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EFTA

O.P. no. 29

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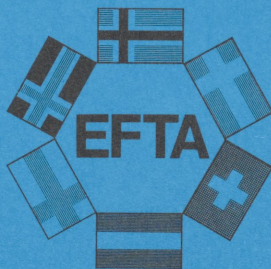
PRICE DIFFERENTIALS IN THE
EUROPEAN ECONOMIC SPACE (EES)

by

Thomas Wieser

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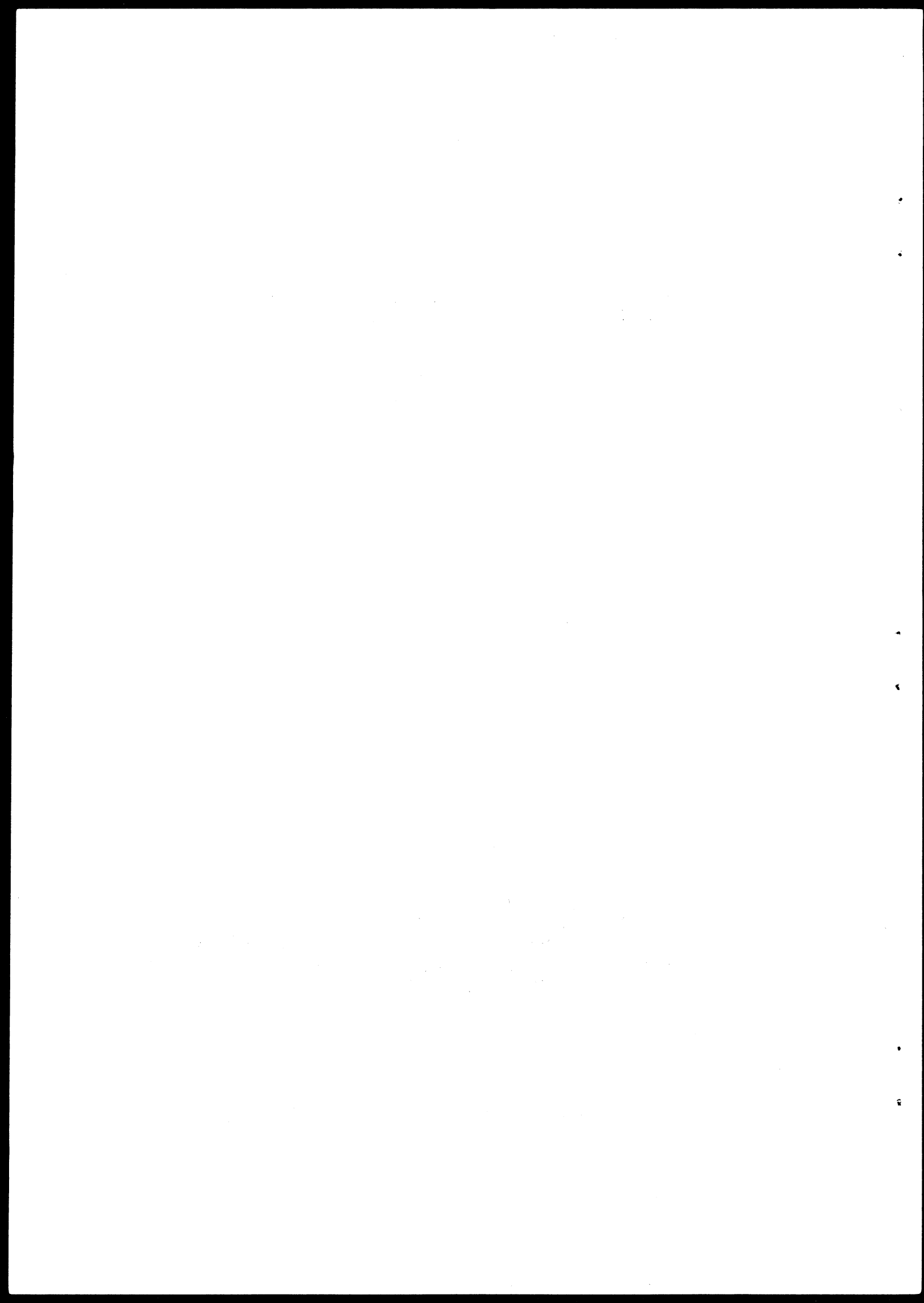
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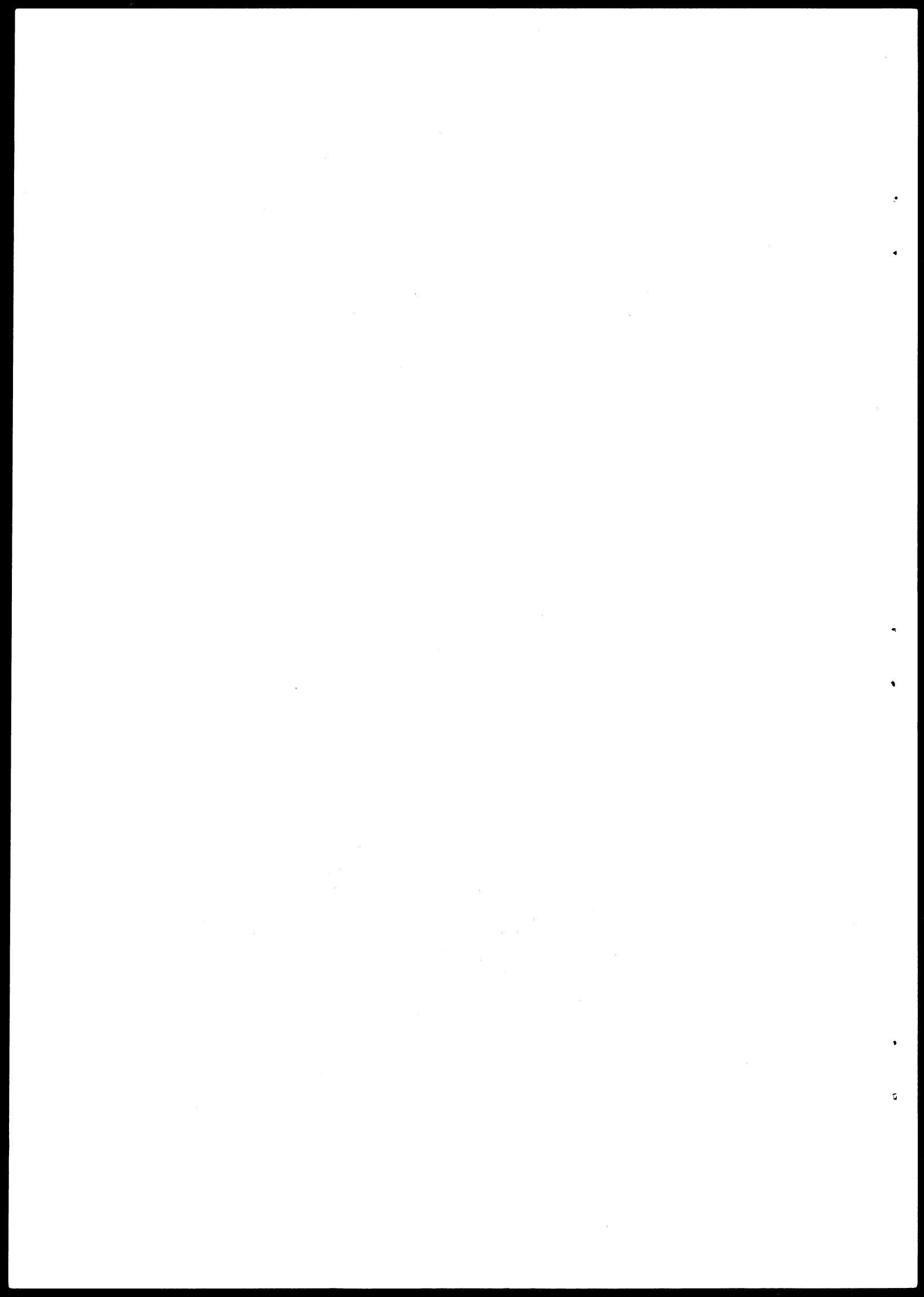
ECONOMIC INTEGRATION AND PRICE CONVERGENCE IN THE
EUROPEAN ECONOMIC SPACE (EES)

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ECONOMIC INTEGRATION AND PRICE CONVERGENCE IN THE
EUROPEAN ECONOMIC SPACE (EES)

SUMMARY

Since the early seventies, elimination of tariffs for industrial goods and quantitative restrictions between EFTA countries and the European Community through the Free Trade Agreements have increased the interlinkages between the countries of these two groups. EFTA and EC countries have increased the share that trade with Western Europe accounts for in their overall trade. Does this, however, mean that EFTA and EC economies have become correspondingly more integrated with each other?

This paper examines to what extent EFTA and EC countries are already integrated with each other by utilizing newly available empirical data on price levels in European countries. The main conclusion of the paper is the following: abolishing tariffs and quantitative restrictions on industrial goods in trade between the EFTA and the Community countries has led to a certain degree of integration of the EFTA economies with the EC. However, integration is less complete than among the EC 9. Remaining barriers have a substantial impact on trade between EFTA and Community countries. Such barriers also exist among the nine countries that were EC Member States in 1973. However, they are considerably lower, and will be substantially further reduced in the course of the completion of the internal market.

The paper suggests policies that could increase integration of the EES countries even further. In essence, the paper suggests that since no more "conventional" barriers to trade remain to be lowered between EFTA and EC countries, a further deepening of integration would have to depend on novel approaches and solutions.

To this conclusion there is an important caveat: unless supported by rigorous competition policies, the benefits from increased integration of EFTA and EC countries will accrue primarily to firms, and will not be passed on fully to consumers.

A note on the countries presented in this paper: Iceland and Switzerland were not able to participate in the collection of data that served as a database for this paper (see Annex for a description) and thus no data is available for these two EFTA countries. Available evidence points to their being in relative terms somewhere between Austria and the Nordic countries presented in this paper. The overall conclusions appear to be valid for them as well. However, for specific sectors this is not necessarily the case.

I INTRODUCTION

This paper measures the degree of integration of countries in a way that goes beyond qualitative descriptions or simply measuring shares of countries' trade with a group as shares of total trade. Utilizing a unique data set (see Annex for sources and description) we measure the degree of integration by the extent to which prices in different sectors of the economy differ among countries for different groupings of the eighteen countries of the EES.

Why is the degree of price dispersion between countries a measure of how closely they are integrated with each other? In essence, the law of one price stipulates that in the absence of barriers to arbitrage there should be no reason for prices of identical goods to deviate systematically from each other net of costs of arbitrage. Thus, the fewer and lower such barriers are, the more prices will converge systematically over time.

The basic hypothesis tested here is the following:

Integration leads to diminishing price disparities between participating countries; the degree of price dispersion is inter alia a function of height of remaining barriers to arbitrage and of time since other barriers were last reduced.

Thus, of the eighteen economies of the EES the original six Community Members (hereafter called EC 6) are hypothesized to be the most closely integrated group, i.e. price dispersion should be lowest. The next closest degree of integration is expected to be that of the nine Community Member countries as of 1973 (hereafter EC 9). Within the Community as it is today, the inclusion of Greece (EC 10) should have decreased the degree of integration of the Community, and that of Spain and Portugal (EC 12) to have decreased it even further. The degree of integration of the EES, i.e. including the EFTA countries, is expected to be less than that of the EC 9, but beyond that not determinate a priori.

The reasoning behind this is that the EC 6 have the longest history of abolishing barriers to trade amongst each other, followed by the EC 9. In addition, these groups have not only abolished tariffs and quantitative restrictions, but have made progress in abolishing non-tariff barriers. More importantly still, they have - in general - a common external trade policy and a common agricultural policy. The EFTA countries and the EC 6 should be nearly as integrated as the EC 9 is if only duration and not scope of integration is considered.

It should be borne in mind that these relationships can be expected to hold only in the aggregate. Obviously, prices for identical goods may vary considerably within a country, or even within cities. The point is that average national price levels for such goods diverge systematically from each other.

Also, the industrial structure of the EC 6 members was already from the outset more similar than that of other countries. Integration-induced price convergence may thus be lower than in the case of Nordic countries. A further qualifier is that the data set contains consumer and not producer prices. Thus, the more tax systems and rates vary between countries, the more consumer prices will vary without necessarily implying differing producer prices. Whilst this is important to bear in mind, it is a major factor in only a few and easily identifiable sectors.

The findings of the paper support the hypothesis. The differences in prices are largest in the EES. In other words: adding the EFTA countries to the twelve Community countries reduces the degree of integration. This has to be qualified by the fact that differences in per capita income between the EFTA countries and e.g. the three new Southern EC Member countries make these comparisons not as straightforward as is the case when countries of roughly similar GDP per capita are compared. Nevertheless, the addition of the EFTA countries makes the EES countries considerably less integrated than conventional trade share analysis suggests.

There are a number of reasons for such deviations of prices in the Community and EFTA countries. They can be summarized by saying that market segmentation through public policies and private strategies has compartmentalized markets. Barriers between national markets make it costly or illegal for economic agents to arbitrage away such differentials, although trade is said to be free, and no tariffs are levied for EES industrial products.

Among the more important governmental barriers are those trade impeding measures that follow from the existence of differing tariffs and quantitative restrictions vis-à-vis third countries. Domestic governmental barriers with significant effects are technical barriers to trade, indirect taxes and barriers to entry. We conclude that these barriers have an important effect by preventing downward movements of prices for many commodities, and thus overall price levels.

