

Impact of EEC Enlargement on Ireland's Trade in Manufactured Goods

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Abstract: The study examines the likely impact on Ireland's trade in manufactures of the accessions of Greece, Portugal and Spain to the EEC. SITC 3-digit trade data (for 1978-1983) for manufactures are used to compute two indices: trade conformity and export similarity. The indices reveal that Spain, independently of its relatively larger size, is likely to be more important than either Greece or Portugal both as a trading partner for Ireland, and as a competitor to Ireland in exporting to the rest of the EEC. The study also identifies the commodity groups likely to account for increased trade possibilities for Ireland, and for increased competition for Ireland.

I. INTRODUCTION

This paper considers the likely impact on Ireland's trade in manufactures of the accessions of Greece, Portugal and Spain to the European Economic Community (EEC).¹ Section II looks at Greece, Portugal and Spain as Ireland's trading "partners". It examines their relative potentials as trading partners and identifies the product groups in which increased trade in manufactured goods might occur. Section III looks at Greece, Portugal and Spain as Ireland's export "competitors". It analyses their relative potentials as export competitors and identifies the product groups in which Ireland might expect most competition.²

The paper uses only information derivable from readily available trade data. Because the paper uses only import and export data and not data on the important factors influencing trade, it cannot make quantitative projections. Rather, the paper identifies a limited number of product groups deserving the more detailed analysis required for quantitative projections.

1. To simplify exposition, this paper speaks of the three accessions as if they were a single event, called the "Enlargement", even though 5 years will have elapsed between the entry of Greece in 1981 and the entry of Portugal and Spain in 1986. Greece, Portugal and Spain are termed the "Three".

2. The Enlargement's impact on Ireland's trade in manufactures is only one of many impacts. Others are: (1) the impact on the Common Agricultural Policy (CAP) and the consequent impact of CAP changes on Ireland; (2) the impact on Ireland of the accession of additional labour-abundant potential hosts for foreign investment inside the EEC; and (3) the impact on Ireland's receipts from the various EEC funds.

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II. GREECE, PORTUGAL AND SPAIN AS TRADING PARTNERS

Trade in manufactures is important to Ireland. In 1983, manufactures — defined here as Standard International Trade Classification (SITC) sections 5–8 — accounted for 68 per cent of Ireland's imports and for 63 per cent of Ireland's exports.

Table 1 summarises Ireland's trade with the Three. Ireland's imports of £91 million of manufactured goods from the Three accounted for 1.8 per cent of Ireland's total imports of manufactured goods. Ireland's exports of £89 million of manufactured goods to the Three accounted for 2.1 per cent of Ireland's total exports of manufactured goods. While Ireland's imports from, and exports to, Greece, Portugal and Spain are currently small, this does not mean that this trade is not important for consumers and producers in Ireland or that expansion of this trade is inconsequential.

We summarise first Ireland's 1983 imports from the Three. Ireland's imports from Greece occur in only 16 of the 35 SITC 2-digit divisions. Two divisions, textiles and clothing, account for three-fourths of these imports. Ireland's imports from Portugal were spread over 23 of the 35 SITC divisions, but in most cases the amounts were small. Again, textiles and clothing account for about two-thirds. Ireland's imports from Spain are quite diversified; imports occur in each of the 35 SITC divisions. Five divisions (road vehicles, fertilisers, textiles, footwear, and non-metal mineral manufactures) together account for half of the imports.

Ireland's 1983 exports to Greece, Portugal and Spain are highly concentrated. Four SITC divisions (organic chemicals, medicinals, essential oils, and office machines-computers) account for three-fourths of exports to Greece. Five divisions (organic chemicals, textiles, essential oils, medicinals, and telecommunications equipment) account for four-fifths of exports to Portugal. Finally, four SITC divisions (organic chemicals, inorganic chemicals, office machines-computers, and scientific instruments) account for two-thirds of exports to Spain.

