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Effective Tariffs and the Structure of
Industrial Protection in Ireland

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1. INTRODUCTION

After more than three decades of protection, Irish industry must now adapt, within the space of a few years, to conditions of free trade. Many firms will find themselves exposed, for the first time since their establishment, to unrestricted competition from British, and, if EEC membership materialises, European producers. An understanding of the extent and function of our present protective system is surely desirable if the implications of this changed market environment are to be fully appreciated.

Surprisingly little systematic research has been undertaken on Irish protection despite the importance and controversial nature of the topic. In fact, with the sole exception of Ryan's [28, 29] valuable study of Irish tariffs during the thirties, the area has been totally neglected.[1] Much information about tariffs and their effects on industry is, of course, provided in the CIO Surveys of Industry published a few years ago, but this information has not been coordinated into a coherent framework of analysis. The present study attempts to perform such a task. We deal with the Irish protective system (thus including tariffs, quotas and indirect taxes in our purview) as it was in 1966, just after the Anglo-Irish Free Trade Area Agreement (AIFTA) was signed and when the use of import restrictions as a tool of industrial development was finally rejected by the Irish government. The use of data for a single year involves little loss of generality since the structure of Irish tariffs has not altered much over the sixties. Of course, the absolute magnitude of the average tariff rate

[1]An exception is Nevin's 1962 study [22] but this considers only the revenue implications of the Irish tariff.

has fallen by over 50 per cent since 1966, but the tariffs can easily be brought up to date whenever this is desired. Hence, in order to underline the dramatic changes which trade liberalisation involves and the strains thereby placed on Irish industry, it was decided to focus our main attention on the pre-AIFTA tariff level.

What questions should a study of protection consider?

First, and at the simplest level, one would like to know the actual extent of protection. Tariffs and quotas allow the domestic producer to be less efficient than the foreign producer while still remaining competitive on the home market. It is useful to know the degree of inefficiency permitted by the protective system. Using effective rates of protection, this study shows that the degree of inefficiency permitted (although not necessarily availed of) was exceedingly high by international standards. This fact is not at all apparent if nominal tariffs are used as the basis of comparison.

Secondly, the structure of protection as between different industries should be examined. Some industries are protected to a greater extent than others. In fact, this study indicates that the variability in degree of protection afforded to different industries is exceptionally pronounced, industries at the top of the scale receiving four times the effective protection as those at the bottom of the scale. Such disparities appear to reflect the rather haphazard method of awarding tariffs since the 1930's.

Thirdly, we would expect a study of protection to contain an evaluation of the protective system. Key issues in this context are the effects of protection on exports, on the allocation of resources as between the agricultural and industrial sectors and the cost to the economy of protection. In Ireland's case we find that a heavy bias against exports is created by the tariff system, that industrial protection had only a marginal influence on the costs of the agricultural sector and that the cost of industrial protection to the economy amounted to over 3 per cent of GNP in 1964. A further conclusion arising out of this study is that in the Irish context it is almost impossible to separate individual industries into viable and non-viable groups. Viability is a term more applicable to firms than to industries. Industries with the highest effective tariffs, however, are more likely *ceteris paribus* to harbour non-viable firms than those with low effective tariffs.

It is hoped that the present study will be useful, first, to those whose interest in protection is historical and who may wish to examine, in greater detail than was possible here, the interaction between the height and structure of effective tariffs on the one hand and Ireland's industrial development on the other. Much of the present study, however, is also directed towards those who are concerned with contemporary problems of Irish industry. The effective tariff measure may be useful in a number of ways. Decisions as to which industries are afforded special assistance either in the form of extended transition periods or complete exemption from tariff reductions should not be made without reference to effective tariff estimates. Further-

more, certain costs (for example transport charges) not allowed for in this study owing to computational difficulties could easily be incorporated into the effective protection measure when individual cases are being analysed. The concept of effective protection can also be employed in contexts other than that of import restrictions—for example to analyse the effects of state fuel subsidies, tax allowances to industry and other forms of concealed or indirect taxes and subsidies.

The study proceeds as follows:

First, the essential features of the theory of effective protection are outlined and the interpretation of effective tariffs discussed (pp. 5–17).

We then indicate how Irish effective tariffs were calculated and discuss the structure of protection between industries and the relationship between exports and protection (pp. 18–43). This leads on to a discussion of the relationship between protection and the equilibrium exchange rate, after which it is possible to compare Ireland's average nominal and effective tariff level with that of other countries (pp. 44–53).

The cost of protection to the Irish economy is then analysed in qualitative terms. An attempt is made to quantify this cost with the aid of effective tariffs (pp. 54–65).