However, we find that in many sectors, private strategies to fragment markets, pricing to markets by firms, has been responsible for very high price levels especially in EFTA countries. Also, public policies often have the same effects as private strategies to shelter national markets

PRICE DISPERSION IN EUROPE

Table 1

	S 6	S 9	S 10	S 12	S 16	S 13
FOOD						
Food	4.9	10.7	11.9	12.7	30.7	28.8
Bread and Cereals	10.3	14.9	14.7	14.5	36.0	34.8
Meat	9.3	12.9	16.0	17.4	42.0	39.0
Fish	13.6	19.8	13.5	14.3	16.4	16.9
Milk, cheese and eggs	8.0	13.3	8.8	8.9	18.0	17.8
Oils and fats	10.5	12.3	11.1	10.2	37.2	37.0
Fruits,vegetables, potatoes	14.9	22.5	28.8	27.2	46.8	44.6
Other food	6.4	12.9	10.0	9.3	26.9	26.3
Beverages	9.7	32.0	35.2	34.6	84.2	79.9
Non-alcoholic beverages	15.9	25.2	26.3	24.4	53.1	51.3
Alcoholic beverages	8.9	33.1	36.6	36.5	93.2	88.5
Tobacco	21.9	41.5	44.2	43.9	47.2	44.6
NON-TRADEABLES						
Gross rent, water charges	37.9	33.2	34.6	42.9	46.3	39.7
Medical and health services	17.0	22.2	19.0	26.7	24.1	17.3
Public medical and health care	19.0	20.8	24.1	25.5	23.4	21.6
Operation of transport equipment	7.8	10.5	11.3	16.7	17.3	12.6
Purchased transport services	23.9	31.6	38.5	37.7	46.5	42.8
Communication	35.7	39.1	41.5	38.2	41.6	41.6
Education, recreation, culture	15.0	14.1	18.1	26.8	26.9	17.1
Recreation and cultural services	16.3	15.1	24.4	26.9	23.7	13.9
Education	24.0	19.3	22.9	31.8	32.0	23.4
Restaurants, cafes, hotels	6.1	15.4	18.8	20.5	37.1	34.0
Other goods and services	14.5	15.4	15.1	23.5	24.3	17.2
Collective Consumption by Government	17.7	12.6	15.9	26.9	29.3	21.2
Construction	7.6	12.5	12.7	17.6	18.5	14.7
Residential buildings	14.8	18.6	19.0	24.5	25.8	21.4
Non-residential buildings	7.0	13.6	10.6	18.3	18.9	13.5
Civil engineering works	7.3	12.4	13.5	13.1	15.4	15.7
TRADEABLES						
Clothing, Footwear	10.8	14.0	11.3	11.6	23.1	22.5
clothing, incl. repairs	10.7	14.2	11.0	11.5	22.3	21.7
footwear, incl. repairs	15.2	15.1	17.1	16.5	28.2	26.7
fuel and power	10.8	13.6	12.4	17.6	19.1	15.0
Household equipment & operation	5.3	9.5	8.4	13.5	15.3	10.9
Furniture, floor covering, repairs	8.5	8.7	10.0	11.6	12.0	9.9
Household textiles, repairs	16.4	14.0	16.6	17.0	16.8	15.2
Household appliances, repairs	8.5	12.1	11.7	12.9	12.8	11.1
Other household goods and services	9.4	13.0	10.8	20.0	30.4	25.9
Recreation equipment and repairs	10.0	13.1	13.5	12.5	18.1	16.4
Medical and pharmaceutical products	29.3	28.3	29.4	30.7	31.5	28.5
Transport and communication	10.5	16.4	20.2	21.1	23.7	19.1
Personal transport equipment	12.0	23.7	27.2	26.1	32.4	29.6
Books, magazines, newspapers	21.4	25.7	26.9	32.6	53.4	48.4
Gross fixed capital formation	6.2	12.0	8.1	11.5	13.3	10.9
Machinery and equipment	9.9	14.6	8.9	8.2	12.9	13.6
Transport equipment	19.6	23.5	24.5	23.3	31.9	30.1
Non-electrical equipment	5.3	11.5	5.3	4.9	7.9	8.6
Electrical equipment	6.2	14.0	10.0	9.3	19.1	19.6
GROSS DOMESTIC PRODUCT	7.7	10.5	12.3	18.9	21.3	15.1

Source: Secretariat calculations based on Tables 1 and 2 of Annex.

from each other. In other words, firms only have to resort to strategies of market segmentation if they are not sheltered by public policies. These policies may not be instituted for such reasons but nevertheless have such effects.

The paper shows a number of policy options for EFTA countries that would counteract such tendencies. It concludes that after having exhausted gains from "conventional" trade liberalization, further steps to increase integration may involve losses of policy autonomy to a certain extent. We focus in this paper on how borders can be retained but reformed in the sense that they impose fewer costs on economic agents. In the terminology of this paper, we study how cross-border arbitrage can be facilitated.

We conclude that options exist that can confer significant benefits to consumers in EFTA countries by strong reductions in sectoral price levels. For the EFTA economies as a whole, reductions in overall price levels may be significant.

The following Chapter II looks at the degrees of price dispersion within the EES. Chapter III examines the sources of such differentials, whilst Chapter IV presents some policy options if EFTA countries wish to reduce such price differentials, i.e. if barriers to integration are to be lowered. Chapter V concludes and summarizes this paper.

A technical Annex contains a sector-by-sector description of sectoral price dispersion as well as tables with the underlying data set on which the text in the paper itself is based. Sources and methods used in the study are also presented there.

II DEGREES OF PRICE DISPERSION

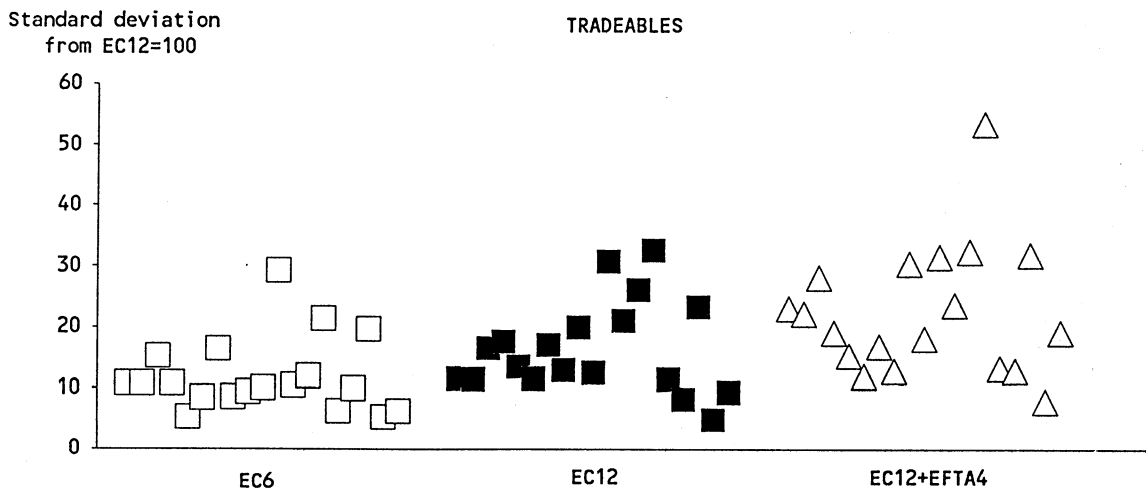
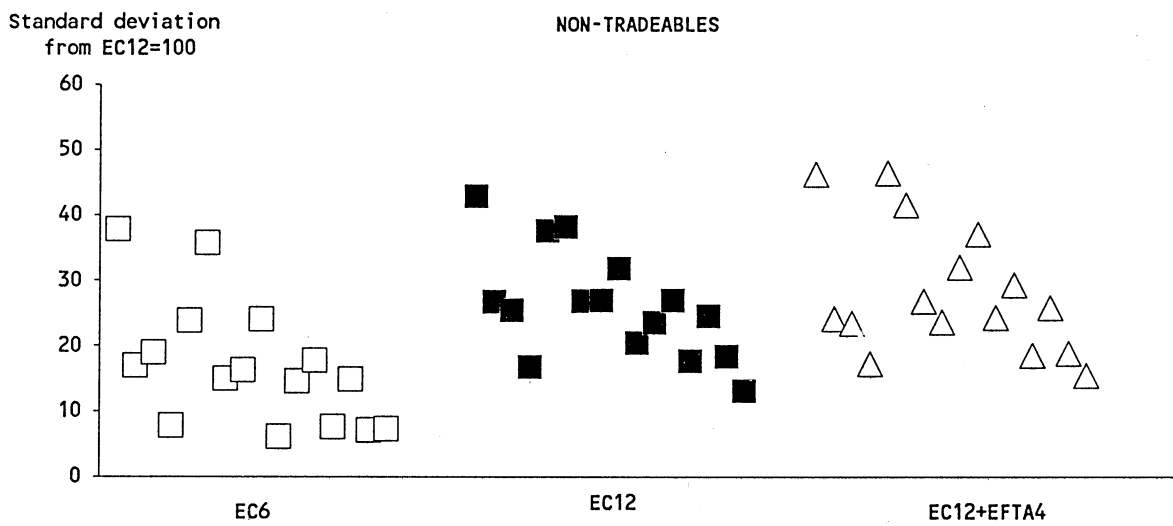
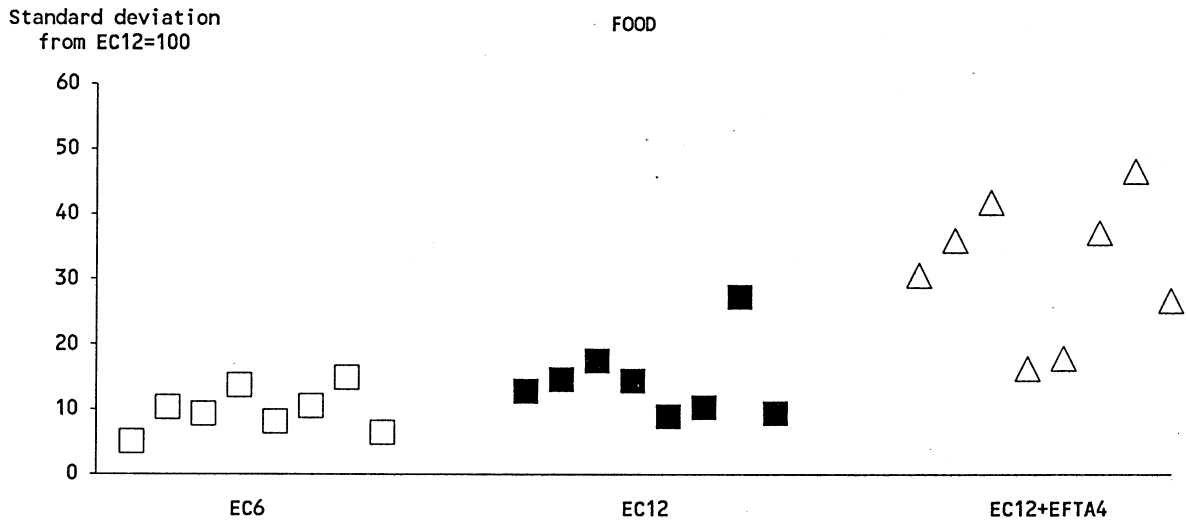
Deviations from the law of one price are a measure of the degree to which barriers to trade exist, or, more generally speaking, to what extent cross-border arbitrage by economic agents is hindered.

Table 1 shows the extent of dispersion of prices in six different groupings of countries in Europe. The first column shows the dispersion of prices in different sectors of the original six EC Members around the sectoral average EC 12 price. Column II shows the same measure for the EC 9, column III for the EC 10, and column IV for the EC 12. Column V shows the dispersion of prices in the EES 16 around the EC 12 average.

Column VI, finally, shows the price dispersion in the group of countries formed by the EC 9 and the four EFTA countries. It is of special interest since differences in

PRICE DISPERSION IN EUROPE

Diagram 1



values relative to column II show, other things being equal, differences in the relative speeds of price adjustments through the EFTA-EC Free Trade Agreements and EC Membership respectively. Diagram 1 shows the data from Table 1 in form of scattergrams for the three main groups of sectors in the table. The Diagrams 2.A to 2.J show the indices of price levels for GDP and several selected sectors, based on the figures in Tables 1 and 2 of the Annex.

The figures in Table 1 show that overall (see the last line showing GDP) the original six Community Member countries are more integrated by this measure than any other grouping. There are, however, important sectoral qualifications to this. The integration of the Community as measured by price divergences was reduced somewhat by the extension in 1973 and considerably by the three Southern accessions.

Surprisingly, the degree of integration within the EES is lower than that of the EC 12 measured by the dispersion of prices within the twelve EC Members and the four EFTA Members for whom data is available. The data presented in this section underlines that barriers to trade and to competition between the EFTA countries and the Community, but also among EFTA countries (not shown separately), are larger than might be suspected when looking at such conventional measures of integration as mutual trade shares.

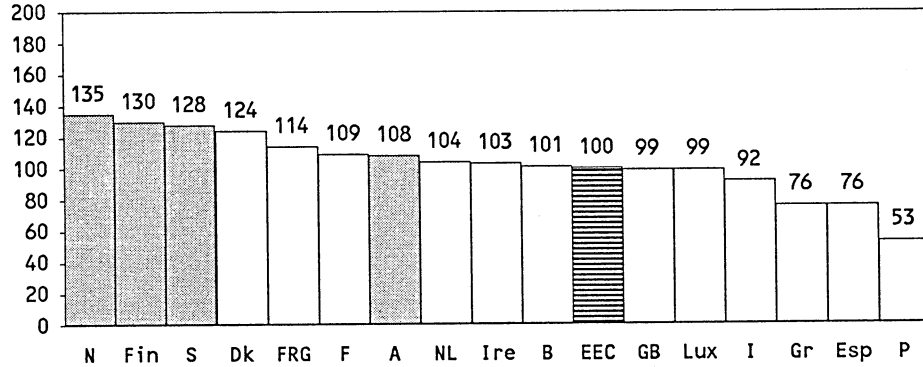
The importance of the scope of integration is shown very nicely by comparing columns II and VI. The Free Trade Agreements of the EFTA countries with the Community have resulted in a considerably lower degree of integration than that resulting from Community Membership for the United Kingdom, Denmark and Ireland over the same time period.

The following sections discuss briefly degrees of integration for three different categories of goods and services. Food products are a group by themselves due to the special policies in this sector. Beverages and tobacco are added here to this group. Non-tradeables, the second group, comprise essentially construction and services. Tradeables, the third group, are those goods where price differentials should be in principle lowest, or at least considerably lower than for non-tradeables.

