

A list of Working Papers on the last pages

No. 279, 1990

**EFFECTS OF EUROPEAN INTEGRATION
ON NORDIC EXPORTS**

by

Margarida Ponte Ferreira

Paper presented at the IUI/NEF Workshop on **The EC Internal Market and the Nordic Countries**, June 11–13, 1990, at Lidingö, Sweden

November, 1990

EFFECTS OF EUROPEAN INTEGRATION ON NORDIC EXPORTS

Margarida Ponte Ferreira

NUPI, Oslo, September 1990

Introduction

1. Effects of tariff-free trade
2. Integration and export patterns
 - 2.1 Market orientation: reinforced links with free trade partners
 - 2.2 Changing comparative advantages?
3. Estimating the export effects of integration
 - 3.1 Aspects of methodology
 - 3.2 The estimated effects
4. Concluding remarks: possible effects of 1992

Financial support from the Nordic Economic Research Council is gratefully acknowledged

EFFECTS OF EUROPEAN INTEGRATION ON NORDIC EXPORTS

Introduction

As far as trade in goods is concerned, the completion of the EC-Internal Market by 1992 mainly involves the elimination of technical barriers to trade¹. This represents a reduction in costs which, to a considerable extent, is comparable to a tariff cutting. If the EC attempts to tackle the technical barriers is confined to its members, trade patterns will develop much in the same way as after the separate formation of the EC and EFTA. But if the removal of the technical barriers is to apply also to EFTA members, exports from the Nordic countries are likely to evolve as in the wake of the 1973 agreements.

Thus, the analysis of the effects of past tariff cutting may help to assess the possible consequences of a further removal of obstacles to trade. This paper is an attempt in this direction. It looks at the impact of earlier trade liberalization on exports from Finland, Norway, Sweden and Denmark and tries to draw relevant lessons which may help to appraise the impact of 1992. Section 1 discusses the effects that might be "expected" from the freeing of trade; section 2 describes statistically the changes in the regional and product patterns of Nordic exports; in section 3 tentative estimates of the export effects of trade liberalization are presented; the paper ends with a concluding summary.

The data refers to total exports excluding oil and oil products. It covers the period 1963-1987 and was extracted from the United Nations' COMTRADE data bank.

¹ The designation European Community (EC) replaced, in 1973, that of European Economic Community (EEC). For the sake of facility, the former will be used throughout this paper.

1. The effects of tariff-free trade²

The term "economic integration" usually refers to a reallocation of production across borders, each country specializing in the products or lines of production in which it has a comparative advantage. This reallocation is expected to be brought about by the free movement of goods, services, labour and capital. Until the mid-1980s, however, the process of integration in western Europe was largely confined to the liberalization of trade in industrial goods.

It is commonly accepted that the freeing of trade inside a given area has two effects: on one hand, consumers may switch some of their purchases from higher-cost home production to lower cost imports (trade creation); on the other hand, they may also shift from imports from outside the free trade area to tariff-free imports from inside the area (trade diversion).

A simple numerical example may illustrate this³. Let A be the home country, B the free trade partner and C the rest of the world.

	A	B	C	A	B	C
	<u>Before tariff cut</u>			<u>After tariff cut</u>		
Production costs	35	26	20	35	26	20
100% Tariff in A	-	26	20	-	-	20
Price in A	35	52	40	35	26	40

Before the freeing of trade with B, consumers in A would only buy the home-produced good; after the tariff cut, imports from B would reach consumers in A at a price that would displace home production good. This is a case of "trade creation".

² The aim here is not to survey the economics of customs unions and free trade, but just to provide a reference frame for the empirical work that follows.

³ The example is taken from R.C. Hine (1985).

If the initial tariff were 50 per cent, a different situation would emerge:

	A	B	C	A	B	C
	<u>Before tariff cut</u>			<u>After tariff cut</u>		
Production costs	35	26	20	35	26	20
50% Tariff in A	-	13	10	-	-	10
Price in A	35	39	30	35	26	30

In this case, demand in A was initially met by imports from C but, after the tariff cut, consumers would replace imports from C by imports from B. This is a case of "trade diversion".

Therefore, the members of a customs union or a free trade area will tend to increasingly trade with each other, sometimes at the costs of trade with non-member countries. J. Viner, who first discussed these effects, concluded that if the balance was in favour of trade creation, the free trade area could be generally described as advantageous⁴.

The effects described above refer to imports. The export effects are more complicated to identify. Firstly, they are the sum of the import effects in partner countries: as the result of the freeing of trade inside a given area, exports from a country belonging to this area may increase because they replace home production in a free trade partner and/or because they displace imports from outside the free trade area. If this increase in exports to free trade partners results from a rise in total exports (due to higher capacity utilization and/or a switching of domestic sales to the foreign markets), there is "export creation"; if it implies a deviation of exports from third markets to the free trade area, there is "export diversion". Moreover, in the case of the formation of two separate trade blocs, exports from any of these blocs may be affected by import diversion in the other. The reduced export opportunities faced by a member of a free trade area with respect to exports to a

⁴ J. Viner (1950).

separate trading group has been called "export impedance"⁵.

Thus, "other things being equal", the formation of the EC and of EFTA as two separate blocs (respectively in 1957 and 1960) is likely to have strengthened trade within each group and weakened trade with other partners, including the members of the other trade organization⁶. Hence, exports from the Nordic countries to EFTA members probably increased, perhaps at the costs of exports to other markets, particularly the EC (the formation of the EC entailing some diversion in EC members' imports from non-EC members). The accession of the UK and Denmark to the EC in 1973 and the subsequent establishment of Free Trade Agreements (FTAs) between the EC and the EFTA members may have led to a reinforcement of trade between the two areas and a stabilization or a weakening of trade with other partners, including the members of the previous preference groups. The Nordic countries exports to the EC are likely to have strengthened then, possibly at the expenses of third countries, including the original EFTA members.

Moreover, if the liberalization of trade leads to a more rational division of labour across borders, the Nordic countries may have specialized further in the products in which they had a comparative advantage, first in trade with other EFTA members and, from 1973, in exchanges with the EC.

The purpose of this paper is to test these presumptions against data for the past two and a half decades.

⁵ EFTA Secretariat (1972).

⁶ The European Economic Community, EEC, was formed in 1957 by six European countries, namely Belgium, Luxembourg, France, the Federal Republic of Germany, Italy and the Netherlands. EFTA was constituted in 1960 by seven other countries: Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom; Finland was an associate member and Iceland became a member in 1970.

2. Integration and export patterns

The regional and product patterns of the Nordic countries' exports are analyzed here with reference to the years 1963, 1972 and 1987. These years broadly delimit two different periods in the liberalization of west European trade: the first covers the initial development of the EC and EFTA (tariffs on intra-EC and intra-EFTA trade were practically abolished in the late 1960s); the second comprises the agreements between the EC and EFTA members, as well as the Danish membership in the EC (trade in industrial goods between the two blocs was virtually free of tariffs by the end of the 1970s).

2.1 Market orientation: reinforced links with free trade partners

The analysis of the regional structure of exports refers to the following markets: the original EC6 (Belgium, the Federal Republic of Germany, France, Italy, Luxembourg and the Netherlands), the countries that joined the EC in 1973, EC3 (UK, Denmark and Ireland), the remaining EFTA (Austria, Finland, Iceland, Norway, Sweden and Switzerland), southern Europe (Greece, Portugal and Spain), eastern Europe (Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and Yugoslavia), the USSR, North America (USA and Canada), Japan and the "rest of the world". The group of the Nordic countries (Finland, Norway, Sweden and Denmark) is also considered as a memorandum item.