The Enlargement entails a reduction of remaining trade barriers between the present members of the EEC, including Ireland, and the Three, and thus will

Table 1: *Ireland's trade in manufactured goods, 1983 (£1 million)*

	<i>Imports</i>	<i>Exports</i>
Greece	3.1	12.3
Portugal	24.1	18.6
Spain	63.7	58.0
Three	90.9	89.0
Total	5,023	4,335

Source: OECD, 1984. For imports 1 £ I = \$1.423959. For exports 1 £ I = \$1.417987

allow the more complete integration of the Three into the EEC. The case studies in Sampedro and Payno (1983) provide useful qualitative summaries of expected changes, and make it clear that the Three are not at present fully integrated into the EEC and that increases in trade in manufactures can be expected following enlargement.³

The analysis reported here first shows the different prospects for increased trade between Ireland and each of the Three by revealing how closely the import pattern of Ireland resembles the export pattern of each of the Three, and how closely the export pattern of Ireland resembles the import pattern of each of the Three. Presumably, the more closely imports and exports resemble each other the greater the prospect for increased trade. Indeed, the basic assumption of this paper is that the patterns of each country's exports and imports, especially if they remain stable over time, are good indicators of underlying comparative advantage. Another product of this analysis is that we identify the product groups in which increased trade is likely with each partner. These individual product groups are candidates for further study by those interested in quantitative projections of future trade levels between Ireland and the Three.

As a measure of the closeness of import-export structures we use the following *Index of Trade Conformity* (Donges-Schatz, 1979):

$$\text{Index of Trade Conformity} = \frac{\sum_i \chi_{ij} \cdot m_{ik}}{\sqrt{\sum_i \chi_{ij}^2 \cdot \sum_i m_{ik}^2}}$$

3. We focus first on the changes affecting EEC *imports* from the Three. The case studies reveal that Enlargement will probably bring proportionally larger changes in imports from Spain than in imports from Greece or Portugal because the barriers facing Spain prior to enlargement are relatively higher. The 1970 EEC-Spain Agreement resulted in tariff reductions but Spain still faces some tariffs. L. C. Croissier (Sampedro and Payno, Ch.10) identifies particular sectors in Spain that will benefit from freer access to the EEC following accession: tiles, non-ferrous metals, metal-working products, plastics processing, rubber, textiles, some food industries, and furniture. As an Associate Member from 1962 until accession in 1981, Greece enjoyed relatively free access to the EEC market. A. G. J. Mitsos (Sampedro and Payno, Ch. 4) points out that some important exports like textiles were restricted under association. He mentions the controversy in Greece about the extent of the effects of the Association. J. Cravinho (Sampedro and Payno, Ch. 5) says that after accession Portugal will experience freer entry for its important export products termed "sensitive" in its 1972 agreement with the EEC (textiles and apparel items, and cork manufactures).

EEC *exports* to the Three can be expected to increase because enlargement will reduce existing barriers in the Three. There is in each of the Three concern about the impact on the industrial sector of reductions in tariff and non-tariff barriers on manufactured imports from the EEC. Croissier points out that "virtually all sectors of Spanish industry face the prospect of substantial tariff reductions...". He says that the greatest effect will be felt in transport equipment, electrical machinery, textiles and made-up goods, foodstuffs, metal products, miscellaneous manufactures, chemicals and non-electrical machinery (Sampedro and Payno, p. 225).

Mitsos points out that in spite of the gradual reduction of Greek tariffs under the 1961 Agreement, important industries still (in 1981) enjoyed high tariff protection, which will have to be reduced. In addition, he argues that accession may play a major role in the abolition of Greece's non-tariff protection, which protection Mitsos considers even more important than tariff protection, and that the abolition and subsequent imports could generate serious problems.

Without identifying particular sectors, Cravinho expresses concern about the impact of increased manufactured imports on the Portuguese balance of payments after accession.

where χ_{ij} is the share of commodity group i in the manufactured exports of country j ; and
 m_{ik} is the share of commodity group i in the manufactured imports of country k .

The index ranges from zero (no conformity) to one (perfect conformity).