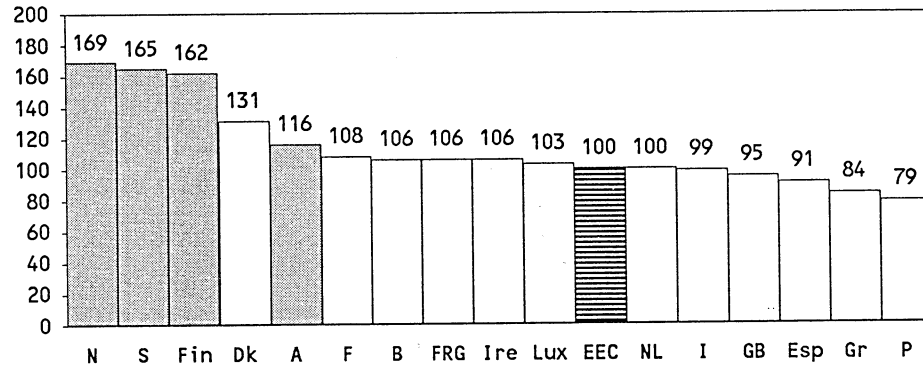
Food products

The dispersion of prices for food reflects the effects of the Common Agricultural Policy (CAP) on the one hand, and the separate and differing agricultural trade régimes of EFTA countries on the other hand. Among the EC 6 this is the category of products with the lowest degree of price differentials. Deviations from the average Community price level for food are considerably larger when looking at any post-1958 membership of the Community. The differing policy

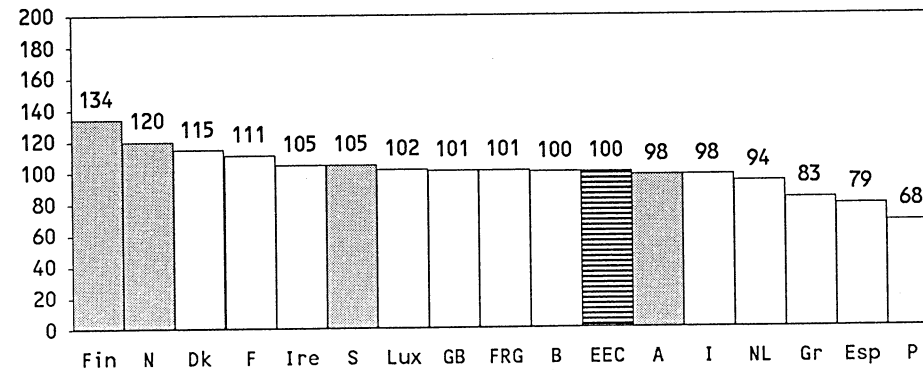
Index EC=100 2.A GROSS DOMESTIC PRODUCT



Index EC=100 2.B FOOD



Index EC=100 2.D HOUSEHOLD EQUIPMENT & OPERATION

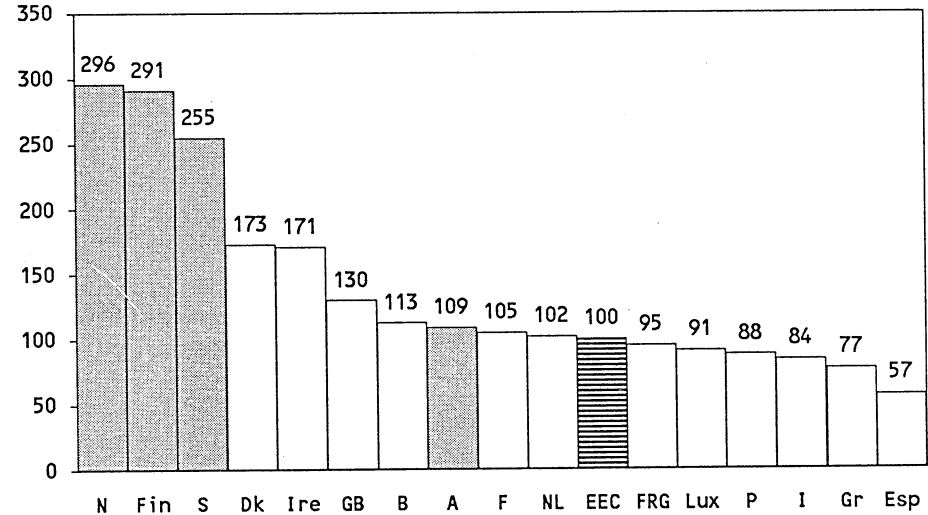


INDICES OF SELECTED PRICE LEVELS IN THE EES

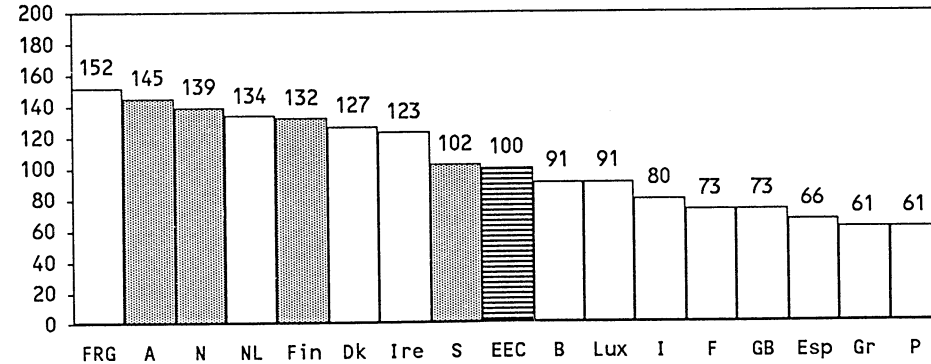
Diagram 2

Source: Tables 1 and 2 of Annex

Index EC=100 2.C BEVERAGES



Index EC=100 2.E MEDICAL AND PHARMACEUTICAL PRODUCTS



régimes in EFTA countries are reflected by the fact that price dispersion for food in the EES is two-and-a-half times that in the Community. When looking at the separate components it can be seen that meat, bread and cereals, oils, fats, fruits and vegetables show the largest price differentials. For fish the differences between the differentials in prices within the various country groups are surprisingly small.

With the exception of fish, price dispersion for essentially all categories of food is lowest among the EC 6, higher in the EC 9 and highest in the EES as a whole. Inclusion of the three new Southern EC Members results, for a number of product categories, in a lower degree of price dispersion than in the EC 9.

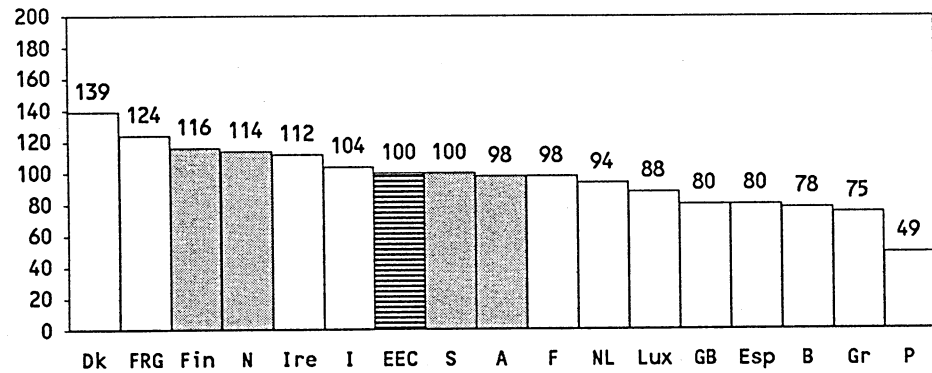
Beverages, especially alcohol, and tobacco form a group by themselves due to widely differing levels of excise and other taxes on these products and, in a number of countries, to the existence of State monopolies. Price dispersion for alcohol among the EC 6 is not very large, but increases strikingly with the inclusion of new members in 1973. The addition of EFTA countries to the EC 12 more than doubles the degree of price dispersion for alcohol in Europe. For non-alcoholic beverages the situation is astonishingly similar. Here again any grouping of countries larger than the EC 6 shows a considerably higher degree of price dispersion, up to the EES 16 where it is highest. For tobacco, differences between the EC 9 and the EES are not very large; in the EC 6, however, they are considerably lower.

Non-tradeables

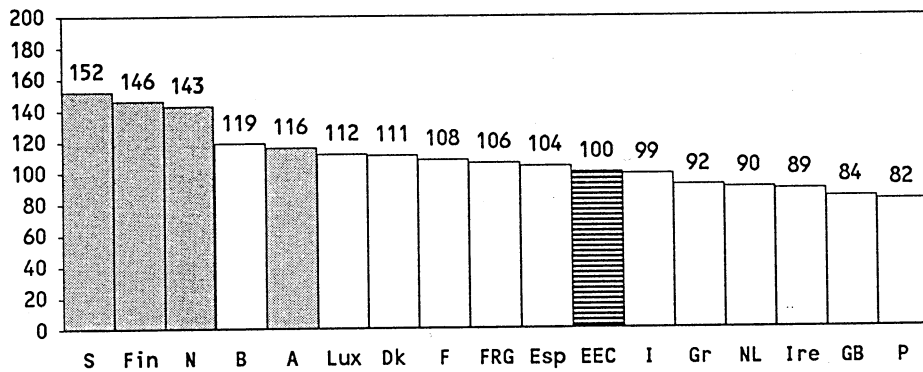
The sectors specified in the tables do not always lend themselves to categorization into tradeables and non-tradeables. The parts of Table 1 that show non-tradeables are mainly construction, education, health services, collective consumption by governments, housing and communication. In all constellations of countries price dispersion for most non-tradeables is higher than for the tradeable goods and considerably beyond that of the food products subject to the CAP mechanisms.

For construction, and basically all its sub-components, the picture is very similar to that of the sectors mentioned in the above paragraphs. Price differences are smallest in the EC 6, larger in the EC 9, even larger in the EC as it is today, and largest in the EES. Exclusion of the three Southern EC Members not unexpectedly leads to a reduction in price dispersion. Differences in the degrees of price dispersion, however, are usually not very large.

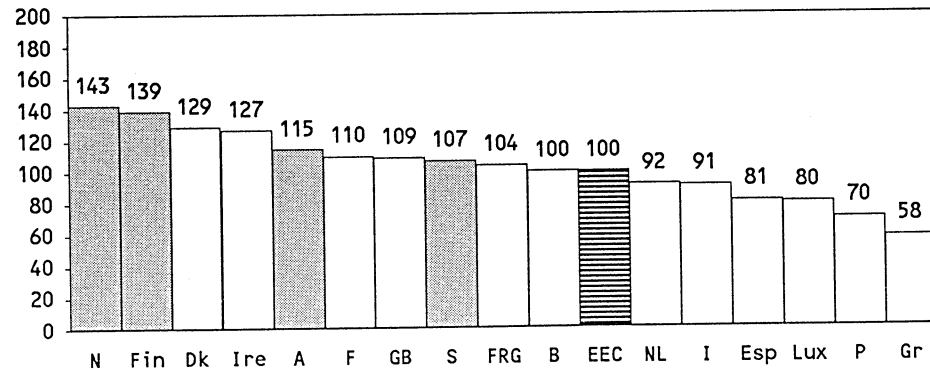
Index EC=100 2.F MEDICAL AND HEALTH CARE



Index EC=100 2.G CLOTHING, FOOTWEAR



Index EC=100 2.H TRANSPORT AND COMMUNICATION

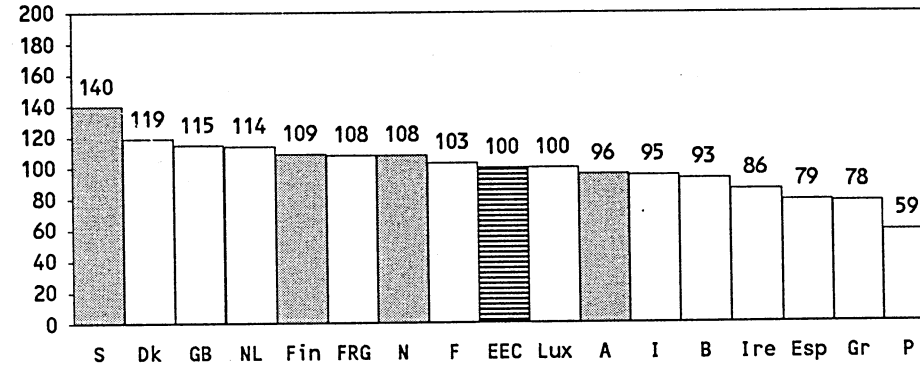


INDICES OF SELECTED PRICE LEVELS IN THE EES

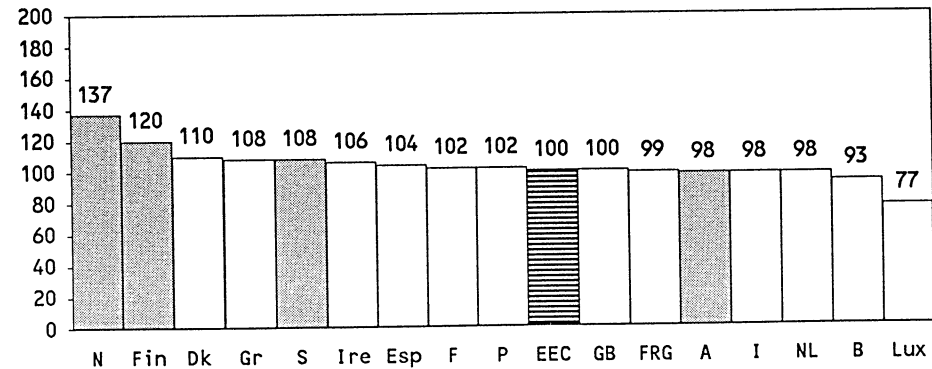
Diagram 2 (cont'd)

Source: Tables 1 and 2 of Annex

Index EC=100 2.I CONSTRUCTION



Index EC=100 2.J MACHINERY AND EQUIPMENT



The degree of price dispersion even in the EC 6 is, for most of these groups of non-tradeables, quite considerable, but always lower than that in the EES 16. However, the relatively low degree of price dispersion for construction especially in the EC 6 comes as somewhat of a surprise.

Tradeables

The third group of sectors in Table 1 shows those sectors that have been classified as tradeables.

Three conclusions offer themselves at once; firstly, and this is as expected, price dispersion in Europe for a number of tradeables is considerably lower than for non-tradeables; secondly, the EC 6 are better integrated among themselves than the EC 9, with EFTA countries being integrated into the EES to an even lesser degree; and, thirdly, integration within the EC 6 does not extend to certain sectors where prices vary significantly, and vary even more in the other groupings of countries shown in this paper, especially when prices in EFTA countries are included.

The outstanding example of a sector with high price dispersion is medical and pharmaceutical products. Price differentials are here the highest of any traded good within Europe. Indeed, only a few categories of non-tradeables show such degrees of price dispersion. This applies to the EC 6, EC 9, EC 12 and the EES 16. Prices for commercial transport equipment also diverge to a considerable degree in the EC 6. In fact, the original Community Members are the only grouping of countries where the commercial vehicle sector is noticeably less integrated than the market for private purchases of vehicles.

Barriers to integration for personal transport equipment are, in the original six, in the medium range. If the other Member countries are included, however, the degree of price dispersion more than doubles. For the sixteen countries shown in column V of Table 1 it is almost three times the degree it has in the EC 6.

Electrical and non-electrical investment goods belong in the EC 6 to the most closely integrated sectors. The non-electrical equipment sector is one of the few sectors where the degree of price dispersion is lower in the EC 12 than in the EC 6. For electrical equipment, where price variations are somewhat larger, post-1972 EC Members are less well integrated than the original members. For the EES as a whole this measure goes up to three times the value for the EC 6.

For furniture the level of integration does not differ appreciably between the EC 12 and the EES. The original six EC Members and the three post-1972 members are somewhat

more integrated than the larger groupings of countries. For household appliances price dispersion in the EC 9 is somewhat higher than when adding the four EFTA countries (column VI), but nearly 50 per cent higher than in the EC 6. For household textiles, while the degree of price dispersion is quite high, it is the same for all the groupings of countries listed in Table 1.

Price differences for clothing lie below those of footwear in each country grouping shown here. The EC 9 are just as well integrated in the footwear industry as the original members, and price dispersion in the EC 12 is not much beyond that of the EC 6 for both clothing and footwear. Adding the four EFTA countries, however, doubles the degree of price dispersion.