The market orientation is often assessed by means of the share of the different markets in a country's exports (Table 1). These shares suggest that the reinforcement of Nordic exports to EFTA in 1962-1973 mainly resulted in a weakening of exports to the original EC members and to the eastern markets. On the other hand, from 1973, exports to the EC6 recovered at the costs of EFTA and its former members.

TABLE 1

The market structure of the Nordic countries' exports, 1963, 1972 and 1987
(Percentage shares)

Markets Exporters	EC12				EFTA ^a	Eastern Europe ^b	Soviet Union	North America	Japan	Rest of the world	Total	Nordic countries
	EC6	EC3	Southern Europe	Total								
Finland												
1963.....	29.8	25.3	1.7	56.8	7.0	5.0	16.1	5.4	0.3	9.4	100.0	9.4
1972.....	20.9	22.7	2.6	46.2	24.7	2.9	12.4	5.5	0.5	7.8	100.0	25.6
1987.....	23.9	15.5	2.2	41.6	21.9	1.9	15.5	6.4	1.4	11.3	100.0	22.5
Norway												
1963.....	27.5	24.7	2.3	54.5	17.2	3.7	1.2	10.6	0.4	12.5	100.0	21.9
1972.....	23.8	26.1	5.2	55.1	20.1	2.7	0.6	8.4	0.9	12.3	100.0	25.2
1987.....	27.3	19.3	2.4	48.9	20.1	1.2	0.7	8.6	2.1	18.5	100.0	25.0
Sweden												
1963.....	32.2	21.5	2.7	56.4	18.6	2.9	1.7	6.5	0.5	13.4	100.0	23.1
1972.....	25.9	24.3	3.1	53.3	20.6	3.4	1.0	8.6	0.9	12.3	100.0	24.8
1987.....	29.8	17.7	2.9	50.3	20.8	1.9	0.7	12.6	1.5	12.3	100.0	24.3
Denmark												
1963.....	28.9	23.7	1.5	54.1	22.3	3.3	1.6	7.4	0.5	10.7	100.0	19.0
1972.....	22.9	20.1	2.2	45.2	29.1	3.0	0.6	9.4	0.9	11.9	100.0	24.6
1987.....	32.7	11.6	2.8	47.1	24.1	1.2	0.4	8.0	3.8	15.4	100.0	21.0

Source: Calculations carried out by the ECE secretariat, on data from the United Nations' COMTRADE data base.

^a Austria, Finland, Iceland, Norway, Sweden and Switzerland.

^b Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and Yugoslavia.

Both demand and supply factors, however, influence the levels of bilateral trade flows. The export shares above are quite sensitive to demand conditions: the share of a given market may rise just because that market is expanding. Hence, they do not provide much information on the intensity of bilateral trade relations. This is better described by some summary statistics, known as "delta" or "trade intensity" coefficients⁷.

For exporting country *i* and market *j* the coefficient is defined as

⁷ I.R. Savage and K.W. Deutsch (1960), i.a., developed these coefficients for the analysis of integration effects. Other authors using these coefficients include: H.R. Alker, Jr. and D. Puchala (1968); H. Theil (1967); United Nations (1973) and M. Ponte Ferreira (1989; 1990).

$$T_{ij} = X_{ij}/X_{i.} / X_{.j}/X_{..} \quad (1)^8$$

where,

X_{ij} are exports from country i to market j

$X_{i.}$ are total exports from country i

$X_{.j}$ are world exports to market j

$X_{..}$ are total world exports

The coefficient equals the unity whenever the share of market j in i 's exports is the same of the share of that market in world exports. A coefficient smaller (larger) than the unity indicates a weaker (stronger) trade link between i and j than what could be expected on the basis of the share of j in world exports.

At any given moment, the level of the "trade intensity coefficients" is a reflection of geographical distances, historical ties, production structures. Changes in the value of the coefficient are taken to reflect, to a large extent, varying "economic distances", as those arising from trade policies⁹. Hence, these ratios are more suitable than simple export shares for assessing the changes in market orientation due to trade liberalization.

"Intensity coefficients" (Table 2 and Chart 1) confirm that Nordic exports to free trade patterns tended to strengthen: in the 1960s there was a reinforcement of trade with EFTA (which then included the UK and Denmark), at the costs of exports to the

⁸ The coefficient may equally be defined as

$$T_{ij} = X_{ij}/X_{.j} / X_{i.}/X_{..}$$

i.e. the share of an exporting country in a given market normalized by the share of that country in the world market.

⁹ If a market is expanding (or if a country's competitiveness is changing), both the numerator and the denominator of the ratio will vary in the same direction, the coefficient remaining broadly unchanged. Changes in the value of the coefficient are then expected to stand for specific changes in bilateral relations.

EC6 (in Denmark, exports to the UK also weakened); following the accession of the UK and Denmark to the EC and the FTAs between the EC and EFTA, exports to the EC6 recovered, but this occurred much at the costs of exports to the former EFTA members and, in Finland and Denmark, also of exports to present-day EFTA. There has been a strengthening of exports to Japan and the "rest of the world", while the patterns of change in exports to eastern Europe, Soviet Union and North America were less uniform.

