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Irish Manufactured Imports from the UK
in the Sixties: The Effects of AIFTA

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*Irish Manufactured Imports from the UK
in the Sixties: The Effects of AIFTA*

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CONTENTS

	<i>Page</i>
Acknowledgements	7
Introduction	9
Methodology of Study	13
The UK Share of Irish Manufactured Imports	17
The UK Share of Irish Apparent Consumption	35
Implications of Results	53
Summary	63
Appendix 1. Notes on Methodology	67
Appendix 2. UK Import Share Predictions: Regressions on a Time Trend vs. Simple Extrapolation	79
References	87

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Introduction

THE sustained high level of Ireland's balance of payments deficit on current account in the late sixties has given rise to a certain amount of concern and discussion. Various suggestions have been put forward to account for this phenomenon: rising external trade prices, the changing structure of the economy, the increasing importance of industrial exports which have a high import content, etc.¹

Yet, as Kennedy puts it:

... even when all these factors are taken into account there remains a suspicion that imports have also remained higher than might be expected on past experience due to reduced competitiveness in the widest sense. This would include not only the deterioration in unit wage costs but also other factors such as the effect of lowering tariffs under the Anglo-Irish trade agreement.²

The present study focuses on the effects of the change in competitiveness referred to by Kennedy on manufactured imports from the UK (hereinafter to be taken as synonymous with "UK imports") since the mid-sixties. Undoubtedly, a major factor favouring UK manufactured imports during this period has been the Anglo-Irish Free Trade Area Agreement (AIFTA). This Agreement, which came into effect in July 1966, represented a very significant move towards free trade for Irish industry. Under the terms of AIFTA, Ireland undertook to eliminate, subject to certain conditions, all existing protective duties on non-agricultural imports from the UK by ten annual tariff reductions of 10 per cent each. Quantitative import restrictions, and the "protective" element in certain revenue duties were also to be eliminated before the end of the ten-year period.³ Average nominal tariffs on UK imports subject to the terms of AIFTA (after the first 10 per cent reduction in 1966) were estimated by McAleese ([22] Table A2) as: 12.7 per cent for capital goods, 18.6 per cent for consumer goods and 7.9 per cent for intermediate goods.

At the time of writing, the full range of statistics required for our study was available only up to the year 1970. This enables us to examine the effects of AIFTA half-way through the transitional period. Although a longer period of observation might have been desirable, the year 1970 is a reasonable vantage point from which to review the effects of the Agreement on imports, and in

¹For a brief, incisive discussion of these points, see Kieran A. Kennedy, [12].

²*Ibid.*, p. 16.

³Separate agreements were made covering trade in agriculture, forestry and fishing products (including certain processed foodstuffs). For further details the Government White Paper, *Free Trade Area Agreement and Related Agreements, Exchanges of Letters and Understandings*, [9] may be consulted.

particular its implication for domestic manufacturers. At this stage, the Irish Government had the right to exclude a certain proportion of imports from the free trade arrangements, or to extend the transitional period, if the continued growth of these imports was likely to create exceptional difficulties for Irish industry.⁴

Several attempts have been made already to evaluate post-AIFTA trends in Anglo-Irish trade.⁵ These analyses have mainly concentrated on assessing AIFTA from the Irish viewpoint by trying to quantify the export gains and domestic market losses of Irish producers in order to produce a "balance-sheet" of the Agreement to date.

The present study deals primarily with one aspect of AIFTA, namely, its effect on UK manufactured imports. The effects of the Agreement on agricultural and industrial exports are thus not explicitly considered until towards the end of the paper. No attempt is made to quantify the so-called "dynamic" effects of a free trade area. These dynamic effects relate to the effects of increased competitiveness in a previously protected market on investment decisions, monopolistic cartels and ability to exploit economies of scale, all of which have in turn a bearing on the growth rate of the economy concerned. In the absence of an acceptable method of quantifying these dynamic effects, we are forced to follow the conventional practice of investigating only the "static" import effects of the agreement.

It is our contention that the UK's export performance was significantly improved by AIFTA. At the same time, we recognise that many factors other than AIFTA were at work in determining the UK's share of Irish imports. Devaluation, relative cost differentials, changes in competitiveness in the broad sense are just three of the factors we have in mind. A major methodological difficulty, therefore, running through this paper is that of isolating the AIFTA effect from the effects of these other factors on imports from the UK. There is, in fact, no single fully satisfactory method of achieving this task.⁶

⁴The excluded goods were not to exceed 3 per cent of the value of total Irish imports in the year preceding the review. Following negotiations with the British Government on this question, the transitional period has been extended by up to two years in the case of certain iron and steel products, certain types of agricultural machinery, some domestic appliances, furniture, ropes, brushes and brooms etc. It was decided also to exclude outerwear (other than outerwear with a weight containing 50 per cent or more cotton), bed linen and candlewick bedspreads altogether from the Agreement, as the Irish Government is entitled to do under Article 1. Excluded goods were estimated as 1.4 per cent of the value of UK imports (July 1969 to June 1970) and extensions of the transitional period were granted to products comprising 2.8 per cent of UK imports during the same period. This information was supplied by the Department of Industry and Commerce.

⁵These attempts have appeared in the form of newspaper articles. The best that has come to our attention is an impressive article by Garret FitzGerald (*Irish Times*, 14 January 1972).

⁶See, for example, Kreinin's recent review of the various techniques used to estimate the effect of the EEC on international trade flows. After examining the difficulties associated with each technique he concludes:

"each approach . . . is fraught with dangers arising from its own heroic assumptions. The only hope of arriving at approximate orders of magnitude lies in utilising a variety of methods and comparing the results." [16], p. 900.

Consequently, the approach we have adopted is to apply a number of different independent or quasi-independent techniques, each with its own limitations and defects, in the hope of arriving at a reliable estimate of the approximate order of magnitude of the AIFTA effect. A remarkable feature of the paper is, in fact, the compatibility of the various estimates obtained in this way.

The paper is divided into five parts. In the first part, we discuss the methodology employed in this study. The second part contains an analysis of Anglo-Irish trade flows during the sixties and provides some provisional estimates of the effects of changing British competitiveness in the Irish market. The third section investigates the problem in much greater detail by combining trade data with domestic production statistics. An attempt is made to divide the total trade effects of AIFTA on British imports into trade creation and trade diversion effects. The implications of our results are examined in the fourth section. The results of the study are then summarised.

Methodology of Study

STUDIES designed to measure the effects of economic integration on trade flows can be separated into two types: those which employ *ex-ante* methods and those which employ *ex-post* methods. A detailed discussion of these methods and the problems arising from them is contained in Appendix 1 and also in McAleese [21], so it is proposed to give only a short summary of them here.

Ex-ante studies are concerned with forecasting the effects of trade liberalisation in advance of the event. Two hypothetical trade flows are estimated: one assuming no change in commercial policy and the other assuming a reduction in the protective structure. *Ex-post* studies by contrast view the consequences of trade liberalisation in retrospect. Actual post-liberalisation trade flows are compared with hypothetical or "expected" trade flows i.e. estimates of trade flows as they would have been in the absence of the change in commercial policy. The derivation of the hypothetical trade flow is, of course, a crucial element in the whole exercise and there is as yet no universally agreed way of estimating them. Since this study utilises an *ex-post* approach, the major methodological problem to be considered is that of estimating hypothetical trade flows.¹

Hypothetical trade flows are estimated by market shares analysis. Changes in the market share of the UK are examined between some pre-integration year (or period of years) which is considered "normal" and a post-integration year (or period of years). This method is used extensively in studies of export growth and in studies of regional growth and employment patterns.² It is, of course, not the only method available for estimating hypothetical trade flows, but we considered it to be the most appropriate in the present circumstances.³

Two variants of market shares analysis are used: (1) the constant shares method and (2) the share change method. With the constant shares method, hypothetical market shares are taken to be equal to the actual shares of some

¹Some experimentation with the *ex-ante* approach was carried out but the results were unreliable owing to the absence of any direct estimate of the price elasticity of demand for Irish imports from the UK. In any event, the standard partial *ex-ante* approach must be deemed inferior to the *ex-post* approach in a situation where non-marginal tariff reductions spread over a wide range of products are taking place. Whereas the *ex-post* approach is designed to capture the general equilibrium or "total" effects, the *ex-ante* method will indicate the magnitude of the initial price effects only. This is not, of course, to gainsay the usefulness of the *ex-ante* method in situations where no alternative exists.

²See for example Richardson [28]. Recent applications of the method to Irish regional and employment data can be found in O'Farrell [24] and Walsh [31].

³This point is further explained in Appendix 1.

previous "normal" year. This method is designed to indicate the change in total "competitiveness" (due to changes in tastes, reductions in tariff barriers, exchange rate adjustments, changes in relative costs of production at home and abroad etc.). The share change method by contrast attempts to isolate the effects of the reductions in tariff barriers. It does this by taking past behaviour of a country's market share into account in estimating its hypothetical share. In this way, the effects of systematic long-term changes in competitiveness are neutralised and one is left with a much narrower range of competitive factors to examine explicitly. In the present instance, the AIFTA tariff reductions are considered the most important residual factor, although the effects of the 1967 devaluation and of changes in UK/Irish labour cost differentials have also to be investigated.

A concrete example, taken from Table 2 of the next section, will serve to illustrate the point. Consider the case of medicinal and pharmaceutical goods imports (SITC 56). The UK share of these imports averaged 76.01 per cent in the two years 1959-60, 66.90 per cent in 1964-65 and 61.29 per cent in 1969-70. Our purpose is to examine changes in competitiveness during the period 1964-65 to 1969-70. To estimate the change in total competitiveness, the actual 1969-70 UK share (61.29 per cent) is subtracted from the hypothetical share, which is assumed equal to the actual 1964-65 level (66.90 per cent). The result suggests a loss in total UK competitiveness of 5.61 percentage points. Using the share change method, account is taken of the fact that unfavourable competitive trends were in evidence prior to 1964-65. The 12 per cent decline in the UK share 1959-60 to 1964-65 is thus extrapolated forward to yield an expected share of 58.88 per cent for 1969-70. This figure is lower than the actual share of 61.29 per cent, indicating that the downward competitive trend has been offset by 2.41 percentage points due to the introduction of some favourable factor in the post 1964-65 period (namely, in the present case, the reduction of tariffs on imports from the UK).⁴ Obviously there is no question of the constant shares method being "superior" to the share change method or *vice versa*. They both measure different things.

In addition to the two types of competitive effects, this study also includes an examination of the "composition effect" on Anglo-Irish trade. The composition effect is a term familiar in studies of the present kind. It refers to the effect of changes in the product composition of a country's market (due to, say, structural shifts in the economy or some other exogenous influence) on the share of supplier countries in that country's market. Thus, if the demand for products in which one foreign supplier has a disproportionately large share expands much faster than all other products, one would expect *ceteris paribus* that this supplier's share of the total market would increase. The supplier's increased

⁴See Appendix 1 for a simple graphical explanation of this point.

share of the recipient country's total market may have nothing to do with competitiveness.

Competitive and composition effects are calculated in this paper with respect to two categories of UK imports and two types of market. First, in Section 3 attention is focused on total manufactured imports (SITC 5-8, excl. 56 and 73) and on the share of corresponding UK imports in that total. Secondly, in Section 4 a narrower range of UK imports is considered, namely, those which could be described as "competing" imports, and the behaviour of these imports in relation to apparent consumption (i.e. domestic production less exports plus competing imports) rather than total imports, is investigated.

On theoretical grounds, the apparent consumption share approach is undoubtedly the more satisfactory. It takes explicit account of changes in the share of domestic producers in the total market. It also enables the trade creation and trade diversion effects of AIFTA to be clearly separated (*trade creation* represents the replacement of Irish sources of supply by cheaper UK products, and *trade diversion* represents the substitution of UK supplies for non-UK arising as a result of the discriminatory effects of the tariff reductions).⁵ However, the use of apparent consumption shares is frequently beset with severe data problems. In the present paper, the chief difficulty lies in obtaining reliable up-to-date gross output data for Irish industries. The import share approach, by contrast, gives rise to much fewer data problems but is subject to limitations on theoretical grounds. While capable of capturing trade diversion effects, the approach may well underestimate the total trade effect, if trade creation effects are significant and the share of the partner country's imports (in our case the UK) in total imports is large.⁶ In the limiting case, where the

⁵See Appendix 1 for a more detailed explanation of these concepts.

⁶This point can be illustrated with the aid of an arithmetical example in which, for simplicity sake, past trends in market shares are ignored.

Suppliers	Actual Imports (in £'s)		Expected Imports	
	Period 1	Period 2	Period 2	Period 2
UK	100	120	100	110
non-UK	50	45	50	55
M	150	165	150	165
DP	350	335	350	
C	500	500	500	

Let period 1 represent the pre-AIFTA situation, with UK, non-UK and domestic producers (DP) supplying 20 per cent, 10 per cent and 70 per cent respectively of Irish apparent consumption (C). Period 2 represents the situation after the effects of the agreement are fully worked out. Using a constant share method, combined with apparent consumption ratios, expected imports are as indicated in column (3). The shares in apparent consumption, in other words, are expected to remain constant and since total apparent consumption has not changed, expected period 2 imports will be exactly the same as actual period 1 imports. The AIFTA effect, therefore, would be $£120 - £100 = £20$, i.e. following formula (1) in the text, composed of trade creation of £15 and trade diversion of £5. This result can

UK share of imports was 100 per cent (i.e. all imports came from the UK), the import share method obviously breaks down.

Regarding the two import categories, the competing imports referred to in Section 4 of this Paper can be regarded as a subset of manufactured imports (SITC 5-8) used in the import share analysis of Section 3. Three factors suggest that this study should cover more than competing imports: (a) the possibility that some imports were affected by AIFTA but were excluded from the definition of competing imports, (b) the lack of a continuous time series of competing imports, which was readily available and from which UK shares could be easily computed⁷ and (c) the desirability of examining British performance in the Irish market in manufactured goods generally, including those products which were not immediately affected by AIFTA, and hence of facilitating comparison between the results of this study and those of British manufactured goods export performance elsewhere.

Regardless of which share is being considered, import shares or apparent consumption shares, the method of calculating competitive and composition effects remains the same. Thus, in the case of the import shares approach, the competitive effect is calculated in two steps. First, expected imports from the UK are calculated on the basis of the end-year commodity composition of imports (referred to as hypothetical UK imports A). These represent imports as they would have been if the UK's share of each commodity group had remained constant (or in the case of the share change method, had followed past trends), but without taking account of changes in the composition of imports during the period under review. Second, actual UK imports are subtracted from hypothetical UK imports. The difference represents our estimate of the competitive effect.

To calculate the composition effect, we estimate UK imports as they would have been if (a) UK share of each product group had remained constant (or followed past trends, in the context of the share change approach), and (b) the product composition of total imports had remained constant (or followed past trends). The resultant estimates are termed hypothetical UK imports B. The composition effect is then the difference between hypothetical UK imports A and hypothetical UK imports B.

be compared with the estimate which emerges on the basis of an import share analysis. To derive expected imports by this method, actual imports in period 2 of £165 are apportioned between UK and non-UK according to their pre-AIFTA shares of total M (66 $\frac{2}{3}$ per cent and 33 $\frac{1}{3}$ per cent respectively). The AIFTA effect is then calculated as actual minus expected UK imports from column 4; £120 - £110 = £10. In this example, therefore, the import share approach captures only half the total effect. It can easily be verified that the discrepancy between the two estimates would have been smaller had the UK share been lower or the amount of trade diversion been greater.

⁷Technically, it would be possible to construct such a series, but we found it an extremely laborious task to compute the necessary figures for the six years used in this study. Another problem is that the definition of competing imports is likely to change over time; so also is the import list classification scheme.

The UK Share of Irish Manufactured Imports

Expected and Actual UK Shares

THE UK share of total Irish imports has been very stable during the last four decades. As Table 1 shows, 53.5 per cent of Irish imports were of UK origin in 1970 compared with 52.9 per cent in 1950, and there were no large changes in the intervening years. With five exceptions, the UK import share stayed within the band 49–54 per cent in each year during the period 1950 to 1970.¹ The average UK share over the twenty years was 52.0 per cent, the standard deviation and coefficient of variation were 2.6 percentage points and 5.1 per cent respectively.²

A different picture emerges, however, if imports are divided into a manufactured goods component (SITC 5–8) and a food, drink and raw materials component (SITC 0–4). The UK share of manufactured goods imports fell from 78 per cent in 1950 to 67 per cent in 1959, and declined further to 62 per cent by 1970. The behaviour of food, drink and raw materials shares was rather more erratic, with the UK share of these products showing no evidence of the steady decline noted in manufactured goods.

On the basis of Table 1 data, it appears that the rate of decline in the UK share has decelerated somewhat since 1950.³ Thus, the UK share fell by on average 1.5 per cent *per annum* between 1950 and 1959, compared with a corresponding figure of 1.0 per cent between 1959 and 1965 and 0.6 per cent between 1965 and 1970. The higher rate of decline in the fifties may, however, reflect certain residual effects of the post-War European recovery and the restoration of convertibility etc.⁴ This conjecture is supported by the extraordinary rise in the EEC's share of Irish manufactured imports from 9 per cent in 1950 to 20 per cent in 1959. An important factor underlying this increased share was the rapid expansion of purchases of machinery (SITC 7) from

¹Three of the five exceptions were observed in the years 1956–58. Special import levies were imposed at that time which discriminated heavily against non-preferential imports and which therefore are contributory factors in explaining the exceptionally high British import shares in these three years.

²The UK share was also regressed on time to test for linear and log-linear trends but the coefficients were insignificant at any reasonable confidence level.

³The choice of years in Table 1 may be explained as follows: 1950 was early enough to antedate the Korean war and yet late enough to avoid reflecting the gross distortions in trade flows caused by the immediate post-World War period; 1959 marks the beginning of Ireland's industrial recovery from the troughs of the mid-fifties; 1965 is the pre-AFTA year, and 1970 the latest year for which fully comprehensive trade data was available at the time of writing this paper. Our choice of years is, of course, arbitrary but the trends revealed in Table 1 are, we hope, nevertheless fairly representative.

⁴West Germany's share of SITC 7 imports increased from roughly 2 per cent in 1950 to 12 per cent in 1959. The low initial share reflects post-war supply constraints mentioned above.

TABLE 1: *Percentage distribution of Irish imports by sections from the principal trading areas, 1950-1970*

SITC ^(a)	United Kingdom				Other EFTA ^(b)				EEC				Other OECD ^(c) (excluding Japan)				All Other Areas			
	1950	1959	1965	1970	1950	1959	1965	1970	1950	1959	1965	1970	1950	1959	1965	1970	1950	1959	1965	1970
0. Live animals and food	8.8	25.7	29.4	39.8	0.4	0.8	1.2	0.8	5.2	5.3	10.5	8.8	51.2	20.0	24.6	17.2	34.5	48.2	34.3	33.4
1. Beverages and tobacco	4.9	14.5	16.2	15.0	3.6	3.9	4.4	3.4	4.8	12.7	20.0	34.1	82.1	65.9	50.9	36.5	4.6	3.0	8.5	11.1
2. Raw materials	11.0	21.4	21.1	21.4	29.8	21.6	20.7	21.1	3.7	4.7	5.5	8.6	12.2	7.7	14.5	16.6	44.0	44.6	38.1	32.3
3. Mineral fuels and lubricants	64.5	54.9	32.5	36.1	—	—	—	0.2	2.1	3.3	4.9	5.7	7.8	8.9	7.5	1.1	25.6	32.9	55.1	57.0
4. Animal and vegetable oils	20.1	34.5	26.7	13.6	0.8	3.1	10.7	11.6	1.7	2.4	17.2	12.3	21.0	7.7	8.9	12.3	56.4	52.3	36.5	50.2
Total sections 0-4	22.4	32.6	27.7	32.9	6.8	5.0	5.0	5.3	3.7	4.8	8.9	9.3	34.5	16.9	19.8	13.4	32.6	40.6	38.6	39.1
5. Chemicals	63.9	52.9	56.5	59.2	0.9	2.4	2.8	3.3	19.8	34.9	28.6	27.3	5.2	5.2	7.9	6.2	10.2	4.6	4.1	4.1
6. Manufactured goods classified by material	76.2	66.1	60.8	63.4	5.7	7.0	7.6	8.9	10.8	14.7	18.5	15.9	5.3	7.0	7.0	6.7	2.0	5.2	6.0	5.1
7. Machinery and transport equipment	83.3	71.7	66.6	58.5	3.6	3.7	5.3	6.5	4.8	19.1	18.9	23.2	7.9	2.8	7.3	10.0	0.4	2.7	1.9	1.9
8. Manufactured articles, n.e.s.	84.1	75.7	67.4	71.1	3.0	2.4	4.2	3.9	6.3	14.9	16.8	13.5	4.6	3.2	4.8	5.7	1.9	3.8	6.8	5.9
Total manufactured imports	78.3	67.1	63.3	61.7	4.3	4.5	5.6	6.5	9.2	19.6	20.0	20.2	6.0	4.7	7.0	7.9	2.2	4.0	4.1	3.7
Total imports ^(d)	52.9	51.7	50.6	53.5	4.5	3.2	5.2	5.9	6.7	12.4	15.3	16.4	19.0	10.2	11.4	9.4	16.9	22.5	17.5	14.7

Source: Computed from successive issues of *Trade and Shipping Statistics* and *External Trade Statistics*.

Notes:

- The 1950 and 1959 SITC breakdown by principal trading area were estimated by the authors using a key-linking the pre-1963 Irish trade classification to the SITC.
- Other EFTA includes Finland.
- Other OECD consists of USA, Canada, Iceland, Greece, Spain and Turkey.
- Includes Section 9—Parcel post and special transactions.

Germany during the decade.⁵ For this reason, we consider the 1959-65 trend in the UK import share as more relevant to the present study than the comparable 1950-59 trend.

Considering UK manufactured imports by SITC section, it is interesting to note that, whereas the UK share of all sections fell substantially between 1950 and 1959, a significant increase in the UK share occurred between 1965 and 1970 in Sections 5, 6 and 8. The small decline in the overall UK share of manufactured imports was attributable wholly to a decline in the UK's share of Section 7. This may be regarded as *prima facie* evidence that the decline in the UK share of most Irish manufactured imports between 1950 and 1965 has been partly reversed during the period of the AIFTA tariff reductions. It is this pervasive downward trend in the UK share of Irish manufactured imports prior to AIFTA which renders the use of a market share change analysis imperative, if the effects of AIFTA are to be separated from other competitive influences during this period.

As already noted, the market shares approach depends critically on the assumption that the base period or the base year import shares (according to whether a share change or constant share method is being used) are "normal", i.e. are not distorted by some exceptional factor which one would not expect to be replicated in succeeding years. In applying the constant shares method we use the average import shares in 1964 and 1965 as our reference base. The use of a two-year average lessens the risk of distortions, while the choice of years is dictated by their being the last two years before the Agreement came into operation in 1966.⁶ In the share change analysis, we decided to use import share trends during the period 1959-60 to 1964-65 as base.⁷ The choice of 1959-60 as our starting point may not be altogether appropriate since both years witnessed above-average growth in GNP. Due, however, to the cyclical element in the recovery from the 1955 recession and to the existence of abnormal trade restrictions at that time, the extension of the period to include 1956-58 would not have been advisable. Pre-1955 years are also ruled out by the lack of data and, in particular by difficulties relating to the comparability of pre-1955 and post-1955 trade statistics and the identifica-

⁵McGeehan [23] in her study of UK competitiveness points out that the long-term decline in the UK share of world trade in manufactures was halted briefly after the Second World War while Germany and Japan were temporarily off the international trade map. The steep rise in the nineteen fifties in the share of world trade of these two countries, which was paralleled by a fall in the share of the UK and USA, is attributed by her to "the recovery of a previously achieved position".