Of all the sectors which have been classified here as tradeables price dispersion in the EC 9 is lower than in the EC 6 only in the case of household textiles and for medical and pharmaceutical products. For footwear it is approximately the same. EFTA countries are more integrated than the three post-1972 members only in the case of household appliances and non-electrical equipment. They are equally loosely integrated in the case of medical and pharmaceutical products as the United Kingdom, Ireland and Denmark.

III SOURCES OF PRICE DIFFERENTIALS

Why do prices differ? Answers to this question have important policy consequences. It is not the purpose of this paper to analyse in detail reasons for significant deviations from the law of one price for each and every sector for each and every country. What is rather done here is to identify the main reasons for such deviations.

In this Chapter we look at several of the more important cases of diverging prices within the EES, with special emphasis on the EFTA countries, and offer possible explanations. The following Chapter then develops some policy consequences that follow from the conclusions in this one.

The data in this paper confirms that ex post the strict Purchasing Power Parity (PPP) doctrine does not hold. This does not imply that the spirit of ex ante PPP does not remain valid in the sense that for tradeable goods there is a limit to systematic deviations from the law of one price. Beyond a certain point spatial arbitrage becomes profitable, and goods that are not traded when the deviations are small get to be traded when the deviation is larger than the cost of trading.

Three separate groups of reasons for systematic deviations from the law of one price can be distinguished at the most aggregate level: systematic over/undervaluations of currencies, structural and income effects, and barriers to arbitrage.

Currency valuation

Tables 2 and 3 show, for the currencies of the four EFTA countries treated in this paper, the differences between spot exchange rates and PPP exchange rates in 1985 against the Deutschmark and the ECU respectively.

They show that in 1985 the Austrian schilling was vis-à-vis the Deutschmark undervalued by a good 5 per cent, the Scandinavian currencies overvalued by more than 10 per cent. The differences between nominal and real ECU exchange rates were even larger.

REAL AND NOMINAL DM-EXCHANGE RATES IN EFTA COUNTRIES

IN 1985

Table 2

	Nominal	Real (PPP)	Over-valued	Under-valued
Austria	7.04	6.69		5.23%
Finland	2.11	2.41	12.50%	
Norway	2.93	3.48	15.90%	
Sweden	2.93	3.29	11.10%	

REAL AND NOMINAL ECU-EXCHANGE RATES IN EFTA COUNTRIES

IN 1985

Table 3

	Nominal	Real (PPP)	Over-valued	Under-valued
Austria	15.80	17.04		7.85%
Finland	4.73	6.13	22.80%	
Norway	6.56	8.86	25.10%	
Sweden	6.56	8.37	21.60%	

Source: OECD 1987a and Secretariat calculations.

However, such comparisons may be misleading to a certain extent since the numeraire against which the comparison is done is chosen arbitrarily. Constructing trade-weighted baskets would provide a more realistic picture. However, we do not pursue this issue any further within this paper.

REAL AND NOMINAL PER CAPITA GDP IN THE EES IN 1985

(In US\$)

Table 4

	REAL (ppp)		NOMINAL
Norway	13913	Norway	13961
Luxembourg	13418	Sweden	12006
Sweden	12679	Denmark	11312
Denmark	12237	Finland	11042
Germany	12170	Germany	10243
Finland	11463	Luxembourg	9743
France	11436	France	9251
Netherlands	11258	Austria	8743
United Kingdom	10905	Netherlands	8628
Austria	10896	Belgium	8022
Italy	10830	United Kingdom	7943
Belgium	10673	EC-average	7803
EC-average	10496	Italy	7387
Spain	7589	Ireland	5122
Ireland	6698	Spain	4255
Greece	5883	Greece	3294
Portugal	5573	Portugal	2166

Source: OECD 1987a

Structural and income effects

Across such widely differing economies as those of the EES levels of demand in real terms and thus also demand patterns vary considerably. Table 4 shows the real (i.e. at Purchasing Power Parity) and nominal value per capita of final expenditure on GDP (1985) in descending order among the sixteen countries dealt with in this paper.

Firstly, income differences, whether in nominal or in real terms, indicate a positive correlation between per capita GDP and the price level of economies (see especially the data in Table 2 of the Annex). In the case of Greece, Spain and especially Portugal this is quite pronounced. Converted to a common currency at PPP, income per capita is considerably higher than is suggested when looking at this measure at nominal exchange rates.

Income levels and thus wage levels correlate significantly with overall price levels. With similar prices for traded goods internationally, wages will differ between countries according to differences in productivity. Wage levels thus determined for tradeables will determine wages in the non-tradeables sector. In the low-income countries of Europe's Southern and Western periphery, labour-intensive services are thus provided at relatively low cost, thereby leading to lower price levels of non-tradeables. Since local sales and retail price components are cheaper than in the core countries, prices of tradeables are, other things being equal, also somewhat lower in these countries. Other than that prices of tradeables are not affected by differing income levels.

Of the non-tradeables shown in Tables 1 and 2 of the Annex, rents and water charges are the clearest case of low income levels leading to low prices. Education, transport services and, with some qualifications, construction are sectors where income effects are also most clearly visible as determining sectoral price levels and thus overall price levels.

Barriers to arbitrage

Barriers to arbitrage either prevent potentially tradeable goods from being traded, or add costs to the foreign export price. Their elimination or reduction thus increases the range of tradeable goods, and lowers prices of goods and traded services. Depending on the degree of reduction of barriers, disinflationary effects may be considerable.

Whilst in practice there are a large number of rules, regulations and administrative practices that shelter national markets from each other, the major types of barriers to arbitrage may usefully be classified as follows:

- tariffs
- quantitative restrictions
- technical barriers to trade
- barriers to entry
- indirect tax systems
- State monopolies
- competition policies
- private anti-competitive behaviour

Tariffs and Quantitative Restrictions (QRs) as such do not form barriers to intra-EES trade in industrial goods. However, the existence of differing tariffs and QRs vis-à-vis third countries between EFTA countries on the one hand and between the Community and EFTA countries on the other presupposes the existence of internal border stations for control of origin of goods. Free circulation of commodities is thus not possible within the EES. Cumbersome administrative border procedures segment markets and allow firms to set differing mark-ups in different markets especially when parallel imports are forbidden.

With the exception of barriers to entry, all other barriers vis-à-vis third countries have in common with tariffs and QRs that they require the existence of internal border controls in order to enforce their effects. This implies in turn that while not intended as barriers to intra-EES trade, such differing trade régimes can impact upon intra-EES trade as well as upon trade with third countries.

The degree to which arbitrage across borders is hindered - and "conventional" barriers to trade form an important part of such barriers¹ - determines the degree of deviation from the law of one price.

Several factors preclude from the outset that prices for identical goods are identical between countries. Most importantly, transport costs, especially for bulk commodities, are a major element of costs of arbitrage. Further to this, risk premiums for uncertainty need to be added. This will to a large degree be for exchange rate risk, but also for uncertainty about continued market access. This uncertainty exists as long as national institutions exist which can determine and implement

¹ Kravis and Lipsey (1988) argue that the degree of openness to trade influences overall price levels. This is without doubt a valid observation. However, differing degrees of openness to trade clearly is not sufficient to explain differences in price levels within the EES, even taking into account the factors pointed out above. Openness to trade is thus a necessary but not a sufficient condition for the law of one price to hold.

balance-of-payment and foreign trade measures. Net of costs of arbitrage, however, prices for tradeables should converge between countries the more of the barriers to arbitrage described below are abolished. Policies that decrease uncertainty decrease costs of arbitrage.

Barriers to arbitrage segment national markets from each other. These means of market segmentation are either through public policies, or through private strategies by firms. The rationale behind these is to shelter sectors or activities from foreign or domestic competition. Public and private strategies for market segmentation usually interact with each other in the sense that the private beneficiaries of policy barriers capture rents from arbitrage barriers.

In the following paragraphs a number of such barriers are presented. Whilst preliminary conclusions can be drawn as to their effects on different sectors, it must be remembered that arbitrage in each sector is hindered by a number of these factors. Separating out the more important ones has to rely in part on the data in the text, but in part also on theoretical reasoning on the effects of reducing these barriers. All these barriers have in common that they reduce, directly or indirectly, intentionally or unintentionally, the level of competition in the Member countries of the EES.

"Classical" trade barriers

Tariff levels have on average gone down significantly in industrialized economies over the last few decades through a succession of GATT-Rounds. In a number of sectors, however, tariffs in EFTA countries vis-à-vis non-EES countries are still relatively high.

For third-country imports in such sectors as clothing and footwear, tariffs certainly operate so as to retain price differentials between EES countries and third countries but are unlikely to significantly affect intra-EES differentials. In the textile sector, the more important barriers to arbitrage may well be quotas under the MFA.

Quantitative restrictions on imports in general have increased in number in recent years in most countries in the form of VERs, OMAS and the like. The economic effects of these barriers are in general similar to tariff barriers. Domestic prices are higher, incumbent firms in domestic markets are sheltered. The major difference vis-à-vis tariff barriers is that the rent accrues to the foreign exporter or domestic importer, and not to the domestic government in the form of tariff revenues.

EFTA countries in general have only very sparingly made use of such import restraints in comparison to Community countries. Within the Community itself, arbitrage between

Member countries is hindered also by the existence of national market-share limitations against non-EC Members. Single EC Member countries can under Article 115 of the Treaty of Rome limit imports of certain goods. National borders within the EC are thus necessary in order to avoid parallel imports from more liberal EC countries.

Quantitative import restrictions have been implemented in a number of sectors. Textiles have already been mentioned above. Other sectors in a number of EC countries are automobiles and other transport equipment, steel and steel products, machine tools, colour TV sets and videos, and a number of agricultural products. In EFTA countries, apart from MFA quotas, predominantly the agricultural sector is sheltered by quantitative limits on imports.

As already pointed out above, the important effect of these measures on EES economies is not necessarily the existence of tariffs or QRs as such. Rather, the existence of differing QRs among the EFTA countries - and among the EFTA and EC economies - enable firms to compartmentalize markets without having to resort to strategies of their own in order to achieve similar effects. The larger the share of non-EES imports in apparent consumption, and the less perfect substitutes they are for EES production, the greater the likelihood that different quotas or tariffs in EES countries will lead to price differentials between them. EES production, which enjoys free circulation, will be insufficient to arbitrage them away. In addition, national QRs may lead to a cartelization of production and trade which limits the free circulation of EES products. Such effects will be larger in the small country case. In essence, the main result and implication of differing external trade régimes in the EES countries is that they preserve an inefficient structure of production within the EES, and contribute to allowing firms to segment markets.

The data in the tables is in general too aggregated to detect effects of commodity specific export restraint agreements vis-à-vis non-EES countries for most of the separate items mentioned above. Two points are worth taking into consideration, however.

Firstly, price levels in EFTA countries in the textile sectors probably reflect price effects of quotas. In the Community, data, especially for the footwear sector, points in the same direction². In the EFTA countries prices of food products appear to show effects of quotas. In this

² This is in line with the fact that in mid-1988 there were a total of nine known export restraint agreements in force with third countries for footwear. One was EEC wide, three each for the United Kingdom and Italy, and two for France.

sector, however, a number of other border measures such as price compensation schemes, and of domestic measures, are presumably the major influence on price levels.

As Table 1 in the Annex shows, prices for food in the EFTA countries are between 16 per cent (Austria) and 69 per cent (Norway) higher than the Community average. Whilst not all food products of course are covered by the CAP, a substantial number of products are produced in the Community under different conditions than in EFTA countries. Given not too dissimilar rates of effective protection, the major difference in the effects of different agricultural policies in the Community and the EFTA countries is that in the latter the excess burden is borne relatively more by consumers in a way similar to an indirect tax whereas in the Community it is borne by tax payers relatively more analogous to an income tax. This has distributional and social policy consequences, since the EFTA system is clearly regressive, the Community system progressive.

Secondly, national discrimination against third-country suppliers presupposes the existence of borders in order to ensure that these limitations are adhered to, even within a customs union. This in turn implies that the EC will have to replace national by Community-wide export restraint agreements against third countries before internal border controls can be abolished. The alternative of phasing out such agreements appears unlikely.

Technical barriers

A domestic measure that may also result in prices differing from those of trading partners are technical standards or norms. They lead to smaller production runs for individual national markets, and may permit higher mark-ups by domestic producers. Whilst incumbents, especially in small markets, are to a certain degree sheltered from international competition, they are not able to produce at otherwise required minimum technical efficiency scales. Restrictive governmental procurement practices have similar economic effects. The military sector would be an obvious example.

Mutually recognized or, ideally, harmonized norms and standards may contribute to the degrees of price dispersion for machinery and equipment (including transport equipment), and to a certain degree also on such goods as household appliances.

Taxes and State monopolies

Indirect taxes, and excise taxes specifically, are in some sectors major determinants of price levels. Borders ensure that such tax-induced differences cannot be arbitrated

away. For some commodities additional barriers to arbitrage are State monopolies, which create additional price differentials.

The existence of different tax rates and of State monopolies, such as those for tobacco or alcohol in some countries, necessitates the existence of border controls³. Firstly, for most products they are required in order to levy the domestic indirect taxes on imports, and for proof of exportation in order to claim the tax refund from national tax authorities. For trade between low and high price countries they are necessary to prevent illegal arbitraging away of tax differentials, i.e. smuggling. For some commodities, border controls are necessary to ban parallel imports to ensure the efficiency of domestic monopolies. In such cases neither firms nor households can arbitrage away differences in price levels since imports beyond minimal personal imports are forbidden.

For alcoholic beverages and tobacco large differences in tax levels and the existence of State monopolies are obviously of major importance for existing price differentials, predominantly between EFTA countries and the EC. In the Community high tax rates in Denmark, Ireland and the United Kingdom have led to present price levels for both these product groups.

Price levels of transport equipment in Finland and Norway are also determined by high tax rates. To a lesser degree this also holds for Denmark. Whilst national type approval procedures add cost elements, these will be similar in most countries, i.e. push up the general price level, but not price dispersion unless they are used as a means to segment markets. Tax barriers cannot be arbitrated away for transport equipment on an individual basis since these products are too bulky for smuggling and require proof of origin at the time of registration. If national registration procedures are restrictive enough, enforcement of national tax régimes for transport equipment requires border controls to a lesser extent than in the case of alcohol or tobacco.

Barriers to entry

The last of the policy-type barriers to arbitrage which shall be mentioned in this context are barriers to entry. Competition policies, whilst belonging to public policy-type barriers, are dealt with below in connection with private strategies of market fragmentation. Barriers to

³ A borderless internal market entails harmonization of tax systems, and a clear convergence of tax rates. Proposals by the Commission to this end have been modified in recent months.

setting up business, either for foreign nationals or non-incumbent residents, usually exist in the service sector. In a number of fields such restrictions are exacerbated by lack of mutual recognition of diplomas or periods of education.