We use SITC 3-digit trade data with 151 commodity groups for each of the six years 1978-1983.⁴ We compare the structure of a country's manufactured exports to the "world" to the structure of a trading-partner's manufactured imports from the "world" because these flows, rather than particular bilateral flows, indicate a country's comparative advantage.

There are six indices of direct interest: the conformity of Ireland's imports to the exports of Greece, Portugal and Spain, and the conformity of Ireland's exports to the imports of Greece, Portugal and Spain. To provide some perspective, the conformity of Ireland to both the UK (Ireland's major trading partner) and Italy (the EEC-9 members perhaps most similar to the Three) was also computed.

Table 2 shows the Indices of Trade Conformity. We look first at the conformity of Ireland's imports to the exports of the Three. Ireland's imports most closely

Table 2: *Indices of trade conformity, 1978-1983*

	1978	1979	1980	1981	1982	1983
<i>Ireland's Imports, and Exports from:</i>						
Greece	.32	.35	.38	.37	.36	.30
Portugal	.38	.43	.43	.46	.47	.43
Spain	.74	.74	.76	.72	.66	.55
Italy	.76	.75	.77	.70	.66	.60
UK	.58	.58	.56	.68	.67	.63
<i>Ireland's Exports, and Imports of:</i>						
Greece	.16	.19	.15	.25	.26	.21
Portugal	.44	.50	.46	.38	.41	.40
Spain	.61	.61	.62	.57	.58	.60
Italy	.48	.51	.50	.47	.48	.49
UK	.37	.42	.40	.52	.52	.52

4. Data for each of the six years separately are used to check the consistency over time of the revealed patterns. Analysis begins with 1978 data, the first year that SITC Revision 2 with its 151 manufactured commodity groups was published, and ends with 1983 data, the most recent available for all countries in the study at the time of writing. The period studied includes the first 3 years after Greece's accession. In that short time the small proportion of Ireland's exports going to Greece showed practically no change; the small proportion of Ireland's imports from Greece showed a small decrease.

resemble Spain's exports, and least resemble Greece's. The high index value for Spain suggests that following the Enlargement Ireland's imports from Spain will increase proportionally more than imports from Greece or Portugal.⁵ Note that this is distinct from the size factor; because Spain has a larger economy than Greece or Portugal, imports from Spain would be expected to increase more in absolute amount than imports from Greece or Portugal, even if the indices of conformity were the same.⁶

We use the data inputs to the indices (the import and export proportions) to identify which of the 151 product groups account for most conformity. Table 3 shows the 23 SITC groups for which the product of Ireland's import proportion and the trading partner's export proportion exceeds .0002, and both proportions separately exceed .01, for at least one trading partner for one year.⁷ Of course the extent of the list is determined by the arbitrarily chosen criteria.

Ireland's imports from the Three appear likely to increase in the product groups shown in Table 3. Conformity between Ireland's imports and the exports of each of the Three is high in medicinals, paper-paperboard, textile yarns, and footwear. Conformity between Ireland and both Greece and Portugal is high in clothing. Conformity between Ireland and both Portugal and Spain is high in cars, and vehicles for transporting goods. Conformity between Ireland and both Greece and Spain is high in various iron and steel shapes. These product groups and the others in the table deserve detailed study.

We now turn to the conformity of Ireland's exports to the imports of each of the Three. Table 2 shows that Ireland's exports more closely resemble Spain's imports than Portugal's, and more closely resemble Portugal's than Greece's. We interpret these indices to mean that, following enlargement, exports to Spain (and to a slightly lesser extent exports to Portugal) can be expected to increase proportionally more than exports to Greece.

It is striking that, for all six years, the Index of Trade Conformity is higher for Spain than for either Italy or the UK. This means that the pattern of Ireland's manufactured exports more closely resembles the pattern of Spain's manu-

5. The decrease in the Ireland-Spain index from 1981 to 1983 appears to be due to changes within a few important groups in SITC section 7. In particular, the big increase in Irish imports of computer parts-accessories (SITC 759) can account for about half of the index decrease.