⁶The imposition of Special Import Levies in November 1965 was assumed to have had no effect on imports in 1965. These levies were imposed for balance of payments purposes. For details, see *Irish Statistical Bulletin*, December 1965.

⁷Fitting a trend line between the first two and the last two observations to project an "expected" share could be criticised as it takes no account of the trend in the other years in the base period. This problem can be overcome by fitting a time trend to the data using least squares regression procedures. We applied this regression approach to the UK share over the period 1959-65. As it gave very similar results to the share change method, we relegate discussion of this method and its results to Appendix 2.

tion of SITC items with Import List numbers. Furthermore, as already noted, we have some doubts as to the representativeness of the deceleration in the UK share during the fifties. Although Kennedy and Dowling^[18] suggest that 1961 was the first year to be largely free from the effects of the 1955 recession and the subsequent recovery, we decided against using 1961-62 as base because it would have meant too short a time period before the Agreement.

An implicit assumption of our analysis is that the periods selected represent comparable stages of the business cycle in Ireland and the UK. This assumption is necessary because the relationship between imports exports and domestic demand probably varies during the cycle. Another implicit assumption is that the unilateral tariff reductions of 10 per cent each in the Irish tariff in 1962 and 1963 had a negligible effect on market shares. Since they were non-discriminating as between UK and non-UK suppliers and were insufficiently large to cause any serious shift in competitiveness of foreign goods relative to domestically produced Irish goods, this assumption was felt to be quite reasonable. In summary, therefore, we have selected the period 1959-60 to 1964-65 as our pre-integration period because of data classification problems involved in using any earlier years, doubts as to the representativeness of the earlier period and also because of the need to have a sufficiently long pre-integration period to permit identification of any trend in imports from the UK.

Choice of Products

The desirability of some degree of disaggregation has already been mentioned. In determining the coverage and detail of this study, we were influenced both by the nature of the Agreement itself and by the availability of data.

The Agreement provided for the elimination of all tariffs and quotas on Irish imports by 1975 with certain exceptions. The products to be excluded are listed in Annex A to the Agreement and mainly comprise agricultural, agricultural-based and fishery products. As these products account for most of Irish imports in Section O (Live Animals, Food and Food Preparations) it seems obvious that this section should be excluded from the analysis. Another candidate for exclusion is Section 1 (Beverages and Tobacco) imports, partly because of the high proportion of domestic excise duties in their price, and partly because the "protective" element in these excise duties (i.e. the difference between tariffs levied on imports and excise duties levied on domestically produced products) had not been removed by 1970.⁸ Since most imports in Sections 2-4 are allowed into Ireland duty-free, these are also excluded from the study. Furthermore, the change in the UK share of mineral fuels and

⁸The "protective" duty on UK spirits was removed in July 1972.

lubricants (Section 3) can for the most part be attributed to a single event—the establishment of the Whitegate Oil Refinery in 1959. Section 9 (Parcel Post and Special Transactions) imports are likewise omitted, for obvious reasons. All told the excluded imports came to 33 per cent of total 1969–70 imports.

In analysing the effects of AIFTA, we wish to consider only those imports on which UK exporters had to pay duty prior to AIFTA. Some manufactured goods imports, included in SITC 5–8, were allowed duty-free entry into the Irish market before 1966 and hence were unlikely to be affected by the Agreement. For the purposes of the AIFTA exercise, therefore, we would have liked to classify manufactured imports into dutiable (or concessionary) and non-dutiable (or non-concessionary) imports. In the absence of any such strictly unambiguous list of imports, we opt for a relatively liberal coverage in this section of the paper. A much smaller set of imports is considered in the next section.⁹ For the present, therefore, we concentrate attention on SITC 5–8 (Chemicals, Manufactured Goods Classified by Material, Machinery and Transport Equipment and Other Manufactured Goods).

Two divisions of manufactured goods are, however, excluded. Manufactured Fertilisers (SITC 56), which accounted for 1.8 per cent of manufactured imports in 1969–70, were omitted from the study first because all such imports from the UK faced a zero duty during the pre-integration period and to leave them in might distort our assessment of the effects of AIFTA, while secondly the prevalence of “dumped” fertilisers in the international market makes their inclusion in a study of overall competitiveness rather unsatisfactory. The other exception is somewhat different because of the nature of the problem. Imports of Transport Equipment (SITC 73) are a very substantial item in our total import bill accounting for 13.3 per cent of manufactured imports in 1969–70. Approximately 30 per cent of these imports are ships and aircraft which were allowed duty-free entry to this country prior to the Agreement and which are purchased by one buyer (aircraft) or very few (ships) often under quite special agreements and circumstances. The remaining 70 per cent are almost entirely accounted for by motor vehicle imports, most of which were protected by a quota arrangement up to June 1966. As imports prior to that year were negligibly small, it is impossible to attach any precise significance to share changes in the period up to 1970.¹⁰

The last step involves deciding on the level of aggregation to use in the study. It might have been possible to disaggregate the import data to a four-

⁹The implicit assumption, of course, is that there are no systematic cross effects between the excluded imports and those subject to the process of trade liberalisation under the Agreement. This assumption becomes less tenable as the classification of “affected” imports becomes narrower. This constitutes an additional reason for considering two groups of imports, one more extensive than the other.

¹⁰Motor vehicle imports will be discussed in greater detail in a later section.

TABLE 2: *The UK share of Irish manufactured imports by two-digit SITC heading, 1959-60 to 1969-70*

Description	Annual UK Share (Percentage)		Expected UK Share	Actual UK Share
	1959-60	1964-65		
<i>Chemicals</i>				
51 Organic and inorganic chemicals	81.24	68.18	57.22	61.16
52 Mineral tar and crude chemicals	98.01	97.62	97.23	90.29
53 Dyeing, tanning, colouring materials	76.30	71.54	67.08	64.74
54 Medicinal, pharmaceutical goods	76.01	66.90	58.88	61.29
55 Oils, perfume materials, cosmetics etc.	80.02	83.38	86.88	88.55
57 Explosives, pyrotechnic products	96.96	91.48	86.31	88.02
58 Plastic materials, etc.	76.96	69.89	63.47	67.87
59 Chemical materials, products, n.e.s.	71.29	61.40	52.88	64.08
Section 5 (excluding 56)	77.60	69.40	62.26	66.09
<i>Manufactured Goods Classified by Material</i>				
61 Leather manufactures	77.31	74.41	71.62	69.31
62 Rubber manufactures, n.e.s.	80.82	83.58	86.43	74.75
63 Wood manufactures (excluding furniture)	22.30	31.22	43.71	28.96
64 Paper and paperboard manufactures	43.89	45.59	47.36	45.61
65 Textile yarns and fabrics (excluding clothing)	67.15	59.56	52.83	60.71
66 Non-metallic mineral manufactures	82.69	71.43	61.70	72.15
67 Iron and steel	62.38	54.87	48.26	62.95
68 Non-ferrous metals	60.76	58.19	55.73	76.06
69 Metal manufactures, n.e.s.	78.31	77.42	76.54	74.73
Section 6	65.00	60.88	57.62	63.33
<i>Machinery and Transport Equipment</i>				
71 Non-electric machinery	65.54	61.45	57.62	58.05
72 Electrical machinery, goods and apparatus	69.87	60.83	52.96	56.24
Section 7 (excluding 73)	66.59	61.26	56.28	57.54
<i>Manufactured Articles, n.e.s.</i>				
81 Plumbing, heating, lighting fixtures	82.13	72.77	64.48	70.23
82 Furniture, travel goods, etc.	85.33	75.99	67.67	80.51
83 Clothing and headgear	73.87	82.52	92.18	88.34
84 Footwear	68.25	56.88	47.40	64.81
85 Professional, scientific, photographic, etc., goods; watches and clocks	56.04	51.43	47.20	53.81
86 Miscellaneous manufactured articles	75.99	66.18	57.64	68.34
Section 8	72.91	66.73	63.82	70.72
Total Manufactured imports (excluding 56 and 73)	68.06	62.84	58.70	62.80

Source: *Trade and Shipping Statistics, 1959, 1960, 1964, 1965, External Trade Statistics, 1969, 1970.*

- Notes: (1) The "expected UK" share is calculated by the share change method in the text.
 (2) SITC 56 (Manufactured Fertilisers) and 73 (Transport Equipment) are excluded for reasons explained in text.
 (3) "Expected" UK shares at the Section and Total Manufactured Imports level are calculated as weighted averages of the individual 2-digit "expected" UK shares, using the actual 1969-70 import shares as weights.

digit SITC as far back as 1959 but this would have involved many classification problems and a vast amount of calculations in an area where diminishing returns may set in early. In the end we settled for analysing the data at a two-digit SITC level. We feel that it represents a reasonable compromise between the desirability of further disaggregation and the practical difficulties involved.

Tables and Results

The basic data on the UK share of Irish manufactured imports for the three two-year averages under examination are presented in Table 2. The fourth column in the table shows the "expected" UK share in 1969-70 which is got by a simple extrapolation of the growth rate in the UK share between 1959-60 and 1964-65.¹¹ The table shows quite clearly that there was a strong tendency for the UK share to decline during the pre-integration period. There was a decline of almost 5 percentage points in the overall UK share of manufactured imports (excluding SITC 56 and 73) between 1959-60 and 1964-65. This decline in the UK share was paralleled in twenty of the twenty-five two-digit headings over the same period. The declining trend is naturally reflected in the "expected" UK share in 1969-70 which points to a further decline of 4 percentage points between 1964-65 and 1969-70 in the absence of integration.

If AIFTA had any effect on trade flows this should be clear from a comparison of the last two columns. The actual UK share of total manufactured imports (excluding 56 and 73) in 1969-70 was 62.80 per cent compared with an "expected" share of 58.70 per cent. This indicates a reversal of the declining trend in the UK share apparent prior to AIFTA. This reversal of trend is also apparent at the two-digit level. The "actual" UK share is greater than the expected UK share in seventeen of the twenty-five import headings in the table. This result suggests that some general factor or factors were operating to reverse the decline in the UK share in the second period which had not been operative in the first period.

The composition and competitive effects on manufactured imports from the UK in 1969-70 calculated by the share change and constant share methods are presented in Tables 3 and 4. It will be recalled that, in order to assess the UK's loss of competitiveness in the Irish market and how much of this loss was recovered by trade liberalisation, one needs the results of both methods. If, on the other hand, one is interested solely in assessing the effects of AIFTA then the share change method gives the more accurate picture.

The results of the share change method are outlined in Table 3. The AIFTA effect emerges with the "correct" sign in most divisions and in all section totals.

¹¹Table B1 in Appendix 2 shows a comparison between these "expected" UK shares in 1969-70 and those derived by the regression approach. Both methods give very similar results.

TABLE 3: *Irish manufactured imports from UK: composition and competitive effects, 1969-70, by share change method (£m.)*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
SITC	Total Irish Manufactured Imports 1969-70	Manufactured Imports from UK 1969-70	Hypothetical UK Imports (A) 1969-70	Hypothetical UK Imports (B) 1969-70	Composition Effect 1969-70 (4) = (5)	Competitive Effect 1969-70 (3) = (4)
51	10.9	6.6	6.2	4.4	+1.8	+0.4
52	0.2	0.2	0.2	0.3	-0.1	—
53	3.2	2.1	2.1	1.8	+0.3	—
54	11.0	6.8	6.5	6.4	+0.1	+0.3
55	3.5	3.1	3.0	3.5	-0.5	+0.1
57	0.6	0.5	0.5	0.4	+0.1	—
58	15.1	10.2	9.6	11.3	-1.7	+0.6
59	5.2	3.4	2.8	2.2	+0.6	+0.6
Section 5 (excluding 56)	49.8	32.8	31.0	30.3	+0.7	+1.8
61	4.1	2.9	3.0	2.5	+0.5	(-0.1)
62	4.8	3.6	4.2	2.5	+1.7	(-0.6)
63	4.1	1.2	1.8	1.8	—	(-0.6)
64	17.2	7.9	8.2	7.6	+0.6	(-0.3)
65	40.9	24.8	21.6	19.3	+2.3	+3.2
66	9.5	6.9	5.9	6.1	-0.2	+1.0
67	21.0	13.2	10.1	11.0	-0.9	+3.1
68	11.9	9.1	6.6	7.6	-1.0	+2.5
69	21.8	16.3	16.7	18.2	-1.5	(-0.5)
Section 6	135.4	85.8	78.0	76.5	+1.5	+7.7
71	85.8	49.8	49.4	48.4	+1.0	+0.4
72	34.7	19.5	18.4	25.2	-6.8	+1.1
Section 7 (excluding 73)	120.5	69.3	67.8	73.6	-5.8	+1.5
81	3.9	2.8	2.5	3.2	-0.7	+0.2
82	2.6	2.1	1.7	3.0	-1.3	+0.4
83	10.7	9.4	9.8	7.6	+2.2	(-0.4)
84	1.9	1.2	0.9	0.4	+0.5	+0.3
85	8.5	4.6	4.0	4.1	-0.1	+0.6
86	23.1	15.8	13.3	12.5	+0.8	+2.5
Section 8	50.7	35.8	32.3	30.8	+1.5	+3.5
Manufactured Imports (excluding 56 and 73)	356.4	223.6	209.1	208.1	+1.0	+14.5

Notes:

(1) *Hypothetical UK Imports A*: Calculated on the basis of actual 1969-70 structure of total manufactured imports, assuming the UK's share of each two-digit SITC follows past trends.

(2) *Hypothetical UK Imports B*: Calculated on the basis of hypothetical 1969-70 structure of total manufactured imports (i.e. extrapolated structure of imports from all areas), assuming the UK's share of each two-digit SITC follows past trends.

(3) Totals may not add exactly due to rounding.

(4) Negative competitive entries are put in parenthesis.

The AIFTA effect for all divisions amounts to £14.5 million.¹² As indicated in Table 5 (col. 2), this amounts to 6.5 per cent of average UK imports in 1969-70.

At a two-digit level, we note that although the positive competitive effects are small in absolute values, they can be quite large in proportion to individual division imports. In Section 6, for example, there is a significant clustering of the positive competitive effects in SITC 65-68 (textile yarns and fabrics, non-metallic mineral, iron and steel and non-ferrous metals manufactures) which amount to an increase of £9.8 million or 18.1 per cent of 1969-70 imports from the UK in these categories.¹³ The competitive effect comes to 15 per cent of imports in divisions 85 and 86 in 1969-70.

Negative competitive effects appear in divisions 61-64, 69 and 83. It is clear that, insofar as the share-change competitive effect is a measure of the AIFTA effect, negative entries make no economic sense.¹⁴ This line of reasoning led the EFTA Secretariat to ignore all negative numbers in their estimates of the EFTA effect. Although no indication is given of the sensitivity of their results to this adjustment, in our case the difference would not be very large. By excluding negative items, the AIFTA effect would increase from £14.5 million to £17.3 million—in percentage terms, an increase from 6.5 per cent to 7.7 per cent of total 1969-70 UK imports. In view of the high probability of error in calculations of this type and the uncertainty surrounding the “normality” of pre-AIFTA extrapolated trends, the inclusion of negative items can be regarded as a sort of compensation for any overestimation of the AIFTA effects in other divisions.

Although the relationship between AIFTA effects and the reduction in tariffs will be explored in greater detail towards the end of this paper, the proportionately large AIFTA effects observed in Sections 6 and 8 imports are worth noting. Commodities included under these headings tend to be the most heavily protected, both in Ireland and elsewhere.¹⁵ The estimated AIFTA effects amount to 9 per cent of Section 6 imports and 10 per cent of Section 8 imports from the UK (See Table 5).

Table 4 presents the results obtained by using the constant shares method,

¹²All the basic valuations were done to the nearest £'000 but the results are presented in the tables to the nearest £0.1 million so that some rounding errors are present.

¹³The increased competitiveness of textile yarns and fabrics imports from the UK may be related to the expansion of textile exports containing synthetics from Ireland to the UK as a result of AIFTA. In order to comply with the rules of origin, Irish importers may have been obliged to import UK raw materials. The point is further discussed below.

¹⁴This statement is rather strong. For example, in division 62 (rubber manufactures n.e.s.), consider the case of imports of tyres and tubes which account for about half the value of the division's imports. In May 1967, following representations from domestic producers, a quota was imposed on imports from the UK while the minimum specific duty on imports from non-UK sources was substantially increased from £0.60 to £3.00. Consequently, actual 1969-70 UK imports may be distorted downwards. This could result in a negative competitive effect which makes economic sense but has little affinity with the classical trade creation or trade diversion.

¹⁵McAleese [22] Table A1 and *European Community*, June 1972, p. 20.

i.e. this approach takes the UK share in 1964-65 as base and ignores previous trends in the share. This method suggests a negative "total effect" of £0.4 million on Irish imports of manufactures (excluding 56 and 73) from the UK in 1969-70, made up of a small positive composition effect of £1.4 million and a negative competitive effect of £1.8 million. In other words, if the UK had maintained its 1964-65 share and the structure of Irish manufactured imports had remained constant at the 1964-65 distribution, the level of manufactured imports from the UK (excluding 56 and 73) would have been 0.2 per cent *greater* than it actually was in 1969-70. The negative competitive effect of £1.8 million suggests that the considerable competitive advantage afforded to UK exporters by virtue of the AIFTA tariff reductions¹⁶ was not sufficient to overcome the structural and other competitive forces which have tended since the War to progressively reduce the UK's share of the Irish market. Although this conclusion does not apply to all products—significant positive competitive effects were noted in clothing and headgear (83), iron and steel products (67) and non-ferrous metals (68)—nonetheless negative or zero competitive effects were recorded in no less than fourteen out of twenty-five SITC divisions.

Turning to the composition effect we note that this effect is small, regardless of how it is calculated. Thus, the constant share method yields an estimate of

¹⁶The sterling devaluation in 1967 was, of course, another factor favouring UK products in the Irish market and its influence is discussed below.

TABLE 4: *Irish manufactured imports from the UK: composition and competitive effects, 1969-70, by constant share method (£m.)*

(1)	(2)	(3)	(4)	(5)	(6)
<i>SITC</i>	<i>Manufactured imports from UK 1969-70</i>	<i>Hypothetical UK imports (A) 1969-70</i>	<i>Hypothetical UK imports (B) 1969-70</i>	<i>Composition effect 1969-70 (3)-(4)</i>	<i>Competitive effect 1969-70 (2)-(3)</i>
51	6.6	7.4	6.2	+ 1.3	- 0.8
52	0.2	0.2	0.4	- 0.2	—
53	2.1	2.3	2.7	- 0.4	- 0.2
54	6.8	7.4	7.2	+ 0.2	- 0.6
55	3.1	2.9	2.7	+ 0.2	+ 0.2
57	0.5	0.5	0.6	- 0.1	—
58	10.2	10.5	9.1	+ 1.4	- 0.3
59	3.4	3.2	3.4	- 0.2	+ 0.2
Section 5 (excl. 56)	32.8	34.5	32.3	+ 2.2	- 1.7

TABLE 4:—*continued.*

(1)	(2)	(3)	(4)	(5)	(6)
<i>SITC</i>	<i>Manufactured imports from UK</i> 1969-70	<i>Hypothetical UK imports (A)</i> 1969-70	<i>Hypothetical UK imports (B)</i> 1969-70	<i>Composition effect</i> 1969-70 (3) - (4)	<i>Competitive effect</i> 1969-70 (2) - (3)
61	2.9	3.1	3.2	- 0.1	- 0.2
62	3.6	4.1	3.2	+ 0.9	- 0.5
63	1.2	1.3	1.4	- 0.1	- 0.1
64	7.9	7.9	8.2	- 0.3	—
65	24.8	24.4	26.6	- 2.2	+ 0.4
66	6.9	6.8	6.5	+ 0.3	+ 0.1
67	13.2	11.5	12.7	- 1.2	+ 1.7
68	9.1	6.9	7.6	- 0.7	+ 2.2
69	16.3	16.9	18.8	- 1.9	- 0.6
Section 6	85.8	82.7	88.2	- 5.5	+ 3.0
71	49.8	52.7	50.4	+ 2.3	- 2.9
72	19.5	21.1	22.4	- 1.3	- 1.6
Section 7 (excl. 73)	69.3	73.8	72.8	+ 1.0	- 4.5
81	2.9	2.9	3.3	- 0.4	- 0.1
82	2.1	2.0	1.6	+ 0.4	+ 0.1
83	9.4	8.8	5.1	+ 3.7	+ 0.6
84	1.2	1.1	0.7	+ 0.4	+ 0.1
85	4.6	4.4	4.0	+ 0.4	+ 0.2
86	15.8	15.3	14.7	+ 0.6	+ 0.5
Section 8	35.8	34.3	29.4	+ 4.9	+ 1.5
Total manu- factured imports (excl. 56 and 73)	223.6	225.4	224.0	+ 1.4	- 1.8

Notes:

(1) *Hypothetical UK Imports A*: Calculated on basis of actual 1969-70 structure of total manufactured imports, assuming UK share of each division constant at 1964-65 level.

(2) *Hypothetical UK Imports B*: Calculated on the basis that the structure of total manufactured imports 1969-70 was the same as in 1964-65, and assuming UK share constant at 1964-65 level.

(3) Totals may not add exactly due to rounding.

TABLE 5: *Composition and competitive effects as a proportion of Irish manufactured imports from UK 1969-70 (in percentages)*

SITC	Share Change Method			Constant Share Method		
	(1) Composition Effect	(2) Competitive Effect	(3) Total Effect	(4) Composition Effect	(5) Competitive Effect	(6) Total Effect
Section 5 (excluding 56)	+2.1	+5.5	+7.6	+6.7	-5.2	+1.5
Section 6	+1.7	+9.0	+10.7	-6.4	+3.5	-2.9
Section 7 (excluding 73)	-8.4	+2.2	-6.2	+1.4	-6.5	-5.1
Section 8	+4.1	+9.8	+13.9	+13.9	+4.2	+18.0
Manufactured imports from UK (excluding 56 and 73)	+0.4	+6.5	+6.9	+0.6	-0.8	-0.2

+ £1.4 million, compared with the share change estimate in Table 3 of £1.0 million, for total manufactured imports. The latter estimate, however, represents the effect of deviations from past trends in composition and consequently is less easy to interpret economically than the constant share estimate.¹⁷ The results indicate that the UK commodity structure was "favourable", i.e. concentrated in fast-growing import product-groups, but only to a minor extent. An examination of the product composition of Irish manufactured imports (see Table A1 in the Appendix) shows that this composition has not altered markedly since 1964-65. Our finding may be compared with that of Major, who in a study of Britain's share of world trade during the period 1954-66 also found the composition effect to be a very minor factor, capable of explaining only a small proportion—less than 10 per cent—of Britain's total loss of world manufactured goods trade between these two years.¹⁸

Before completing this presentation of results, it may be useful to place the composition and competitive effect estimates in the perspective of overall

¹⁷The difficulty arises because there is no particular reason to expect, or any convincing way to explain, changes in composition trends in the post AFTA period.