Coupled with the fact that a large share of services needs to be provided at the place of consumption/investment, such barriers serve to conserve an oligopolistic structure of markets. Barriers to access are in a number of sectors direct substitutes for private barriers. Significant deviations from the law of one price are caused for some services by the fact that they cannot be traded and that potential low-price competitors cannot enter markets. In other sectors, border controls and oligopolistic market structures together ensure that differences in mark-ups cannot be arbitrated away by households, and that firms that would arbitrage away price differentials cannot enter such markets⁴. For these sectors comparisons are best made between EFTA countries and the EC core economies since large differences in labour costs in the Southern EC Member States preclude from the outset any similarities in price levels.

Private strategies

As the preceding paragraph mentioned, strategies by firms to hinder cross-border arbitrage rely to a certain extent on the existence of border controls and asymmetries in information. Collusion by firms in certain sectors, market-sharing agreements, cartels, vertical relationships and oligopolistically structured markets in general permit firms to reduce competitive pressures in their sector. Their efficiency relies heavily on the ineffectiveness of competition policies.

As a result of such strategies the average price level for such commodities is higher, as is the degree of price dispersion. Other things being equal, the degree of price dispersion for a commodity in Europe can thus show to what extent firms are successful in pricing to markets. Since most types of barriers to arbitrage interact with each other, price dispersion at the aggregate sectoral level in only a few sectors can be seen to result from such strategies. Detailed studies at the commodity level would yield additional insights.

⁴ Large parts of differences in retail prices for a number of goods between France and Germany are reputed to be the result of the oligopolistic market structure of the French retail sector.

In a number of sectors within Europe, and to a large extent within EFTA countries, such private strategies that exploit barriers to arbitrage exist. Whilst for alcoholic beverages there are wide differences in tax rates, as well as State monopolies in some countries, non-alcoholic beverages are not subject to such differential treatment in EES economies. Whilst some differences in taxation exist, differences in indirect tax levels are not so considerable within Europe.

The Nordic EFTA countries seem to be affected to the greatest extent by such strategies. A price level for non-alcoholic beverages two-and-a-half times that of the EC average as in Finland can hardly be explained by demand or tax factors alone. Price dispersion in the Community itself is considerable. The evidence appears to point at market segmentation by soft-drink firms and thus to considerable excess profits, especially in Scandinavian countries. The high price of alcohol in these countries may make non-alcoholic beverages more of a substitute than in other countries such as France.

For most items of household equipment, price differentials in Europe are, comparatively speaking, small. It is noticeable, however, that prices for furniture in a number of EC countries such as Belgium, Denmark and France appear to be on the high side. Excess profits at the retail level in Belgium and France appear as the most plausible explanation. For such goods, borders are a necessary prerequisite for permitting anti-competitive behaviour by firms, since in most cases bulk prevents smuggling.

Compared with its neighbouring country, Sweden, Finland's price level for furniture is more than one-third higher. On the basis of available information it cannot be discerned if excess retail profits through barriers to entry or other measures are the cause. This sector is one of the examples where national studies might prove valuable for determining more exactly the causality of price dispersion.

Austrian and, to a lesser degree, Finnish markets for electrical and non-electrical equipment appear to be as open as those of comparable EC countries. In Norway and in Sweden, for electrical equipment, this is not the case since even the comparatively expensive local sales and retail components are hardly sufficient to explain such price differentials for tradeable goods. Differences among the Nordic countries in prices for these goods are also too large for this explanation. Tax differences appear for the same reason not to play a role. Coupled with differing norms or standards, it appears that market segmentation by firms for these items in Norway, and in Sweden for electrical equipment, is the main reason for price differentials of this magnitude.

Medical and pharmaceutical products in EFTA countries - with the exception of Sweden where, as in some other countries, prices may be subsidized by the Government - as well as in Germany, Denmark and Ireland are extremely highly priced. In fact they appear as the best example of the effects of market fragmentation within Europe. Differences in national systems of registration of pharmaceuticals and related administrative procedures may play a role in this. These procedures in general will however only reinforce the effects of market segmentation by firms that appears to be the only possible explanation for a price level in Germany that is double that in neighbouring France. Excess profits in some markets appear thus to be considerable within EFTA, most so in Austria. Price dispersion in this sector also shows the effects of the absence of effective competition policy. The complexity of the issue makes it seem obvious why policy-makers cannot act effectively. In such circumstances an arbitrage-inducing policy stance will often be the only effective competition policy possible.

Policies should thus be targeted to a considerably larger extent than at present towards sources of price differentials and not merely towards reducing costs of trading across borders.

IV POLICY OPTIONS FOR EFTA COUNTRIES

Will increased economic integration of the Community, and also of EFTA countries with the Community, decrease differences in prices between the eighteen countries of the EES? Will increased integration be to the benefit of firms only, or will consumers also benefit?

Economic integration can have strong pro-competitive effects that bring about these benefits, but it need not. Very much hinges on the combination of policies that are pursued. From the following section it emerges that the strongest benefits are reaped when countries decide to harmonize external barriers and simultaneously reduce or eliminate internal barriers. Taken by themselves, such policies are however not sufficient to achieve the greatest possible benefits. Whilst they will have a strong pro-competitive bias, they need to be supplemented by strong competition policies and other flanking policies.

We examine here possibilities for making barriers to arbitrage less costly than they are today. A common feature of such strategies is that they combine unilateral measures with measures requiring policy co-ordination with other EES countries.

Common trade policies

Two basic options are presented by the way EFTA countries choose to conduct their trade policies vis-à-vis third countries: external harmonization, or the status quo. There are certain possibilities for variation, such as harmonizing tariffs, but not joining in on certain Community QRs. The more external barriers differ, the more extensive EES internal barriers have to be.

A common trade policy for all eighteen EES countries would involve, on average, a slight raising of EFTA tariffs (but lowering of Austrian tariffs), and adopting a number of import restrictions. Goods, once imported from outside the EES, would be able to circulate free of any tariff and quantitative restrictions within the EES.

There are reasons to believe that in terms of comparative static analysis a common trade policy régime with the Community would lead to welfare losses for most EFTA countries. The benefits of such policy measures lie, however, in the dynamic effects that become possible under such a régime. Given certain flanking policies, such free circulation of goods within the EES would have strong pro-competitive effects and the overall positive welfare effects on the small EFTA economies could be considerable. Effects would be similar in Community countries, but in relative terms, of course, smaller.

Are there, however, reasons that might necessitate controls on commodities even under a common trade policy régime? Put in a different way: are there measures other than tariff and quantitative restrictions that even with a common trade policy act as barriers to arbitrage between countries? The answer after the foregoing Chapters is yes.

Given agreement on harmonization, or mutual recognition, of technical standards and norms, technical barriers would not act as barriers to the intra-EES flow of goods. In the absence of such agreements, borders would still be required in order to check for the compliance of the exported good with standards of the importing country.

Given harmonization of national systems of indirect taxation in the EES, border controls would no longer be needed to impose or refund indirect taxes. In the absence of such an agreement, and the institutional changes thereby required, VAT systems would act as barriers to arbitrage. Possibilities exist to limit the effect of such barriers. A number of alternative options exist which would determine the degree to which tax-induced price divergencies between EFTA countries and the Community would remain. The aim of reforms should in all instances be to eliminate, as far as possible, differences between countries in the incidence of taxes.

Indirect tax systems act more as barriers to arbitrage by consumers than by enterprises. Limits to tax-free imports by households are between 68 ECU (Austria) and 297 ECU (Finland). Above those limits private imports are taxed at domestic rates. For imports above a value of 960 ECU proof that goods have originating status in the country of exportation is required. For households this is practically impossible to obtain, and in any case imposes additional costs of trading.

Given the principle of circulation of industrial goods in the EES free of tariffs, households could be allowed to import from the Community to an EFTA country any desired amount of goods, provided that differences of VAT rates are paid, i.e. VAT is refunded upon exportation and reimposed in the importing country. This would work on the principle that any good circulating within the EES has satisfied at the point of importation from third countries all conditions of entry, including tariffs.

The degree to which such a reform would actually lower arbitrage barriers would depend on changes in national excise tax systems. Harmonization with EC excise tax systems would considerably reduce such barriers, given the fact that excise taxes are non-refundable upon exportation for households. For a number of commodities, excise taxes are the main element in prices. Tobacco, alcohol and in some countries cars are the main groups of such commodities. Non-harmonization would considerably increase incentives to smuggling.

For tobacco and alcohol a related aspect is that of the existence of State monopolies. Their effectiveness relies heavily on bans of parallel imports. For these two product groups they are the largest barriers to arbitrage, especially in the Nordic EFTA countries. Reform of systems of State monopolies to the extent permitted in Article 37 of the Treaty of Rome would permit tobacco and alcohol products to be subject to the same liberalized border procedures as any other commodity. If this is not the case, barriers to arbitrage for these goods will remain as high as they are at present.

For agricultural products free flows across borders between EFTA and EC countries are difficult to implement without joining the CAP. However, it could prove feasible to introduce tariff equivalents that give the same rate of effective protection as present quantitative import restrictions.

Retention of borders has no bearing on degrees to which barriers to arbitrage through barriers to entry can be eliminated. Rights of establishment similar to those of

domestic residents or firms would act as a reduction of such barriers, though the reduction would be significant, only if national systems were so structured as to permit non-resident people or firms to enter markets subject to the same conditions they face at home.

Borders or no borders, pricing to markets by firms could be considerably reduced with common strict competition policies throughout the EES. Whilst still less effective than doing without borders, subjecting all EES firms to such policies would lead to considerable reductions of price levels and degrees of price dispersion within the EES in a number of sectors. This option would have the added benefit of firms being no longer subject to anti-dumping rules in the other trading area. In order to bring about the desired effects, competition policies would need to be considerably more rigorous than they are at present within the Community. How effective common policies would prove to be would depend also crucially on the degree of reduction of other barriers to arbitrage outlined above.

Uncommon trade policies

The above observations were made on the assumption of a common trade policy for all EES countries. Now, quite obviously, joining the Community's trade policy would be a momentous change of policy stance for most EFTA countries. To what extent are the above policy options still valid if EFTA countries retain separate trade policies?

Obviously, tariffs and quantitative restrictions that EFTA countries maintain vis-à-vis non-EES countries at present need not be adapted. This implies that they remain as much internal barriers to arbitrage within the EES as they are today. Slight reductions could be achieved by a greater balance between EFTA and the EC on the application of rules of origin, though effects would presumably be of a minor nature. Since the EFTA countries have in general a more liberal external régime than the Community, there are obviously some merits in this option. For other barriers, the degree of unilateral adaptation - and its recognition by EES partners - would determine to what extent barriers are reduced.

However, an element of the common trade policy option that would be problematical to implement would be that of unlimited imports by households, subject to indirect tax refunds and imposition. Proof of origin would be required without common external tariffs and other restrictions. Systems could presumably be found to facilitate this for private cross-border transactions, but the height of barriers would remain considerable. Since arbitrage by households, and by non-established firms, is a main instrument in ensuring

that excess profits especially at the retail level are held in check, the absence of this option would considerably reduce the positive effects of all other policy measures.

However, a number of policy options remain that would permit EFTA countries to reduce price levels compared with the present situation. The most obvious policy area is that of competition policies, where a rigorous stance would at the sectoral level bring about price reductions.

Technical barriers to trade can be reduced within the EES through harmonization or mutual recognition of standards and norms, as well as through the mutual acceptance of testing certificates. The main advantage would be in a reduction of average fixed costs of producers. Policies would have to ensure that such cost decreases are passed on to consumers.

Further policy elements that could reduce price differentials of EFTA countries vis-à-vis the Community concern barriers to entry and State monopolies. Obviously, in a number of sectors reductions in the level of indirect taxation would be the most direct way for achieving such effects. This concerns, however, very often sectors where such high tax rates exist due to health or similar considerations.

Finally, economic policy in general can achieve fairly substantial results in terms of price reductions. Policies that foster efficient factor markets are a precondition for achieving the disinflationary impact of further integration. The exposed and the sheltered sectors of economies are linked through labour and capital markets. Pro-competitive effects of integration on the exposed sectors are thus transmitted to other sectors of the economy.

V CONCLUSIONS

The general conclusions of the paper are the following. Price levels in the EES differ for many sectors or commodities to a considerable degree. Such differences are lowest for the EC 6 and somewhat higher for the EC 9. For the EC 10 and the EC 12 they are higher still. They are highest in the EES.

However, the EC is internally also less integrated than one would believe. Even among the original six EC Member countries there are such differentials in prices in certain sectors that the conclusion is inevitable that significant barriers to arbitrage remain more than thirty years after the Treaty of Rome.

Pro-competitive effects of strong trade links among countries that are joined by Free Trade Agreements or even in a Customs Union are not sufficient to prevent market segmentation by firms even in sectors that are normally considered as being exposed to international competition.

There are a number of reasons for such deviations. They can be summarized by saying that market segmentation through public policies and private strategies has compartmentalized national markets. Barriers between national markets hinder or make it impossible for economic agents to arbitrage away price differentials between economies.

Some barriers to arbitrage are governmental policies. The most important ones are tariffs and quantitative restrictions, technical barriers to trade, indirect taxes and barriers to entry. We conclude that they play an important role in preventing downward movements of prices for a large number of commodities and thus overall price levels.

Other barriers are private strategies to fragment markets. We also find that pricing to market by firms in a number of sectors is probably largely responsible for very high price levels especially in EFTA countries. In addition, public policies that shelter national markets from each other often facilitate pricing to market by the sheltered firms.

The paper shows some policy options for EFTA countries. It concludes that a considerable number of options are available, but they often involve giving up some policy autonomy. We focus on the question of how borders between EFTA countries could be retained, but be made considerably cheaper. In the terminology of this paper, we ask how cross-border arbitrage by economic agents could be facilitated. A number of policy options would allow a significant reduction in the height of barriers to arbitrage between EFTA and EC countries.

The first set of options involves common external barriers with the Community - tariffs and quantitative restrictions. This would reduce the need for internal border checks for controls of origin of products. But borders would have to be retained in order to enable refunds/reimposition of indirect taxes if no common tax policies are chosen. Under this option barriers to arbitrage would be lower if excise tax levels were harmonized in the EES. Instituting procedures whereby households could, by simple (net) payment of VAT differentials, trade across EES borders as easily as firms would be an important element in reducing unintended barriers between EFTA countries and between EFTA and the Community.