TABLE 2

Trade intensity coefficients,^a 1963, 1972 and 1987

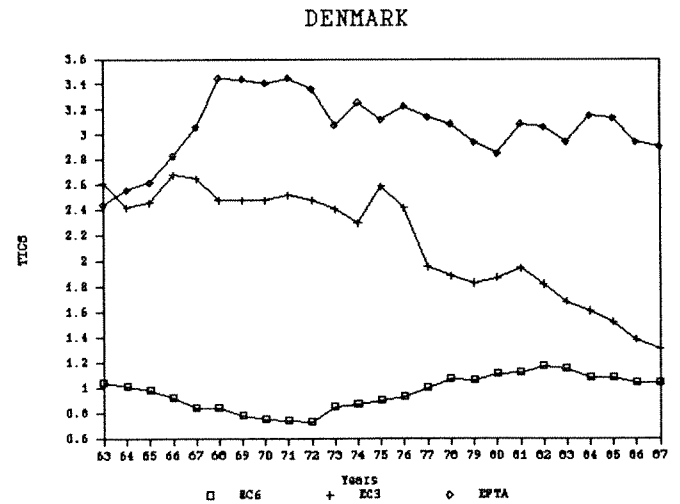
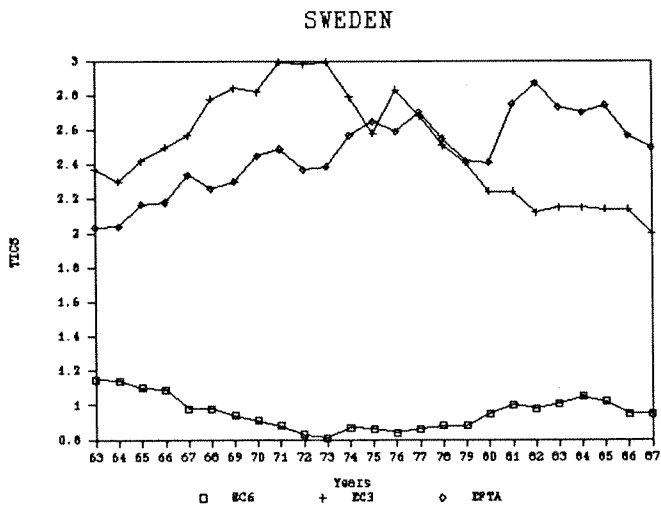
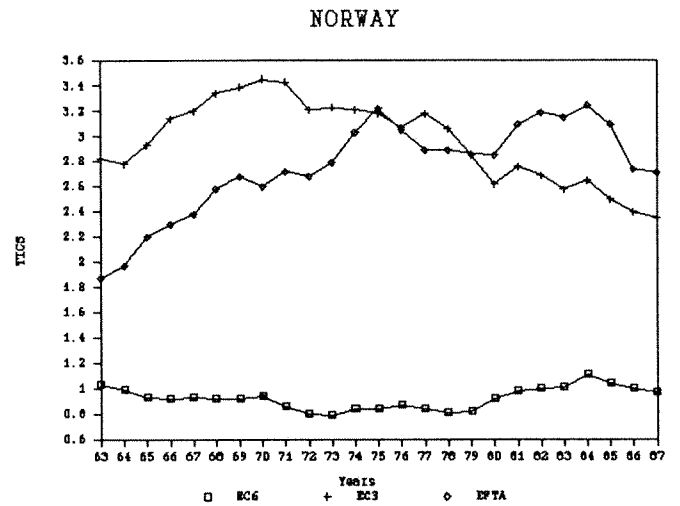
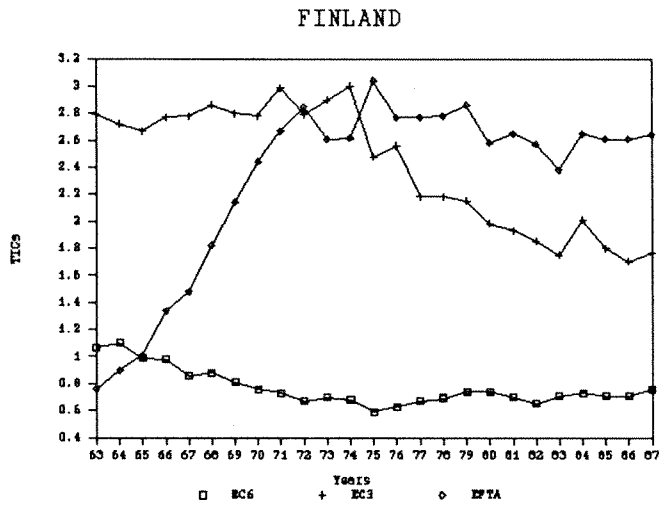
Markets	EC12				EFTA ^b	Eastern Europe ^c	Soviet Union	North America	Japan	Rest of the world	Total	Nordic countries
	EC6	EC3	Southern Europe	Total								
Finland												
1963.....	1.07	2.79	0.67	1.44	0.76	2.15	12.15	0.36	0.09	0.32	1.00	1.46
1972.....	0.67	2.79	0.87	1.09	2.85	1.10	9.00	0.29	0.14	0.34	1.00	4.52
1987.....	0.76	1.76	0.64	0.95	2.64	1.26	12.61	0.34	0.42	0.49	1.00	4.37
Norway												
1963.....	0.98	2.72	0.94	1.38	1.87	1.58	0.92	0.70	0.12	0.42	1.00	3.39
1972.....	0.76	3.20	1.72	1.30	2.32	1.02	0.45	0.45	0.25	0.54	1.00	4.46
1987.....	0.87	2.18	0.68	1.12	2.42	0.79	0.58	0.46	0.60	0.81	1.00	4.84
Sweden												
1963.....	1.15	2.37	1.08	1.43	2.03	1.25	1.29	0.43	0.16	0.46	1.00	3.57
1972.....	0.83	2.98	1.03	1.26	2.37	1.28	0.70	0.46	0.26	0.54	1.00	4.39
1987.....	0.95	2.00	0.86	1.15	2.50	1.23	0.54	0.67	0.44	0.53	1.00	4.71
Denmark												
1963.....	1.04	2.61	0.59	1.37	2.44	1.43	1.24	0.48	0.16	0.36	1.00	2.93
1972.....	0.73	2.48	0.72	1.07	3.36	1.13	0.46	0.50	0.25	0.52	1.00	4.36
1987.....	1.04	1.31	0.82	1.08	2.90	0.79	0.35	0.42	1.12	0.67	1.00	4.07

Source: As for table 1.

^a The share of a given region in each country's exports relative to the share of the same region in OECD's exports.^b Austria, Finland, Iceland, Norway, Sweden and Switzerland.^c Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and Yugoslavia.

Despite these changes, in 1987 the Nordic countries intra-trade and their exports to EFTA were still very intense. Exports to the EC3 also continued to be rather strong (particularly in Norway and Sweden), whereas exports to the EC6 were relatively weak. The "intensity" of exports to the twelve countries that are now EC members was higher for Norway and Sweden than for Denmark, a EC-member. Trade with other markets was quite weak, except for Finish and Swedish exports to eastern Europe and Finish exports to the Soviet Union.

CHART 1
Trade Intensity Coefficients, 1963-1987



2.2 Changing comparative advantages?

As mentioned above, if integration entailed a more rational division of labour across borders, each country is likely to have specialized further in the products or lines of production in which it had a comparative advantage. This should be taken, however, in a dynamic way: the freeing of trade entailed an enlargement of the market which may have created the conditions for small countries, like the Nordic ones, to become competitive in goods in which they could not be so on the basis of their domestic markets. In discussing this issue, the following product groups were considered: "Food", "Pulp and paper", "Wood and wood products", "Ferrous metals", "Aluminium", "Non-metallic minerals", "Chemicals", "Machinery", "Transport equipment", "Textiles and leather", "Clothing" and "Other products".

Product specialization

A useful statistic in the analysis of product specialization is Balassa's index of "revealed" comparative advantage¹⁰. It is based on the assumption that comparative advantage determines the structure of exports, the commodity pattern of trade reflecting relative costs and differences in non-price factors. To allow for international comparisons, a country's share in world exports of a certain good is deflated by its share in world total exports.

These normalized shares, which have been also designed "specialization coefficients", are defined for exporter i and commodity k as

$$S_{ik} = X_{ik}/X_{.k} / X_{i.}/X_{..} \quad (2)$$

where,

- X_{ik} are country i 's exports of product k
- $X_{.k}$ are world exports of product k
- $X_{i.}$ are country i 's total exports
- $X_{..}$ are world total exports.

¹⁰ B. Balassa (1965; 1977).

A coefficient larger (smaller) than the unity indicates that the country's specialization in that good is relatively high (low). The more concentrated the export structure, the greater will tend to be the variance of the individual coefficients. This applies to the Nordic countries, where small domestic markets do not allow the exploitation of scale economies in a wide range of products and where exports are much dominated by resource-intensive goods (Table 3).