¹⁸Major [18], p. 50.

import growth during the period 1964-65 to 1969-70. To do this, we separate the growth in imports from the UK over the period 1964-65 to 1969-70 into parts attributed to: (1) the general rise in Irish imports; (2) changes in the commodity composition of imports from the UK in the base period; and (3) changes in competitiveness.¹⁹ This framework can be applied in either a share change or a constant share framework of analysis.

The *actual* increase in the value of manufactured imports from the UK (excluding 56 and 73) between 1964-65 and 1969-70 was £111 million, or 98.6 per cent. The share change method partitions this increase into a growth effect of £95.5 million, a composition effect of £1.0 million and an AIFTA effect of £14.5 million. Thus, the growth effect accounted for 86 per cent of the increase in imports from the UK while the composition and AIFTA effects accounted for 0.8 per cent and 13.2 per cent of the increase respectively.

Thus, as is frequently found in comparable studies of other countries' trade flows, it is the growth of the total Irish market which explains the bulk of the increase in the UK's exports to Ireland, with changes in competitiveness playing a secondary, although by no means an insignificant (and perhaps a more analytically interesting) role.

The AIFTA Effect and Relative Price Changes

A number of difficulties are associated with market shares analysis, the most important of which centres around the validity of the *ceteris paribus* assumption. In a share-change context, the assumption is that the chief influence on relative UK competitiveness (or more precisely on the *change* in relative competitiveness) during the second quinquennium was the AIFTA tariff reductions. To check this assumption, two sets of relative prices are examined: (1) UK prices relative to price of non-UK exporters to the Irish market (both prices defined exclusive of Irish tariffs) and (2) UK tariff inclusive prices relative to prices of comparable Irish products. The first price-relative is relevant in the present discussion of UK import shares in total Irish imports. Thus, for example, the favourable effects of AIFTA on the UK import share could have been offset in the post-1966 period by a rise in the ex-tariff price of UK products relative to non-UK products. This possibility is investigated by studying trends in price relative (1). The second price-relative relates to the UK share of total domestic market sales. Thus a rise in Irish prices relative to UK import prices would affect the UK's share of the Irish market, but not necessarily the UK's share of total imports since both UK and non-UK imports will be stimulated by the Irish producers' loss of competitiveness. The discussion of UK Irish prices, therefore, pertains more to the analysis of the next section than to the present. However, for the sake of convenience, both price-relatives are discussed here.

¹⁹The method is outlined in detail in Leamer and Stern [17], Chapter 7; and Richardson [28].

Severe data problems are encountered in finding proxies for the prices of products imported from UK and non-UK sources respectively. Export price series for manufactured goods, calculated on a country-by-country basis, were utilised for this purpose. Nine countries were chosen (whose combined manufactured exports to the Irish market accounted for more than 90 per cent of our total manufactured imports of non-UK origin) and their price experience compared with the UK's in Table 6. As might be expected, the behaviour of export prices during the last decade varies considerably between countries, with very large (dollar) price increases being observed in USA, Canada and Sweden and much lower increases in Japan, France, UK, etc. (the last two countries' index being, of course, heavily influenced by the devaluations of 1969 and 1967 respectively). In order to facilitate comparison between UK and other suppliers' experience, a weighted average export price index for the latter countries was computed. Comparing the aggregate non-UK index with the UK index, we find that the price of UK exports, which in the earlier period had risen faster than non-UK export prices (11 per cent compared with 6 per cent), rose by *less* in the period 1964-65 to 1969-70 (7 per cent as against the non-UK suppliers' 11 per cent). At the same time, we note that the percentage fall in the UK share of world trade in manufactures was much the same in the AIFTA period as in the earlier period (17.2 per cent in 1959-60, 14.1 per cent in 1964-65, and 11.0 per cent in 1969-70).²⁰

The change in UK/non-UK competitive trends is almost certainly linked with the 1967 devaluation of sterling. Although perhaps coincidental, it is interesting to note that had UK prices maintained their pre-AIFTA relationship with non-UK prices they would have risen by about 20 per cent in the post-AIFTA period instead of by the actual 7 per cent—a divergence of 13 per cent which is remarkably close to the percentage devaluation! The improvement in the UK's competitive position in the post-AIFTA period suggests that our estimate of the AIFTA effect is capturing a devaluation effect in addition to the effect of the AIFTA tariff reductions and to this extent overestimates the true AIFTA effect.

While it is impossible to disentangle the two effects, the following points may be noted. First, the devaluation has a bearing on trade diversion effects only, since Ireland devalued at the same time and by the same amount as the UK. It is shown in the next section that trade diversion effects amounted to only 40 per cent of the total AIFTA effects. Second, too much reliance must not be placed on the precise magnitude of the figures in Table 6 because export unit values are being used and also because of the negligible proportions of the exports of the countries listed in the table absorbed by the Irish markets.

In the absence of Irish import price or unit value data on a country-by-

²⁰See Major and Hays [19], Table 19 of Statistical Appendix.

TABLE 6: *Export price (unit value) index numbers of manufactures of major suppliers of Irish market*

Year	Country	Base 1963 = 100									UK
	West-Germany	USA	Netherlands	France	Canada	Belgium/ Luxembourg	Sweden	Japan	Italy	Weighted Average for the Nine Countries	
1959-60	92	100	97	97	109	101	96	108	100	97	94
1964-65	101	103	104	104	103	103	103	99	101	102	104
1969-70	112	121	105	112	123	110	119	109	105	113	111
Percentage change 1959-60 to 1964-65	+10	+3	+7	+7	-5	+2	+7	-8	+1	+5	+11
Percentage change 1964-65 to 1969-70	+11	+17	+1	+8	+19	+7	+15	+10	+4	+11	+7

Source: Various issues of *National Institute Economic Review*, *UN Monthly Bulletin of Statistics*.

Notes:

- (1) The index numbers are computed in US dollars. Because of the 1967 UK devaluation, the large rise in *sterling* export prices is concealed.
- (2) The average export price of non-UK suppliers was calculated by weighting each country's index number by its share of the value of total Irish manufactured imports *supplied* by the nine countries. For the period as a whole these countries accounted for about 31 per cent on average of Irish manufactured imports. For the years 1959 and 1960, it was not possible to derive manufactured imports by country so we applied an average of each country's share over the period 1963-65 instead.

country basis, relative changes in unit wage costs in manufacturing were taken as proxies for changes in price competitiveness between the UK and Ireland. Comparing pre- and post-AIFTA trends, we found that Irish wages costs per unit of manufacturing output increased from 88 in 1959-60 to 106 in 1964-65, to 136 in 1969-70, while the comparable figures for the UK were 93, 103 and 125 respectively (base 1963 = 100).²¹ In percentage terms, therefore, it appears that Irish unit wage costs increased by more in relation to the rise in UK cost in the pre-AIFTA period (21 per cent increase in unit wages in Ireland, as against 11 per cent in the UK 1959-60 to 1964-65) than in the post-AIFTA period (28 per cent increase in Ireland, 22 per cent in the UK). This result suggests that, provided differences in unit wage costs can be accepted as a reasonable proxy for changes in relative price competitiveness (admittedly a strong proviso), the share change method may have tended to underestimate the AIFTA effect. Expected 1969-70 UK imports will be too high being based on the assumption that this relative unit costs trend will be maintained in the period from 1964-65 onwards, and hence the actual minus expected flows will be too small. In other words, instead of the expected relative decline in Irish competitiveness between 1964-65 to 1969-70 of 8.8 per cent, there occurred an actual decline of only 5.7 per cent.

It is worth noting, however, that if an Irish import unit value index had been chosen as a proxy for UK prices on the Irish market and had this then been compared with an Irish output of industry wholesale price index, the above conclusion would have been reversed since Irish domestic wholesale prices relative to import prices rose faster in the second than in the first period.²² While one cannot be dogmatic as to which of the various possible proxies is most reliable,²³ the fact that both calculations indicate only small absolute divergences between expected and actual price trends provides some reassurance that, despite the uncertainty as to the direction of bias, its magnitude is unlikely to be so large, especially in relation to the large reductions in Irish tariffs during the post-AIFTA period.

Trade Deflection

In a free trade area, the members agree to remove tariffs and quotas on products traded among themselves and originating in the union, but each

²¹These figures were derived by dividing output per man hours into earnings per hour in manufacturing industry and calculating two-year averages for 1959-60 etc. The sources of the statistics are various issues of *National Institute Economic Review*, *Irish Statistical Bulletin* and *Review of 1971 and Outlook for 1972*.

²²Source: *Irish Statistical Bulletin* (various issues). The import index used was the "other goods" import index which excludes non-manufactured goods. The domestic wholesale/import price ratio rose by 6.2 per cent in the first period as against 10.6 per cent in the second.

²³Others were tried, with varying results, such as UK export price index of manufactures, consumer goods imports price index etc. all related to Irish wholesale price indices, viz. output of industry and home production for personal consumption. Movements in the last two indices are, however, virtually identical between our three quinquennial observations.

member is free to determine the level of its tariff against imports from non-members. This gives rise to the problem of trade deflection which is defined by Shibata [29] as:

... the redirection of imports from third countries through the partner country with the lowest tariff, with the aim of realising tax advantage by exploiting the rate differentials between the member countries within an economic union.

The need to minimise such trade deflection in a free trade area leads to the adoption of certain measures, chiefly rules of origin, i.e. (1) percentage rules, and (2) qualifying process rules. Origin rules are designed to ensure that not only must products come from a member country but that they must also have been produced in that country or, at least, that certain processes of manufacture were performed there or a certain specified proportion of the value of the product should be accounted for by the cost of materials from within the area plus the value added in the area. In the case of percentage rules the minimum percentage required by both the Irish and British authorities varies between 25 and 75 per cent depending on the product, but most commodities would fall into the 25 per cent category.²⁴ On the other hand, the qualifying process rules, which apply especially to textile or garment exports to the UK, require that a certain minimum number of processes be carried out within the area. These qualifying process clauses in practice have a more restrictive effect than the minimum value added requirements.

In evaluating the AIFTA effect, as estimated in this study, it is relevant to ask whether part of this effect can be attributed to "artificial" factors, such as discrepancies in tariffs on non-member country imports in the two countries, rather than genuine comparative cost differences. We would argue that trade deflection has not affected post-AIFTA import shares in general to any great extent, although it probably has exercised a significant influence on particular SITC divisions. Three factors support this conclusion. First, an artificial incentive to buy British materials had already been in existence prior to the formation of AIFTA, since in order to qualify for British Commonwealth preference rates Irish producers had to satisfy rules of origin requirements very similar to the present rules.²⁵ Second, the range of goods of Irish origin which were subject to protective duties on entry into the UK prior to the Agreement was very limited. They consisted chiefly of textiles and clothing containing synthetics, and a few other goods such as watches, spare parts for

²⁴The Stockholm Convention, which established EFTA, provides for a proportion of 50 per cent. This may explain why the treatment of trade deflection for the purposes of article 5 of EFTA is more restrictive than the AIFTA treatment. The former requires that the increase in imports to one member through another for purposes of tariff evasion "would cause serious injury to production" in the importing member state before remedial action is considered, whereas no such stipulation appears in the comparable Article III of AIFTA.

²⁵At the same time, Irish rules of origin had also to be satisfied prior to the Agreement before a British exporter could be granted preferential duty rates on his sales to the Irish market.

motor cars etc.²⁶ It is the imports resulting from the rise in exports of these goods to the UK which alone concern us here. Third, it is therefore quite likely that the post-AIFTA expansion of Irish exports of textile-based products such as knitted garments, tufted carpets etc. to the UK did indeed boost imports of textile inputs of UK origin (i.e. division 65) above their "expected" level. Nevertheless, these intermediate goods imports may have been purchased simply because they were cheaper than those of non-Area origin.²⁷ The desire to satisfy UK origin or qualifying process rules need not necessarily have been the only, or even the most important, motivating force behind these purchases.

Another aspect of the deflection problem concerns the possibility of UK imports becoming artificially competitive on the Irish market because of lower UK tariffs on imported intermediate goods. This situation, of course, constitutes the classic type of trade deflection. Generally speaking, this sort of trade deflection does not appear to have occurred.²⁸

²⁶See Appendix XI of the *Agreement* [9].

²⁷Non-area origin imports would not have been subject to Irish tariffs provided they were incorporated into finished products destined for export markets.

²⁸Due to the relaxation of UK import controls on jute in 1972 the Irish authorities have recently amended the rules of origin to offset any artificial increase in competitiveness accruing to British suppliers on this account (*Notice by the Revenue Commissioners*, No. 1178, April 1972). Similar action has been taken by both governments in regard to cotton products. Prior to this, Irish exports to the UK had been limited by the Cotton Textiles Agreement appended to AIFTA, in order to protect the UK market against any undue expansion of Irish exports of cotton goods created as a result of the more advantageous terms on which Irish exporters could acquire raw materials. On 1 January, 1972, the UK imposed duties on certain cotton textiles originating in the Commonwealth Area in addition to existing quotas. Simultaneously the Cotton Textiles Agreement lapsed. Hence the need for a new arrangement. See *Trade and Industry*, HMSO, 3 February 1972.

The UK Share of Irish Apparent Consumption

THE purpose of this section is to examine in further detail the magnitude and implications of the AIFTA effect. To accomplish this, we set out a new formula for estimating the AIFTA effect, based this time on competing imports and apparent consumption data rather than exclusively on manufactured import statistics as in the previous section. Then the AIFTA effect is divided into its trade creation and trade diversion components. The trade creation estimates will reflect the size of the adjustments to the formation of AIFTA required of the two member countries, whereas the trade diversion estimates will indicate the size of this impact on non-members up to the end of 1970.

The difference between the formula of the last section and the present section is that (1) expected imports from the UK are calculated in this section as the product of end-period apparent consumption and the UK import/apparent consumption ratio, instead of as the product of end-period manufactured imports and the UK share of manufactured imports; and (2) competing imports rather than manufactured imports are used. For theoretical reasons, explained earlier, the two formulae will not generally yield the same estimate of the AIFTA effect.

The apparent consumption formula has greater theoretical appeal than the formula based on shares of total imports. In applying it to the Irish situation, however, the former's theoretical superiority must be balanced against the considerable limitations of the basic data on which the calculations are based. The task of obtaining reliable and up-to-date statistics on industrial production at the requisite level of aggregation proved extremely difficult. The statistical underpinning of the trade flow analysis is a great deal more satisfactory, both as regards the dependability of the 1969-70 data and the degree of disaggregation obtained. Consequently, we would see the results of the last section as constituting a useful countercheck on this section's estimates.

Methodology and Statistical Base

The basic methodological approach is very similar to that utilised in the previous section. The key concept is, of course, apparent consumption which is defined as:

Apparent Consumption = Gross Output *plus* Competing Imports *minus* Exports.

The AIFTA effect (A) is calculated as:¹

$$A = F_{69-70} - [(1 + r) \cdot f_{64-65}] \cdot C_{69-70} \quad (1)$$

where

F = competing imports from the UK

C = apparent consumption

r = rate of growth of UK share in apparent consumption in the base period, 1959-60 to 1964-65.

$f = F/C$

subscripts refer to the two-year averages.

The trade creation (TC) and trade diversion (TD) formulae are as follows:

$$TC = M_{69-70} - [(1 + s) \cdot m_{64-65}] \cdot C_{69-70} \quad (2)$$

$$TD = N_{69-70} - [(1 + t) \cdot n_{64-65}] \cdot C_{69-70} \quad (3)$$

where

N = actual competing imports from non-UK countries

M = total competing imports (i.e. $M = F + N$)

$m = M/C$; s = rate of growth of m in the base period 1959-60 to 1964-65

$n = N/C$; t = rate of growth of n in the base period 1959-60 to 1964-65

If trade diversion occurs, actual competing imports from non-UK countries in 1969-70 must be less than expected, so the solution of equation (3) must have a negative sign. Hence $A = TC - TD$, i.e. the AIFTA effect is the sum of the trade creation and trade diversion effect. In our calculations we define trade diversion as the residual between our estimates of the total effect and the trade creation effect. If a constant share approach is being used instead of the share change method, the only modification of the formulae required is the elimination of the trend term. The logic of our choice of base period and end-period has already been explained in the previous section.

Having specified the estimation formulae, one encounters the problem of

¹The derivation of these formulae is explained in Appendix 1.

securing the data necessary to apply them. At first sight this might appear easy. In the annual pre-Budget economic review, the Department of Industry and Commerce publishes separate estimates of gross output, exports and competing imports classified by broad manufacturing industry group for each year since 1960. Unfortunately, however, difficulties arise with respect to both the trade data and gross output data.

Regarding trade data, the competing import series is derived by the Department of Industry and Commerce after consultation with industrialists in the various sectors as to what constitutes a competing import.² There is, of course, no hard-and-fast definition of competing imports. A degree of arbitrariness is inevitable and the official list of import-competing products reflects an authoritative but not an indisputable viewpoint.³ There is a sense in which all goods are substitutable for each other to some degree. At the same time, it has been suggested that, in the Irish context at least, a crude, but on the whole reliable, indicator of the presence of *close* domestic substitutes is the existence of protective tariffs or quantitative restrictions on imports.⁴ A glance at the list of competing imports suggests that this type of pragmatic definition of substitutability corresponds to a substantial extent with the official estimates.

In addition to the problem of definition, the competing import series has the disadvantage of not being disaggregated by country or trading area of origin. Such a breakdown is necessary for this study because, in order to estimate the magnitudes of trade creation and trade diversion due to AIFTA, we need to distinguish between UK and non-UK sources of supply. It is also desirable to disaggregate the basic data beyond the level of the ten broad industry groups used in the annual review, to an individual CIP industry level at least. This meant that we were obliged to compute our own competing imports and exports series, which would tie in with the CIP industrial output data and which would distinguish between competing imports of UK and non-UK origin.

As a check on our calculations, estimated competing imports of the individual CIP industries included in each of the industry groups were added together and our totals then compared with the figures presented in the pre-Budget economic review. Generally the agreement between the two sets of data was excellent, but the comparison did reveal certain discrepancies between our estimates and the published figures which could not be explained by rounding

²The competing import series and the export series lists for each Census of Industrial Production (CIP) industry were kindly supplied to us by the Department of Industry and Commerce. The lists are classified on the basis of the *Official Import* and *Official Export Lists* respectively. Relevant values for each year can be computed from *Trade and Shipping Statistics* and *External Trade* volumes.

³Competing imports are much the same as "similar" imports, as defined in the 1964 Irish input-output table. The coverage of the similar import list is slightly wider however. Our competing imports total of almost £78 million in 1964 for the 27 CIP industries used in this study compares with a total of £98 million for "similar" imports in the comparable 1964 input-output industries. See Henry [11], p. 9.

⁴McAleese [20], p. 21.

errors alone. A detailed examination of these industry estimates was carried out with the help of the Industrial Reorganisation Branch of the Department of Industry and Commerce and both series were reconciled for 1969 and 1970 to allow for double counting and the omission of certain items. We also adjusted our series for the earlier years as far as possible to take account of these errors, so our figures differ somewhat from the unadjusted figures published in the 1971 Review for the years prior to 1968.⁵ A basic problem, of course, is that an imported good may change with the process of industrialisation from being a non-competing import at one stage to become a competing import later on and *vice versa*.⁶

The CIP contains output data for 45 manufacturing industries. Many of these had to be excluded from the analysis, some because they lay outside the scope of AIFTA (food industries), others because they received zero protection against UK imports prior to AIFTA (fertilisers) or else had no influx of competing imports to concern them in the first place (railroad equipment, ship and boat building). In view of the special circumstances surrounding the protection of the motor vehicle industry, we decided to analyse this industry separately. This left 26 industries in all, which together accounted for about 47 per cent of the value of gross output in the manufacturing sector in 1969.⁷

Gross output data for the years 1959-60, 1964-65 and 1969 were obtained from the relevant CIP reports. As 1969 was the last year for which a full Census report was available at the time of writing, we had to obtain estimates for 1970. Preliminary volume estimates for 1970 are available from the Quarterly Industrial Production Inquiry reports and we experimented with using these volume figures and the trend in the implied price of gross output (i.e. index of value of gross output divided by index of volume of output) from 1965-69 to derive value estimates for each individual industry in 1970. This procedure proved unsatisfactory because of the arbitrariness of the assumption about the price change in each industry. An alternative procedure, which we eventually adopted, was to use the unpublished gross output value estimates derived by the Department of Industry and Commerce for all manufacturing

⁵Thus, our estimates of competing imports for the 26 CIP industries in 1964-65 is £77.1 million compared with an estimate in the Review of £75.7 million.

⁶Even after the above reconciliation, however, a number of small differences remains between our estimates and the industry groups figures published in the Review. For example, we adjusted the published figure for cement imports in 1970 to allow for the effects of the cement strike. (See notes to Table A2 for details.) This means that our estimate of competing imports for the Structural Clay Products, Concrete and Cement industry in 1970 is £2.8 million compared with the figure of £3.9 million in the Review. Also, the Review figure for competing imports for the Soap, Detergents and Candles industry includes an adjustment to allow for the fact that competitive and non-competitive items are included under the same import list headings. As there was no information available on the adjustment factor prior to 1968, we decided to use our original estimates for all years.

⁷The source of this figure is the 1969 CIP (see *Irish Statistical Bulletin*, December 1971). The Census data underestimate manufacturing output somewhat as establishments which employ less than three persons are not covered.

industries.⁸ However, the use of a two-year average would, it was felt, reduce the impact of any errors in the 1970 estimates. The need for an assessment of AIFTA as nearly up-to-date as possible was another factor which encouraged the use of the 1970 estimates.⁹

The computations of this section are based on the data contained in Appendix Tables A2 and A3. Table A2 shows gross output, competing imports, exports and apparent consumption for each of the 26 CIP industries for each of the years used in this study. Table A3 shows competing imports from the UK distinguished separately for each CIP industry. It is from these tables that we derive the shares in apparent consumption that are essential to the calculation of trade creation and trade diversion.

Tables and Results

Table 7 shows the share of competing imports from the UK in apparent consumption for 1959-60 and 1964-65 and contrasts the "expected" share in 1969-70 with the actual share in 1969-70. The UK share rose slightly during the base-period, from 14.8 per cent in 1959-60 to 15.2 per cent in 1964-65. This increased penetration of the Irish market in the first half of the sixties was not confined to UK suppliers alone. On the contrary, the share of competing imports from all sources in apparent consumption reveals an even more marked upward trend (see Table A4). Between 1959-60 and 1964-65, the share of competing imports in apparent consumption rose from 23.2 per cent to 25.2 per cent, a rise of 8.7 per cent. The implication is that non-UK suppliers increased their share of apparent consumption at a much faster rate than the UK. It can be shown that the non-UK share in fact increased from 8.4 per cent in 1959-60 to 10.0 per cent in 1965-66, an increase of 19.4 per cent.¹⁰ All this ties in with our earlier examination of the trade statistics. Both UK and non-UK suppliers were increasing their share of the domestic market, but the latter at a more rapid rate than the former. Hence the UK share of total

⁸These estimates form the basis for the aggregated manufacturing industry data published in the pre-Budget *Review of 1971 and Outlook for 1972* [27]. If one compares the estimates published in the Review for gross output in the manufacturing sector as a whole for the years 1967-69 with the actual Census data for these years, the results reveal a tendency for the Review to underestimate the correct output position by about 1.5 per cent on average.