6. Note that the index for Spain for each of the six years is very close to that for Italy. In 1983 Ireland's imports from Italy (£135 million) were two-and-one-half times larger than imports from Spain (£55 million), even though Italy's GNP was only twice as large as Spain's. This suggests the likely future importance of Spain as a trading partner.

7. This latter criterion is included only to ensure that products are at least minimally important in each partner. In 1983, for example, SITC 541 accounted for .0269 of Ireland's imports and for .0133 of Spain's exports. Both proportions separately exceeded .01 and the product of the two (.000357) exceeded .0002, so SITC 541 is "highly conformed" as here defined.

Table 3: *SITC groups showing high conformity between Ireland's imports and trading partner's exports, 1978-1983*

<i>SITC Group Name</i>	<i>Greece</i>	<i>Portugal</i>	<i>Spain</i>
541 Medicinals and pharmaceuticals	5	6	6
562 Fertilisers, manufactured		3	
583 Polymerisation products	6		5
598 Miscellaneous chemical products		1	
641 Paper and paperboard	4	6	6
651 Textile yarn	6	6	6
653 Fabrics, woven, of man-made fibre		2	
673 Iron-steel bars, rods and sections	3		4
674 Iron-steel plates and sheets	2		5
684 Aluminium	2		
752 ADP machines (computers)		3	2
764 Telecommunications equipment, n.e.s.		1	
772 Electrical circuit controls		1	
773 Equipment for distributing electricity	1		
776 Electric tubes, transistors		2	
781 Passenger motor cars		3	6
782 Motor vehicles for transporting goods		3	3
784 Parts for vehicles			3
842 Outer garments, male, of textiles	4	5	
843 Outer garments, female, of textiles	6	6	
845 Outer garments, knitted-crocheted	5	5	
851 Footwear	6	6	6
892 Printed matter			6

Figures are the number of years in the six-year period 1978-1983 in which (1) product of Ireland's import proportion and the trading-partner's export proportion exceeded .0002, and (2) both proportions separately exceeded .01.

factured imports than it does the pattern of Italy's or the UK's manufactured imports.⁸

We get some notion of which particular commodity groups are likely to experience the expansion of trade by identifying the SITC groups that simultaneously account for relatively large proportions of Ireland's exports and the trading partner's imports. Table 4 shows the 15 SITC groups for which the product of Ireland's export proportion and the trading partner's import proportion exceeds .0002, and both proportions separately exceed .01, for at least one trading partner for one year. Conformity between Ireland's exports and the imports of each

8. Another point can be made: in 1983 Ireland exported £142 million (SITC 5-8) to Italy and £51 million to Spain. Italy's GNP was twice as large as Spain's. To achieve the same Ireland-export to trading partner-GDP ratio Ireland's exports to Spain would have to increase to about £70 million.

Table 4: *SITC groups showing high conformity between Ireland's exports and trading partner's imports, 1978-1983*

<i>SITC Group Name</i>	<i>Greece</i>	<i>Portugal</i>	<i>Spain</i>
515 Organo-inorganic compounds		6	6
541 Medicinals and pharmaceuticals	6	6	6
583 Polymerisation products	2	2	1
651 Textile yarn	3	6	
653 Fabrics, woven, of man-made fibres	1	1	
699 Manufactures of base metal, n.e.s.			1
741 Heating and cooling equipment		4	
752 ADP machines (computers)		2	5
759 Parts-accessories for computers			6
764 Telecommunications equipment, n.e.s.	4	4	6
772 Electrical circuit controls		5	4
775 Household equipment, n.e.s.		1	
776 Electric tubes, transistors		4	6
781 Passenger motor cars	5	5	5
874 Measure-control instruments		6	6

Figures are the number of years in the six-year period 1978-1983 in which (1) the product of Ireland's export proportion and trading-partner's import proportion exceeded .0002, and (2) both proportions separately exceeded .01.

of the Three is high in organic-inorganic chemical compounds, medicinals and pharmaceuticals, textile yarns, computers, telecommunications equipment and cars. Conformity between Ireland and both Portugal and Spain is high in computer parts, electronic tubes-transistors, and measure-control instruments. A more extensive list of such sectors could be generated by changing the arbitrary criteria. Again note that it will take detailed product-level studies to provide quantitative projections. In these studies disaggregation of some very heterogeneous 3-digit groups (e.g., medicinals and pharmaceuticals) would be useful.