TABLE 3

Specialization coefficients,^a 1963, 1972 and 1987

	Finland			Norway			Sweden			Denmark		
	1963	1972	1987	1963	1972	1987	1963	1972	1987	1963	1972	1987
Total exports^b												
Food products.....	0.4	.5	0.3	1.6	1.7	2.3	0.3	0.3	0.2	5.0	4.2	4.7
Pulp and paper.....	12.4	11.7	9.8	4.3	3.0	2.7	5.6	5.1	4.8	0.2	0.3	0.4
Wood products.....	11.5	8.2	6.6	0.5	0.7	0.8	3.8	4.0	3.7	0.7	0.8	1.3
Ferrous metals.....	0.2	0.5	1.3	1.3	1.3	1.6	2.0	1.8	1.8	0.1	0.2	0.5
Aluminium.....	0.1	0.4	0.4	10.2	12.3	11.7	0.3	0.6	0.7	0.1	0.5	0.6
Non-metallic minerals.....	0.2	0.4	0.5	0.3	0.4	0.3	0.4	0.4	0.5	0.6	0.7	0.6
Chemicals.....	0.2	0.3	0.5	1.1	0.8	1.1	0.4	0.5	0.7	0.6	0.7	0.9
Machinery.....	0.3	0.4	0.7	0.3	0.4	0.5	0.9	1.0	1.0	0.7	0.9	0.8
Transport equipment.....	0.6	0.5	0.4	0.7	1.3	1.0	1.3	1.1	1.1	0.5	0.3	0.2
Textiles and leather.....	0.3	0.6	0.9	0.6	0.5	0.5	0.3	0.4	0.4	0.4	0.9	1.2
Clothing.....	0.2	3.0	1.7	0.7	0.3	0.3	0.5	0.6	0.4	1.1	1.7	1.5
Other.....	0.2	0.5	0.6	0.8	0.9	0.8	0.5	0.6	0.7	0.7	0.9	1.1
Total.....	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Exports to EC12												
Food products.....	0.4	0.3	0.1	1.3	1.2	2.1	0.3	0.3	0.1	6.2	4.7	5.0
Pulp and paper.....	11.9	12.4	12.2	5.3	3.5	3.0	6.7	6.1	5.7	0.1	0.3	0.4
Wood products.....	13.2	14.2	10.6	0.5	0.9	0.9	4.6	6.2	4.9	0.5	0.9	1.4
Ferrous metals.....	0.2	0.4	1.6	1.8	1.7	2.0	1.0	1.2	2.1	0.1	0.2	0.5
Aluminium.....	0.0	0.2	0.2	8.5	12.4	18.0	0.1	0.4	0.8	0.1	0.3	0.8
Non-metallic minerals.....	0.1	0.1	0.5	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4
Chemicals.....	0.1	0.2	0.3	1.2	0.7	0.9	0.4	0.4	0.6	0.3	0.5	0.6
Machinery.....	0.1	0.2	0.5	0.3	0.4	0.5	0.8	0.9	1.0	0.5	0.9	0.8
Transport equipment.....	0.0	0.3	0.2	0.5	1.9	0.4	0.8	1.1	1.1	0.1	0.3	0.3
Textiles and leather.....	0.1	0.5	0.7	0.4	0.4	0.5	0.3	0.3	0.4	0.3	0.7	0.9
Clothing.....	0.0	0.7	0.6	0.5	0.2	0.2	0.4	0.3	0.2	0.3	0.4	0.6
Other.....	0.1	0.3	0.4	0.7	0.7	0.7	0.8	0.7	0.6	0.5	0.8	1.1
Total.....	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Exports to EFTA^c												
Food products.....	1.2	0.6	0.4	2.7	3.3	5.3	0.3	0.6	0.7	4.0	4.3	3.9
Pulp and paper.....	9.3	4.9	4.6	1.3	1.2	1.9	3.6	3.4	3.0	0.6	0.7	0.7
Wood products.....	15.9	4.4	3.8	1.5	1.2	1.5	2.9	3.4	3.5	1.7	1.3	1.4
Ferrous metals.....	1.0	1.1	1.4	1.2	1.5	1.5	1.0	1.1	1.5	0.5	0.5	0.8
Aluminium.....	0.2	0.7	0.4	5.9	7.2	8.3	1.0	2.0	0.8	0.4	1.1	0.6
Non-metallic minerals.....	1.0	0.5	0.5	0.3	0.3	0.6	0.4	0.3	1.0	1.0	0.6	0.8
Chemicals.....	0.5	0.4	0.5	1.7	1.3	1.4	0.5	0.7	0.8	0.8	0.9	0.9
Machinery.....	0.6	0.7	0.9	0.5	0.7	0.6	1.0	1.0	0.9	0.9	0.9	0.9
Transport equipment.....	0.4	1.1	1.2	0.9	0.7	0.6	2.4	1.5	1.0	0.7	0.3	0.2
Textiles and leather.....	1.1	0.8	0.8	0.7	0.8	0.7	0.4	0.6	0.6	0.7	1.2	1.6
Clothing.....	0.6	4.2	1.5	1.0	0.4	0.2	0.9	0.9	0.6	2.4	2.5	2.0
Other.....	0.7	0.7	0.8	1.0	1.1	0.9	0.6	0.8	1.0	0.9	1.1	1.2
Total.....	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Source: As for table 1.

^a The share of a given product in each country's exports, relative to the share of the same product in OECD's exports.^b Excluding oil and oil products.^c Austria, Finland, Iceland, Norway, Sweden and Switzerland.

In 1963, Finland had a very high "revealed" comparative advantage in pulp, paper and wood products, Norway in pulp, paper and aluminium, Sweden in pulp, paper, wood products and ferrous metals and Denmark in food. From 1963 to 1987, however, export structures changed much in the sense of an increased diversification, but just few new comparative advantages emerged. This was the case in Finland (ferrous metals, clothing) and Denmark (wood products, textiles, clothing, "other goods")¹¹. The coefficients for chemicals, machinery and transport equipment tended to rise, but remained relatively low. These general trends, however, tend to disguise the developments that occurred first in exports to EFTA and later in exports to the EC.

A breakdown of exports into these two markets shows that, in exports to EFTA and in the period of trade liberalization inside this group, Norway specialized further in food, ferrous metals, and aluminium, Sweden in wood products and metals and Denmark in food and clothing; Finland, on the other hand, acquired a comparative advantage in ferrous metals, transport equipment and clothing, while Denmark did so in aluminium and textiles. After 1973 and in exports to the EC Norway's specialization in those goods continued to rise, as did that of Sweden in ferrous metals and of Denmark in food. Finland gained a comparative advantage in ferrous metals and Denmark in wood products.

Thus, in a significant number of cases, traditional comparative advantages developed further; in others, new comparative advantages have emerged. Finland and Denmark, to a larger extent than Norway and Sweden, seem to have profited from the tariff cutting and from an enlarged market to become competitive in goods where before they had no apparent advantage.

¹¹ In Norway, the coefficients for transport equipment also increased, but this is probably a reflection of the fagging out of ships.

Factors underlying comparative advantages

In those cases where traditional comparative advantages were reinforced, the countries' specialization is likely to reflect differences in relative factor endowments, including natural resources. In fact, we are dealing here with comparative advantages revealed by the commodity composition of exports, the latter being assumed to reflect both relative costs and non-price factors. As far as costs are concerned, international differences are supposed to be determined by differences in the relative endowment of production factors¹².

Finland and Denmark, on the other hand, appear to have acquired a comparative advantage in textiles and clothing in the EFTA market. These countries probably became more competitive in these goods after the elimination of tariffs in trade among EFTA members. In particular, they may have taken advantage of trade barriers facing non-EFTA members (e.g. voluntary export restraints).

Specialization also increased in goods such as chemicals, machinery and transport equipment. Although the Nordic countries have not acquired a comparative advantage in these goods (the coefficients often remained below the unity), this increased specialization calls for other interpretations.

One possible explanation may be related to technological factors. According to the "product cycle" and "technological gap" theories, comparative advantage in products using new technologies will tend to be held by the technologically more advanced countries, but other countries may be able to exploit a comparative advantage in products using standardized technologies.

¹² Note, however, that some difficulties arise when a third factor - as natural resources - is introduced into the Heckscher-Ohlin framework. See Balassa (1965).

