.9	526	3.5	2.3	0.7
13 United States	20.0	10.8	0.5	455	18.2	6.0	0.3
14 Canada	6.8	1.1	0.2	401	5.5	0.8	0.1
15 Japan	8.1	1.1	0.1	466	7.6	2.5	0.3
Total	100.0	100.0		502	100.0	100.0	

[a], [b] see notes to tables 1 to 4

Table 4:2 Market dependency in Finland's exports and market pattern of OECD demand growth.

(excl. SITC mineral fuels etc.)

EXPORT MARKETS	1970			Growth in OECD demand (1970=100)	1980		
	OECD demand[a]	Finland's exports	Depend ratio (2/1)[b]		OECD demand[a]	Finland's exports	Depend ratio (6/5)[b]
	1	2	3	4	5	6	7
1 Denmark	2.1	7.0	3.3	380	1.6	7.6	4.7
2 Finland	-	-	-	-	-	-	-
3 Norway	1.8	4.8	2.6	410	1.5	6.7	4.5
4 Sweden	3.4	19.0	5.6	405	2.7	20.2	7.4
5 Germany	14.6	14.5	1.0	530	15.5	16.5	1.1
6 United Kingdom	10.5	25.3	2.4	525	11.0	19.2	1.7
7 France	9.0	5.6	0.6	592	10.6	7.4	0.7
8 Italy	6.9	3.7	0.5	553	7.7	4.0	0.5
9 Belgium	5.6	2.6	0.5	569	6.3	2.2	0.4
10 Netherlands	6.4	5.9	0.9	485	6.2	5.8	0.9
11 Austria	1.7	1.0	0.6	637	2.2	1.2	0.5
12 Switzerland	3.3	2.3	0.7	526	3.5	2.2	0.6
13 United States	19.9	6.3	0.3	455	18.1	5.1	0.3
14 Canada	6.8	1.3	0.2	401	5.5	0.6	0.1
15 Japan	8.1	0.7	0.1	466	7.5	1.3	0.2
Total	100.0	100.0		499	100.0	100.0	

a, b see notes to tables 1 to 4

Table 4:3 Market dependency in Norway's exports and market pattern of OECD demand growth.
(excl. SITC mineral fuels etc.)

EXPORT MARKETS	1970 OECD demand[a] 1	1970 Norway's exports 2	1970 Depend ratio (2/1)[b] 3	Growth in OECD demand (1970=100) 4	1980 OECD demand[a] 5	1980 Norway's exports 6	1980 Depend ratio (6/5)[b] 7
1 Denmark	2.1	8.2	3.8	380	1.6	8.3	5.1
2 Finland	1.3	3.0	2.4	475	1.2	4.4	3.7
3 Norway	-	-	-	-	-	-	-
4 Sweden	3.4	18.2	5.4	405	2.7	19.8	7.2
5 Germany	14.7	22.5	1.5	530	15.6	19.1	1.2
6 United Kingdom	10.5	21.2	2.0	525	11.0	16.4	1.5
7 France	9.0	4.0	0.4	592	10.6	5.6	0.5
8 Italy	7.0	3.1	0.4	552	7.7	3.5	0.5
9 Belgium	5.6	2.9	0.5	569	6.4	2.5	0.4
10 Netherlands	6.5	4.0	0.6	485	6.3	6.5	1.0
11 Austria	1.8	0.8	0.5	637	2.2	1.1	0.5
12 Switzerland	3.3	1.5	0.5	526	3.5	1.8	0.5
13 United States	20.0	6.8	0.3	455	18.2	7.8	0.4
14 Canada	6.8	2.3	0.3	401	5.5	0.9	0.2
15 Japan	8.1	1.6	0.2	466	7.6	2.5	0.3
Total	100.0	100.0		500	100.0	100.0	

[a], [b] see notes to tables 1 to 4

Table 4:4 Market dependency in Sweden's exports and market pattern of OECD demand growth.
(excl. SITC mineral fuels etc.)

EXPORT MARKETS	1970 OECD demand[a] 1	1970 Sweden's exports 2	1970 Depend ratio (2/1)[b] 3	Growth in OECD demand (1970=100) 4	1980 OECD demand[a] 5	1980 Sweden's exports 6	1980 Depend ratio (6/5)[b] 7
1 Denmark	2.2	12.1	5.6	380	1.6	8.7	5.3
2 Finland	1.3	7.5	5.8	475	1.2	8.1	6.7
3 Norway	1.9	13.0	6.9	410	1.5	11.4	7.5
4 Sweden	-	-	-	-	-	-	-
5 Germany	15.0	15.4	1.0	530	15.8	16.9	1.1
6 United Kingdom	10.7	15.5	1.5	525	11.2	14.2	1.3
7 France	9.1	7.0	0.8	592	10.8	8.8	0.8
8 Italy	7.1	3.8	0.5	552	7.8	5.3	0.7
9 Belgium	5.7	4.4	0.8	569	6.4	4.4	0.7
10 Netherlands	6.6	5.4	0.8	485	6.3	5.9	0.9
11 Austria	1.8	1.7	0.9	637	2.3	2.0	0.9
12 Switzerland	3.4	3.6	1.1	526	3.5	3.1	0.9
13 United States	20.3	7.2	0.4	455	18.4	7.5	0.4
14 Canada	6.9	1.8	0.3	401	5.5	1.6	0.3
15 Japan	8.2	1.6	0.2	466	7.6	2.0	0.3
Total	100.0	100.0		502	100.0	100.0	

a, b see notes to tables 1 to 4

WORKING PAPERS (Missing numbers indicate publication elsewhere)