III. GREECE, PORTUGAL AND SPAIN AS EXPORT COMPETITORS

We now consider the likely impact of the Enlargement on Ireland's exports to the other members of the EEC-9; that is, we view Greece, Portugal and Spain as "competing" with Ireland in exporting to the rest of the EEC. The removal of EEC barriers to imports from the Three will cause the prices of goods from the Three to decrease relative to prices of goods in the EEC (including Ireland), so Ireland's exporters will face increased competition from Greece, Portugal and Spain in the markets of the other EEC countries. We want to identify which of

the Three promises to be most competitive with Ireland in the markets of the EEC, and the SITC product groups wherein most competition will occur.

To identify which of the Three will be most competitive with Ireland we use the *Index of Export Similarity* proposed by Finger and Kreinin (1979) to examine the similarity of Ireland's manufactured exports and the manufactured exports of Greece, Portugal and Spain.

$$\text{Index of Export Similarity} = \sum_i \text{Min}[\chi_i(\text{ac}), \chi_i(\text{bc})]$$

where $\chi_i(\text{ac})$ is the share of manufactured good i in the manufactured exports of country a to destination c ; and

$\chi_i(\text{bc})$ is the share of manufactured good i in the manufactured exports of country b to destination c .

It can be seen that if export shares differ completely, the Index equals 0; in this case there is no similarity and hence no competition. If export shares are identical, the Index equals 1.0, and there is perfect similarity and hence the potential for competition.

We compare the pattern of Ireland's manufactured exports with the pattern of manufactured exports from Greece, Portugal and Spain, separately. In all cases exports are "exports to the world" (that is, destination "c" is the world). While we are interested in the competition between Ireland and each of the Three in the other EEC countries, it would be inappropriate to use exports to the EEC alone as inputs to the calculation, because prior to Enlargement the Three face different barriers to their exports to the EEC. As in Part II we use the 151 SITC 3-digit groups for the six years 1978-1983.

The results of the analysis are shown in Table 5. Ireland's manufactured exports are for each year more similar to Spain's than to Portugal's, and in turn, more similar to Portugal's than to Greece's. These figures suggest that Ireland will face more competition from Spain in the markets of the other EEC countries than from either Portugal or Greece (although the difference between Spain and Portugal is not large).

We can identify the SITC groups wherein Ireland will face competition by using the inputs to the export-similarity analysis. Table 6 shows the 35 SITC

Table 5: *Indices of export similarity, 1978-1983*

	1978	1979	1980	1981	1982	1983
Ireland-Greece	.35	.35	.31	.33	.30	.26
Ireland-Portugal	.42	.42	.42	.44	.39	.36
Ireland-Spain	.46	.47	.48	.45	.44	.41
Ireland-Italy	.53	.53	.54	.50	.50	.48
Ireland-UK	.50	.52	.52	.52	.52	.51

Table 6: *SITC groups showing high similarity between Ireland's exports and competitor's exports, 1978-1983*