⁹An anomaly common to both our series and the Review's estimates is that the gross output data include Shannon production but the competing imports and exports series exclude Shannon trade. The difficulty is primarily one of classification. While import and export trade totals for Shannon are available for each year, no commodity breakdown of this trade is published. Thus, it is impossible to align Shannon trade flows with the corresponding industry output data. No allowance is made for the fact that in some industries a degree of double counting occurs in respect of intra-industry sales. The absence of import-content data on interfirm sales within the industry precludes any attempt to adjust for this factor. It might be added that by confining our import coverage to competing imports, we validate the use of our particular measure of import substitution. Thus Farley [8], in his interesting study of Irish economic development up to 1966, employs an import/gross output plus imports ratio rather than an import/apparent consumption ratio, since his imports include complementary imports and consequently the effects of increases in exports have to be explicitly taken into account.

¹⁰Derived by subtracting the UK share in Table 7 from the corresponding share of competing imports from all countries in Table A4.

imports fell in the base period, notwithstanding the fact that its share of apparent consumption increased.

This decline in the share of the domestic market supplied by domestic producers between 1959-60 and 1964-65 can be attributed primarily to the high income elasticity of demand for imports. McAleese's [20] estimates lie within the range 1.87 to 2.15 on the basis of 1956-66 data; the income elasticity for imports of consumer goods over the same period was also estimated to be greater than 2. Elasticity values of this magnitude imply that the imports/domestic consumption ratio can be expected to rise over time simply as a result of the process of economic development. Indeed, this trend appears to be paralleled by the experience of most major industrial countries in the sixties. Following their analysis for all OECD countries of five major product groups (food, consumer durables, consumer non-durables, passenger cars and capital goods)¹¹ Branson and Junz concluded that:

... the share of domestic markets supplied by domestic producers has declined almost everywhere in almost every category. For all categories and all fourteen countries together, it fell from an average of 92.7 per cent in 1961-64 to 91.3 per cent in 1968, a 1½ per cent decrease. In other words, consumption has become increasingly cosmopolitan.¹²

The next step is to project forward the trend in the UK competing imports share to get the "expected" share in 1969-70. The method employed in Tables 7 and A4 is a simple extrapolation of the percentage rate of change in the share observed in the pre-integration period. However, different procedures have been used in certain cases to derive the "expected" 1969-70 share. First, there are two industries (men's and boys' clothing and assembly of non-mechanically propelled road vehicles) which recorded negligible competing imports in 1959-60. In these cases, the "expected" UK share is derived by multiplying the 1964-65 share by the base-period percentage rate of change in the share of total competing imports from the UK. Secondly, because our share change method extrapolates the growth rate in the share, an element of exaggeration could be introduced into our estimate of the "expected" share, particularly if the rate of change in the share is very large in the base period.¹³ Examination of the "expected" shares in Tables 7 and A4, calculated by the share change method, suggests that this problem was present in a number of cases. If the increase in the share for an industry in the base period was greater than 100 per cent, we derive the "expected" share in 1969-70 by a simple extrapolation of the *absolute* change in the share between 1950-60 and 1964-65.

¹¹These groups taken together accounted for 50 per cent of all OECD exports in the sixties.

¹²Branson and Junz [4], p. 297.

¹³For instance, if the share of competing imports in apparent consumption of an industry rose from 20 per cent in 1959-60 to 50 per cent in 1964-65, our share change method would predict an "expected" share of 125 per cent, indicating that the share would have reached 100 per cent prior to 1969-70—a highly implausible expectation.

TABLE 7: *The percentage share of competing imports from the UK in apparent consumption classified by CIP industry, 1959-60 to 1969-70*

CIP industry	Actual share of competing imports from the UK in Apparent consumption			
	1959-60	1964-65	Expected share 1969-70	Actual share 1969-70
(1) Woollen and worsted	19.92	22.55	25.53	26.51
(2) Linen and cotton	24.56	22.02	19.74	25.18
(3) Jute, canvas, rayon etc.	7.76	6.00	4.64	6.22
(4) Hosiery ²	4.76	10.79	16.82	23.36
(5) Boot and shoe	2.82	2.73	2.64	8.94
(6) Men's and boys' clothing ¹	—	2.30	2.36	9.33
(7) Shirtmaking	3.90	4.36	4.87	11.31
(8) Women's and girls' clothing ²	5.60	11.20	16.80	21.98
(9) Miscellaneous clothing	6.86	11.09	17.93	19.87
(10) Made-up textile goods	18.91	20.23	21.64	23.14
(11) Wood and cork	2.46	4.84	9.52	5.01
(12) Furniture; brushes and brooms	4.44	7.92	14.13	13.89
(13) Paper and paper products	16.02	18.30	20.90	20.44
(14) Printing and publishing	12.38	15.37	19.08	15.70
(15) Fellmongery and tanning	8.35	9.06	9.83	19.50
(16) Manufactures of leather and leather substitutes ²	11.30	23.75	36.20	35.27
(17) Oils, paints, inks and polishes	6.53	6.43	6.33	7.50
(18) Chemicals and drugs	37.91	37.29	36.68	33.85
(19) Soap, detergents and candles ²	11.23	25.26	39.29	38.66
(20) Glass, glassware, pottery, etc.	14.18	14.92	15.70	19.54
(21) Structural clay products, concrete, cement, etc.	10.23	6.67	4.35	7.53
(22) Metal trades	22.81	18.02	14.24	17.31
(23) Non-electrical machinery	38.48	37.06	35.69	41.58
(24) Electrical machinery	17.82	18.49	19.19	18.94
(25) Assembly, construction and repair of non-mechanically propelled road vehicles ¹	—	2.92	3.00	5.15
(26) Miscellaneous manufacturing industries	14.24	10.72	8.07	17.20
Total for the 26 CIP industries	14.79	15.18	16.04 ³	18.63

Source: Tables A2 and A3.

Notes: ¹The expected share in 1969-70 was derived by adjusting the actual 1964-65 share by the growth in the share of total Competing Imports from the UK between 1959-60 and 1964-65.

²As the increase in the share of the UK between 1959-60 and 1964-65 was ≥ 100 per cent, the expected share in 1969-70 was derived by extrapolating the absolute change in the share between 1959-60 and 1964-65.

³Expected share of the total calculated as a weighted average using as weights the actual 1969-70 apparent consumption shares.

This method is rather arbitrary but we feel it is preferable to using the original "expected" shares.

Table 7 shows that the actual share of competing imports from the UK in apparent consumption for the 26 industries was 18.6 per cent in 1969-70 compared with an "expected" share of 16.0 per cent. Thus, the actual share rose by 22.7 per cent over its 1964-65 level compared with a predicted increase of only 5.7 per cent. By contrast, the actual share of total competing imports, 29.4 per cent in 1969-70 compared with an "expected" 27.9 per cent, increased by 16.8 per cent over its 1964-65 level as against a predicted increase of 11.0 per cent. The greater proportionate divergence between expected and actual UK imports is especially significant. The share of non-UK countries increased from 10.0 per cent in 1964-65 to only 10.8 per cent in 1969-70 (a rise of 7.8 per cent) compared with an "expected" share of 11.9 per cent (a rise of 19.2 per cent over the 1964-65 level).¹⁴ Thus, the main conclusion from Tables 7 and A4 is that the share of competing imports from the UK, having increased at a much less rapid rate than the share of non-UK suppliers in the base period, reversed its position during the integration period. The actual share of non-UK suppliers, while greater than its 1964-65 level, fell short of its expected level. This differing growth pattern of UK and non-UK suppliers constitutes *prima facie* evidence of a process of both trade creation and trade diversion due to AIFTA.

Further examination of Table 7 shows that actual shares of imports from the UK exceeded expected shares in 18 of the 26 industries. This confirms the impression conveyed by our trade statistics analysis that the AIFTA effect made itself felt over a wide range of products and industries. At the same time, the degree of concordance between the "exceptional" SITC divisions (where actual turned out to be less than expected) in Table 2 and exceptional industries in Table 7 appears to be rather tenuous. Industries such as wood and cork (11), paper and paper products (14), and manufactures of leather products (16) can indeed be linked with SITC divisions 63, 64 and 61 respectively, but in the remaining cases no such correspondence is apparent. This lack of correspondence can, however, easily be explained. In the first place, competing imports for any one industry usually come from more than one division. Competing imports for the chemicals and drugs (18) industry, for example, consist of products classified in SITC divisions 51, 53, 54, 58 and 59. Secondly, the range of imports included in the present analysis is much smaller than in the trade analysis. As Tables 3 and 8 indicate manufactured imports from the UK amounted to £224 million in 1969-70, but competing imports from the UK amounted to only £95 million. This difference in coverage

¹⁴This "expected" non-UK share was derived as the residual between the "expected" shares of competing imports from all suppliers and competing imports from the UK.

probably goes much of the way to explaining why a "normal" product group such as electrical machinery (72) in the trade statistics emerges as an "abnormal" industry (24) in the industry statistics.¹⁵

Table 8 shows the AIFTA and competitive effect on UK imports in 1969-70, as calculated by the share change and constant share methods respectively. The AIFTA effect amounts to £13.3 million; the competitive effect totals £16.9 million. The difference of £3.6 million represents the increase in UK imports which would have occurred in the absence of the Agreement due to increased competitiveness of the UK. The apparent contradiction between this result and that of the last section, where UK imports appeared to be experiencing losses in competitiveness in the absence of AIFTA, can easily be resolved by keeping in mind the fact that the results of this section refer to the performance of UK producers *vis-à-vis* non-UK and Irish suppliers. It is possible for a loss in UK competitiveness *vis-à-vis* the non-UK suppliers to be more than compensated for by a gain in competitiveness *vis-à-vis* Irish producers. This is, in fact what we are witnessing in the present instance. Imports as a whole, irrespective of their source of supply, have been making inroads on the Irish market.

At a general level, we may also note that the composition effect totalled £0.9 million and £0.8 million under the share-change and constant share assumptions respectively¹⁶ thus confirming the last section's conclusion to the effect that changes in the composition of total imports were not such as to affect UK imports significantly in either a positive or negative direction.

When the AIFTA effect is examined industry-by-industry, it is clear that not all of the industries had the expected positive sign in 1969-70. Five industries emerge with negative AIFTA effects totalling £3.2 million. The major negative contributions come in Wood and Cork, Printing and Publishing and Chemicals and Drugs. Three other industries (Furniture, Brushes and Brooms, Leather and Leather Substitutes and Soap, Detergents and Candles) show negligible competitive effects in 1969-70.¹⁷ At the same time, one notes

¹⁵Division 72 imports from the UK amounted to £14 million compared with the UK competing imports figure of only £7 million for the electrical machines industry.

¹⁶The detailed figures are not reproduced in the tables, but are available from the authors on request.

¹⁷It is possible that some of these negative and zero competitive effects occur because changes in other aspects of competitiveness were unfavourable to the UK *vis-à-vis* non-UK suppliers over the period. In that case, the share of non-UK suppliers should be at least equal to or greater than their "expected" share in 1969-70. Examination of Tables A4 and 7 indicates, however, that this is so for only one of the eight industries, namely Paper and Paper Products. Therefore, for seven of the eight industries with negative or zero competitive effects, the first-period trend in the share of apparent consumption satisfied by domestic output seems to have gone into reverse. Moreover, the domestic output share has actually increased in no less than three of these industries (Wood and Cork, Chemicals and Drugs and Electrical Machinery). This suggests that a degree of import substitution continues to be undertaken in certain industries despite the general trend towards higher import/domestic output ratios and greater specialisation by firms within industries. This is partly a consequence of the influx of grant-aided firms in the sixties. Even though such firms are concentrated in the export sector, in 1966 about 25 per cent on average of their gross output was sold on the domestic market. See McAleese [22], Table 4.

TABLE 8: *Competing imports from the UK: AIFTA and competitive effects, 1969-70, using share change and constant share methods (£ million)*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CIP Industry	Apparent consumption 1969-70	Competing imports from the UK 1969-70	Share Change Method		Constant Share Method	
			Hypothetical competing imports from the UK 1969-70	Hypothetical AIFTA effect (3)-(4)	Hypothetical competing imports from the UK 1969-70	Competitive effect (3)-(6)
(1) Woollen and worsted	26.9	7.1	6.9	+0.3	6.1	+1.1
(2) Linen and cotton	22.2	5.6	4.4	+1.2	4.9	+0.7
(3) Jute, canvas, rayon, etc.	15.3	1.0	0.7	+0.2	0.9	—
(4) Hosiery	29.4	6.9	4.9	+1.9	3.2	+3.7
(5) Boot and shoe	12.5	1.1	0.3	+0.8	0.3	+0.8
(6) Men's and boys' clothing	10.1	1.0	0.2	+0.7	0.2	+0.7
(7) Shirtmaking	4.3	0.5	0.2	+0.3	0.2	+0.3
(8) Women's and girls' clothing	15.6	3.4	2.6	+0.8	1.7	+1.7
(9) Miscellaneous clothing	2.9	0.6	0.5	+0.1	0.3	+0.3
(10) Made-up textile goods	4.5	1.0	1.0	+0.1	0.9	+0.1
(11) Wood and cork	21.5	1.1	2.0	-1.0	1.0	—
(12) Furniture; brushes and brooms	11.5	1.6	1.6	—	0.9	+0.7
(13) Paper and paper products	38.2	7.8	8.0	-0.2	7.0	+0.8
(14) Printing and publishing	35.8	5.6	6.8	-1.2	5.5	+0.1
(15) Fellmongery and tanning	4.3	0.8	0.4	+0.4	0.4	+0.4
(16) Manufactures of leather and leather substitutes	2.0	0.7	0.7	—	0.5	+0.2
(17) Oils, paints, inks and polishes	11.9	0.9	0.8	+0.1	0.8	+0.1
(18) Chemicals and drugs	24.1	8.1	8.8	-0.7	9.0	-0.8
(19) Soap, detergents and candles	4.7	1.8	1.8	—	1.2	+0.6
(20) Glass, glassware, pottery etc.	8.6	1.7	1.3	+0.3	1.3	+0.4
(21) Structural clay products, concrete, cement etc.	24.8	1.8	1.1	+0.8	1.7	+0.1
(22) Metal trades	57.4	10.0	8.2	+1.8	10.3	-0.3
(23) Non-electrical machinery	15.7	6.5	5.6	+0.9	5.8	+0.7
(24) Electrical machinery	38.7	7.4	7.4	-0.1	7.2	+0.2
(25) Assembly, construction and repair of non-mechanically propelled road vehicles	3.8	0.2	0.1	+0.1	0.1	+0.1
(26) Miscellaneous manufacturing industries	62.4	10.8	5.0	+5.7	6.7	+4.1
Total for the 26 CIP industries	508.9	94.9	81.6	+13.3	78.0	+16.9

Note: Totals may not add exactly due to rounding.

that no less than 77 per cent of the total AIFTA effect of £13.3 million was accounted for by four industries: Miscellaneous Manufacturing, Metal Trades, Hosiery and non-Electrical Machinery. Moreover, Miscellaneous Manufacturing, which accounts for 12 per cent of apparent consumption is recorded in the share change results with a competitive effect equal to about 43 per cent

(£5.7 million) of the AIFTA effect. There are, however, grounds for doubting the "normality" of the first period downward trend in this industry's competing imports apparent consumption ratio.¹⁸ This point serves to underline the fact that, generally speaking, more confidence is to be placed in the aggregate figures of this study than in the individual industry results.

Regardless whether share change or constant share method, are used, the highest competitive effects in absolute terms are observed in Miscellaneous Manufacturing and Hosiery. Another striking feature of Table 8, which again appears in both sets of results, is that all nine industries in the Textiles and Clothing group emerge with positive AIFTA and total competitive effects. The AIFTA effect comes to £5.6 million or 4.3 per cent of Textiles and Clothing domestic consumption in 1969-70. The corresponding figures for the competitive effect by the constant share method are £8.6 million and 6.6 per cent respectively.

Table 9 shows the size of the AIFTA, competitive, and composition effects calculated by both methods as a proportion of apparent consumption and competing imports from the UK for the twenty-six industries in 1969-70. Competing imports from the UK for these industries were estimated to be £95 million in 1969-70. The AIFTA effect, it can be observed, accounts for a sizeable proportion (14 per cent) of these imports. The significance of the AIFTA effect naturally decreases markedly when it is considered in relation to apparent consumption, estimated at £509 million in 1969-70. The share change method puts the AIFTA effect at 2.6 per cent of domestic consumption. The total competitive effect, as measured by the constant share method, amounts to 3.3 per cent. Thus, our conclusion is that, even at its half-way stage, AIFTA had a highly significant impact on UK exports to Ireland although relative to apparent consumption it remains quite small.

Trade Creation and Trade Diversion

The AIFTA effect is divided into trade creation and trade diversion effects in Table 10. Trade diversion is estimated by examining the non-UK share of competing imports in apparent consumption. The trade creation effect is then exactly equivalent to the difference between the AIFTA effect and the amount

¹⁸For example, the development of the plastics sector (included in the Miscellaneous Manufacturing group of industries) at this time took the form of a highly import-substituting activity—the competing imports/apparent consumption ratio fell from 74.1 per cent in 1959-60 to 42.4 per cent in 1964-65. This trend was obviously unlikely to be continued into the next quinquennium. The actual 1969-70 share of competing imports turned out to be 43.7 per cent instead of the "expected" 24.2 per cent. We further calculated that over £1.6 million (or 29 per cent) of the competitive effect could be attributed to this one activity which accounts for only 12 per cent of the industry's gross output. Detailed investigation of rubber products, also included in the miscellaneous manufacturing group, showed that a distortion of base period trends is likely, due to the quotas on tyres imports in operation during that time. A further £1 million of the competitive effect could be allocated to this activity which also accounts for about 12 per cent of gross output in this industry.

TABLE 9: *Composition, AIFTA and competitive effects as a proportion of competing imports from the UK and apparent consumption, 1969-70 (in Percentages)*

26 CIP Industries	Share change method			Constant Share method		
	(1) Composition effect	(2) AIFTA effect	(3) Total effect	(4) Composition effect	(5) Competitive effect	(6) Total effect
Competing imports from the UK, 1969-70	1.0	14.0	15.0	0.8	17.8	18.6
Apparent consumption, 1969-70	0.2	2.6	2.8	0.2	3.3	3.5

of trade diversion. As already noted, the theoretical expectation is that AIFTA will involve both trade creating and trade diverting effects.

On the basis of the share change method it appears that the £13.3 million AIFTA effect was composed of a £7.5 million trade creation effect and a £5.8 million trade diversion effect. The result conforms satisfactorily with theoretical expectations. Significant amounts of trade diversion have appeared in certain import groups, e.g. Electrical Machinery (£2.7 million), Woollen and Worsted (£1.2 million) and Chemicals and Drugs (£1.0 million). For the Textiles and Clothing group as a whole, trade diversion amounts to £2.8 million. The trade creation effects are heavily concentrated in the Miscellaneous Manufacturing, Hosiery and Metal Trades industry.

A disappointing feature of the share-change results is the number of "wrong" signs found in the industry-by-industry estimates of trade creation and trade diversion. Negative sign trade diversion could in some cases (Boot and Shoe Industry for instance) be attributed to the relaxation of quotas on non-UK imports in the post-AIFTA period.¹⁹ Likewise the negative trade creation effects in Electrical Machinery, Wood and Cork etc. may merely reflect increased import substitution related, to a certain extent, to the greater level of industrialisation in Ireland during the second period up to 1970. Whatever the explanation, the inescapable implication is that *ex-post* the method of projecting share changes failed in several instances to isolate the trade creation and trade diversion effects of AIFTA from the other factors affecting import shares.²⁰ A second feature of the share change results to cause some disquiet is

¹⁹The quotas were removed and replaced by *ad valorem* duties which most likely had the effect of lowering the degree of protection against imports. A case in point, referred to in the Committee on Industrial Progress (COIP) report on the Footwear Industry, relates to the removal of the "rubber footwear quota" in 1966 which had included not only rubber footwear but also plastic footwear. The result of this relaxation was that imports of plastic footwear increased dramatically from £3,000 in 1966 to £666,000 in 1970, and almost 20 per cent of these imports came from non-UK countries. See COIP Report [5], pp. 27-28.

²⁰This point is brought out even more forcibly by the fact that the devaluation effect would have supported the AIFTA effect in encouraging products of UK origin.

the preponderance of Miscellaneous Manufacturing in the total trade creation effect. This one group of industries is responsible, according to our figures, for £6.4 million out of a total trade creation effect of £7.5 million. We have, of course, already had occasion to comment on the estimates for this industry. These two factors—the incidence of “wrong” signs at an individual industry level and the heavy concentration of the trade creation effect—would again suggest that the individual industry results ought to be treated with a great deal more reserve than the aggregate trade creation and trade diversion estimates.²¹

Although the difference between the AIFTA effect and the total competitive effect estimates are small, it is clear from Table 10 that the two approaches lead to radically different estimates of the composition of this effect. This last fact is scarcely surprising, since what we have called (for want of a better expression) trade creation and trade diversion in the constant share context has no formal connection with the classical concepts of trade creation and trade diversion. In a constant share context, in fact, “trade creation” represents the amount of foreign (UK and non-UK) penetration of the Irish market over the “expected” base 1964–65 level; and trade diversion represents the extent to which non-UK imports have penetrated the market at the expense of UK and Irish suppliers.

The differing results of the two methods can be further clarified by reference to Table 10.

The first point to note is the low rate of increase of UK imports in apparent consumption in the base period. Projecting the growth rate in the UK share left an expected share of 16.04 per cent, compared with the 1964–65 share of 15.18 per cent.

The second point to emphasise is the high growth in the non-UK share of almost 20 per cent in the base period. This trend is taken into account in computing the “expected” non-UK share with the share change method. Even though the actual non-UK share in 1969–70 is greater than its share in 1964–65, it is still *less* than its “expected” share so that we observe trade diversion in 1969–70. The constant share method, on the other hand, ignores the pre-integration trend by taking the non-UK share in 1964–65 as base. Hence the positive “trade diversion” effect of £4.9 million. While the trade creation estimate of £21.7 million cannot be accepted as a valid indicator of trade creation in the classical sense, it possesses considerable intrinsic interest. This figure represents our estimate of the amount of foreign penetration of the Irish market for the 26 CIP industries since 1964–65, due to increased competitiveness in the broad sense, including not only the effects of AIFTA but also those

²¹The same stance is taken by Kreinin who, in his study of the integration effects of the EEC on trade flows finds that: “. . . it is only when the results are aggregated over all industries that the random errors may be expected to cancel out”. [16] p. 906.