Standardized technologies are often applied in large scale production which, in turn, tends to involve standardized goods. According to Dreze's "hypothesis of standardization"¹³, small countries may become competitive in internationally standardized goods, by benefiting from scale economies in sectors where their small domestic markets did not allow for it. The Nordic countries' increased specialization in chemicals and the rising comparative advantage of Finland in ferrous metals and of Denmark in aluminium (in the EC market) may be related to such standardization.

Another account, which also stresses economies of scale, maintains that expanding markets (which are associated with trade liberalization) lead to a "disintegration" of production processes into more and more specialized stages, or to a growing division of labour inside each industrial activity. This generates trade, including trade across borders, in intermediate goods¹⁴. In the trade statistics, this often appears as the simultaneous export and import of the "same good", a phenomenon that has been labelled "intra-industry" trade. In fact, it has been shown that intra-industry trade has increased in the Nordic countries, most markedly in chemicals and machinery¹⁵. This suggests that the hypothesis of the disintegration of production processes across borders may also explain the increased specialization of the Nordic countries in machinery and transport equipment.

In short, free trade seems to have led to a change in product specialization: some traditional comparative advantages were reinforced, but specialization also increased in products where it was very low in the early 1960s. Finland and Denmark seem to have taken advantage of the tariff cutting to become more competitive in goods in which other countries face trade barriers

¹³ Dreze (1961).

¹⁴ Rayment (1983).

¹⁵ Fagerberg (1987).

(textiles, clothing); the Nordic countries may also have reaped scale economies in sectors where they were previously limited by the size of domestic markets.

3. Estimating the export effects of integration

In section 2.1 above it was found that the market orientation of exports changed much in the sense of an increased trade with free trade partners, sometimes at the costs of former trade relations. In particular, the strengthening of the Nordic countries' exports to EFTA in 1962-1973 entailed a weakening of exports to the EC6, while the recovery of trade with this group from 1973 led to a decline in trade with original EFTA members. In this section an attempt is made to estimate the export gains and losses that may be ascribed to the liberalization of trade.

3.1 Aspects of methodology

Following the work of J. Viner and J.E. Meade on customs unions, several trade analysts have tried to estimate the "static" effects of trade liberalization¹⁶. These effects are obtained by comparing the final (post liberalization) situation with the one that would have prevailed had tariffs and quotas not been abolished. Firstly, it is necessary to calculate the (hypothetical) trade flows that would have occurred in the absence of trade liberalization. Then, these estimates are compared with the actual flows, the difference being taken as the impact of free trade. This implies a ceteris paribus assumption which, in practice, does not hold. Hence, the estimates obtained in this way often contain the effects of other factors, including those of integration-induced growth¹⁷.

¹⁶ See, i.a. J. Viner (1950), J.E. Meade (1955), B. Balassa (1967), M.E. Kreinin (1969; 1974), EFTA Secretariat (1969; 1972), W.Ch. Sawyer and R.L. Sprinkle (1988), United Nations (1989) and M. Ponte Ferreira (1989; 1990).

¹⁷ In fact, it has been shown that the long-term growth effects of integration may counteract the diversion effects that are usually associated with the liberalization of trade in a

Several methods have been used to construct the hypothetical trade flows. This is not the place to survey the different methodologies, which are extensively described in the literature, but it should be noted that they often refer to import effects. These are obtained by comparing actual post-liberalization imports with those estimated on the basis of some pre-integration observations, e.g. for import/demand ratios. In this case, the export effects are computed as the sum of import effects in the free trade partners¹⁸. This approach, however, disregards the effects on exports to other markets.

To overcome this shortcoming, a somewhat different method was used here. The hypothetical export values, i.e. those that would have occurred in the absence of free trade, were calculated on the basis of constant pre-integration "trade intensity coefficients". As mentioned above, these coefficients are less sensitive to demand and supply conditions than simple trade shares and changes in their value tend to reflect the effects of trade policies¹⁹.

From expression (1) above, follows that

$$X_{ij} = T_{ij} \cdot Z_{ij} \quad \text{where} \quad Z_{ij} = (X_{.j}/X_{..}) X_i \quad (3)$$

and changes in X_{ij} (dX_{ij}) may be computed as

$$dX_{ij} = T_{ij} \cdot dZ_{ij} + dT_{ij} \cdot Z_{ij} + dT_{ij} \cdot dZ_{ij} \quad (4)$$

given area. See M.E. Kreinin (1974).

¹⁸ EFTA Secretariat (1969; 1972).

¹⁹ It has been shown (United Nations, 1973) that these structural coefficients "... remain fairly stable over time when trade policies remain unchanged, whilst they show significant trends when trade policies are themselves undergoing substantial changes. In particular, the impact of policies aimed at the creation of regional groupings in western Europe is reflected quite clearly in the trends of the corresponding structural coefficients".

Assuming a constant T_{ij} , the hypothetical change in exports from i to j , $d'X_{ij}$, is given by

$$d'X_{ij} = T_{ij} \cdot dZ_{ij} = T_{ij} [(X_{.j}/X_{..}) dX_{i.} + d(X_{.j}/X_{..}) X_{i.} + d(X_{.j}/X_{..}) dX_{i.}] \quad (5)$$

The effects of integration are then assumed to be the difference between the actual change in exports dX_{ij} and the change estimated on the basis of a constant T_{ij} , $d'X_{ij}$

$$E = dX_{ij} - d'X_{ij} \quad (6)$$

Hypothetical exports were calculated for 1972 and 1985 on the basis of the "trade intensity coefficients" for each country's exports to each market in, respectively, 1963 and 1972²⁰. For 1972, the difference between actual exports and those computed on the basis of 1963 coefficients is expected to show the effects of the formation of the EC and EFTA; for 1985, the difference in relation to the values calculated from the 1972 coefficients is assumed to indicate the effects of the FTAs and of the Danish membership in the EC.

3.2 The estimated effects

The estimates shown in Table 4 and Chart 2 indicate that, in 1972, when the effects of the formation of the EC6 and EFTA had become apparent, the countries' exports to the initial EFTA members were clearly above what could be anticipated on the basis of the 1963 "trade intensity coefficients". The largest integration effect was found for Finland, where exports to EFTA

²⁰ The values of these coefficients may, of course, change due to factors other than trade liberalization. Preferably, the hypothetical exports should be computed from trend values for these coefficients. However, data for the years prior to 1963 were not available. On the other hand, it seemed inappropriate to compute the hypothetical exports in 1985 by extrapolating the 1963-1972 trend, due to the presence of the effects of the EC and EFTA in this period.

were 18 per cent larger than the anticipated values. In Norway and Sweden this integration effect is estimated at 8 per cent of total exports. A similar effect was found for the Danish exports to present-day EFTA, but there was a 1 per cent diversion in exports to the United Kingdom.