<i>SITC Group Name</i>	<i>Greece</i>	<i>Portugal</i>	<i>Spain</i>
522 Inorganic chemical elements	2		
541 Medicinals and pharmaceuticals	6	6	6
562 Fertilisers, manufactured		2	
583 Polymerisation products	4		4
598 Miscellaneous chemical products	3	3	
625 Rubber tyres			6
641 Paper and paperboard		1	1
651 Textile yarn	6	6	6
652 Cotton fabrics	4	4	
653 Fabrics, woven, of man-made fibres	2	6	1
658 Made-up articles, of textile materials	2	1	1
659 Floor coverings	4		
665 Glassware		6	
695 Tools for use in the hand or in machines			1
697 Household equipment of base metal, n.e.s.			1
699 Manufactures of base metal, n.e.s.	1	6	5
741 Heating and cooling equipment			3
744 Mechanical handling equipment			3
752 ADP machines (computers)		4	2
759 Parts-accessories for computers		2	
764 Telecommunications equipment, n.e.s.	1	1	
772 Electrical circuit controls		6	
773 Equipment for distributing electricity	4		
775 Household equipment, n.e.s.			6
776 Electric tubes, transistors		6	
781 Passenger motor cars		3	5
821 Furniture and furniture parts			1
842 Outer garments, male, of textiles	5	4	
843 Outer garments, female, of textiles	6	6	
845 Outer garments, knitted-crocheted	1	1	
846 Under garments, knitted-crocheted	4	4	
851 Footwear	4	3	3
892 Printed matter			6
893 Articles, n.e.s., of artificial resins	3		
894 Toys, games and sporting equipment			3

Figures are the number of years in the six-year period 1978-1983 in which the export proportion exceeded .008 for both Ireland and the competing country.

groups wherein the export proportions exceeded .008 (0.8 per cent) for *both* Ireland and a competing country in at least one year in the 1978-1983 period. (Again, this criterion is arbitrary; a lower proportion would, of course, extend the list.) The table indicates which countries are competitive with Ireland and

for how many years of the 1978-1983 period that this was the case. Ireland competes with each of the Three in medicinals-pharmaceuticals, textile yarn, and footwear. Ireland competes with both Greece and Portugal in miscellaneous chemical products, cotton fabrics, and clothing. (The heterogeneity of these groups would make further disaggregation useful.) Ireland faces competition in different product groups depending on which of the Three is involved because the export structures of the Three differ.

IV. SUMMARY

This paper used SITC 3-digit trade data for manufactures for 1978-1983 to estimate the likely impact on Ireland of the accessions of Greece, Portugal and Spain to the EEC. Greece, Portugal and Spain were looked upon first as Ireland's trading partners and then as competing exporters of manufactured goods to the rest of the EEC.

The Index of Conformity analysis examined the potential of Greece, Portugal and Spain as trading partners for Ireland. The analysis showed that Spain is likely to become a more important trading partner after its accession both because of the close conformity of the import and export patterns of Ireland and Spain, and because of Spain's size. The analysis identified the product groups contributing most to the Index of Conformity and thus most in need of additional analysis.

The Index of Export Similarity analysis examined the potential of Greece, Portugal and Spain as competing exporters to the rest of the EEC. The analysis showed that Ireland's manufactured exports were consistently more similar to Spain's than to either Greece's or Portugal's. Ireland will face more competition from Spain than from either Greece or Portugal, even apart from Spain's size.

Analyses of the sort presented in this paper could readily be expanded to include additional countries, disaggregated beyond the SITC 3-digit level to provide more specific detail, and kept current by regular updating as trade data become available on OECD computer tape. For a quite modest investment, decision makers in the public and private sector in Ireland could be provided with valuable information on trade in manufactured goods.

REFERENCES

- DONGES, J., and K. SCHATZ, 1979. "Competitiveness and Growth Prospects in an Enlarged European Community", *World Economy*, Vol. 2 No. 2, pp. 213-228.
- FINGER, J. M., and M. E. KREININ, 1979. "A Measure of 'Export Similarity' and its Possible Uses", *Economic Journal*, Vol. 89, December, pp. 905-912.
- OECD. *Statistics of Foreign Trade, Series B, Tables by Reporting Countries*, annual, Paris. (Printed tables for 1978-1980, microfiche for 1981-1983.)
- SAMPEDRO, J. L., and J. A. PAYNO (eds.), 1983. *The Enlargement of the European Community: Case Studies of Greece, Portugal and Spain*, London: Macmillan. (English edition edited by L. Gorman and M-L. Kilijunen.)