1976

1. Corporate and Personal Taxation and the Growing Firm
   by Ulf Jakobsson

7. A Micro Macro Interactive Simulation Model of the Swedish Economy.
   Preliminary model specification
   by Gunnar Eliasson in collaboration with Gösta Olavi

8. Estimation and Analysis with a WDI Production Function
   by Göran Eriksson, Ulf Jakobsson and Leif Jansson

1977

12. The Linear Expenditure System and Demand for Housing under Rent Control
    by Per Högberg and N Anders Klevmarken

14. Rates of Depreciation of Human Capital Due to Nonuse
    by Siv Gustafsson

15. Pay Differentials between Government and Private Sector Employees in Sweden
    by Siv Gustafsson

1979

20. A Putty-Clay Model of Demand Uncertainty and Investment
    by James W. Albrecht and Albert G. Hart

1980

25. On Unexplained Price Differences
    by Bo Axell

26. The West European Steel Industry - Structure and Competitiveness in Historical Perspective
    by Bo Carlsson

33. The Demand for Energy in Swedish Manufacturing
    by Joyce M. Dargay

34. Imperfect Information Equilibrium, Existence, Configuration and Stability
    by Bo Axell

1981

35. Value Added Tax: Experience in Sweden
by Göran Normann

36. Energi, stabilitet och tillväxt i svensk ekonomi (Energy, Stability and Growth in the Swedish Economy)
by Bengt-Christer Ysander

37. Picking Winners or Bailing out Losers? A study of the Swedish state holding company and its role in the new Swedish industrial policy
by Gunnar Eliasson and Bengt-Christer Ysander

40. Wage Earners Funds and Rational Expectations
by Bo Axell

41. A Vintage Model for the Swedish Iron and Steel Industry
by Leif Jansson

43. An Econometric Model of Local Government and Budgeting
by Bengt-Christer Ysander

44. Local Authorities, Economic Stability and the Efficiency of Fiscal Policy
by Tomas Nordström and Bengt-Christer Ysander

45. Growth, Exit and Entry of Firms
by Göran Eriksson

52. Swedish Export Performance 1963-1979. A Constant Market Shares Analysis
by Eva Christina Horwitz

55. Arbetsmarknad och strukturomvandling i de nordiska länderna
av Bertil Holmlund

56. Central Control of the Local Government Sector in Sweden
by Richard Murray

58. Industrial Subsidies in Sweden: Macro-economic Effects and an International Comparison
by Bo Carlsson

59. Longitudinal Lessons from the Panel Study of Income Dynamics
by Greg J. Duncan and James N. Morgan

1982

61. Var står den nationalekonomiska centralteorin idag?
av Bo Axell

63. General Search Market Equilibrium
by James W. Albrecht and Bo Axell

64. The Structure and Working of the Isac Model
by Leif Jansson, Thomas Nordström and Bengt-Christer Ysander

65. Comparative Advantage and Development Policy Twenty Years Later
by Anne O. Krueger

67. Computable Multi-Country Models of Production and Trade
by James M. Henderson

68. Payroll Taxes and Wage Inflation: The Swedish Experiences
by Bertil Holmlund (Revised, September 1982).

69. Relative Competitiveness of Foreign Subsidiary Operations of a Multinational Company 1962-77
by Anders Grufman

70. Optimization under nonlinear constraints
by Leif Jansson and Erik Mellander

71. Technology, Pricing and Investment in Telecommunications
by Tomas Pousette

72. The Micro Initialization of MOSES
by James W Albrecht and Thomas Lindberg

73. Measuring the Duration of Unemployment: A Note
by Anders Björklund

74. On the Optimal Rate of Structural Adjustment
by Gunnar Eliasson

75. The MOSES Manual
by Fredrik Bergholm

76. Differential patterns of Unemployment in Sweden
by Linda Leighton and Siv Gustafsson

77. Household Market and a Nonmarket Activities (HUS)
- A Pilot Study
by Anders Klevmarken

78. Arbetslöshetsersättningen i Sverige
- motiv, regler och effekter
av Anders Björklund och Bertil Holmlund

1983

79. Energy Prices, Industrial Structure and Choice of Technology; An International Comparison with Special Emphasis on the Cement Industry
by Bo Carlsson

80. Energy Usage and Energy Prices in Swedish Manufacturing
by Joyce Dargay

81. ELIAS - A Model of Multisectoral Economic Growth in a Small Open Economy

82. Oil Prices and Economic Stability - Simulation Experiments with a Macroeconomic Model
by Tomas Nordström and Bengt-Christer Ysander

83. Statlig kontroll av kommunerna
En översikt av svenska erfarenheter under efterkrigstiden
av Richard Murray och Bengt-Christer Ysander

84. Monopoly and Allocative Efficiency with Stochastic Demand
by Tomas Pousette

85. Export Performance of the Nordic Countries 1965-80
A Constant-Market-Shares Analysis
by Eva Christina Horwitz.

86. The Micro (Firm) Foundations of Industrial Policy
by Gunnar Eliasson

87. Excessive Government Spending in the U.S.: Facts and Theories
by Edward M. Gramlich.

88. Control of Local Authority Expenditure - The Use of Cash Limits
by Noel Hepworth

89. Fiscal Containment and Local Government Finance in The U.K.
by Peter Jackson

90. Fiscal Limitations: An Assessment of the U.S. Experience
by Wallace E. Oates

91. Pricing and Privatization of Public Services
by George E. Peterson

92. Export Performance of the Nordic Countries 1965-82
by Eva Christina Horwitz