TABLE 4

The estimated effects of trade liberalization on the Nordic countries' exports, by market, 1972 and 1985

	<i>Finland</i>		<i>Norway</i>		<i>Sweden</i>		<i>Denmark</i>	
	<i>Million US \$</i>	<i>% of export</i>	<i>Million US \$</i>	<i>% of export</i>	<i>Million US \$</i>	<i>% of export</i>	<i>Million US \$</i>	<i>% of exports</i>
<i>1972</i>								
EC6	-366	-12.4	-218	-6.8	-868	-10.0	-406	-9.6
EC3	-1	-0.0	125	3.9	433	5.0	-47	-1.1
Southern Europe.....	18	0.6	75	2.4	-14	-0.2	16	0.4
EFTA.....	533	18.1	123	3.9	258	3.0	339	8.0
Eastern Europe and the Soviet Union.....	-238	-8.1	-66	-2.1	-63	-0.7	-79	-1.9
North America.....	-7	-0.2	-91	-2.9	148	1.7	68	1.6
Japan.....	5	0.2	14	0.5	30	0.3	-19	-0.5
Rest of the world.....	16	0.5	86	2.7	166	1.9	154	3.6
Total.....	-39	-1.3	49	1.5	90	1.0	27	0.6
<i>Memorandum items:</i>								
EC9 + EFTA.....	167	5.7	31	1.0	-177	-2.0	-113	-2.7
Nordic countries	509	17.3	193	6.0	400	4.6	342	8.1
<i>1985</i>								
EC6	2388	1.2	571	6.5	1460	5.0	1487	9.5
EC3	-1057	-8.1	-668	-7.6	-2005	-6.9	-1225	-7.8
Southern Europe.....	-50	-0.4	-134	-1.5	-122	-0.4	54	0.3
EFTA.....	-221	-1.7	446	5.1	758	2.6	-253	-1.6
Eastern Europe and the Soviet Union.....	1484	11.4	-39	-0.5	-140	-0.5	-139	-0.9
North America.....	247	1.9	-99	-1.1	1437	5.0	294	1.9
Japan.....	132	1.0	159	1.8	146	0.5	357	2.3
Rest of the world.....	437	3.3	444	5.1	124	0.4	465	3.0
Total.....	1128	8.6	680	7.8	1658	5.7	1040	6.6
<i>Memorandum items:</i>								
EC9 + EFTA.....	-1121	-8.6	349	4.0	212	0.7	9	0.1
Nordic countries	-212	-1.6	454	5.2	829	2.9	-124	-0.8

Sources: Estimates based on constant 1963 and 1972 trade intensity coefficients.

The Nordic exports to the EC6, on the other hand, were much below the projected levels, a loss that varied from 7 per cent of total exports in Norway to more than 12 per cent in Finland. In the latter the net effect of the creation of the EC6 and EFTA was positive, but in Norway, Sweden and Denmark it was either minor or negative²¹. In these three countries, the positive impact of EFTA was insufficient to outweigh the negative effects (trade diversion and impedance) of the separate formation of the EC6.

Some diversion occurred also in exports to eastern Europe and the Soviet Union, as well as in Finnish and Norwegian exports to North America. On the other hand, exports to the "rest of the world" and to Japan apparently were not affected.

In 1985, a year when the effects of the FTAs and of the Danish membership in the EC were probably visible, exports to the EC6 were larger than anticipated - a positive effect which was quite important in Denmark, Norway and Sweden (varying from 5 to 10 per cent), but rather small in Finland (some 1 per cent). However, this mirrored a decline in exports to the countries that became EC members in 1973 and, in Denmark and Finland, to the remaining EFTA members. Still, in all countries except Finland, the net EC9-EFTA effect was positive, though pretty modest in Denmark and Sweden. In Finland, the net effect was negative, apparently due to a shift from the EFTA market to the Soviet Union²².

²¹ Estimates for Norway based on 1962 coefficients also show a negative EFTA-EC effect. The estimates in table 7 are based on 1963 coefficients for the sake of comparability.

²² Exports from Finland to eastern markets are likely to have been stimulated by the rise in oil prices: since Finland imported oil from The USSR, increased oil prices made room for a significant growth in Finish exports to that country.

CHART 2
Effects of trade liberalization
(Per cent of end-year exports)