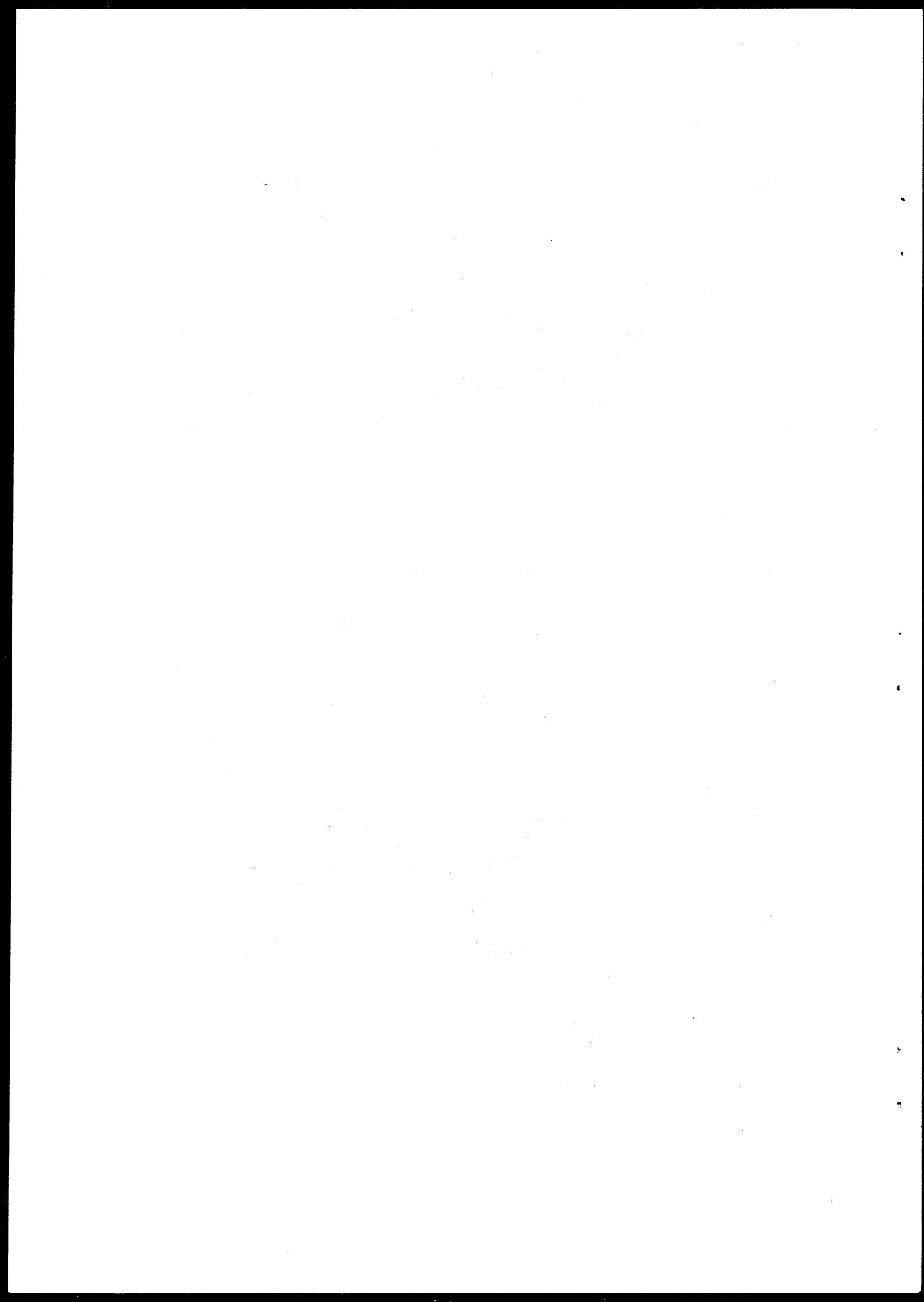
Common competition policies appear as an important component, on the condition that they are handled considerably more strictly than today. Their efficiency rests heavily on making borders considerably cheaper than they are today.

The second set of options involves the retention of separate trade policies for EFTA countries. Obviously, border procedures need to be considerably more rigorous than under the first option set. Most of the policy changes that would lead to reductions of barriers to arbitrage would be of a unilateral character, such as changes in tax policies, regulations on entry of markets or State monopolies. Simplified procedures for households to obtain proofs of originating status for goods could play an important role, though with divergent trade policies among EES countries the scope for fraud might be considerable. The main multilateral element in that policy set would be the setting up of common competition policies. (Unilateral alternatives to this could of course also be envisaged as a third set of policy options.) Bereft of the other elements in the first policy option set, effects would presumably be smaller on degrees of price dispersion in Europe and would be limited to a few sectors.

The conclusions of this paper support those of the so-called Cecchini Report (EC Commission, 1988) that a deepening of integration along the lines proposed in the EC's White Book on Completing the Internal Market has a strong disinflationary impact on EC economies. The paper in fact shows that internal market-style integration of EFTA countries also would have a far greater such impact on EFTA economies.

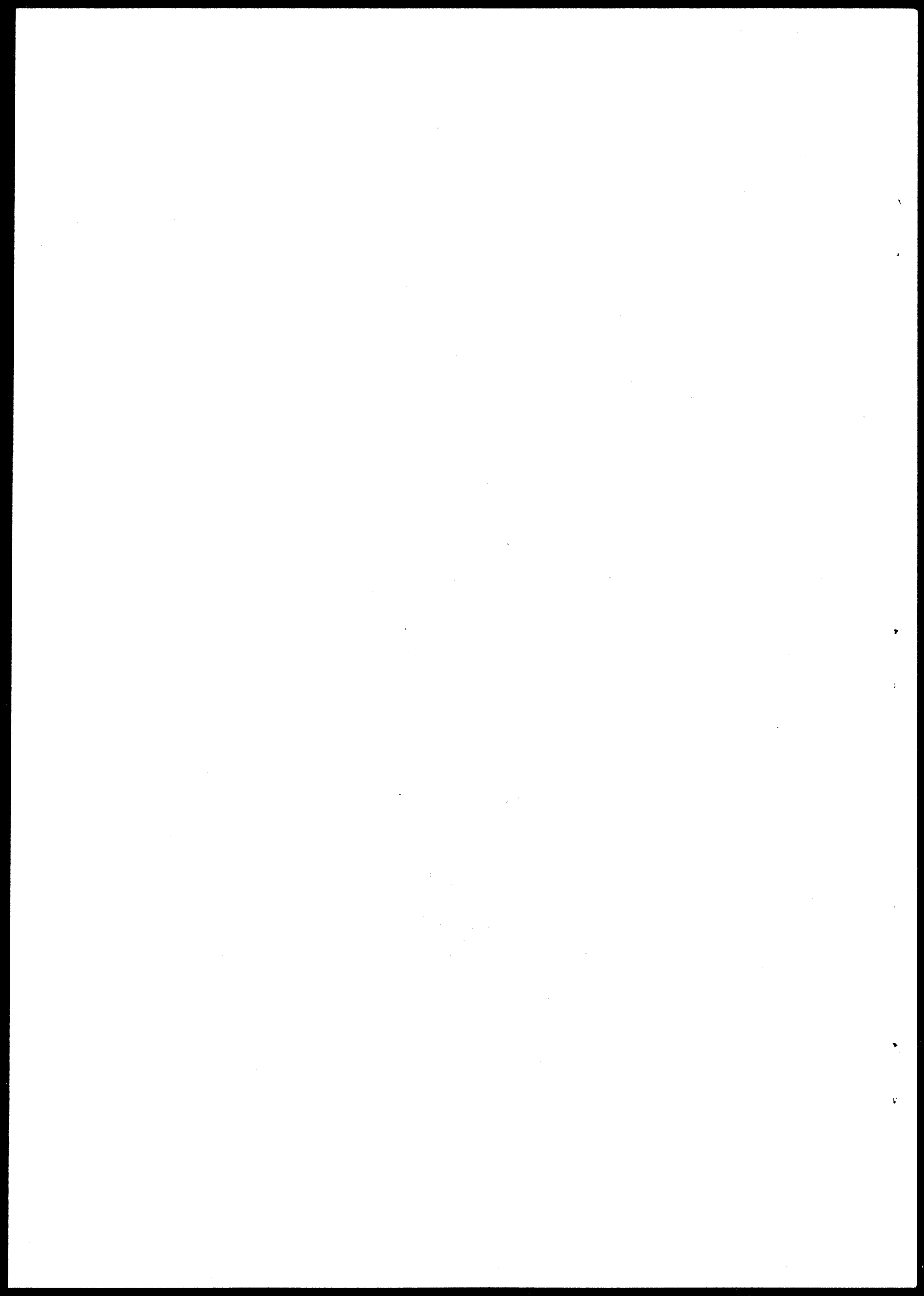
In short, any policy that facilitates cross-border arbitrage in the EES will lead to a convergence of price levels in Europe. In the case of the EFTA countries price movements will clearly be downwards. Real income effects would be positive and significant. At the same time, non-competitive producers would be forced to restructure or go out of business. Part of the adjustment burden, in the Nordic countries to a large extent, would appear to fall on government revenues. All available evidence suggests that the overall welfare effects would be non-negligible.

Based on the results shown in this paper, national studies of reasons and effects of price differentials in specific sectors would be beneficial.



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PRICE DIFFERENTIALS IN THE EUROPEAN ECONOMIC SPACE (EES)

In this Annex we describe data, sources and methods on which the analysis in the paper was based. We also describe differences in price levels in detail for the main sectors in EFTA and Community countries.

Section 1 describes the data sources, the background of the data collection exercise, and the way the basic data was transformed for this paper. Section 2 gives the detailed overview of sectoral prices in the EES countries. It contains four tables. Tables 1 and 2 show an index of price levels in around fifty sectors in EFTA and EC countries respectively. Tables 3 and 4 show indices of relative prices derived from Tables 1 and 2. Table 1 in the main text is calculated from the basic data contained in Tables 1 and 2.

1. Sources and methods

In the context of the International Comparison Project (ICP), and the European Comparison Project (ECP), international organizations and national statistical offices collaborated in obtaining sets of price and volume data that are comparable internationally. The data used in this paper makes use of the results of the OECD exercise, published under the title "Purchasing Power Parities and Real Expenditures" (OECD 1987a). The data is for the year 1985. Whilst overall price levels have shifted in the meantime, differences in inflation rates between countries have not been sufficient to generate significant departures from the data set presented in this paper.

Purchasing Power Parities (PPPs) are defined as those exchange rates that equalize the purchasing power of different currencies. They are thus equivalent to price ratios at which the aggregate of commodities that are included in GDP are rated in different countries.

The comparative price levels used in this paper are based on these results in the following way. An international price index is developed for the same group of goods and services with the Community equalling one hundred.

The index (see also OECD 1987a, p. 24 f) is obtained by dividing the PPPs for each sector by the exchange rates. They thus show the relative cost of purchasing a given bundle of goods or services at market exchange rates. The indices thus calculated are shown in Tables 1 and 2 of this Annex. The last lines of these tables show the price level of GDP, i.e. the overall price level in an economy. Sections 2.1 and 2.2 provide a description of the results.

Tables 3 and 4 are derived from Tables 1 and 2 and show indices of relative prices. They are calculated by dividing for each sector in an economy the respective price index of Table 1 or 2 by the overall price level of GDP.

Table 1 in the main text was calculated by using the data contained in Tables 1 and 2. Price dispersion around the Community average (=100) was calculated as follows:

$$S = \sqrt{\frac{\sum_{i=1}^n (x - \bar{x})^2}{N} + (\bar{x} - 100)^2}$$

The second term in the root serves to adjust the sample average in the standard deviation for the fact that we utilize the constant EC average of 100, which conforms to the sample average only in the case of column IV of the Table. An EES average would have been desirable but cannot be calculated. The measure is higher for all cases except the EC 12 than that of the standard deviation. It was chosen in this instance in order to reflect the assumption that convergence of prices would tend to be towards the EC average. The conclusions of the paper hold just the same if the second term in the root is suppressed.

2. Prices in the EES

EFTA countries are the high-price countries of Europe. Whilst comparable data is not available for Iceland and Switzerland, there is enough evidence that the overall conclusions also hold for these two countries.

In relation to prevailing price levels within the Community, Austria's price level is comparable to that of France, and is, in addition, lower only than that of Germany and Denmark. Austria's price level is around 5 per cent lower than that of its main trading partner, Germany.

The three Nordic EFTA countries form Europe's high-price block. Compared to Denmark, which itself is the EC country with far and away the highest price level, Finland, Norway and Sweden show an overall price level that is significantly higher again. In Norway, the most expensive country of Europe, the overall price level is some 9 per cent higher than in Denmark, and is more than one-third higher than the Community average price level.

Such large price discrepancies appear hard to explain, given the fact that all EFTA countries are small. International trade could thus be expected to at least lead to a convergence of price levels with major trading partners.

That this is not the case underlines the fact that trade is a necessary but not sufficient condition for increasing competitive pressures in an economy, and thus for achieving pressures on prices that act as a real income gain for consumers.

2.1 Price levels in EFTA

The comparative price levels in EFTA countries are shown in Table 1. The data is presented so that for each sector, or category of final expenditure on GDP, the average price level of the EC is 100.

As pointed out above, the three Nordic countries show an overall price level around 30 per cent higher than the EC average, and some 15 per cent higher than that of Germany.

Prices for total individual consumption by households appear in general to reflect the level of overall prices. In fact, the relation is presumably the opposite, since individual consumption accounts for roughly two-thirds of final expenditure on GDP¹.

Expenditures on food in turn account for between 10 per cent and 15 per cent of individual consumption in EFTA countries. Prices for these items in Austria are the lowest within EFTA, though in the Community only Denmark has a higher price level. The three Nordic EFTA countries have food prices that are two-thirds beyond the EC average, and one-quarter higher again than in Denmark. In these countries the especially high prices of bread and cereals, meat and - with the exception of Norway - oils and fats are noteworthy.

A well-known fact is the level of Scandinavian alcohol prices. More surprisingly, non-alcoholic beverages, whilst cheaper than liquor, are, in the Nordic EFTA countries, nearly twice the price they are in Austria. The price of alcoholic beverages in Norway exhibits at three-and-a-half times the Community price level the largest difference of price levels for any single category of goods between an EFTA country and the cheapest Community Member country.

Differences in prices of tobacco are less pronounced in EFTA and the EES than they are for alcohol. All the same, Austria and Finland lie one-third above the Community average and Norway's price level for tobacco is nearly twice that of the EC.

¹ Individual consumption by households accounted in 1985 for 69.9 per cent of GDP in the EC. Austria: 64.1 per cent; Finland: 63.6 per cent; Norway: 56.5 per cent and Sweden: 72.0 per cent.