TABLE 10: *The AIFTA effect, trade creation, trade diversion and the competitive effect 1969-70, calculated by share change and constant share methods (£ million)*

(1)	(2) (3) (4)			(5) (6) (7)		
	Share Change Method			Constant Share Method		
CIP Industry	"Trade Diversion" 1969-70	"Trade Creation" 1969-70	AIFTA Effect 1969-70 (2) + (3)	"Trade Diversion" 1969-70	"Trade Creation" 1969-70	Competitive Effect 1969-70 (5) + (6)
(1) Woollen and worsted	+1.2	-1.0*	+0.3	+0.5	+0.5	+1.1
(2) Linen and cotton	+0.6	+0.7	+1.2	-1.4	+2.1	+0.7
(3) Jute, canvas, rayon, etc.	-0.3*	+0.5	+0.2	-0.4	+0.4	—
(4) Hosiery	+0.1	+1.8	+1.9	-0.8	+4.5	+3.3
(5) Boot and shoe	-0.2*	+1.0	+0.8	-0.3	+1.0	+0.8
(6) Men's and boys' clothing	-0.2*	+0.9	+0.7	-0.2	+1.0	+0.7
(7) Shirtmaking	+0.2	+0.1	+0.3	—	+0.3	+0.3
(8) Women's and girls' clothing	+0.8	—	+0.8	-0.1	+1.8	+1.7
(9) Miscellaneous clothing	+0.4	-0.3*	+0.1	+0.1	+0.1	+0.3
(10) Made-up textile goods	—	+0.1	+0.1	—	+0.1	+0.1
(11) Wood and cork	+0.6	-1.6*	-1.0*	+0.6	-0.5	—
(12) Furniture brushes and brooms	—	—	—	-0.2	+0.9	+0.7
(13) Paper and paper products	-0.5*	+0.3	-0.2*	-1.0	+1.8	+0.8
(14) Printing and publishing	+0.2	-1.4*	-1.2*	—	+0.1	+0.1
(15) Fellmongery and tanning	-0.1*	+0.5	+0.4	-0.2	+0.7	+0.4
(16) Manufactures of leather and leather substitutes	+0.2	-0.2*	—	—	+0.3	+0.2
(17) Oils, paints, inks and polishes	-0.2*	+0.3	+0.1	-0.1	+0.3	+0.1
(18) Chemicals and drugs	+1.0	-1.7*	-0.7*	-0.4	-0.5	-0.8
(19) Soap, detergents and candles	—	—	—	—	+0.7	+0.6
(20) Glass, glassware, pottery, etc.	+0.3	—	+0.3	—	+0.4	+0.4
(21) Structural clay products, concrete, cement, etc.	-0.2*	+1.0	+0.8	-0.2	+0.4	+0.2
(22) Metal trades	-0.5*	+2.3	+1.8	+0.4	-0.7	-0.4
(23) Non-electrical machinery	+0.2	+0.7	+0.9	-1.0	+1.7	+0.7
(24) Electrical machinery	+2.7	-2.8*	-0.1*	+0.4	-0.2	+0.2
(25) Assembly, construction and repair of non-mechanically propelled road vehicles	—	+0.1	+0.1	—	+0.1	+0.1
(26) Miscellaneous manufacturing industries	-0.7*	+6.4	+5.7	-0.4	+4.5	+4.1
Total for the 26 CIP industries	+5.8	+7.5	+13.3	-4.9	+21.7	+16.9

*Denotes "wrong" sign, i.e. opposite to that expected in columns (2)-(4).

Notes: (1) The AIFTA and Competitive Effect on the UK in columns (4) and (7) above are derived from Tables 8

(2) Totals may not add exactly due to rounding.

(3) If trade diversion occurs it will have a negative sign (see Formula (9)). However, as trade diversion is a substitution gain in favour of the UK, it is represented in column (2) with a positive sign.

(4) Trade diversion and trade creation in columns (5) and (6) are placed in parentheses in order to indicate that the trade diversion and trade creation formulae were used to derive the relevant estimates. In the context of the constant share method it is clear that the concepts are not the same as in the context of the share change method.

Import shares	1959-60	1964-65	1969-70 (act.)	1969-70 (exp.)
Total imports/apparent consumption (%)	23.16	25.17	29.40	27.95
UK imports/apparent consumption (%)	14.79	15.18	18.63	16.04
Non-UK imports/apparent consumption (%)	8.37	9.99	10.77	11.91

Source: Computed from Tables 7 and A4.

factors (desire for variety, quality of product, price etc.) which have contributed to the expansion of the total competing imports' share of the Irish market in the last half of the decade. It can be observed that the "competitive" increase in competing imports amounts to almost 15 per cent of the 1969-70 level of total competing imports (£21.7 million as a percentage of £149.6 million) and to 8 per cent of domestic production for the home market (i.e. gross output minus exports).

Motor Vehicle Assembly Industry

In view of the special arrangements for implementing freer trade in motor vehicles, it was considered advisable to compute the AIFTA effect separately for this industry.

Prior to July 1966, importation of fully assembled vehicles was subject to quota. The quota was combined with tariffs on fully built up (f.b.u.) vehicles, parts of vehicles and completely-knocked down (c.k.d.) aggregates, whose net effect was to afford substantial protection to Irish assemblers. Although the quota was removed in 1966, the tariffs were retained. Provision was made in the Records of Understandings attached to the AIFTA agreement for full elimination of the protective element in the customs duty on motor cars by July 1975. After the Agreement was signed, however, discussions were held between the Irish Government and interested parties both here and in Britain which culminated in an entirely new accord. The new agreement came into effect in late 1967 and the necessary legislation was incorporated in the motor Vehicles (Registration of Importers) Act 1968.

The main features of the agreement, which covers motor cars and commercial road vehicles, are as follows:

- (1) All imports of f.b.u. vehicles must be channelled through registered importers.
- (2) Registered importers who are assemblers must maintain their 1965 level of assembly, in return for which they may import f.b.u. vehicles for which they are registered at a reduced rate of duty.²²

²²The concessionary duty in 1967 was 20 per cent for British cars and 32½ per cent for non-British cars (compared with non-concessionary rates of over 60 per cent), but the British rate was raised to 22½ per cent in May 1968 and still further to 25 per cent in April 1970 with equal absolute increases to 35 and 37½ per cent on non-British cars. A single rate of 25 per cent is applied to *commercial* vehicles irrespective of their origin. The British preference covers only private cars. In the case of registered importers who are *not* assemblers, there is no restriction in the case of cars of British origin of a value equal to or greater than £1,300 c.i.f. and the rate of duty is now 22.2 per cent. Facilities for limited numbers only are granted in respect of British cars below £1,300 in value and non-British cars (irrespective of price). The current duty payable on the cars is 36.5 per cent preferential, 75 per cent full.

- (3) British importers/assemblers may import f.b.u. vehicles without restriction provided such imports do not prejudice the 1965 level of assembly. Non-British importers/assemblers are restricted to a ratio arrangement related to their assembly.

The effect of the arrangement, therefore, was to liberalise substantially the importation of British vehicles in return for which the domestic assembly industry's survival at 1965 level of operation was guaranteed for a period "generally understood" to be not less than 25 years.²³ It was also agreed at the time that a difference between the f.b.u. duty and c.k.d. duty equal to 12½ per cent would be gradually introduced in order to ensure continued profitability of the assembly operation in Ireland. While the c.k.d. duty was reduced from 20 to 17½ per cent in November 1967, no further reductions have been made. Since 1970, therefore, the duty differential has remained at 7½ per cent (25 per cent minus 17½ per cent). As assembly costs constitute only about one quarter of final ex-factory price, this still leaves the domestic assembly industry with an effective rate of protection equal to 46 per cent on British vehicles and 120 per cent on non-British vehicles.^{24 25}

The main feature of Ireland's fully-assembled vehicles imports since 1959-60 are outlined in Table 11. In line with expectations, we find extremely large absolute and proportionate increases in fully assembled vehicle imports between 1964-65 and 1969-70. Although the low initial base combined with the pre-1966 method of protection make share change projections virtually unusable, one notes that fully-assembled vehicle imports as a percentage of apparent consumption²⁶ increased to 15 per cent by 1969-70 compared with an expected 5 per cent. The UK share of apparent consumption exceeded expectations by about 7 percentage points (11.5 per cent actual, 4.6 per cent expected), and the non-UK share rose to over 3 per cent in contrast to an expected share of only one half of 1 per cent. Contrary to what one might expect, the UK share of total vehicle imports (row 4, Table 11) rose rather less than expected (78 per cent actual as against 90 per cent expected) but again, considering the low level of imports prior to 1964-65, too much must not be made of this discrepancy. The main point is that the liberalisation of trade

²³Minister of Industry and Commerce's Speech for Second Reading in Motor Vehicles (Registration of Importers) Bill, 1967, Seanad Eireann.

²⁴See McAleese [22] for a discussion of the effective tariff concept. The necessary input-output data on the assembly industry are taken from the December 1971 issue of the *Irish Statistical Bulletin*.

²⁵To bring this account fully up to date, we need only note that, as a member of the EEC, Ireland will be obliged to extend the concessions now provided for British cars to all member-country vehicles. This means the elimination of the ratio restriction by 1 January 1973 and the elimination of the 12½ per cent preference by January 1974. Although the 1968 arrangement is to be permitted to continue in operation until 1985, some additional liberalisation measures will be put into effect in the intervening period. Import quotas for member country cars not assembled in Ireland will be increased and the "protective elements" in the customs duties in domestic assembly are to be removed by 1977.

²⁶Apparent consumption data are contained in Table A5.

TABLE II: *Assembled vehicle imports into Ireland, 1959-70*

	<i>Average</i> 1959-60	<i>Average</i> 1964-65	<i>Expected</i> 1969-70	<i>Actual</i> 1969-70
1. Total imports c.i.f. (£000)	149	689	3,022	8,762
2. UK imports c.i.f. (£000)	113	568	2,713	6,824
3. Non-UK imports c.i.f. (£000)	36	121	309	1,938
4. UK share of total imports (2) ÷ (1)	75.8	82.4	89.8	77.9
5. Total imports as percentage of apparent consumption	0.74	1.94	5.09	14.75
6. UK imports as percentage of apparent consumption	0.56	1.60	4.57	11.50
7. Non-UK imports as percentage of apparent consumption (5) - (6)	0.18	0.34	0.52	3.25

Source: Same as Table A2.

Notes: Assembled vehicle imports are defined to include Import List Numbers 732.01, 05, 10, 50. Only those products which are competitive, i.e. capable of being assembled in Ireland, are included.

after the 1968 agreement ought to have benefited both UK and non-UK suppliers.

The estimated trade effects are calculated, as in the previous section, by deducting actual from expected imports for area and non-area sources respectively. We find that trade creation effects as estimated by the share change method amounted to £5.7 million of which internal trade creation accounted for £4.1 million and external trade creation amounted to £1.6 million.²⁷ The constant share method yields the following estimates: a total effect of £7.6 million, divided between internal trade creation of £5.9 million and external trade creation of £1.7 million. Because of the difficulty of interpreting pre-AIFTA share trends, our constant share results are less ambiguous than the share change (AIFTA effect) results. They can be viewed in relation to the gross output of the Irish motor vehicle assembly industry of £51.1 million in 1969-70. The AIFTA effect amounted to 9.7 per cent, and the total competitive effect to 12.8 per cent, of apparent consumption in 1969-70.

The insertion of the protective clause "without prejudice to the existing level of assembly" has ensured that these trade effects constitute a response to increases in domestic demand rather than a shift from domestic to foreign

²⁷Where a free trade agreement involves a decline in protection against members and non-members the theory would foresee a replacement of domestically produced suppliers by member country imports (internal trade creation) and also by non-member country imports (external trade creation).

production. Perhaps the best way of interpreting the £5.7 million or £7.6 million increase in imports is to consider it as replacing the increased production which would have occurred domestically in the absence of the vehicles agreement. The income elasticity of demand for motor vehicles is high²⁸ and we would have expected large increases in the output and a corresponding increase of employment in the assembly industry during the last few years had trade not been liberalised.

²⁸It has been estimated that the elasticity of car ownership with respect to real personal disposable income *per capita* is about 3. See Blackwell [3], p. 8.

Implications of Results

Compatibility of Results

ESTIMATED on the basis of apparent consumption shares, the AIFTA effect (excluding motor vehicles) emerges as £13 million. This can be compared with our two estimates of the AIFTA effect based on import shares data: £14 million using the market share-change method of extrapolation and £13 million using regression techniques (see Appendix 2).

In Sections 3 and 4, percentage changes in market shares in the base period were used in computing hypothetical end-period shares. An alternative procedure, (the EFTA method), described in detail in Appendix 1, is to use *absolute* changes in market shares. Had this procedure been used, the AIFTA effect would have been emerged as (1) £16 million on the basis of apparent consumption shares and (2) £17 million on the basis of import shares. In view of the close correspondence of these estimates with those above, we consider it unnecessary to provide details of our calculations in this paper.

Estimates of hypothetical trade flows, based on "what might have been", are necessarily speculative. The strategy adopted in this paper has been to compute a number of estimates, making them as independent as possible. If these estimates turn out to be compatible, we can feel reasonably confident that at least the correct order of magnitude of the AIFTA effect has been computed. The approach is, of course, non-stochastic and the different estimates are only quasi-independent. Despite this, we are satisfied that this approach despite all its limitations is the best available, given our present state of knowledge.

Viewed in this way, the results of the various methods of estimating the AIFTA effect exhibit a satisfactory degree of conformity. Admittedly, one would on *a priori* grounds have expected the estimates based on import shares to be rather lower than those based on apparent consumption shares, due to the former's failure to capture fully the trade creation effect. Instead the two sets of estimates are roughly the same. It is highly unlikely, however, that the expected divergence between the two sets of estimates would be large in absolute terms. This is because the UK shares of total imports and of apparent consumption are such as to justify the expectation that at least half of the trade creation effect is already captured by the import shares method.¹ Therefore, in absolute terms, if not proportionately, it would take only a small adjustment of our estimates to reconcile the two sets of results.

¹This point emerges from the figures in the arithmetical table of footnote (1) p. 9 above. The magnitude of the shares in that example are approximately the same as the actual shares.

The Balance of Payments Effect

The results suggest that the trade creation effect of AIFTA amounted to £7.5 million (see Table 10), to which we may add £4.1 million for vehicles. This represents the increase in manufactured imports directly attributable to the Agreement. Offsetting these, we have the gains on the export side attributable to improved access for Irish manufactured and agricultural products in the UK market.

The elimination of tariffs by the British Government made little difference to the competitiveness of the bulk of Irish manufacturers. The affected products consisted primarily of textile materials and clothing containing silk or man-made fibres. The small Irish share of the commodities affected in the UK market makes the standard market share analysis, which relies on average trends and average market behaviour of commodity groups, more than normally hazardous. However, using a market share change analysis of the Irish share of total imports into the UK of textiles (SITC 65) and clothing and footwear (SITC 82), we estimate the AIFTA effect on exports to be about £2 million.²

We are of course aware of the fact that if one looked exclusively at those products which were subject to British duties one would arrive at a much larger estimate of the AIFTA export effect. Thus, according to official records, the value of goods, previously dutiable, admitted free of duty into the UK under AIFTA rose from £5 million in July 1966-67 to £19 million in July 1969-70.³ To ascribe all this to AIFTA is clearly inadmissible since, at this level of disaggregation, zero cross elasticities of supply simply cannot be assumed. In other words, the removal of UK tariff barriers in mid-1966 must have led to a considerable degree of substitution from products with low man-made fibre content (kept low in order to avoid the duty) to products which would enter the dutiable range. Equally important, part of this £14 million increase simply reflects the growth in UK import demand and any trends in the Irish share in the pre-AIFTA period must be taken into account.

Owing to the high import content of industrial production in Ireland, the £11.6 million trade creation has less severe repercussions on the net import bill

²The market share data are as follows:

Share (Percentage) of Irish exports in UK imports

SITC	1959-60	1964-65	1969-70 (exp.)	1969-70 (act.)
65	3.15	4.66	6.89	6.76
82	8.02	8.35	8.69	9.91

The AIFTA effects were—£0.32 million and + £2.01 million for SITC 65 and 84 respectively. (Sources: computed from *Trade and Shipping Statistics* and *External Trade Statistics*. British data obtained from *Annual Abstract of Statistics* 1967 and 1970.)

³Figures computed by British authorities and kindly supplied to the authors by the Department of Industry and Commerce.

than might be expected. Given an average (direct plus indirect) import content in Irish industry of 39 per cent, the net effect on the import bill may reach only £7 million. If, from this figure, we deduct roughly £1 million representing the *net* increase in manufactured textile and clothing exports,⁴ we are left with a net balance of payments effect on the manufacturing side of roughly £5 million.

The contribution of the agricultural concessions of AIFTA to the balance of payments must also be considered at this stage. This is extremely difficult to quantify. One cannot assess the value of guaranteed access to the UK market (one of the major concessions under AIFTA) without speculating on what would have happened in the absence of the Agreement. Given the volatility of agricultural prices, one's assessment of the worth of this concession can vary significantly from year to year. To carry out a full-scale investigation of this aspect of the Agreement would carry us well beyond the purview of the present study. The immediate gains of AIFTA can however be roughly quantified in the following manner:

- (1) the British fatstock guarantee was extended under AIFTA to 25,000 tons of carcase beef and 5,500 tons of carcase lamb. This brought in about £1 million from the British Exchequer in 1969-70.⁵
- (2) the reduction from 3 months to 2 months in the waiting period on British farms before Irish store cattle exports could qualify for British deficiency payments resulted in an estimated increase in the value of exports of £1½ million in 1969-70.⁶
- (3) the enlargement of the butter quota enabled Ireland to sell 32,000 tons of butter in the UK in 1970 as compared with 18,000 tons in 1965. This butter fetched on average over £200 per ton more in the UK market than in non-UK markets. Hence the increase in Irish export revenue due to the improved access to the UK market could be placed at on average £2½ million in the years 1969-70.
- (4) the growth in Irish exports of cheddar cheese to the UK market can also be attributed in large measure to the UK's AIFTA commitments. The price differential between Irish exports to the UK and to non-UK is not

⁴The source of these import content figures is E. W. Henry [11], Table 2, p. 16. For exports, we used the import content of the textiles/clothing/leather sector; for the AIFTA import effect, we calculated an average import content for all manufacturing industries.

⁵Figures supplied by Department of Agriculture and Fisheries.

⁶Calculated as follows: given an average British deficiency payment of 1.13 per cent, it took only 2 months for the British farmer to earn what had previously taken 3 months. This increased the price he received by 0.38 per cent. Assuming half this amount was passed on to the Irish exporter and that the average weight of store cattle was 10 cwt., we arrive at the £1½ million estimate.

as large as in the case of butter. Nevertheless, by attributing all of the increase in Irish cheddar cheese exports to UK since 1965 to AIFTA and multiplying this amount by the average price differential of 1969 and 1970 of £5 per cwt., we estimate a gain of £1 million.

One could doubtless disagree with any or even all of the above estimates. But the general order of magnitude is in our view about right. Needless to say, as world agricultural prices strengthen, the AIFTA gain falls; and *vice versa* for a weakening in world agricultural prices. For the year 1969-70, however, it appears that the average gain was roughly £6 million.

Assuming a negligible import content in this figure, the increase in agricultural exports of £6 million under AIFTA approximately offsets the net import increase of £5 million. The AIFTA effect in the Irish balance of payments at the mid-way stage was therefore, according to our calculations, just about neutral.

The Employment Effect

According to comparative cost theory, the static gains from trade arise because of a redeployment of a given stock of resources and a given level of employment. In the context of a free trade area, the theory would envisage a process whereby as trade creation replaces output in relatively inefficient domestic industries, the labour force which is released is quickly absorbed into other more efficient industries. Real income increases, but not the number of people employed.⁷ Even if the analysis were extended to cover the so-called dynamic trading gains, the same conclusion holds. These gains (such as the benefits of increased competition and increased exploitation of economies of scale) improve the standard of living of those who remain employed, but they are not necessarily employment-creating. Efforts to modernise and rationalise industries in response to the tariff reductions may, of course, raise the level of investment. This in turn may bring about some increase in employment but not as much in a small country like Ireland with few investment goods industries as in a large bloc of countries such as the EEC. Even in theoretical terms, therefore, static and dynamic gains from freer trade can be expected to appear in the guise of increases in real GNP rather than in the form of increased manufacturing employment.

To assess the domestic employment equivalent of these sums, we proceed as follows. Initially, an average gross output/employment ratio is calculated for 1969-70, by adding gross output over all 27 industries, dividing by total

⁷The increase in real income reflects both a production gain (reflecting a more efficient allocation of resources) and a consumption gain (due to the greater choice of consumers and the equalising of marginal rates of domestic substitution with the international price ratio).

employment in these industries for each of the two years, and then taking an average of the two years 1969 and 1970. Data for the year 1969 are obtained from the Census of Industrial Production and employment estimates for 1970 are derived from the Quarterly Production Inquiry.⁸ The gross output/employment ratio was £3,844 in 1969 and £4,152 in 1970, giving an average 1969-70 ratio equal to £3,998. Dividing this last figure into the AIFTA trade creation effect of £11.6 million, we obtain a domestic employment equivalent of 2,912 jobs.⁹ In a comparable manner, we estimate the domestic employment equivalent of the AIFTA "gain" in textile and clothing exports by Irish producers as about 700 jobs. The direct employment equivalent of the increase in agricultural exports due to AIFTA is taken to be insignificant.¹⁰

These calculations suggest that the net employment equivalent of AIFTA amounts to no more than 2,000 jobs. It must be emphasised, however, that this employment figure indicates the number of *potential* jobs lost as a result of the expansion of imports attributable to AIFTA and other competitive factors. It does not suggest that manufacturing employment actually fell by this amount. A part of the employment equivalent may indeed have been reflected in increased redundancy or by failure to replace natural wastage, but it could also have taken the form of jobs *not created* in the affected industries i.e. employment could have been expected to increase in these sectors had the domestic producers' share of the Irish market not been eroded. Hence the estimate is rough-and-ready, suggestive of the order of magnitude of the employment effect rather than a precise quantification.¹¹

That the net employment effect of AIFTA should be unfavourable to this country is scarcely surprising. It merely reflects the fact that, at the time the Agreement was signed, the UK had extremely few concessions on the industrial side which it could grant to Ireland, since the vast majority of Irish manufactured goods already enjoyed duty-free access to the UK market. The Irish market by contrast had been heavily protected from UK competition for several decades prior to AIFTA. In such circumstances, a certain strain on the employment situation (relative to what it would have been in the absence of

⁸The 26 industries listed in Tables 8-10 plus the Motor Vehicles industry were covered in this exercise.

⁹It can easily be verified that the average gross output/employment ratio calculated in this way is in fact a weighted average, weights being proportional to the total employment in each industry. To test the sensitivity of this statistic, an average based on net output weights was also computed, which yielded an average gross output/employment ratio of £4,477, and an employment equivalent estimate of 2,600 for the AIFTA trade creation effect.

¹⁰Of course the increase in the value of agricultural output has secondary or "multiplier" effects on the economy. These are assumed to be roughly of the same order of magnitude as the industrial multiplier effects.

¹¹The implicit assumption of equivalence between average and marginal gross output/employment ratios is something which would have to be investigated in a comprehensive study of the employment consequences of the Agreement.

AIFTA) was inevitable.¹² Important agricultural concessions were, of course, extracted from the British; but, in our view, these have succeeded only in modifying the secondary or "multiplier" effects of the manufacturing employment effect.

British Export Performance

The UK's export performance has been extensively studied in recent years. Several hypotheses have been advanced to explain the decline in the UK's share of world manufactured exports during the sixties.¹³ The relevance of these attempted explanations to the experience of UK producers in the Irish market merits some consideration.