A. 1972

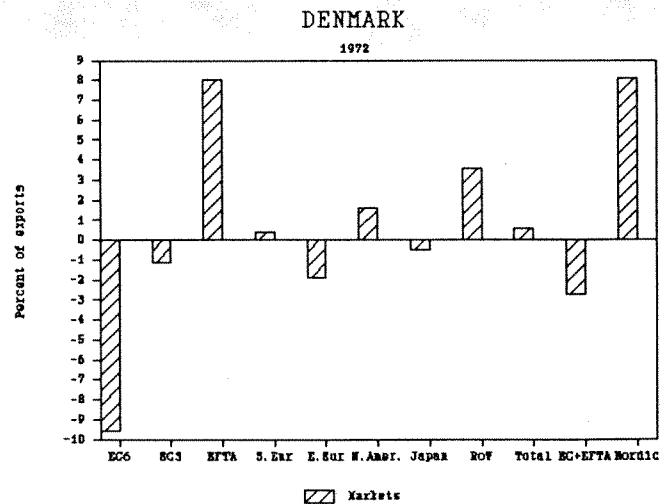
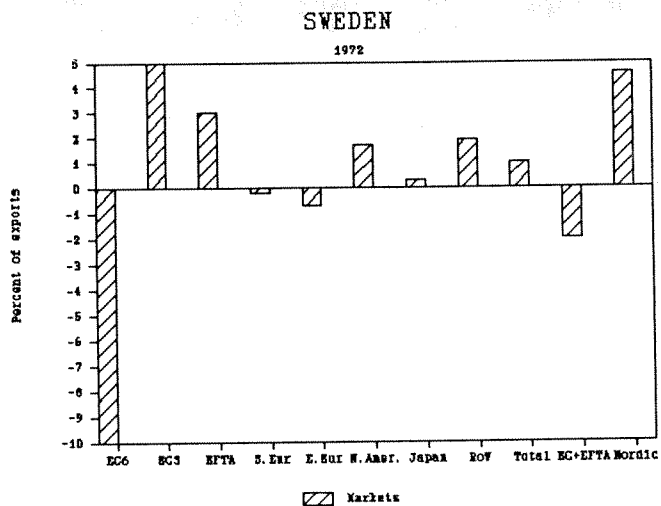
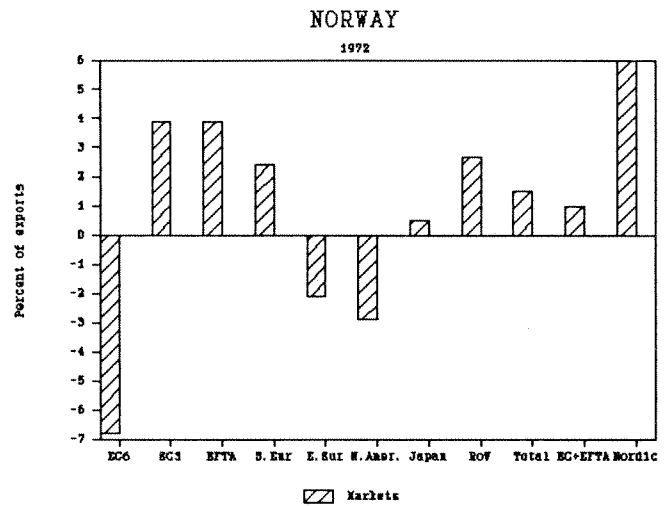
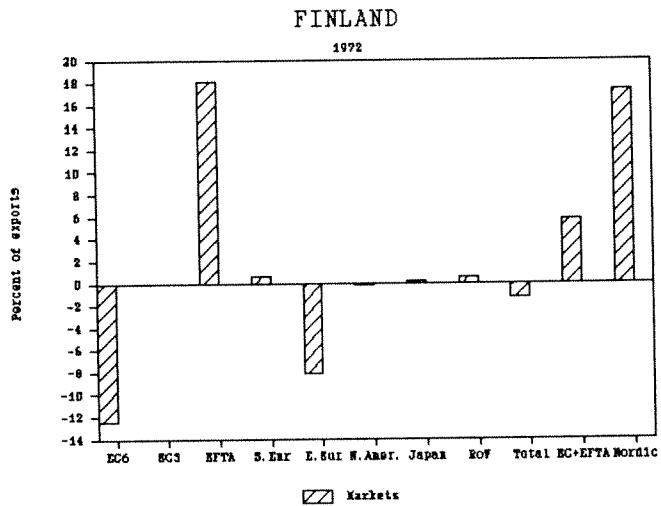
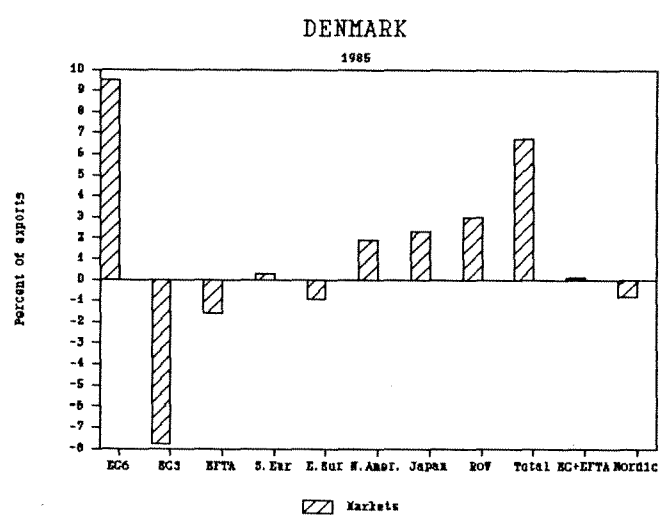
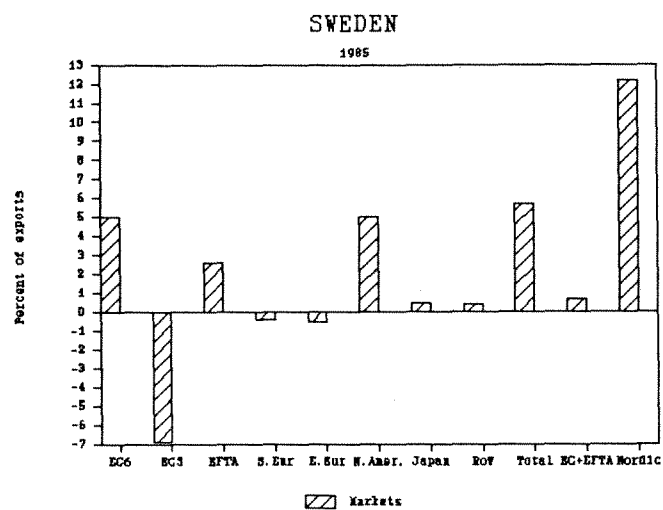
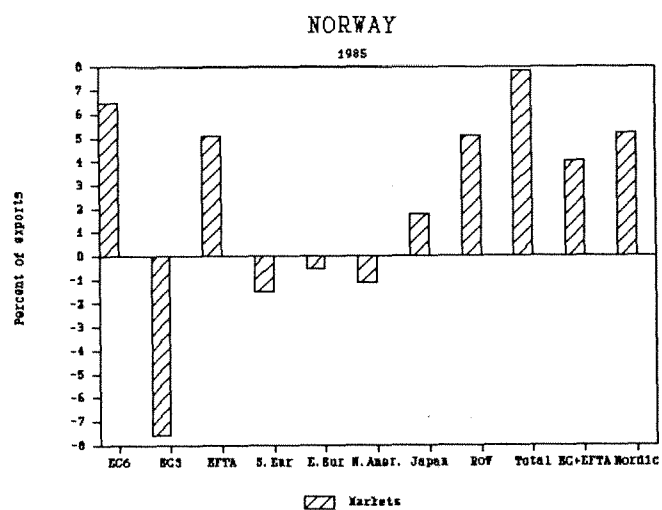
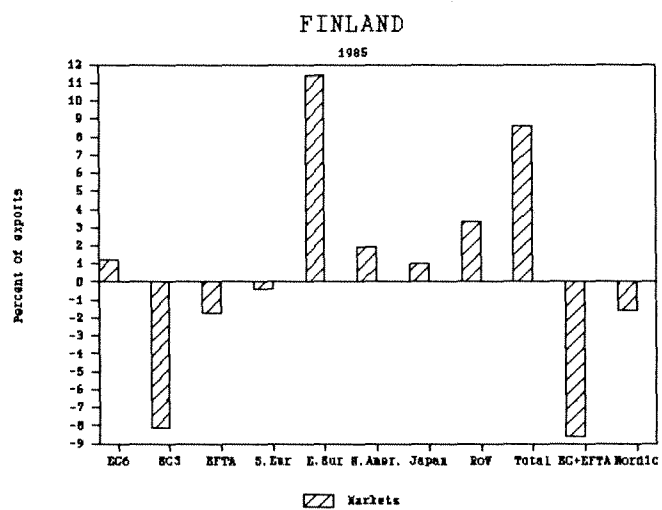


CHART 2 (continued)

B. 1985



In the other countries, exports to eastern markets continued to be lower than anticipated. Some diversion also occurred in the Norwegian exports to North America, whereas exports to the "rest of the world" and to Japan kept growing faster than predicted. This growth, however, can hardly be considered an "integration" effect²³.

In short, the freeing of trade in western Europe had a visible impact on the Nordic countries' exports, but the EC and EFTA appear somewhat as competing markets: in the wake of the formation of these two trade blocs, the countries' exports to EFTA strengthened at the costs of trade with the EC6; from 1973, there was a reinforcement in exports to the EC6, much of which mirroring a decline in trade with initial EFTA members. The effects of integration were rather similar in Norway, Sweden and Denmark, but in Finland they were somewhat different. Firstly, the impact of the formation of EFTA was much larger in Finland than in the other countries, clearly outweighing the negative effects of the creation of the EC; secondly, from the early 1970s, export developments in Finland were largely dominated by rising exports to the eastern markets, an increase that implied some diversion in exports to EFTA and its former members.

4. Concluding remarks: possible effects of 1992

This paper tried to assess the effects of past integration on exports from the Nordic countries. The data indicates that, in the period of the separate implementation of the EC and EFTA, exports to EFTA strengthened, but this translated into a weakening of exports to the EC6. In all countries except Finland the net effect was either minor or negative. After the FTAs and the Danish membership in the EC, exports to the EC6 recovered, much at the costs of the countries that joined the EC in 1973 and, in Denmark and Finland, of other EFTA countries. Still, the

²³ This indicates that the assumption of "other things being equal", which underlies these estimates, does not hold and the export developments ascribed here to free trade may well be due to other factors.

net effect was positive in Norway, Sweden and Denmark.

In these three countries, the effects of integration followed a rather similar pattern. This suggests that, with respect to trade in commodities, the impact of the Danish membership in the EC did not differ much from that of the FTAs between the EC and the two other countries. In Finland, the effects of the FTA were somewhat disrupted by an increase in exports to the Soviet market, which counterbalanced the rise in oil prices.

The liberalization of trade, on the other hand, seems to have entailed a change in the countries' product specialization. In many cases, specialization increased further in goods in which the countries had a comparative advantage; in others, noticeably in Finland and Denmark, the enlargement of the market appear to have allowed a diversification of exports and the emergence of new comparative advantages. In particular, these countries seem to have reaped economies of scale in goods which tend to be standardized or that use standardized technologies (e.g. chemicals, metal products).

What can these past trends tell us about the effects of 1992?

As far as trade in goods is concerned, the effects of the EC-internal market (or of an enlarged European Economic Area), mainly concern the removal of technical barriers. The elimination of these obstacles entails two main kinds of consequences: a reduction in costs and an increase in competition.