PRICE LEVELS IN EFTA IN 1985

(EC = 100)

Table 1

	Austria	Finland	Norway	Sweden	EEC
INDIVIDUAL CONSUMPTION BY HOUSEHOLDS	112	137	143	127	100
Food, Beverages and Tobacco	116	172	183	172	100
Food	116	162	169	165	100
Bread and Cereals	117	183	168	180	100
Meat	116	179	210	177	100
Fish	96	104	129	131	100
Milk, cheese and eggs	121	131	136	139	100
Oils and fats	135	206	135	185	100
Fruits, vegetables, potatoes	114	178	197	202	100
Other food	105	161	163	153	100
Beverages	109	291	296	255	100
Non-alcoholic beverages	114	237	200	195	100
Alcoholic beverages	105	298	339	263	100
Tobacco	132	133	191	145	100
Clothing, footwear	116	146	143	152	100
clothing, incl. repairs	115	142	142	151	100
footwear, incl. repairs	116	162	149	154	100
Gross rent, fuel, power	119	118	128	135	100
gross rent, water charges	130	139	176	163	100
fuel and power	98	72	71	78	100
Household equipment & operation	98	134	120	105	100
Furniture, floor covering, repairs	87	108	105	79	100
Household textiles, repairs	111	106	108	129	100
Household appliances, repairs	109	114	115	111	100
Other household goods and services	104	185	139	135	100
Medical and health care	98	116	114	100	100
Medical and pharmaceutical products	145	132	139	102	100
Medical and health services	81	93	98	81	100
Public medical and health care	111	122	120	104	100
Transport and communication	115	139	143	107	100
Personal transport equipment	100	168	163	102	100
Operation of transport equipment	126	124	103	112	100
Purchased transport services	105	155	202	164	100
Communication	116	121	189	61	100
Education, recreation, culture	116	128	137	122	100
Recreation equipment and repairs	117	132	137	126	100
Recreation and cultural services	100	102	116	96	100
Books, magazines, newspapers	112	253	189	138	100
Education	124	126	140	137	100
Miscellaneous goods and services	105	141	162	127	100
Restaurants, cafes, hotels	108	162	201	154	100
Other goods and services	101	122	145	118	100
COLLECTIVE CONSUMPTION BY GOVERNMENT	113	126	149	143	100
GROSS FIXED CAPITAL FORMATION	98	112	119	127	100
Construction	96	109	108	140	100
Residential buildings	114	123	129	143	100
Non-residential buildings	86	109	113	135	100
Civil engineering works	88	87	100	138	100
Machinery and equipment	98	120	137	108	100
Transport equipment	106	169	164	129	100
Non-electrical equipment	95	114	121	93	100
Electrical equipment	100	110	121	165	100
GROSS DOMESTIC PRODUCT	108	130	135	128	100

Source: OECD 1987a and EFTA Secretariat calculations

Price levels for clothing and footwear in EFTA are again well beyond those of the EC. Throughout the EES, with the exception of Italy, Greece and Spain, prices for footwear are higher than those for clothing. Differences are, however, not very significant. Two notable exceptions are Denmark and Finland, where the price level of footwear is considerably in excess of that of clothing.

Gross rents, fuel and power prices in EFTA countries are within the range of comparable prices in most of the non-Southern EC Member States. Expenditures on these items account for around one-sixth of individual consumption by households. The prices of fuel and power in the three Nordic EFTA countries are among the lowest in the EES.

Prices for household equipment and operation, which includes such items as furniture and household appliances and textiles, are on aggregate below the EC level in Austria, and only slightly above in Sweden. In Norway, but especially in Finland, prices are the highest for these items throughout Europe. Both Austria's and Sweden's overall low price level for these items is due to the fact that furniture in these two Member countries is in the lower range of prices throughout the EES. These goods are in Sweden and Spain, the cheapest amongst all the EFTA and EC countries.

Expenditures on medical and health care account for 11 per cent of GDP in Sweden and roughly 8 per cent in the other EFTA countries. Whilst such services in the EFTA countries are well below the average Community price level, medical and pharmaceutical products are considerably more expensive than in the EC. The exception to this is Sweden. In Austria, however, these products had prices double those in France.

Transport and communication is an aggregate with a number of components that have quite varying price levels. Personal transport equipment, basically cars, are at average Community price levels in Austria and Sweden. Finland and Norway are the two most expensive countries of Europe, and indeed of any OECD country, for cars. In Finland the price for cars is twice that in Luxembourg.

Within EFTA, there are surprising differences in price levels for communication. In Norway the prices are three times those of Sweden, in Finland twice. For communication, Sweden is one of the cheapest countries of Europe, Norway the most expensive.

For education, recreation and culture, price levels in EFTA countries are well above the Community average. Norway and then Finland lead the list of countries by price level for this item within Europe. Prices for education are compara-

PRICE LEVELS IN EC IN 1985

(EC = 100)

Table 2

	B	DK	F	FRG	Gr	Ire	I	Lux	NL	P	Esp	GB	EC
INDIVIDUAL CONSUMPTION BY HOUSEHOLDS	103	128	109	115	76	105	91	97	100	55	72	97	100
Food, Beverages and Tobacco	104	142	104	105	79	126	96	95	99	80	84	104	100
Food	106	131	108	106	84	106	99	103	100	79	91	95	100
Bread and Cereals	100	129	122	109	80	102	100	98	92	85	88	83	100
Meat	109	140	103	112	81	98	104	110	113	73	81	92	100
Fish	98	105	110	94	104	86	118	83	81	75	100	78	100
Milk, cheese and eggs	103	116	104	88	96	111	103	92	88	89	107	99	100
Oils and fats	115	115	115	103	116	92	87	105	102	102	97	94	100
Fruits, vegetables, potatoes	123	167	109	120	70	138	88	103	113	78	89	111	100
Other food	92	124	104	101	110	104	108	101	90	95	104	92	100
Beverages	113	173	105	95	77	171	84	91	102	88	57	130	100
Non-alcoholic beverages	114	156	111	104	89	146	67	91	104	89	91	105	100
Alcoholic beverages	111	174	102	91	70	172	88	89	100	86	51	137	100
Tobacco	81	176	73	121	52	176	90	66	91	68	49	153	100
Clothing, Footwear	119	111	108	106	92	89	99	112	90	82	104	84	100
clothing, incl. repairs	118	107	108	106	92	88	102	111	88	82	107	84	100
footwear, incl. repairs	126	135	112	109	85	96	91	120	99	82	95	91	100
Gross rent, fuel, power	111	132	126	144	84	75	77	105	116	23	47	91	100
gross rent, water charges	113	141	128	174	87	61	70	122	128	17	43	96	100
fuel and power	108	107	122	104	79	105	105	90	96	62	73	82	100
Household equipment & operation	100	115	111	101	83	105	98	102	94	68	79	101	100
Furniture, floor covering, repairs	108	110	115	94	80	106	94	108	102	89	78	106	100
Household textiles, repairs	135	106	97	115	71	85	97	112	103	86	77	105	100
Household appliances, repairs	115	124	108	100	112	114	91	101	92	123	89	97	100
Other household goods and services	88	116	112	106	82	108	102	94	87	44	78	100	100
Medical and health care	78	139	98	124	75	112	104	88	94	49	80	80	100
Medical and pharmaceutical products	91	127	73	152	61	123	80	91	134	61	66	73	100
Medical and health services	72	130	102	107	78	100	119	81	87	30	93	78	100
Public medical and health care	89	152	109	141	83	122	115	107	100	57	89	87	100
Transport and communication	100	129	110	104	58	127	91	80	92	70	81	109	100
Personal transport equipment	83	156	100	91	149	129	93	79	100	126	109	113	100
Operation of transport equipment	104	114	112	102	79	116	102	88	107	60	78	95	100
Purchased transport services	125	162	124	138	51	171	73	93	100	65	69	111	100
Communication	134	84	96	124	34	124	70	47	53	110	86	166	100
Education, recreation, culture	109	118	114	115	63	86	86	125	105	30	78	95	100
Recreation equipment and repairs	112	118	111	102	128	108	94	102	83	101	106	92	100
Recreation and cultural services	132	118	115	103	40	81	103	118	99	48	94	92	100
Books, magazines, newspapers	86	164	90	118	93	107	109	104	145	27	86	83	100
Education	107	113	122	131	66	79	78	135	116	24	66	101	100
Miscellaneous goods and services	105	132	111	115	84	106	91	95	102	59	71	104	100
Restaurants, cafes, hotels	111	149	105	107	87	126	104	97	99	71	74	107	100
Other goods and services	99	123	116	121	78	99	77	94	101	46	62	100	100
COLLECTIVE CONSUMPTION BY GOVERNMENT	108	116	118	126	82	100	89	123	113	26	74	92	100
GROSS FIXED CAPITAL FORMATION	93	115	102	104	88	96	96	89	105	73	86	106	100
Construction	93	119	103	108	78	86	95	100	114	59	79	115	100
Residential buildings	95	135	102	121	81	74	90	104	127	49	68	105	100
Non-residential buildings	87	109	105	99	82	92	90	101	100	54	72	119	100
Civil engineering works	93	107	100	93	75	107	112	93	105	85	100	128	100
Machinery and equipment	93	110	102	99	108	106	98	77	98	102	104	100	100
Transport equipment	87	133	95	91	147	117	100	55	97	112	119	110	100
Non-electrical equipment	95	107	105	98	96	107	98	90	97	99	99	102	100
Electrical equipment	97	95	108	110	123	90	95	94	100	106	98	89	100
GROSS DOMESTIC PRODUCT	101	124	109	114	76	103	92	99	104	53	76	99	100

ble to those of EFTA only in Germany and Luxembourg within the Community.

The price level of gross fixed capital formation in Austria is below Community average, in the other EFTA Member countries it is above. Norway and Sweden are for fixed capital formation, which includes buildings, the most expensive countries in Europe. Differences in prices for residential versus non-residential buildings are interesting to observe. Whilst for the former, all EFTA countries are well above the Community average, non-residential buildings are by overall European standards cheap in Austria. Civil engineering works are above Community average only in Sweden - there, however, they are nearly two-fifths above.

Machinery and equipment accounts for some 10 per cent of final expenditures on GDP in Austria and somewhat below this in the three other EFTA countries dealt with in this paper. The price level of such goods in Finland and especially Norway is significantly above the Community average. This is not surprising, since prices for transport equipment influence the overall price level of these items (see above for transport equipment for individual consumption by households). The difference between commercial and private transport equipment is quite considerable in the case of Sweden. Prices for non-electrical equipment are below the Community average in Austria and Sweden, and well above it in Finland and Norway. For electrical equipment the three Nordic EFTA countries are, with the exception of Greece, the high-price countries of the EES, Sweden being two-thirds beyond the EC average - or 50 per cent exactly above prices in Germany.

2.2 Price levels in the EC

The data in this paper pertains, as mentioned at the outset, to the year 1985, when Spain and Portugal were not yet members of the European Community. Nevertheless, they are treated in this paper as EC Member States. Changes in relative levels of real prices vis-à-vis the core of the EC will take some time. The relative position of the two new members will remain more or less unchanged for an appreciable period.

It is recalled that the working hypothesis of this paper is that differences in price levels should be lowest among the original six Members of the EC, higher among the EC 9 post-1972, and even higher again when Greece is included. Differences in price levels in 1985 among the EC 12 should be the highest.

Table 2 shows price levels in the Community. As already pointed out above, overall price levels are considerably lower in the Community than in EFTA. Of the twelve present

RELATIVE PRICES IN EFTA IN 1985

(EC = 100; GDP = 100)

Table 3

	Austria	Finland	Norway	Sweden	EEC
INDIVIDUAL CONSUMPTION BY HOUSEHOLDS	103	106	106	100	100
Food, Beverages and Tobacco	108	133	136	135	100
Food	107	125	125	129	100
Bread and Cereals	109	142	125	141	100
Meat	108	138	155	138	100
Fish	89	80	95	102	100
Milk, cheese and eggs	113	101	101	110	100
Oils and fats	125	158	99	145	100
Fruits, vegetables, potatoes	105	138	146	158	100
Other food	96	123	120	120	100
Beverages	100	223	218	199	100
Non-alcoholic beverages	107	183	148	153	100
Alcoholic beverages	98	231	251	207	100
Tobacco	122	103	142	114	100
Clothing, footwear	107	113	106	119	100
clothing, incl. repairs	107	110	105	118	100
footwear, incl. repairs	108	125	111	121	100
Gross rent, fuel, power	111	91	96	107	100
gross rent, water charges	121	108	130	128	100
fuel and power	91	56	53	62	100
Household equipment & operation	90	104	88	82	100
Furniture, floor covering, repairs	81	83	78	62	100
Household textiles, repairs	102	81	79	101	100
Household appliances, repairs	101	88	86	88	100
Other household goods and services	97	143	103	107	100
Medical and health care	91	90	84	79	100
Medical and pharmaceutical products	135	102	103	81	100
Medical and health services	74	71	72	63	100
Public medical and health care	104	95	89	82	100
Transport and communication	106	107	106	84	100
Personal transport equipment	92	129	120	80	100
Operation of transport equipment	117	96	77	88	100
Purchased transport services	97	118	149	127	100
Communication	106	93	139	48	100
Education, recreation, culture	108	99	101	96	100
Recreation equipment and repairs	109	102	102	99	100
Recreation and cultural services	92	79	86	75	100
Books, magazines, newspapers	104	196	140	108	100
Education	114	97	103	107	100
Miscellaneous goods and services	97	109	120	100	100
Restaurants, cafes, hotels	100	125	149	121	100
Other goods and services	94	95	108	94	100
COLLECTIVE CONSUMPTION BY GOVERNMENT	105	97	110	111	100
GROSS FIXED CAPITAL FORMATION	90	87	87	99	100
Construction	89	83	80	110	100
Residential buildings	105	95	95	112	100
Non-residential buildings	79	83	84	106	100
Civil engineering works	81	67	74	108	100
Machinery and equipment	90	94	102	86	100
Transport equipment	99	130	121	102	100
Non-electrical equipment	88	88	89	73	100
Electrical equipment	92	84	89	129	100
GROSS DOMESTIC PRODUCT	100	100	100	100	100

Source: OECD 1987a and EFTA Secretariat calculations

Member countries, only France, Germany and Denmark lie within the range of price levels in the EFTA countries. The remaining four of the original six Member countries have none too widely dispersed price levels, with Italy somewhat on the low side compared to the average EC 12 price level.

Of the three additional EC countries with membership as of 1973, Denmark has already been pointed out as the high-price country of the Community. Ireland and the United Kingdom are quite similar to the medium-price countries of the original six. The United Kingdom in fact appears to be, with a few notable exceptions, the "average" European country in terms of price level, both overall and also for a wide range of sectors.

Greece, Portugal and Spain form a group by themselves. Greece and Spain have an overall price level one-quarter below EC average, Portugal barely half - or around two-fifths of that of Denmark.

As already noted, for the EFTA countries, individual consumption by households is a major determinant of the overall price level. Price levels for this item follow to a considerable extent those of overall prices.

Household expenditure on food accounts for 16 per cent of their overall expenditures in the Community. Reflecting widely differing per capita incomes, there are wide dispersions around this mean. In Greece this ratio is 28 per cent.

Denmark is again a case by itself, with a price level a good 20 per cent beyond the second most expensive Community country, France. The Danish price level for food is appreciably influenced by prices of meat and seasonal products. It is noteworthy that the price level for food in the United Kingdom is only slightly above that of Spain, whilst in Ireland it is equal to that of Germany.

As in EFTA countries, prices for beverages vary considerably in the Community. Though considerably lower than in its Nordic neighbours, Denmark's price level for alcohol is still three-quarters above the EC average and more than three times the price of alcohol in Spain. Alcohol in Ireland is nearly as expensive. In these countries the price for non-alcoholic beverages is also well beyond the EC average.