The withdrawal of special tariff preferences for British goods in some sterling area countries has been cited as an important factor contributing to the British share decline. This case is obviously inapplicable in the Irish context. The AIFTA Agreement implied an augmented degree of preference for products of UK origin; and tariff reductions prior to 1966 were non-discriminatory. Throughout the decade, the Irish tariff structure actively favoured the importation of UK rather than non-UK goods. The full (non-preferential) tariff rate, it has been noted, frequently exceeded the UK rate by 10 to 20 percentage points even in 1966.¹⁴

Another possibility is that the commodity composition of UK exports to Ireland was weighted towards product groups with low income elasticities of demand and poor growth prospects. The analysis of this study suggests that this emphatically was not a significant factor in the sixties. The composition effect turned out to be extremely small no matter whether it was measured by reference to apparent consumption ratios or import share ratios.

In their study of British exports, Panic and Rajan [25] laid stress on the share losses Britain sustained in product groups which were expanding rapidly in world trade. Their analysis was based on a different level of disaggregation to ours which makes direct comparison between our results and theirs extremely difficult. It is interesting to note, however, that road motor vehicles, one of the fastest-growing product groups in international trade, was an area in which the UK recorded one of its worst relative export performances in the 1960s.¹⁵

¹²Theoretically speaking, these initial adverse employment effects could be offset by domestic wage and price flexibility and/or expansionary government fiscal and monetary policies. In Ireland's case, with a fixed exchange rate *vis-à-vis* sterling and domestic money wages rising at least as fast as those in the UK, the whole burden of restoring equilibrium is effectively placed on government policy. However, an expansionary government policy, unless it is geared specifically to encouraging exports, will quickly come up against a balance of payments constraint. Thus the range of policy options open to a small open economy is not as large in practice as it may appear in theory.

¹³The UK share in the manufactured exports of the ten largest industrial countries fell from 15.9 per cent in 1960 to 11.0 per cent in 1968. Panic and Rajan [25], Table A6, p. 44.

¹⁴McAleese [22], p. 56.

¹⁵Panic and Rajan [25], Table A2.

According to our figures, the UK actual 1969-70 share in the Irish market also fell substantially below its "expected" level. A rapid share decline was likewise observed in Irish imports from the UK of electrical machinery (SITC 72), another fast-growing product by international standards.

A detailed investigation along the lines of Panic and Rajan's study would be unlikely to prove fruitful. It can be observed that the UK share of Irish imports fell in all but 6 of the 25 SITC divisions for which data are presented in Table 2, between 1959-60 and 1969-70. The share losses were most severe percentage-wise in chemicals (section 5) and machinery and transport equipment (section 7). During the same decade, the fastest growing categories of Irish manufactured imports were sections 5 and 8. Hence, it is not possible to attribute the UK's share decline solely to the failure to maintain its share of Irish import product-groups which had the highest growth rates.

The AIFTA Agreement has, of course, affected the behaviour of post 1964-65 shares quite appreciably and by no means in a uniform way. The UK shares of Sections 6 and 8 increased in the post-AIFTA period, thus reversing the 1959-60 to 1964-65 downward trend. This reflects the influence of a combination of two factors: high tariff levels combined perhaps with a greater sensitivity to tariff reductions in these sections. The non-uniformity of share changes in the pre-and post-AIFTA periods was further tested by calculating the rank correlation coefficient between changes in shares at a divisional level during the two periods 1959-60 to 1964-65 and 1964-65 to 1969-70. We found the correlation coefficient to be statistically insignificant at any reasonable level of confidence.¹⁶ Thus, those divisions which were characterised by relatively high UK share declines in the pre-AIFTA period did not in general tend to experience relatively high UK share declines in the post AIFTA period. This confirms our *a priori* expectations that not all manufactured imports from the UK were affected by AIFTA to the same extent.

Prospects for the Future

Studies of the integration effects of the EEC and EFTA have established the existence of two tendencies which have an important bearing on the present investigation of AIFTA. First, it takes time for a series of annual tariff reductions to take effect. EEC trade effects, for instance, were negligible prior to 1961, three years after the Rome Treaty was signed. Second, the trade effects of integration tend to gather momentum as time progresses and to become an increasingly large proportion of total trade effects. This last point is clearly

¹⁶The correlation coefficient was -0.09 when all divisions (excluding 56 and 73) were included. The exclusion of divisions with positive share growth in the first period or of those divisions whose competitive effect turned out to be negative makes no significant difference to the correlation coefficient.

illustrated in Williamson and Bottrill's study.¹⁷ The integration effects of the EEC are estimated by them to have increased steadily from 2 per cent of total "expected" intra-EEC imports in 1961 to 53 per cent in 1969.¹⁸ The existence of these two tendencies elsewhere in the world thus lends support to the view, widely held in Irish circles, that the AIFTA tariff reductions had just begun to "bite" by about 1970 and that the AIFTA effect can be expected to be much larger in the future than it has been prior to 1970.

Further light has been thrown on these issues by the recently published report of the EFTA Secretariat which contains revised estimates of the EFTA effect, both for individual members of EFTA and for the free trade area as a whole. The EFTA report pursues its investigations up to the year 1967 by which time the official transitional period had ended. Consequently, the results of the EFTA study provide a useful backdrop against which to evaluate our estimates of the AIFTA effect at the half-way stage of that Agreement.

First, the EFTA effect in 1967 came to 28.1 per cent of total intra-EFTA imports which were accorded EFTA tariff treatment (i.e. mostly industrial goods). According to our estimates, the AIFTA effect by 1969-70 amounted to 14 per cent of UK competing imports and 7 per cent of UK manufactured goods (SITC 5-8 excl. 56 and 73) imports. Since the commodity groups included in the EFTA study approximate closely to SITC sections 5-8, the latter figure of 7 per cent is more nearly comparable to the EFTA's 28 per cent.¹⁹

Second, the average EFTA figures were depressed by the disproportionately low EFTA effect for Britain, thus concealing the high EFTA ratios of 37 per cent for Austria and Denmark and 32 per cent for Sweden.²⁰ It is interesting to note that Portugal, whose tariffs in 1967 had been reduced (following the extended transitional arrangements for that country) to only 40 per cent of their basic rate, recorded an EFTA effect equal to 14.5 per cent of Portuguese imports from EFTA members.

Third, trade creation and trade diversion effects amounted to 60 per cent and 40 per cent respectively of the total EFTA effect. This result conforms very closely to our own estimates of the distribution of the AIFTA effect between trade creation (56 per cent) and trade diversion (44 per cent).

Fourth, the EFTA effect of 28 per cent in 1967 has been found to be roughly in line with those of other studies (Williamson and Bottrill [32], Aitken [1] for instance) despite their use of different methodologies. Efforts to measure

¹⁷Williamson and Bottrill [32], Table III. See also Aitken's study [1] and the EFTA Secretariat Report [7] for further confirmation of the existence of this tendency.

¹⁸"Expected" imports represent intra-EEC imports as they would have been in the absence of integration.

¹⁹The relevant EFTA products are listed in Annex 1 of the EFTA Report [7]. We recognise, of course, that the proportion of manufactured imports likely to be affected by free trade is much smaller in Ireland than in a bloc of countries like EFTA.

²⁰The EFTA effect here refers to the proportion of Swedish etc. imports which come from EFTA.

the integration effect of the EEC have also tended to turn up high estimates of this effect—according to Williamson and Bottrill's study, the EEC effect had risen to nearly 35 per cent of current intra-EEC imports by 1969.²¹

While subject to the many limitations of international comparisons of this type, the results are nonetheless suggestive. One important inference we would draw is that the AIFTA effect on imports from the UK was by 1970, at the half-way stage of the tariff reductions, a good deal less than half the total effect that one would expect on the basis of experience elsewhere. Moreover, in the Irish context, the exceptionally high tariff levels prior to AIFTA would suggest that the percentage AIFTA effect should eventually exceed that of EFTA and EEC countries by the time the tariffs have been fully eliminated. On the other hand, the high initial import share of the UK tends to restrict the possibilities of further trade diversion. This point will be given further weight by the obligatory tariff cuts on products of EEC origin which are scheduled to take place over the next few years in accordance with EEC regulations.

The relevance of these remarks to the actual behaviour of the UK import share during the next few years is difficult to pin down. So much depends on such imponderables as relative rates of inflation in the UK *vis-à-vis* competing suppliers (Irish included) on the Irish market. This point is underlined by an examination of preliminary trade data for 1971. By applying the share change technique, we found that the fall in the UK share of manufactured imports (excl. 56 and 73) to 61.47 per cent in 1970-71 implies an estimated AIFTA effect of £13.4 million compared with an AIFTA effect of £14.5 million in 1969-70 (both effects in current prices). At first sight, this appears to run counter to the prognostications of the immediately preceding paragraphs. On closer examination, however, it appears that much of the UK loss of import share since 1969-70 could be attributed to the very rapid rise in UK export prices in 1971. By that time, in fact, it has been observed that the 1967 devaluation was insufficient to counteract the effects of the rapidly rising unit labour costs in Britain relative to competing countries.²² Hence what we are observing is a reversal of the trade diverting influence of devaluation. At the same time, if data on apparent consumption were available, our guess is that internal trade creation effects would be greater than the 1969-70 effects estimated in this paper, partly because of the effects of further AIFTA tariff reductions and partly as a result of the continuing deterioration in the Irish unit labour cost position relative to that of the UK.

²¹The base is actual 1969 imports, not hypothetical 1969 imports as in Table III of Williamson and Bottrill's article. The latter's estimate of the EEC effect comes very close to the figures of Aitken, Kreinin's estimates, when suitably adjusted, also show EEC trade effects similar to the estimates of Williamson and Bottrill (see [32], Table III and IX). The EFTA Secretariat's estimate is much lower, but we tend to place less reliance on these results.

²²See Ray [26], p. 57.

Summary

(1) Although the UK share of total Irish imports has remained constant at around 52 per cent since 1950, its share of Irish manufactured imports has declined from 78 per cent in 1950 to 67 per cent in 1959 and further to 62 per cent in 1970. This long-run tendency for the UK manufactured imports share to decline had to be expressly incorporated into our analysis of the AIFTA effect.

(2) The AIFTA effect was measured first by reference to changes in the UK's share of Irish manufactured imports (SITC 5-8 excl. 56 and 73) and, second, by reference to changes in the UK's share of Irish apparent consumption. The latter share is defined as: competing imports from the UK divided by the sum of total competing imports plus domestic production less exports. The AIFTA effect indicates the extent to which imports from the UK were higher than they would have been had tariffs not been reduced.

(3) The AIFTA effect, calculated with import shares, amounted to £14.5 million in 1969-70. In percentage terms, imports of manufactured goods (excl. divisions 56 and 73) from the UK during these years were thus on average about 7 per cent higher than they would have been in the absence of the tariff reductions. The AIFTA effect accounted for 13 per cent of the total increase in UK manufactured imports to Ireland since 1964-65.

(4) The major AIFTA effects were observed in the textile yarns and fabrics, non-metallic mineral manufactures, iron, steel and non-ferrous metals manufactures product groups (SITC 65-68 inclusive). Pronounced increases in UK imports of certain consumer product groups (SITC 85 and 86) were also noted. We estimated that the AIFTA effect pertaining to divisions 65-68 and divisions 85-86 came to 18 per cent and 15 per cent respectively of the corresponding UK imports in the years 1969-70. The increased competitiveness of UK imports due to AIFTA thus appears to have been exploited to a much greater extent in some product groups than in others.

(5) Using apparent consumption shares analysis, we estimated the AIFTA effect (excl. motor vehicles) as £13 million. This came to 14 per cent of UK

competing imports and to 27 per cent of the *increase* in UK competing imports since 1964-65. These relatively high percentages reflect the fact that the proportion of British imports actually likely to be affected by AIFTA was smaller than was implied by our trade statistics.

(6) The largest AIFTA effects were observed in the Miscellaneous Manufacturing, Hosiery, Textiles and Clothing sectors. Due to the narrower product base and to the lack of a one-to-one correspondence between individual industries' competing imports and the 25 SITC divisions, a comparison between the disaggregated results of the import and apparent consumption share methods emerged as inconclusive.

(7) A prospective advantage of the apparent consumption method is its capability of yielding trade creation and trade diversion estimates. The former estimates indicate that extent to which improved UK export performance took place at the expense of Irish producers, whereas trade diversion estimates indicate the magnitude of the competitive losses sustained by non-UK exporters to the Irish market. Our study suggests that the AIFTA effect of £13.3 million was fairly evenly divided between trade creation (£7.5 million) and trade diversion (£5.8 million) effects. The individual industry results were, however, disappointing due to the incidence of "wrong" signs in many cases.

(8) The increased foreign penetration of the Irish market was alluded to at various stages in the study. The examination of apparent consumption shares made it possible to quantify the extent of this foreign penetration since the mid-sixties. According to our figures, the share of domestic producers in apparent consumption fell from 75 per cent in 1964-65 to 71 per cent in 1969-70. We further estimated that the share decline implied a "loss" in domestic sales (i.e. a reduction over what they would have been had their share of apparent consumption remained constant) equal to £22 million. Roughly one-third or £7.5 million of this loss is attributable to AIFTA; the remaining two-thirds to such factors as desire for increased variety and improvement of foreign competitiveness in the broad sense (including the relaxation of trade restrictions on non-UK imports in certain sectors), which have tended to increase the share of competing imports in the Irish market throughout the last decade. The industries most heavily hit by the inroads of import competition have been the Hosiery, Miscellaneous Manufacturing, Linen and Cotton, non-Electrical Machinery, Paper and Paperboard industries.

(9) The Motor Vehicles industry has also been affected by trade liberalisation measures. Although the *primum mobile* of these measures was the AIFTA

agreement, a separate accord was reached in 1967 which granted concessions to both UK *and* non-UK vehicles (weighted more heavily in favour of the UK) and which on that account had to be analysed separately. Our analysis indicated that an increase of £6 million in motor vehicle imports could be attributed to the 1967 trade liberalisation measures. About £4 million of this increase took the form of increased imports from the UK. This estimate is highly tentative. Past trends were difficult to interpret owing to the presence of quotas in the pre-AIFTA period. The constant share method results are much more readily interpreted: a total "loss" of £8 million in domestic sales (relative to what they would otherwise have been) took place due to increased foreign competitiveness, of which £6 million came in the form of increased imports from the UK.

(10) If the motor vehicles industry is included in the calculations, the two basic results of this study can be amended as follows. First, the AIFTA effect was responsible for an increase (over what it would have been otherwise) in the 1969-70 level of UK imports of roughly £17 million, £12 million of which was at the expense of Irish producers and £5 million at the expense of non-UK importers. Second, the increased competitiveness of imports of both UK and non-UK origin since the mid-sixties has implied a loss of Irish producers' sales on the home market (relative to what they would otherwise have been) of £30 million on average during the years 1969-70.

(11) Analysis of the long-run share losses of the UK in the Irish market provided no evidence that these could be ascribed to an "unfavourable" change in the commodity composition of Ireland's manufactured imports, i.e. an expansion in those product groups in which the UK share was relatively low at the expense of those product groups in which the UK share was relatively high. The competitive advantage afforded to UK exporters by AIFTA tariff reductions was simply not sufficient to overcome the other competitive forces which have progressively reduced the UK's share of the Irish market. Although the share of the UK in manufactured goods imports continued to fall up to 1969-70, our results demonstrate that the UK share decline would have been considerably greater had the AIFTA concessions not been granted.

(12) The net balance of payments effect of AIFTA in 1969-70 was about zero, net increases in imports being offset by net increases in Irish manufactured and agricultural exports to the UK attributable to the Agreement. We estimate an increase in manufactured exports of £2 million caused by the elimination of UK tariffs and a £6 million increase in agricultural exports as a result of the improved access to the UK market for these products.

(13) The effect of AIFTA on Irish employment was unfavourable; our calculations put the net employment equivalent in 1969-70 at about 2,000 jobs. Two factors are responsible for this: (a) the increase in employment directly attributable to the rise in agricultural exports is very small (b) the imbalance on the industrial side, reflecting the fact that the UK had already granted virtually unimpeded access to Irish products to the UK market prior to AIFTA and consequently had few concessions to reciprocate for those offered by the Irish.

(14) Although an examination of UK import shares since 1970 suggests that the AIFTA import effect has not increased, our guess is that an apparent consumption share analysis would show the opposite result. Experience elsewhere tends to corroborate our impression that by 1969-70, the full effects of AIFTA on imports were less than half the magnitude to be expected in 1974-75.

Appendix I

Notes on Methodology

Trade Creation and Trade Diversion

A FREE trade area can be expected to increase imports from partner countries at the expense of, first, competing domestic producers and, second, non-partner suppliers. In our case, the relevant parties are Irish and non-UK suppliers respectively. The replacement of Irish sources of supply by cheaper UK producers is termed "trade creation". "Trade diversion", on the other hand, refers to the displacement of non-UK suppliers by UK suppliers, as a result of the discriminatory effects of the tariff reductions.

Although the concepts of trade creation and trade diversion are thoroughly familiar to international trade specialists, a more elaborate definition may be desirable for the benefit of non-specialists, since a full understanding of these concepts is essential to much of this paper. We illustrate with the following simple arithmetical example.

Suppose a free trade area is formed between two countries *A* and *B* and that *C* represents the rest of the world. Costs of production of a single commodity, *M*, are £50 in *A*, £40 in *B* and £30 in *C*. If, prior to the formation of the free trade area, *A* had levied a 100 per cent *ad valorem* duty on imports of *M* from all sources, we assume that the tariff-inclusive price of *M* in *A* would have been £80, if imported from *B*, and £60 if imported from *C*.¹ Thus, *A*'s relatively inefficient producers would have been protected against imports. When the free trade area is formed, however, the duty on *M* from *B* is eliminated and its price in *A*'s market will fall to its true cost of £40. Country *A* will now import *M* from *B* at a cost of £40, compared with the cost of £50 in the pre-integration period when *M* was produced domestically. This is an example of trade creation, in which the formation of the free trade area leads to a reallocation of purchases from domestic producers to partner country producers.

To illustrate a case of trade diversion, assume that *A*'s initial tariff was 50 per cent *ad valorem*. The tariff-inclusive price would then have stood at £60 for imports from *B* and £45 for imports from *C*. Country *A* would thus have been importing from *C* prior to integration. When the free trade area is formed, however, the price of *M* from *B* drops to £40 in *A*'s market while *C*'s price remains £45 (as she must still bear the 50 per cent tariff). This leads to a shift in the locus of production from the low-cost producer *C* to the higher-

¹Thus, we assume constant costs in all three countries.

cost producer *B*. This is an example of trade diversion. In this case, the formation of the free trade area results in the substitution of partner country imports for non-partner imports.

In the classical full employment model of international trade, trade creation and trade diversion tend to be considered as beneficial and harmful consequences respectively of economic integration. In this theoretical context, trade creation releases domestic resources from inefficient production in import-substitution industries for redeployment in the more efficient export sector. Trade diversion, on the other hand, involves the substitution of expensive partner sources for the cheaper non-partner sources from whom imports were purchased in the pre-integration period. The conventional view, in its crudest and most simplified version, is that the free trade area has a favourable or unfavourable effect on welfare depending on which of the two effects (trade creation or trade diversion) predominates.

During the last decade and a half the theory of economic integration has been extensively developed. The necessary and sufficient conditions for an increase in welfare to result from integration are now seen to be a great deal more complicated than any simple balancing of trade creation and trade diversion effects would suggest. First, it is realised that once the constant costs assumption is relaxed, the impact in terms of the volume of trade created or diverted is not the same as the efficiency gain or loss from the extension of trade.² Second, the consumption effects of integration must generally be included in the calculations. These latter effects reflect the shifts in domestic consumption patterns towards imports from partner countries and away from imports from non-member countries in response to the changes in relative prices.³ Third, the so-called "dynamic" effects⁴ of integration must be assessed before any definitive conclusions regarding the welfare effects of integration can be reached. These and related points are well-documented in the literature and need not detain us here.

As already noted, the welfare implications of economic integration are usually discussed in the context of a fully-employed economy, where resources

²Thus, as Truman puts it:

... a large dollar magnitude of trade diverted represents a smaller loss in real income since the efficiency loss is only the margin between the low-cost producer's and the actual supplier's supply price on the total volume of trade diverted [30], p. 203.

³Thus, except in the simple Vinerian model with fixed proportions in consumption, it is misleading to label customs unions after their production effects alone. The more meaningful approach is to define the concepts trade creation and trade diversion as comprising a production and consumption component.

⁴Krauss [14] points out that this is a misuse of the word dynamic because these effects are susceptible to orthodox static analysis. As an example of this, Corden [6] has analysed the effects of economies of scale and shown that the traditional trade creation and trade diversion concepts are still relevant but they must be supplemented by two new concepts: the "cost reduction" effect and the "trade suppression" effect of an economy of scale. The former refers to the increase in welfare due to the fall in the average unit cost of domestic output when such output expands after the formation of the customs union and average unit cost is falling; the latter refers to the decrease in welfare due to the displacement of the most efficient source of import supply by less efficient domestic production.

can move easily from import-competing industries to export-oriented activities. If this assumption is relaxed, it is conceivable that trade creation, viewed as a "favourable" factor in the theoretical context, may be seen in an entirely different perspective. For example, in certain circumstances, trade creation might be regarded as adding to the importing country's unemployment problems. Trade diversion, an "undesirable" factor in the conventional model, may also be seen in a different light, being regarded as a factor alleviating the strain on domestic producers (i.e. non-partner countries' producers rather than domestic producers are displaced in the market). The implications to be drawn for the distribution of the gains from trade, therefore, from any given set of estimates of trade creation and trade diversion depend very much on the circumstances of the economy being studied.⁵

Estimation of Integration Effect by Ex-Post Methods

Ex-post estimates of the effect of free (or freer) trade compare actual trade flows after the tariff reductions have taken place with hypothetical trade flows calculated on the basis of a continuance of the pre-integration situation. Empirical studies of integration have used a variety of methods to estimate the hypothetical trade flows and a useful summary of them can be found in Williamson and Bottrill [32] and also in a study of the effects of the European Free Trade Association (EFTA) carried out by the EFTA Secretariat [7]. Three of the most important are: (1) the income elasticity approach, (2) import functions approach and (3) the market shares approach.

The income elasticity method, introduced by Balassa in 1967, attempts to isolate the effects of trade liberalisation by means of *ex-post* income elasticities. An *ex-post* income elasticity of import demand is defined as the ratio of the average annual growth rate of imports to that of GNP in real terms. Elasticity estimates are calculated for partner country imports and non-partner country imports for two periods, representing the pre-liberalisation and post-liberalisation periods respectively. Assuming constant elasticities in a *ceteris paribus* situation, a fall in the income elasticity for non-partner country imports indicates trade diversion while a rise in the elasticity indicates external trade creation.⁶ A rise in the elasticity of a partner country would indicate gross trade creation i.e. the sum of new trade created and diverted from non-member countries. An important limitation of this method, however is its reliance on the assumption that, in the absence of integration, the income elasticities are constant over time.

⁵Customs union theory generally works in terms of a "cosmopolitan" welfare criterion. Trade creation is a gain to the union as a whole but this does not mean that each partner's welfare must necessarily improve particularly in a less than fully employment situation.

⁶For definition of external trade creation, see footnote (1), p. 67 of the main text.