Several estimates have been carried out to determine the "size" of the costs involved in the technical barriers to be abolished²⁴. They point to total direct costs of identifiable barriers at about 8 per cent of the value of intra-Community trade, or some 6 per cent if the costs of border controls are not

²⁴ The Commission of the European Communities (1988).

included. The effects of removing these costs may be compared to those of a tariff cut. In fact, if they amount to 6-8 per cent of trade values, they are much in the range of the average MFN tariff that the Nordic countries faced in the EC market before 1973²⁵. As it was shown in this paper, the elimination of these tariffs had a positive impact on the Nordic countries' exports, even if increased exports to the EC involved, at times, a diversion of trade from initial EFTA members.

If the EC's attempts to tackle non-tariff barriers is to lead to the re-emergence of two west European trade blocs, trade patterns will be shaped much in the same way as after the formation of the EC and EFTA. But if the abolishment of the remaining barriers is to apply also to EFTA members, the patterns of trade are likely to develop differently: to the extent that these barriers are presently hampering both trade inside each area and between the two, their removal will probably mean a reinforcement of west European trade in general. In this case, there should be no trade diversion inside the west European market and the positive impact is likely to be larger than that resulting from the FTAs and the Danish membership in the EC.

However, the incidence of the obstacles to be removed varies from sector to sector and the impact of removing the technical barriers will eventually depend on the importance of the sectors concerned. The sectors that the EC Commission has estimated to be most hit by such barriers represent some 45 per cent of the Danish exports to the EC (mainly owing to the large share of food products), about 25 per cent of exports from Norway and Sweden and 7.5 per cent of Finnish exports (Finnish exports to the EC are dominated by pulp, paper and wood products, i.e. goods that are not much affected). In exports to EFTA these proportions are around 20-25 per cent in all countries (Table 5).

²⁵ United Nations (1989).

TABLE 5

The share of selected products in exports to the EC12 and to EFTA, 1987
(Percentages)

	<i>Finland</i>		<i>Norway</i>		<i>Sweden</i>		<i>Denmark</i>	
	<i>EC12</i>	<i>EFTA</i>	<i>EC12</i>	<i>EFTA</i>	<i>EC12</i>	<i>EFTA</i>	<i>EC12</i>	<i>EFTA</i>
Fish	0.0	0.1	13.2	7.4	0.3	0.4	10.3	3.8
Other food	0.7	0.8	0.7	2.8	0.5	0.9	22.6	3.6
Non-metallic minerals	1.1	1.2	0.7	1.5	1.0	2.3	0.9	1.8
Pharmaceutical products	0.2	0.4	0.6	1.1	1.6	1.6	2.6	3.1
Office machinery	1.3	1.9	2.5	2.3	3.7	2.2	1.1	1.3
Power generating machinery	0.6	0.7	0.6	0.5	2.2	2.1	0.7	0.5
Scientific equipment	1.4	1.2	1.5	1.8	2.4	2.2	3.6	3.0
Telecommunication equipment	0.6	2.5	0.9	2.0	2.7	2.7	1.6	2.8
Motor vehicles	1.6	11.5	1.7	6.3	13.1	10.9	1.5	2.0
Total	7.5	20.3	22.4	25.7	27.5	25.3	44.9	21.9

Sources: As for table 1.

The technical barriers to be removed often lead to a considerable degree of non-competitive market segmentation and the economic gains of eliminating these barriers are essentially those associated with increased competition. This means that any direct trade effects of completing the EC-internal market (or a broader European market) are likely to be minor as compared with the dynamic long-term benefits of open competition. In particular, the creation of a single European market will facilitate the standardization of products and technologies - a process that will primarily profit the small countries, where the size of the domestic markets tend to hamper the emergence of new comparative advantages.

Bibliography

- Alker Jr, H.R. and Puchala, D. "Trends in Economic Partnership: The North Atlantic Area, 1928-1963", in Singer J.D. (ed.) Quantitative International Politics: Insights and Evidence, The Free Press, New York, 1968.
- Balassa B. "Trade Liberalization and 'Revealed' Comparative Advantage", The Manchester School, XXXIII, 1965.
- "Trade Creation and Trade Diversion in the European Common Market", The Economic Journal, Vol. LXXVII, no. 305, March 1967.
- "Revealed Comparative Advantage Revisited: An Analysis of Relative Export Shares of the Industrial Countries 1953-1971" The Manchester School of Economic and Social Studies, Vol. XLV, December, 1977.
- Commission of the European Communities, "The Economics of 1992", European Economy, no. 35, March 1988.
- Dreze, J. "Les exportations intra-CEE en 1958 et la position Belge", Recherches Economiques de Louvain, 1961.
- EFTA Secretariat, The Effects of EFTA on the Economies of Member States, Geneva, 1969.
- The Trade Effects of EFTA and the EEC 1959-1967, Geneva, 1972.
- Fagerberg, J. "Diffusion of Technology, Structural Change and Intra-Industry Trade: The Case of the Nordic Countries 1961-1983", in Andersson, J.O. Nordic Studies on Intra-Industry Trade, Aabo, 1987.
- Fagerberg, J. "Innovation, Industrial Transformation and Economic Integration", NUPI Notat nr. 414, Oslo, December, 1989.
- Hine, R.C. The Political Economy of European Trade - An Introduction to the Trade Policies of the EEC, Sussex, 1985.
- Krein, M.E. "Trade Creation and Diversion by the EEC and EFTA", Economia Internazionale, Vol. XXII, no. 2, May 1969.
- Trade Relations of the EEC - an Empirical Investigation, Praeger Publishers Inc., New York, 1974.
- Krugman, P.R. "Intra-Industry Specialization and the Gains from Trade", Journal of Political Economy, 1981.

- Linder, S.B. An Essay on Trade and Transformation, Uppsala, 1961.
- Meade, J.E. The Theory of Customs Union, North Holland, Amsterdam, 1955.
- Ponte Ferreira, M. "Structural Changes in Norway's Trade: The Impact of Integration", Norsk Utenrikspolitisk Institutt, NUPI Raport no. 139, Oslo, 1989.
- "Trade Effects of Integration: A Comparison Between Norway and Other Countries", Norsk Utenrikspolitisk Institutt, NUPI Raport no. 147, July 1990.
- Rayment, P.B.W. "Intra-industry specialization and the foreign trade of industrial countries", in S.F. Frowen, (ed.), Controlling Industrial Economies, London, MacMillan, 1983.
- Savage, I.R. and Deutsch, K.W. "A Statistical Model of the Gross Analysis of Transactions Flows", Econometrics, vol.28, no.3, July 1960.
- Sawyer, W.CH. and Sprinkle, R.L. "EC Enlargement and US Exports - An Analysis of Trade Effects", Journal of World Trade, vol. 22, no. 1, 1988.
- Theil, H. Economics and Information Theory, North Holland Publishing Company, Amsterdam, 1967.
- Tyszynski, H. "World Trade in Manufactured Commodities", The Manchester School, 19, 1951.
- United Nations, "Trade Network Projections and International Consistency Tests", Economic Bulletin for Europe, Vol. 24, No. 2, New York, 1973.
- "The Effects of West European Integration on Imports of Manufactures from Eastern and Southern Europe", in Economic Survey of Europe in 1988-1989, New York, 1989.
- Utne, A. "Reinforced Trade Links in Western Europe", EFTA Bulletin, 1/85, Geneva, 1985.
- Viner, J. The Customs Union Issue, Carnegie Endowment for International Peace, London, 1950.
- Vernon, R. "International Investment and International Trade in the Product Cycle", Quarterly Journal of Economics, 1966.