Differences in prices for tobacco are even more pronounced. Spain, Greece, Luxembourg and Portugal have price levels that are relatively speaking still further below those of Denmark and Ireland than was the case for alcoholic products. The United Kingdom is also for these products one of the highest priced countries within the EC.

RELATIVE PRICES IN EC IN 1985

(EC = 100; GDP = 100)

Table 4

	B	DK	F	FRG	Gr	Ire	I	Lux	NL	P	Esp	GB	EC
INDIVIDUAL CONSUMPTION BY HOUSEHOLDS	101	103	101	102	100	103	99	100	97	105	96	99	100
Food, beverages, tobacco	103	114	96	93	105	123	105	97	96	153	111	106	100
Food	105	106	98	94	111	103	107	105	96	152	120	96	100
Bread and Cereals	99	103	111	97	107	99	109	99	89	162	116	85	100
Meat	107	112	94	99	106	95	113	112	109	140	107	93	100
Fish	96	83	101	82	137	83	128	87	79	142	132	79	100
Milk, cheese and eggs	102	93	97	78	127	108	113	96	86	172	142	101	100
Oils and fats	114	91	104	91	153	89	95	109	99	194	127	95	100
Fruits, vegetables, potatoes	122	135	101	107	94	134	95	106	109	149	118	114	100
Other food	91	99	94	89	146	100	117	103	87	179	137	93	100
Beverages	110	138	96	82	100	165	91	91	98	167	76	132	100
Non-alcoholic beverages	113	125	101	91	118	142	73	89	100	172	120	108	100
Alcoholic beverages	110	140	95	80	95	169	97	92	97	167	67	141	100
Tobacco	80	141	67	107	69	171	98	67	89	137	64	156	100
Clothing, footwear	118	89	100	94	121	87	108	115	88	157	138	87	100
clothing, incl. repairs	117	86	99	93	122	85	111	113	86	157	142	86	100
footwear, incl. repairs	124	109	104	97	114	94	99	124	95	157	126	92	100
Gross rent, fuel, power	110	106	116	128	111	74	84	109	112	44	63	94	100
gross rent, water charges	112	114	118	153	114	60	76	125	125	32	59	98	100
fuel and power	107	86	112	92	105	102	114	92	93	120	98	83	100
Household equipment & operation	99	92	102	89	111	102	107	105	92	129	105	103	100
Furniture, floor covering, repairs	107	89	106	83	107	103	103	109	99	169	103	108	100
Household textiles, repairs	132	85	89	102	94	81	105	115	99	164	101	106	100
Household appliances, repairs	114	101	99	89	150	111	99	103	89	237	119	99	100
Other household goods and services	87	94	103	94	109	106	113	96	85	85	103	102	100
Medical and health care	78	112	90	108	98	109	113	90	90	95	107	82	100
Medical and pharmaceutical products	90	104	68	136	82	119	87	93	131	117	88	75	100
Medical and health services	72	104	94	94	103	97	128	84	84	58	122	79	100
Public medical and health care	89	123	100	125	109	119	125	109	0	108	120	90	100
Transport and communication	99	104	100	91	77	124	99	82	89	133	107	111	100
Personal transport equipment	82	124	92	80	197	125	102	80	97	239	144	115	100
Operation of transport equipment	103	92	104	90	105	113	112	90	103	115	103	97	100
Purchased transport services	124	130	113	120	67	165	79	97	96	124	90	113	100
Communication	132	67	87	109	45	121	76	48	51	209	112	167	100
Education, recreation, culture	108	94	104	102	84	83	94	129	102	57	104	97	100
Recreation equipment and repairs	111	95	103	90	170	105	103	105	81	194	141	95	100
Recreation and cultural services	131	95	105	90	53	78	113	123	95	91	124	94	100
Books, magazines, newspapers	85	132	83	104	123	104	118	105	141	51	114	85	100
Education	107	91	111	115	87	76	84	137	112	45	88	103	100
Miscellaneous goods and services	104	106	102	102	111	103	99	98	98	113	93	106	100
Restaurants, cafes, hotels	110	120	97	94	115	122	114	99	96	136	98	108	100
Other goods and services	98	99	106	107	105	96	84	96	99	88	83	103	100
COLLECTIVE CONSUMPTION BY GOVERNMENT	107	93	108	112	108	96	96	126	110	50	97	94	100
GROSS FIXED CAPITAL FORMATION	91	92	94	91	116	93	104	90	102	139	114	108	100
Construction	91	95	94	94	103	83	103	101	109	112	104	116	100
Residential buildings	94	108	93	107	107	73	99	106	122	93	91	107	100
Non-residential buildings	87	87	97	88	108	90	97	103	97	104	95	121	100
Civil engineering works	92	86	91	82	98	103	121	94	102	161	131	131	100
Machinery and Equipment	92	88	94	88	144	104	106	79	94	195	137	102	100
Transport equipment	86	107	88	81	196	113	109	56	94	212	158	113	100
Non-electrical equipment	94	86	96	87	127	103	106	92	93	188	130	104	100
Electrical equipment	96	77	99	97	162	88	104	96	97	202	130	90	100
GROSS DOMESTIC PRODUCT	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: OECD 1987a and EFTA Secretariat calculations

Prices for clothing and footwear show a less diverse picture than the products mentioned above. For clothing the comparatively low prices in the core countries of the Netherlands and United Kingdom are surprising.

Denmark, France and Germany are the Community countries with the highest prices for gross rents (including water charges), in the latter ten times the price level in Portugal. Prices for fuel and power are considerably less dispersed.

The same holds for household equipment and operation. Compared to the relatively small differences in prices for furniture, the disparity in price levels between France and Germany appears interesting, approximately one-fifth higher in the former than in the latter. Household appliances in Denmark and Portugal are one-third more expensive than in the Netherlands.

Prices for medical and health care are highest in Denmark and Germany. The price level in Portugal for this item is just above one-third of the Danish level. Prices of medical and pharmaceutical products vary considerably. Whilst they are least in Greece, Portugal and Spain, the fact that these products are in France and the United Kingdom less than half the price they are in Germany is striking. The price level for medical and pharmaceutical products in Germany is the highest within the EES. The Netherlands, Denmark and Ireland are also countries with high prices for these goods.

Personal transport equipment in Luxembourg and Belgium is just above half the price it is in Denmark. Prices in Greece are not significantly lower than in Denmark, and a good quarter above the Community average in Portugal and Ireland. Price levels for communication vary significantly. In the United Kingdom it is five times that of Greece and, in Luxembourg and the Netherlands it is roughly two-fifths that of Belgium and Germany.

Price levels for education, recreation and culture are, generally speaking, high in the core countries and low in the periphery.

Price levels of gross fixed capital formation are less diverse than those of household expenditure. Denmark shows the highest price level within the Community, followed by the United Kingdom, the Netherlands and Germany. Differences for construction, especially for residential buildings, are considerably larger. For non-residential buildings the United Kingdom is the high-price country of the Community with a price level more than twice that of Portugal. Its price level for civil engineering works is more than one-third beyond that of Germany or Luxembourg.

Differences in prices for transport equipment are of course fairly similar to those of personal transport equipment. Greece and Denmark are the most expensive countries within the Community, and Luxembourg with a price level at two-fifths of that of Denmark is by far the cheapest EC Member country. For non-electrical equipment prices do not vary to any great extent - the most expensive countries, Denmark and Ireland, have price levels less than 20 per cent beyond that of the cheapest country, Luxembourg.

For electrical equipment these differences are considerably larger. Greece's price level is nearly two-fifths beyond that of the United Kingdom and Ireland, and Germany's and France's more than one-fifth.

2.3 The structure of relative prices in EFTA

In this section and the following we look at differences in the structure of relative prices in EFTA and the EC. We thus eliminate as far as possible the effects of differences in relative income positions of the countries of the EES. Given the lack of other information, this is the furthest extent to which demand factors can be separated out. Identifying differences in the slopes of national demand curves will have to rely on anecdotal evidence and will be possible only to a minor degree.

Table 3 presents data on relative prices in the four EFTA countries where data was available. It is calculated by dividing all figures in the country columns by their GDP value from Table 1.

The first main conclusion that appears is that, especially in Finland and Norway, the relative price of individual consumption by households is extremely high, both in relation to their trading partners in Europe, and in relation to the relative price of gross fixed capital formation, again also if compared to other countries in the EES. For Austria this observation holds to a lesser degree.

In the case of food the high relative price in the Nordic countries could already be expected from the data in Table 1. Noteworthy are the comparatively high prices of meat, cereals, seasonal products and, with the exception of Norway, of oils and fats. The relative price of food in Austria is quite high if compared e.g. to Germany, though considerably lower than in the Nordic EFTA countries. The most notable exception to high relative prices for food in all EFTA countries is that of fish.

Austria is the only EFTA country where non-alcoholic beverages are relatively more expensive than alcoholic ones, a feature it shares with more than half of the EC Member countries. The low relative price of tobacco in Finland is comparable to that in Germany.

Relative prices of clothing and footwear in Finland and Sweden are high, and in Austria and Norway still well beyond the Community average. For the Nordic countries the similar relative price of footwear in Denmark, and the large discrepancy of that of clothing should be noted.

Gross rents (including water charges) account in three EFTA countries for around 13 per cent to 14 per cent of individual consumption by households. Expenditure on fuel and power for roughly half of this again. Norway is a case by itself, both items representing just under 9 per cent of individual consumption by households. Relative prices of rents in EFTA countries are very high by average European standards, with the partial exception of Finland. On the other hand, fuel and power in the Nordic EFTA countries are - relatively - the cheapest in Europe, and Austria is still in the lower part of the range.

Relative prices in EFTA of furniture are even lower than in Denmark and Germany, especially so in Sweden. The same holds true for the Nordic EFTA countries for household appliances and, with the exception of Sweden, for household textiles.

Medical and health care overall have in all EFTA countries a low relative price, with Austria and Finland at the upper end of the range in EFTA. For the separate components of this item, however, there are significant differences among the four countries. The high relative price of medical and pharmaceutical products in Austria is second only to that of Germany within Europe. As in all countries of the EES, with the exception of Italy and Spain, medical and health services are comparatively speaking considerably cheaper than public medical and health care.

Personal transport equipment, expenditures on which represent on average some 3 per cent of individual consumption by households in EFTA countries (in Sweden less and Norway considerably more), is in relative terms still expensive in Finland and Norway. In the periphery of the EC, the relative price for these goods is, however, considerably higher. The low relative price for communication in Sweden, and the high relative price in Norway, are not unexpected given the data on the absolute levels of prices for this item.

The relative price for gross fixed capital formation overall is, in all EFTA countries, below the Community average. The high relative price for construction and electrical equipment, together 11.6 per cent of final expenditure on GDP in Sweden, causes the relative price for gross fixed capital formation in that country to be barely below the Community average. In the other three EFTA countries, the

relative prices for construction of non-residential buildings and civil engineering works are the lowest within the EES. The low relative price of non-electrical equipment in all EFTA countries, 4 per cent of final expenditures on GDP in Norway and around 6 per cent in the other three countries is comparable only to that of Denmark and Germany in the Community.

2.4 The structure of relative prices in the EC

On average, relative prices of individual consumption by households and collective consumption by government in the Community are lower than in EFTA, that of gross fixed capital formation higher. Obviously, there are significant variations within the Community. Four of the original six members, Belgium, France, Germany and Luxembourg, as well as Denmark and Ireland, have relative prices for gross fixed capital formation that are more similar to the EFTA countries than to their fellow EC Members. The original six Community Members countries have in common comparatively low prices for food, beverages and tobacco, together with quite high relative prices for collective consumption by government (see Table 4).

The relative price of food in Portugal is considerably beyond even that of the three Nordic EFTA countries. It is lowest within the Community in Germany, and only slightly above that in the United Kingdom and the Netherlands. Some food products in Greece and Spain such as fish, dairy products and oils and fats have an extraordinarily high relative price level.

Differences between EC Member countries in the relative prices of non-alcoholic beverages and alcohol are large, both between countries and within countries. Portugal and Ireland have the highest relative prices for non-alcoholic beverages, with Denmark and Spain also forming a separate group ahead of other Member States. Portugal and Ireland are also the two countries with the highest relative prices for alcohol, with the United Kingdom and Denmark trailing somewhat behind. Spain and, at a distance, Germany have the lowest relative price for alcohol in the Community. For tobacco, the United Kingdom is the country with the relatively highest prices.

Clothing in Spain and Portugal top the list of relative prices in the Community for these goods, with Denmark, Ireland and the United Kingdom with the lowest relative prices. For footwear the picture is only slightly different between countries, with Belgium and Luxembourg evidencing high relative prices close to that of Spain.

For gross rents (including water charges) Germany has far and away the highest relative price, also considerably

beyond that of any EFTA country. In relative terms, rents are very low in the two new Southern Member States, as well as in Ireland and in Italy. Differences for fuel and power are considerably less pronounced, with the United Kingdom and Denmark showing the lowest relative prices within the EC, though not anywhere near the low level of the three Nordic EFTA countries.

The low relative price of furniture in Germany is akin to the corresponding values in most EFTA countries. The case of household textiles shows that proximity and similar income levels are not sufficient conditions for similarity in prices and price structures. The relative price of these products in Belgium is second only to that in Portugal and considerably in excess of that in any other Member country. Household appliances in Portugal are in relative terms one of the most expensive purchases for households in that country. The relative price for these goods in Greece is considerably beyond that of Spain.

For medical and pharmaceutical products the relative price of these goods in France is half of that in Germany. In the Netherlands it is not significantly below the German level. It is of interest to note that the relative price of public medical and health care is quite similar in such disparate countries as Denmark, Germany, Italy and Spain, whilst Belgium and the United Kingdom have low and similar relative prices for this item.

In relative terms, prices for personal transport equipment are at the low level of Sweden also in Germany and Luxembourg. In Portugal, Greece and Spain this ratio is extremely high. For communication, Greece, Luxembourg and Denmark have a very low relative price level, whilst in Portugal, the United Kingdom and to a lesser extent in Belgium the relative price of communication is very high.

The relative price for gross fixed capital formation in Portugal is considerably beyond that in other EC countries. This is predominantly due to the extremely high relative prices for civil engineering works and machinery and equipment. Greece and Spain also show quite high prices for investment, with also a fairly similar relative price of construction and machinery and equipment. The fairly high price level of gross fixed capital formation in the United Kingdom is mainly due to the relatively high prices for construction.

In relative terms Luxembourg, and then Germany and Belgium have low relative prices for gross fixed capital formation. Machinery and equipment in Luxembourg, but also in Germany and Denmark, show a low relative price level, with still quite significant differences compared with some of the other core countries. In relative terms the price of non-

electrical equipment in Denmark and Germany is far below that of other countries, whereas for electrical equipment the relative price for these goods in Denmark is far and away the lowest within the EC. In Ireland electrical equipment has a quite low relative price level, considerably below that of Germany.

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