The second method—the import functions approach—uses econometric techniques to estimate hypothetical trade values. This is done by estimating import functions for the pre-integration period and using the resulting equations to predict the hypothetical non-integration position. This method has been employed by Aitken [1] and Kreinin [15] among others, to estimate the static integration effects of the EEC and EFTA, sometimes using cross-section data, in other instances time-series data. Although the use of regression techniques in this context has much to recommend it, a recurrent problem is that of obtaining adequate data, in particular price data for imports from partner and non-partner countries respectively.

The third method, the one used in this study, the market shares approach has also been widely used for assessing the quantitative effects of integration. Changes in the market share of imports are examined between some pre-integration year (or period of years) which is considered “normal” and a post-integration year (or period of years). One of the most detailed studies of this kind has been undertaken by Truman [30] in his 1969 paper on the EEC. He considers shares of imports in total apparent consumption and his basic assumption is that, in the absence of integration, the shares in total apparent consumption of imports from partner and non-partner states would have remained constant. Two base years, 1958 and 1960, were chosen and changes in shares between each base year and the “final” year 1964 were translated into quantitative estimates of the EEC effect on trade flows.⁸ Trade creation and trade diversion were calculated for each individual member state using both aggregate manufacturing data and data disaggregated by broad industrial groups. The major criticisms of Truman’s paper are based on his use of single year shares as base, with its implied assumption that import shares of apparent consumption would have remained constant in the absence of trade liberalisation.

An obvious way of overcoming the central weakness in Truman’s approach is to make an adjustment for trends in the shares prior to integration. These trends, it might be argued reflect changes in taste, income levels and economic structure which have been operative in both the pre- and post-integration periods. Consequently, their influence ought to be neutralised before estimating the effects of integration *per se*. The EFTA Secretariat attempted to accomplish this task by assuming a continuance of pre-integration trends. Their formula for estimating the EFTA effect (E) on imports i.e. the amount by which imports from member states in 1967 were higher as a result of the formation of EFTA in 1959, is given by the equation:

⁸Balassa, for example, experimented with regression analysis but without success, due to “the shortness of the time series and the variability of data”. [2], p. 87.

⁹Truman’s estimates have been updated to 1968 in a recent study by Major and Hays [19].

$$E = F_{67} - [(f_{59} - f_{54})8/5 + f_{59}] C_{67} \dots \dots \dots (A1)$$

F = actual imports from EFTA countries

C = apparent consumption i.e., gross output less exports plus imports

$f = F/C$ and subscripts refer to the years 1954, 1959 and 1967.

Hypothetical 1967 imports are expressed as the sum of two terms. The first is the share of imports in apparent consumption in 1959 i.e. $f_{59}C_{67}$, and the second is a linear extrapolation of the share change between 1954 and 1959 given by $(f_{59} - f_{54})8/5$.

The EFTA method can be criticised on the grounds that extrapolation of the trend in the pre-integration period will bias the results if any abnormal factors were at work in the base period. Also, as the trade effect is a residual, it will catch the influence of exogeneous forces other than those of lower tariffs, such as competitive changes due to differing rates of inflation in the EFTA countries. The EFTA study succeeded in counteracting some of these criticisms by adjusting the estimated trade effects in instances where additional information became available regarding the effects of EFTA in specific sectors⁹ and/or where the extrapolated trend procedure gave an *a priori* absurd result. Although these *ad hoc* adjustments create a danger of bias, they are worth accepting in order to obtain the best possible estimate of hypothetical trade flows.¹⁰ We concluded that, since the data limitations precluded the econometric approach, the adoption of a market shares approach similar to that of the EFTA Secretariat offered the best prospects for deriving an accurate assessment of the effects of the Anglo-Irish trade agreement also.

An important feature of the EFTA approach concerns the division of the total trade effects into trade creation and trade diversion components. Trade creation is measured as the excess of total imports in apparent consumption over its expected value, while trade diversion is measured as the excess of non-partners' hypothetical share in apparent consumption over the actual share. Both measures are based on the observation that a free trade area agreement involves no direct changes in competitiveness for domestic *vis-à-vis* non-partner countries. For instance, in the case of AIFTA, tariff reductions apply only to UK imports into Ireland. Since the non-UK/Irish price ratio is not directly affected by the Agreement, it follows that any increase in total imports can *ceteris paribus* be attributed wholly to incursions of partner imports into the domestic

⁹As examples of such factors the study mentions the discovery of new techniques, the opening of new factories, the activities of firms controlled from outside EFTA etc.

¹⁰Cf. Williamson and Bottrill [32], p. 331.

market. Also, any diminution in non-partner imports must be attributed to loss of competitiveness, due to discriminatory tariff reductions, *vis-à-vis* partner imports. In algebraic terms, trade creation (TC) is measured as:

$$TC = M_{67} - [(m_{59} - m_{54})8/5 + m_{59}] C_{67} \dots \dots (A2)$$

where M = total imports

$$m = M/C$$

and the trade diversion (TD) effect is measured with the formula:

$$TD = N_{67} - [(n_{59} - n_{54})8/5 + n_{59}] C_{67} \dots \dots (A3)$$

where N = actual imports from non-EFTA members

$$n = N/C.$$

It is easy to show from the above three equations that $E = TC - TD$ that is, the total trade effect is the sum of trade creation and trade diversion effects (allowing for the latter's negative sign).

Another aspect of the EFTA procedure to note is the choice of an adjustment factor. The EFTA procedure involves the extrapolation of the *absolute* share change in the base period. This implies if the import share rose in the base period from 20 to 30 per cent, it would *ceteris paribus* have risen to 40 per cent in the post free trade period.¹¹ This method of extrapolation has different implications for the *rate* of change in the import share depending on the direction of change in the share in the base period. If the share rose in the base period, extrapolating the absolute change in the share implies an expected decline in the *rate* of change in the share in the integration period, and *vice versa* if the UK share fell in the base period.

The unsatisfactory nature of the latter implication led us to postulate a simple variant of the EFTA approach. We took as our adjustment factor the percentage rate of change in the UK share in the base period and extrapolated it forward to obtain our hypothetical UK share. Thus, to take a numerical example, if the UK share fell from 60 to 48 per cent in the period prior to integration (a negative growth rate of 20 per cent over the period), our method would give an expected UK share of 38.4 per cent compared with a figure of 36 per cent using the EFTA method. Obviously, there is no objective criterion

¹¹The two periods are of equal length (5 years).

for deciding which of the two methods is superior.¹² Both are arbitrary and perhaps the wisest course is to calculate the integration effect both ways, as we have done in this study, and compare the results. Since the two sets of results turn out to be much the same, we reported details of the percentage share change method alone in Sections 3 and 4, but presented the various aggregate totals in Section 5.¹³

The UK's Competitive Position: A Graphical Illustration

We noted in our discussion of the share change and constant share methods in the main text that only the former method gave an estimate of the effects of the Free Trade Area Agreement in 1969-70. This is because it explicitly took account of the long-term decline in the UK share of the Irish market prior to AIFTA. On the other hand, the constant share method enables us to assess the effects of changes in all aspects of competitiveness (including AIFTA) on the UK share since 1964-65. Thus, the two methods complement each other with regard to changes in the competitive position of the UK share in the post-AIFTA period. This point can be illustrated with the aid of a simple chart. For the purposes of the illustration, we treat manufactured imports as if they were a single commodity, i.e. composition effects are assumed to be negligible. This assumption accords quite closely to the reality of the situation over the years 1964-65 to 1969-70.

Chart 1 graphs the UK share of manufactured imports (excluding SITC 56 and 73) for each two-year average from 1959-60 to 1969-70. Points A, B and C show the actual UK share in 1959-60, 1964-65 and 1969-70. The "expected" UK share in 1969-70, as derived by the share change method, is represented by point E while point K represents the share as it would have been in 1969-70 if it had remained constant as its 1964-65 level of 62.84 per cent.

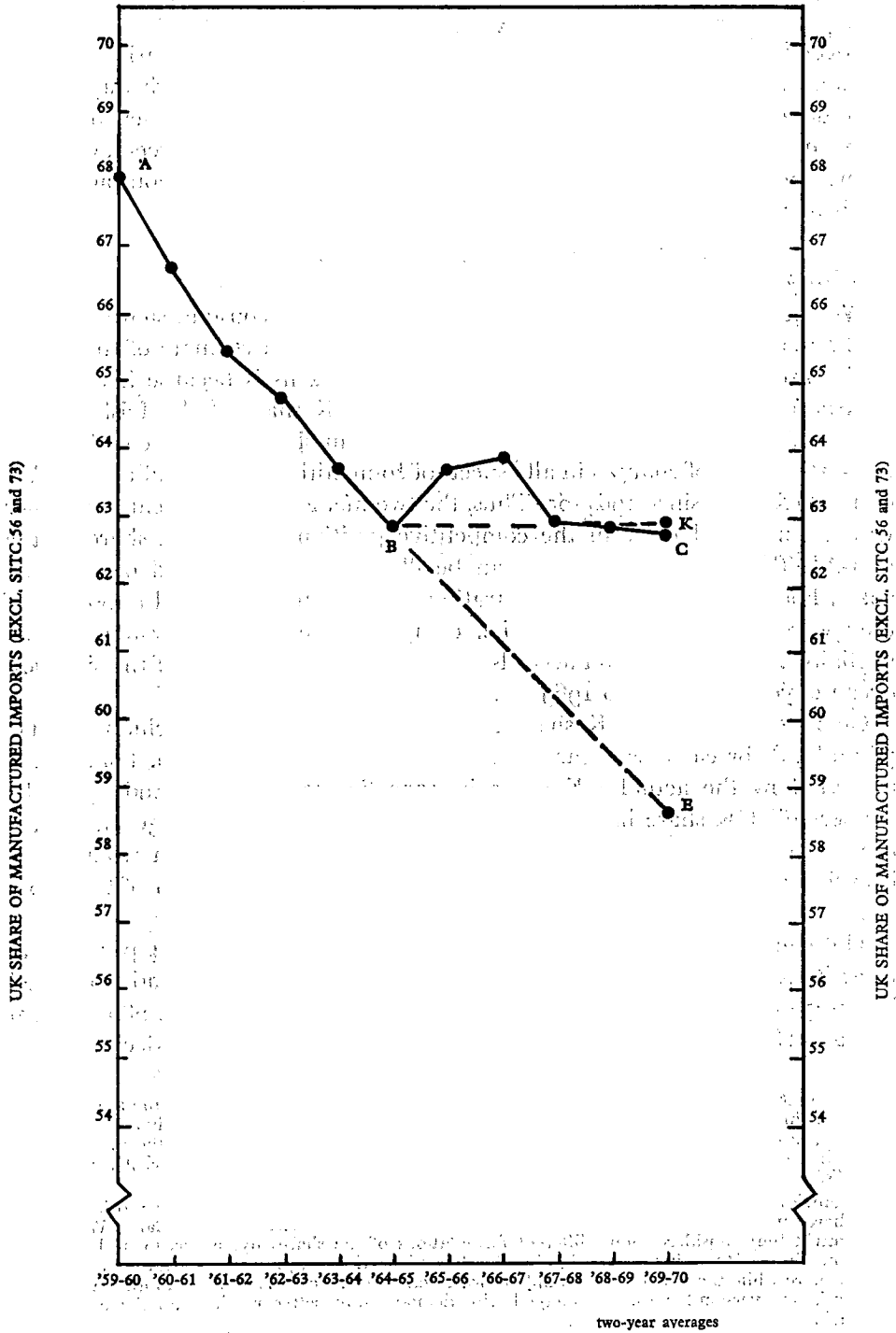
The decline in the UK share from its 1964-65 level of 62.84 per cent to what it would have been in 1969-70 if the long-term decline had continued i.e., 58.70 per cent, is measured by *EK*. The actual UK share is 62.80 per cent so that AIFTA offset 4.10 of the potential 4.14 percentage points decline in the

¹²Nor are these the only two methods available. For instance, one could extrapolate the 12 percentage points rise in the non-UK share from 40 per cent to 52 per cent. This would imply a UK expected share of 32.4 per cent. Since the absolute magnitude of share changes observed in the present study are small, the results are not sensitive to the choice of non-UK trends rather than UK share trends as normaliser.

¹³Countries with large shares of a market are likely to encounter greater resistance to increases in their share and/or to be more vulnerable to share losses than countries with low shares. Williamson and Bottrill [32] considered four different formulations of the shares hypothesis to deal with this problem. Three of them involved weighting the shares in various ways to take account of a country's market share while the fourth was a simple unweighted share exactly like our own formula. None of their weighted versions, however, emerged with demonstrably better results than the unweighted approach.

Chart 1: Actual and Expected Share of the UK in Manufactured Imports

(excl. SITC 56 and 73) 1959-60 to 1969-70



Source: Table 2.

UK share from its 1964-65 level. Thus, the AIFTA effect offset 99 per cent of the long-run decline in the UK share from its 1964-65 level with the result that the *actual* UK share in 1969-70 is just about the same as it was in 1964-65. These import share losses and gains due to AIFTA offsetting some or all of the long-term competitive decline since 1964-65 can be translated into import values by referring to the results of Table 3 and 4 in the main text.

Limitations and Qualifications

- (1) In this paper, we divide the total change in the UK share of Irish imports into a competitive and composition effect. The change in the UK share is in fact the sum of three effects: the competitive effect, the composition effect and an interaction effect.¹⁴ In order to simplify the calculations we ignored the interaction effect. This effect is consequently incorporated in our estimate of the composition effect. We were able to verify, however, that the interaction effect is in fact very small.
- (2) Second, the market shares approach depends on the assumption that past trends in market shares (or, if the constant share method is being used, that the base-year market shares) are an appropriate indicator of the expected market pattern in the absence of any special change in competitiveness. The first period shares (or the base period share) must be assumed to be in some sense "normal". In practice, it is very difficult to ensure that the base-year or period of years actually chosen possesses the requisite degree of "normality".
- (3) Third, estimates of hypothetical imports and consequently estimates of composition and competitive effects in any period, can be sensitive to the degree of disaggregation. However, the danger of serious bias

¹⁴The supporting mathematical argument is as follows:

If S_i is the share of commodity i in Irish imports and S_j the share of the UK in Irish imports, then we can write $S_j = \sum_i s_{ij} S_i$, where s_{ij} is the share of the UK in Irish imports of commodity i .

Differentiating we get:

$$\Delta S_j = \sum (\Delta s_{ij} S_i + s_{ij} \Delta S_i + \Delta s_{ij} \Delta S_i)$$

Thus the total change in the share of the UK in Irish imports is seen to be the sum of two effects (competitive and composition) and the interaction of the two.

In this paper, the competitive effect is defined as $\sum_i [\Delta s_{ij} (S_i + \Delta S_i)]$ and the composition effect as $\sum_i s_{ij} \Delta S_i$. To maintain strict consistency, if the competitive effect was calculated with end-year composition weights, the composition effect should also have been calculated with end-year weight, i.e. as $\sum_i (s_{ij} + \Delta s_{ij}) \Delta S_i$, leaving an interaction effect of $\sum_i \Delta s_{ij} \Delta S_i$. As noted in the text, if this

interaction effect is small, the loss of consistency is not an important issue.

It may also be observed that, had we used base year composition weights for our competitive effect (i.e. measured it as $\sum_i \Delta s_{ij} S_i$), our definition of the composition effect would have been consistent, but the two effects would not have added up to the total effect. The difference would have represented the interaction effect. On *a priori* grounds, there is no reason for considering base year weights "superior" to end-year weights or *vice versa*. As a final observation, note that the above formula can easily be adjusted for past trends and hence applied in the share change context.

arising on this account emerges only if large changes have occurred in the product-composition or area-composition of imports. Also, while the desirability of ensuring a degree of disaggregation of total imports prior to applying the formulae deserves to be emphasised, it does not follow that more disaggregation is always superior to less. After a certain point, further disaggregation involves the danger that idiosyncracies in the behaviour of market shares in individual products, combined with errors in data, may tend to obscure the general market trend. Hence, although a theoretical possibility, we do not consider the results of this paper to be distorted by insufficient disaggregation.

- (4) If one considers the competitive effect as being primarily the result of divergent price trends between one supplier and all other suppliers,¹⁵ then market shares ought to be expressed in constant prices in order to satisfy the condition that shares vary positively with changes in competitiveness (i.e. that the lower a supplier's price relative to other suppliers, the greater its share of total imports). If current values are used, and elasticities of substitution between suppliers are less than one, an increase in relative competitiveness (as measured by a fall in relative prices) could be associated with a decline in market shares in value terms, although the share had increased in volume terms. Even if the elasticity of substitution is greater than one, so that value share changes would have the same sign as volume share changes, the magnitudes of the value and volume changes would be different. Most market shares analysis have used current values because of the problems involved in securing reliable volume data and this study is no exception. In this instance, however, a major element of the change in price competitiveness takes the form of tariff reductions. Since import value statistics are expressed net of tariffs, the fall in tariffs does not necessarily result in a fall in the c.i.f. import price—in fact, if the small country assumption of infinite import supply elasticities over the relevant import range is made, the c.i.f. import price can be taken as constant. Then estimated changes in the value of imports due to tariff reductions will indeed be proportionate to changes in the volume of imports. Thus, the problems posed by lack of import volume data and the potential biases arising therefrom, while not eliminated, raise much less serious obstacles in this study than in comparable studies elsewhere.¹⁶

¹⁵This view has been widely criticised on the grounds that market shares are a function of competitiveness in the widest sense. Therefore to confine the definition to one aspect, relative prices, is to ignore the significant influence of such factors as quality differences, discriminatory changes in non-tariff barriers, servicing and back-up facilities etc.

¹⁶The value vs. volume problem is particularly evident in studies of export competitiveness, where changes in relative prices, rather than tariffs, are generally the subject of investigation. See Richardson's discussion of the problem [28].

- (5) The market shares model, as used in the present context, rests on the assumption that total market demand is independent of any one supplier's price relative to other suppliers. Thus in the arithmetical example in footnote (1) p. 67 of the main text, the trade effects are captured with complete accuracy only because total apparent consumption is not affected by the UK tariff reductions. For the same reason, the fact that, in that example, AIFTA raises total imports means that the estimates obtained from import share technique underestimate the full AIFTA effect. Obviously the assumption of an independent total market demand can never hold exactly. Distortions due to violation of this assumption will however almost certainly be small in the apparent consumption share analysis (since the UK share equals only 20 per cent); in the case of the import share analysis, we would anticipate a downward bias, due to the large UK share of total imports.
- (6) The competitive effect, whether measured by the share change or the constant share method, is a residual item, calculated on a *ceteris paribus* assumption. The possibility inevitably exists that some trade effects ascribed to "competitiveness" may in fact be due to domestic capacity constraints, dock strikes etc. or other special factors which have no relation to degree of competitiveness.

Appendix 2:

UK Import Share Predictions: Regressions on a Time Trend vs. Simple Extrapolation

Two market shares methods were used in the main text to derive the “expected” UK share of manufactured imports in 1969–70: the constant share method and the share change method. The latter was employed in calculating the AIFTA effect. The purpose of this appendix is to outline an alternative to the share change method and compare its projections of the 1969–70 UK shares with those reported in Table 2 of the main text. Since the alternative technique—regressions of the logarithm of the UK share on a time trend—is similar in general concept to the share change method and since, as we shall see, the regression-based estimates of the UK share come very close to the share-change projections, we felt that the proper place in which to record the details of our results is in an appendix rather than the main text.

Regression Approach

The share change method can be criticised because it fits a trend line between the first two and the last two years only of the period 1959–65 to predict the UK share in 1969–70. Any or all of these four observations could be significantly abnormal in relation to the remaining three years 1961–63. Thus, in a discussion of the various ways of calculating the rate of change in time series, Geary describes the fitting of a trend between the first and last observations only as “usually a highly inefficient method of calculation of the rate of change”.¹

If we make the assumption that the true rate of change of the UK share was constant over the period 1959–65, a more efficient method (in the statistical sense) of deriving it would be to apply linear regression procedures to the data i.e. to regress the log of the UK share on a time trend. This regression approach has then the advantage that it utilises all the data in the sample period. However, the use of a regression model with time as the sole independent variable involves the crucial assumption that such a model gives a reasonable

¹Geary [10], p. 558. While in strict statistical terms it may be more efficient to use all the data in a sample, if an independent source of knowledge casts doubt on the “normality” of certain observations it would surely be best to omit these years from the calculation. In this study one of the criteria used for selecting the base years for the share change extrapolation was that the years should be “normal” for the UK share, i.e. free as far as possible from underlying distortions.

approximation to the behaviour of the UK share over the period in question. For instance, if deviations from the trend line are related in a systematic fashion to some other variables such as the level of demand in the UK economy then the simple regression of the UK share on time may provide a less accurate estimate of "expected" UK shares than the extrapolation method.² This possibility notwithstanding, we felt that it would still be useful to apply regression techniques as a countercheck to our share-change projections. If large discrepancies occurred, it would then obviously be necessary to review our projections carefully, taking account of institutional factors and other specific influences on the UK share of the relevant SITC division(s).

The dependent variable, the log of the UK import share is thus regressed on time and a constant, reflecting the hypothesis that the UK share changes at a constant rate. Regressions were run for the UK share of each SITC section and division listed in Table 2 over the pre-AIFTA period.³ The parameter estimates for the model are presented in Tables B1 and B2.

Regression Results

Table B1 presents the results for each manufactured import 2-digit SITC heading (excluding SITC 56 and 73) while Table B2 presents the results at the section and total manufactured imports level.⁴ The equation fit differs markedly as between the individual import categories. The adjusted correlation coefficient (\bar{R}^2) ranges in value from 0.0⁵ for SITC 52 to .967 for SITC 84. The equation fit at the aggregate level is generally more satisfactory. In Table B2 the lowest \bar{R}^2 turns out to be .595 in section 7 (excl. 73) and the highest .891 in manufactured imports (excluding SITC 56 and 73).

In Table B1 the individual coefficients of time (X_t) are significant at the 5 per cent level in 16 of the 25 equations while a further 5 are significant at the 10 per cent level. In Table B2 the coefficient of time is significant at the 5 per cent level in all of the equations.⁶ In all but 5 of the 30 equations the

²The ideal procedure would be to construct an econometric model along the lines of the one used by Truman [30] in his EEC study. Such a model would attempt to explain variations in the UK share in the pre-AIFTA period in terms of such independent variables as domestic income, price competitiveness, capacity constraints etc. The small number of observations in the pre-AIFTA period and the difficulty in constructing adequate price variables precluded the use of a comparable econometric approach in this study.

³Figures for the UK shares for the years 1963-65 were obtained directly from successive issues of *Trade and Shipping Statistics* while the shares for the years 1959-62 were estimated with the aid of a key supplied by CSO which linked the pre-1963 OIL numbers to the SITC.

⁴The aggregate UK shares include the effects of commodity composition changes but, as our evidence shows that composition effects are small, we felt justified in applying the model to the aggregate shares.

⁵Unlike R^2 which is always > 0 , \bar{R}^2 can sometimes be < 0 (see note (2) to Table B1). In those cases the \bar{R}^2 is represented as zero by convention.

⁶One possible source of bias in these results lies in autocorrelated disturbance terms. Unfortunately, with such a small sample, it was not possible to test for autocorrelation using either the Durbin-Watson or Geary tests.

TABLE B2: Regression of UK share by SITC section on time trend, 1959-65 (t-ratios in parentheses)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dependent Variable	Intercept	Coefficient of Time Trend	\bar{R}^2	F	S.E.E.	Projected UK Share 1969-70		Actual UK Share 1969-70	Estimates of the Competitive Effect £'000	
UK Share of SITC Section						Regression Method	Share Change Method		Regression Method	Share Change Method
5 (excl. 56)	1.907	-0.009 (-6.80)	.883	46.29	0.007	62.94	62.07	66.09	+1,416	+1,838
6	1.819	-0.005 (-3.64)	.671	13.29	0.007	57.73	57.02	63.33	+6,913	+7,725
7 (excl. 73)	1.832	-0.007 (-3.13)	.595	9.82	0.012	56.02	56.36	57.54	+1,936	+1,448
8	1.873	-0.007 (-5.12)	.808	26.19	0.008	61.22	61.07	70.72	+3,156	+3,508
5-8 (excl. 56 and 73)	1.842	-0.007 (-7.08)	.891	50.08	0.005	58.31	58.02	62.80	+13,421	+14,519

Notes: (1) Estimates of the Competitive Effect are derived by summing up the relevant 2-digit results in Table B1.

(2) Symbols etc. are the same as Table B1.

(3) The share projections are calculated by direct application of the formula to the pre-AIFTA total shares in Table 2.

coefficient of time is negative so that the regression results generally support the hypothesis of a significant decline in the UK share prior to AIFTA.

Comparison of Predicted UK Import Shares 1969-70

Our next step was to use the equations of Table B₁ to predict the UK shares in 1969 and 1970. These predictions can then be compared with our "expected" set of UK shares derived by the share change method. Columns (7)-(9) in Tables B₁ and B₂ show the UK share in 1969-70 predicted by each method and the actual UK share in 1969-70. The similarity of the predicted shares with "expected" shares is striking as also is their relationship to the actual UK share, especially at the section level. This similarity must in part reflect the fact that the share change method uses over half the observations in the sample period. Unless any of the remaining three observations is manifestly abnormal in relation to the other four, the regression approach will give a similar prediction to the share change method.

The difference between the actual and predicted UK shares determines the size and sign of the competitive effect. The sign of the competitive effect as measured by both methods is the same in 29 of the 30 import categories in Tables B₁ and B₂. The only exception is SITC 69 where the share change method predicts a UK share of 76.54 per cent in 1969-70, the regression prediction is 74.14 per cent and the actual UK share is 74.73 per cent. There is a slight but discernible tendency for the regression predictions to yield a lower competitive effect. This is clearly seen from the last two columns in the two tables where the estimates of the size of the competitive effect are converted into import values using actual 1969-70 total imports. Table B₂ shows that the sum of the competitive effects for each SITC division in Table B₁ equals £13.4 million using the regression predictions compared with £14.5 million using the share change predictions.

After some deliberation, we decided to adhere to the share change estimates in the main text for two reasons. First, the share change projections and the regression predictions give very similar estimates of the competitive effect. Second, regarding our projections of competing imports shares in apparent consumption in Section 4 of the paper, time constraints prevented the derivation of a continuous series for UK apparent consumption shares because of the difficulties involved in re-classifying the trade and output data. For expository convenience, we wished to use a single method of share projections in the main text.

TABLE BI: Regressions of UK share on time trend by SITC divisions, 1959-65 (*t*-ratios in parentheses)

(1) Dependent Variable	(2) Intercept	(3) Coefficient of Time Trend	(4) \bar{R}^2	(5) <i>F</i>	(6) <i>S.E.E.</i>	(7) (8) Projected UK Share 1969-70		(9) Actual UK Share 1969-70	(10) (11) Estimates of the Competitive Effect 1960-70 £'000	
						Regression Method	Share Change Method		Regression Method	Share Change Method
51	1.947	-0.016 (-4.09)	.717	16.23	0.020	58.62	57.22	61.16	+246	+399
52	1.995	-0.001* (-0.58)	0.0	0.34	0.005	97.55	97.23	90.29	-18	-18
53	1.891	-0.006 (-3.15)	.598	9.94	0.011	65.67	67.08	64.74	-35	-80
54	1.914	-0.011* (-1.98)	.328	3.92	0.030	61.16	58.88	61.29	+15	+267
55	1.892	0.004* (1.90)	.304	3.62	0.010	85.79	86.88	88.55	+96	+58
57	1.993	-0.005 (-8.68)	.925	75.29	0.003	85.87	86.31	88.02	+10	+8
58	1.890	-0.007 (-3.33)	.627	11.07	0.012	64.05	63.47	67.87	+526	+613
59	1.866	-0.012 (-6.23)	.863	38.83	0.010	53.16	52.88	64.08	+575	+590
61	1.905	-0.004* (-1.34)	.117	1.80	0.016	72.36	71.62	69.31	-126	-96
62	1.902	0.003 (2.57)	.482	6.59	0.007	87.02	86.43	74.75	-605	-576
63	1.318	0.027 (3.48)	.649	12.09	0.042	42.87	43.71	28.96	-567	-602
64	1.633	0.005* (1.65)	.223	2.72	0.016	49.16	47.36	45.61	-611	-301
65	1.832	-0.009 (-3.04)	.579	9.25	0.016	53.20	52.83	60.71	+3,050	+3,202
66	1.931	-0.012 (-3.54)	.658	12.55	0.017	62.71	61.70	72.15	+891	+988
67	1.827	-0.011* (-1.99)	.329	3.95	0.029	50.15	48.26	62.95	+2,704	+3,100
68	1.781	-0.001* (-0.20)	0.0	0.04	0.028	58.72	55.73	76.06	+2,067	+2,423
69	1.888	-0.002* (-0.47)	0.0	0.22	0.017	74.14	76.54	74.73	+109	-414
71	1.822	-0.006 (-2.06)	.351	4.25	0.015	56.97	57.62	58.05	+890	+333
72	1.864	-0.012 (-6.42)	.870	41.24	0.010	53.16	52.96	56.24	+1,046	+1,115
81	1.948	-0.012 (-2.36)	.432	5.56	0.027	64.50	64.48	70.23	+220	+221
82	1.929	0.009* (-1.77)	.261	3.12	0.028	66.08	67.67	80.51	+373	+332
83	1.863	0.010 (2.84)	.542	8.09	0.019	95.53	92.18	88.34	-761	-404
84	1.860	-0.016 (-13.22)	.967	174.73	0.006	47.42	47.40	64.81	+341	+341
85	1.755	-0.006 (-2.24)	.402	5.04	0.014	48.75	47.20	53.81	+425	+556
86	1.893	-0.012 (-4.41)	.754	19.42	0.014	57.22	57.64	68.34	+2,556	+2,460

Symbols: \bar{R}^2 = Adjusted Coefficient of Determination corrected (for the number of degrees of freedom).
 \bar{F} = *F* - ratio.
S.E.E. = Standard Error of Estimate.
 * = Not significant at 5 per cent confidence level.

Notes: (1) The logarithm of the UK share is used as the dependent variable in all the equations.

(2) \bar{R}^2 allows for the positive bias in R^2 when the number of degrees of freedom is small.

$\bar{R}^2 = 1 - (1 - R^2) \left(\frac{n-1}{n-k-1} \right)$, where n = number of observations, k = number of independent variables. R^2 is always positive but \bar{R}^2 will be < 0 (by convention equal to zero) whenever $R^2 < \frac{k}{(n-1)}$.

(3) The 5 and 1 per cent significance levels for *t* are 2.015 and 3.365. The corresponding levels of *F* are 6.61 and 16.26 respectively.

TABLE A1: *The distribution of Irish manufactured imports (excl. 56 and 73) by two-digit SITC heading, 1959-60 to 1969-70*

SITC	Distribution of manufactured imports (%)			
	1959-60	1964-65	Expected 1969-70	Actual 1969-70
5 1	2.99	2.56	2.15	3.06
5 2	0.18	0.12	0.08	0.07
5 3	1.45	1.05	0.75	0.90
5 4	3.03	3.05	3.01	3.11
5 5	0.74	0.93	1.15	0.99
5 7	0.28	0.18	0.12	0.16
5 8	2.29	3.67	4.96	4.23
5 9	2.19	1.58	1.12	1.48
Section 5 (exc. 5 6)	13.16	13.14	13.34	13.97
6 1	1.57	1.24	0.96	1.17
6 2	1.43	1.07	0.79	1.36
6 3	1.32	1.24	1.16	1.15
6 4	5.73	5.07	4.41	4.84
6 5	15.52	12.62	10.07	11.49
6 6	2.37	2.56	2.72	2.69
6 7	6.64	6.53	6.30	5.90
6 8	3.57	3.70	3.76	3.35
6 9	7.07	6.86	6.54	6.11
Section 6	45.21	40.89	36.71	38.02
7 1	22.72	23.14	23.14	24.11
7 2	7.24	10.39	13.28	9.72
Section 7 (excl. 73)	29.96	33.53	36.42	33.82
8 1	1.15	1.27	1.37	1.10
8 2	0.27	0.58	1.23	0.73
8 3	1.32	1.75	2.28	2.99
8 4	0.46	0.35	0.27	0.53
8 5	2.00	2.21	2.40	2.38
8 6	6.48	6.28	5.98	6.48
Section 8	11.67	12.44	13.53	14.20
Total	100.0	100.0	100.0	100.0

Source: *Trade and Shipping Statistics, External Trade Statistics.*

Notes: (1) Totals may not add exactly to 100 due to rounding.

(2) Adjustments were made to "expected" shares of divisions 58 and 72 as the original extrapolation resulted in very large increases. The *absolute* increase in the pre-AIFTA period was used instead to get the "expected" share. All shares were then deflated by a common factor to ensure that total expected share equalled 100.

TABLE A3: *Competing imports from the UK classified by CIP industry for certain years*

Industry	Competing imports from the UK £'000					
	1959	1960	1964	1965	1969	1970
(1) Woollen and worsted	2,578	3,599	5,364	4,338	7,433	6,826
(2) Linen and cotton	2,896	3,060	3,999	3,401	5,173	6,013
(3) Jute, canvas, rayon, nylon, etc.	492	414	605	500	938	966
(4) Hosiery	305	443	1,449	1,646	6,533	7,184
(5) Boot and shoe	172	196	242	236	790	1,432
(6) Men's and boys' clothing	—	—	160	166	669	1,254
(7) Shirtmaking	49	70	106	106	432	537
(8) Women's and girls' clothing	300	430	975	1,175	3,140	3,768
(9) Miscellaneous clothing	84	95	204	212	545	619
(10) Made-up textile goods	340	401	505	583	968	1,093
(11) Wood and cork (excluding furniture)	159	193	606	621	1,008	1,147
(12) Furniture; brushes and brooms	181	200	578	607	1,513	1,688
(13) Paper and paper products	2,134	2,468	3,923	4,362	7,395	8,218
(14) Printing and publishing	1,475	1,710	2,840	2,977	5,226	5,992
(15) Fellmongery and tanning	254	253	310	288	734	928
(16) Manufactures of leather and leather substitutes	72	116	305	348	661	733
(17) Oils, paints, inks and polishes	355	403	535	491	850	930
(18) Chemicals and drugs	2,161	2,328	3,560	4,593	7,779	8,516
(19) Soap, detergents and candles	205	230	695	855	1,823	1,790
(20) Glass, glassware, pottery, etc.	359	379	777	697	1,681	1,654
(21) Structural clay products, concrete, cement, etc.	692	710	822	929	1,611	2,078
(22) Metal trades	3,892	4,307	5,416	5,939	9,052	10,846
(23) Non-electrical machinery	2,019	2,118	3,334	3,369	6,061	6,962
(24) Electrical machinery	1,681	1,831	4,540	4,361	6,477	8,237
(25) Assembly, etc. of non-mechanically propelled road vehicles	—	—	74	83	179	—
(26) Miscellaneous manufacturing industries	3,202	2,987	4,092	4,122	9,436	12,123
Total for the 26 CIP industries	26,057	28,941	46,016	47,005	88,107	101,633

Source: *Irish Trade and Shipping Statistics, External Trade Statistics.*

TABLE A2: Gross Output, Competing Imports, Exports and Apparent Consumption by CIP Industry for Certain Years (£'000)

Industry	1959				1960				1964				1965				1969				1970				
	Gross Output	Competing Imports	Exports	Apparent ¹ Consumption	Gross Output	Competing Imports	Exports	Apparent Consumption	Gross Output	Competing Imports	Exports	Apparent Consumption	Gross Output	Competing Imports	Exports	Apparent Consumption	Gross Output	Competing Imports	Exports	Apparent Consumption	Gross ⁴ Output	Competing Imports	Exports	Apparent Consumption	
(1) Woollen and worsted	12,482	3,163	1,776	13,869	14,470	4,446	1,971	16,945	18,886	7,356	3,630	22,612	18,229	5,275	3,200	20,304	26,318	8,635	8,176	26,777	29.6	8,194	10,790	27,004	(1)
(2) Linen and cotton	6,111	5,568	321	11,358	7,230	6,505	777	12,958	9,374	9,853	2,044	17,183	9,625	8,819	2,060	16,384	11,480	13,778	3,399	21,859	11.5	15,171	4,142	22,529	(2)
(3) Jute, canvas, rayon, nylon etc.	5,982	537	1,147	5,372	7,186	494	1,173	6,507	10,321	804	1,678	9,447	10,208	695	1,080	8,923	15,519	1,654	2,396	14,777	17.0	1,727	2,868	15,859	(3)
(4) Hosiery	7,506	604	972	7,138	8,625	656	823	8,458	14,117	1,859	2,652	13,324	15,251	2,056	1,929	15,378	26,253	7,786	6,469	27,570	30.0	9,320	8,102	31,218	(4)
(5) Boot and shoe	7,295	275	1,352	6,218	8,207	344	1,714	6,837	11,107	463	2,781	8,789	10,733	456	2,454	8,735	15,128	1,272	3,764	12,636	14.2	2,111	3,983	12,328	(5)
(6) Men's and boys' clothing	4,821	—	100	4,721	5,299	—	200	5,099	7,294	214	500	7,008	7,459	218	500	7,177	10,130	952	1,900	9,182	11.4	1,567	1,933	11,034	(6)
(7) Shirtmaking	1,823	52	500	1,375	2,282	74	700	1,656	3,420	127	1,200	2,347	3,841	185	1,500	2,526	5,062	456	1,700	3,818	5.9	600	1,749	4,751	(7)
(8) Women's and girls' clothing	7,297	319	1,275	6,341	7,915	513	1,770	6,658	10,717	1,115	2,819	9,013	11,525	1,272	2,641	10,156	17,603	3,465	6,102	14,966	18.7	4,036	6,599	16,137	(8)
(9) Miscellaneous clothing	1,091	161	—	1,252	1,147	208	—	1,355	1,476	422	66	1,832	1,526	474	80	1,920	2,052	799	115	2,736	2.4	875	150	3,125	(9)
(10) Made-up textile goods	1,425	460	—	1,885	1,571	497	41	2,027	2,140	672	113	2,699	2,323	728	370	2,681	3,810	1,192	774	4,228	3.9	1,389	614	4,675	(10)
(11) Wood and cork	4,367	2,397	415	6,349	4,718	3,694	433	7,979	7,711	5,739	1,276	12,174	8,700	6,033	1,522	13,211	13,148	9,474	1,606	21,016	15.0	9,440	2,420	22,020	(11)
(12) Furniture, brushes and brooms	4,066	200	172	4,094	4,414	235	164	4,485	6,709	692	180	7,221	7,210	713	180	7,743	9,728	1,837	736	10,829	11.1	2,052	925	12,227	(12)
(13) Paper and paper products	10,716	4,886	2,100	13,502	12,072	5,617	2,486	15,203	15,325	8,951	2,485	21,791	16,657	9,216	2,411	23,462	24,043	16,244	4,201	36,086	27.0	18,100	4,782	40,318	(13)
(14) Printing and publishing	11,948	1,710	993	12,665	12,470	1,963	1,383	13,050	17,761	3,267	2,081	18,947	17,550	3,395	2,038	18,907	29,469	5,948	2,569	32,848	34.5	6,793	2,590	38,703	(14)
(15) Fellmongery and tanning	5,720	362	2,886	3,196	5,611	367	3,084	2,894	7,193	486	4,483	3,196	7,028	494	4,098	3,424	9,127	1,135	6,382	3,880	10.3	1,459	7,138	4,621	(15)
(16) Manufactures of leather and leather substitutes	714	91	—	805	733	155	39	849	1,262	459	397	1,324	1,298	533	408	1,423	1,664	923	591	1,996	1.7	1,026	767	1,959	(16)
(17) Oils, paints, inks and polishes	5,513	418	214	5,717	5,631	492	238	5,885	7,801	600	613	7,788	8,026	573	384	8,215	11,232	1,041	866	11,407	12.4	1,209	1,289	12,320	(17)
(18) Chemicals and drugs	3,195	2,858	235	5,818	3,475	3,113	568	6,020	5,462	4,974	1,191	9,245	9,285	7,213	3,762	12,736	24,421	12,358	14,111	22,668	25.2	13,343	13,027	25,516	(18)
(19) Soap, detergents and candles	1,843	216	42	2,017	1,712	246	86	1,872	2,180	767	58	2,889	2,372	928	67	3,233	3,084	1,954	262	4,776	3.0	1,977	404	4,573	(19)
(20) Glass, glassware, pottery and china	2,535	428	520	2,443	2,818	476	518	2,776	4,779	1,051	1,020	4,810	5,091	1,022	1,018	5,095	8,991	2,189	2,983	8,197	10.5	2,139	3,732	8,907	(20)
(21) Structural clay products, concrete, cement etc. ²	6,704	794	959	6,539	7,483	866	1,162	7,187	13,345	1,060	2,053	12,352	30,975	1,206	3,548	13,878	27,076	2,239	3,191	25,124	24.0	2,814	3,432	23,382	(21)
(22) Metal trade	13,099	5,132	1,585	15,646	15,230	6,106	1,960	19,376	27,424	7,551	5,034	29,941	16,220	7,772	5,661	33,086	51,320	12,020	9,200	54,140	56.9	14,441	10,711	60,630	(22)
(23) Non-electrical machinery	3,740	2,788	1,603	4,925	4,865	3,201	2,177	5,889	7,598	5,341	4,072	8,867	7,451	5,793	4,018	9,226	11,147	10,428	5,676	15,899	11.9	12,308	8,750	15,458	(23)
(24) Electrical machinery	8,240	2,123	1,224	9,139	9,474	2,438	1,298	10,614	19,511	7,104	3,820	22,795	22,830	6,649	3,923	25,556	41,526	9,554	14,249	36,831	43.0	12,201	14,006	40,595	(24)
(25) Assembly, construction and repair of non-road vehicles	1,278	—	91	1,187	1,211	—	83	1,128	2,589	87	91	2,585	2,773	96	76	2,793	3,713	203	84	3,832	3.7	260	103	3,857	(25)
(26) Miscellaneous manufacturing industries ³	18,839	4,210	2,218	20,831	23,930	3,964	5,091	22,803	38,241	5,828	7,035	37,034	42,033	5,499	7,825	39,707	68,410	12,070	22,032	58,448	82.0	15,355	30,920	66,435	(26)
Total for the 26 CIP industries	158,350	39,752	22,700	175,402	179,779	46,670	29,939	196,510	273,743	76,842	53,372	297,213	296,219	77,313	57,653	315,879	471,454	139,606	123,534	487,526	516.8	159,907	146,526	530,181	

Source: Irish Trade Journal and Statistical Bulletin, Irish Statistical Bulletin, Trade and Shipping Statistics, External Trade Statistics, and Review of 1971 and Outlook for 1972.

Notes: (1) Apparent Consumption is defined as Gross Output minus Exports plus Competing Imports.

(2) Competing Imports for 1970—£3.9 million—were adjusted to allow for the cement strike. The level of cement imports in 1970 was taken to be the average for the 1969 and 1971 level of imports.

(3) The 1959 Imports figure was adjusted to allow for the coming into production of the Whitegate Oil Refinery; imports of "Other Motor Spirit" and "Gas/Diesel Oil" were £4.5 million in 1959 compared with £1.5 million in 1960. In each case the 1960 figure was taken as applying in 1959.

(4) 1970 Gross Output figures—estimates kindly supplied by the Department of Industry and Commerce, are expressed in £ million.

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TABLE A4: *The share of competing imports in apparent consumption by CIP industry for certain years*

CIP industry	Actual share of competing imports in apparent consumption		Expected share	Actual share
	1959-60	1964-65	1969-70	1969-70
(1) Woollen and worsted	24.53	29.26	34.90	31.30
(2) Linen and cotton	49.61	55.59	62.29	65.19
(3) Jute, canvas, rayon, etc.	8.80	8.15	7.55	11.04
(4) Hosiery	8.11	13.66	23.01	29.05
(5) Boot and shoe	4.73	5.25	5.83	13.60
(6) Men's and boys' clothing ¹	—	3.05	3.31	12.29
(7) Shirtmaking	4.13	6.37	9.82	12.29
(8) Women's and girls' clothing	6.37	12.45	24.33	24.08
(9) Miscellaneous clothing	14.11	23.86	40.35	28.60
(10) Made-up textile goods	24.46	26.03	27.70	28.95
(11) Wood and cork	42.03	46.41	51.25	43.98
(12) Furniture; brushes and brooms	5.07	9.40	17.43	16.87
(13) Paper and paper products	36.57	40.18	44.15	44.95
(14) Printing and publishing	14.27	17.60	21.71	17.83
(15) Fellmongery and tanning	12.01	14.82	18.29	30.41
(16) Manufacture of leather and leather substitutes ²	14.78	36.07	57.36	49.31
(17) Oils, paints, inks and polishes	7.84	7.34	6.87	9.47
(18) Chemicals and drugs	50.42	55.22	60.48	53.41
(19) Soap, detergents and candles ²	11.93	27.63	43.33	42.07
(20) Glass, glassware, pottery etc.	17.34	20.96	25.34	25.36
(21) Structural clay products, concrete, cement, etc.	12.10	8.64	6.17	10.30
(22) Metal trades	31.17	24.36	19.04	23.01
(23) Non-electrical machinery	55.49	61.51	68.18	72.61
(24) Electrical machinery	23.10	28.59	35.38	28.00
(25) Assembly, construction and repair of non-mechanically propelled road vehicles ¹	—	3.41	3.71	6.02
(26) Miscellaneous manufacturing industries	18.80	14.80	11.65	21.88
Total for the 26 CIP industries	23.16	25.17	27.95 ³	29.40

Source: Table A2.

Notes: (1) The expected share in 1969-70 was derived by adjusting the actual share in 1964-65 by the growth in the share of total Competing Imports between 1959-60 and 1964-65.

(2) As the increase in the share of Competing Imports between 1959-60 and 1964-65 was ≥ 100 per cent, the expected share in 1969-70 was derived by taking the *absolute* change in the share between 1959-60 and 1964-65 and extrapolating it to 1969-70.

(3) Expected share of the total calculated as a weighted average using as weights the actual 1969-70 shares in apparent consumption.

TABLE A5: Gross output, competing imports, exports and apparent consumption for the motor vehicle assembly industry for certain years

<i>Year</i>	<i>Gross output</i>	<i>Competing imports</i>	<i>Exports</i>	<i>Apparent consumption</i>
1959	18,640	126	600	18,166
1960	22,425	172	851	21,746
1964	34,906	699	59	35,546
1965	34,977	680	87	35,570
1969	49,683	8,260	273	57,670
1970	52,500	9,264	694	61,070

Source: Same as for Table A2.

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