The results of this study are summarised and evaluated in the final section (pp. 66–83). *This final section is self-contained and may be read without reference to the earlier text.*

2. THE THEORY OF EFFECTIVE PROTECTION

Definition of the Effective Tariff [2]

Until quite recently, the theory of international trade, or rather that branch of the theory concerned with the issue of protection, contained the implicit assumption that the degree of protection afforded to an industry is indicated by the level of the nominal tariff on its final output. Thus the theory of the optimum tariff and theories relating tariffs to income distribution and the terms of trade take account only of nominal rates of protection. At the same time, individual economists have always been aware of the practical relevance of factors other than the nominal tariff rate on output. Tariffs on material inputs, for example, would obviously raise costs in industries using these inputs and thus diminish the effectiveness of a given nominal tariff on the final products. More generally, it is now clear that any intervention of the State either through commercial or fiscal policy which affects the cost structure of an industry has a bearing on the degree of protection that the

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[2]A comprehensive outline of the theory of effective protection is provided in Corden [11], *The Theory of Protection* (1971). For a review of the empirical problems associated with effective tariff measurement, the best available source is Balassa [5], *The Structure of Protection in Developing Countries* (1971).

industry receives. A completely comprehensive discussion of protection, therefore, would require an analysis of government subsidies and tariffs on output and all inputs, together with an examination of the effects of the income, profits and excise tax structure on costs in the economy in question. Losses on state-owned transport enterprises, for example, would be counted as equivalent to a transport subsidy which in turn reduces costs in industries employing these transport facilities.

To include every type of distortion created by Government intervention in a study of protection is clearly an unattainable ideal. Nevertheless, it is certainly desirable to consider more than the nominal tariff on final product. The effective tariff concept has been developed in response to this need. It takes as its basis of comparison the price structure as it would be in a situation of unilateral free trade and, following the conventions of international trade theory, compares that structure with existing prices. Underlying the theory, of course, is the presumption that the free trade price structure is in some sense "superior" to any other.[3] Even more important for our purposes, however, is the fact that this is the set of prices which may be expected to obtain in the near future as direct and indirect tariff barriers are eliminated.

The effective tariff rate is defined as the excess of domestic value added over value added at world prices expressed as a percentage of the latter.[4] Domestic value added is the sum of wages, salaries, rent and profits at current domestic prices. If, for the present, we assume that the nominal tariff measures the difference between the domestic and world price of any traded commodity, then value added at world prices is obtained as the difference between domestic output deflated by its nominal tariff and domestic input costs deflated by the nominal tariff on material inputs.

The height of an effective tariff rate, defined in this manner, depends on three variables: (a) the level of nominal tariffs on output; (b) the proportion of value added in total output and (c) the level of nominal tariffs on the industry's inputs. For the benefit of non-specialists in international trade theory, it may be worthwhile illustrating the precise relationship between the effective tariff and its three determinants by means of a simple numerical example (see Table 1).

Suppose an Irish manufacturer produces a good on which a nominal tariff (t) of 30 per cent has been imposed. Current output is valued at £130, material inputs at £70, and domestic value added is £60. Initially we assume that there is no tariff on material inputs. To obtain the value of output at world prices, we deflate £130 by $(t/1+t)$. Value added at world prices is defined as the difference between output (£100) and inputs (£70), both valued at world prices. The effective tariff is then calculated as (£60—£30) ÷ £30, or 100 per cent.

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[3]Its superiority depends on a restrictive set of assumptions and is subject to a number of well-known qualifications.

[4]The "world price" of a commodity is defined as the c.i.f. import price of that commodity.

TABLE 1: *Effective Tariff Rates in Four Hypothetical Situations*

Value of	*1—initial case*			*11—tariff on inputs*		
	F	$t(\%)$	P	F	$t(\%)$	P
Output	100	30	130	100	30	130
Material Inputs	70		70	60	20	72
Value added	30		60	40		58

$$z = (60-30)/30 = 100\% \qquad z = (58-40)/40 = 45\%$$

Value of	*111—higher value added*			*IV—higher nominal tariff*		
	F	$t(\%)$	P	F	$t(\%)$	P
Output	100	30	130	100	40	140
Material Inputs	60		60	70		70
Value Added	40		70	30		70

$$z = (70-40)/40 = 75\% \qquad z = (70-30)/30 = 133\%$$

NOTES: F = value at world prices (£)
   t = nominal tariff rate (%)
   P = value at domestic prices (£)
   z = effective tariff rate (%)

The significance of an effective tariff will be discussed in detail later but one simple interpretation may be offered at this stage. The effective tariff shows that a 30 per cent nominal tariff on the final output of the Irish manufacturer provides him with an amount of protection equal to 100 per cent of the value he adds to the product through manufacture. In other words, with a 30 per cent nominal tariff, the Irish manufacturer's conversion costs may exceed those of his foreign competitor by 100 per cent and his price will still be competitive.

The protection afforded the domestic manufacturer would be quickly undermined if the price he had to pay for his material inputs were raised by protection as Case 11 in Table 1 shows. Thus, if material inputs were subject to a 20 per cent tariff, the effective tariff declines to 45 per cent. In Case 111, we illustrate the effect of the share of value added in determining the size of the effective tariff. For given nominal tariffs, the higher the share of value added in total output the lower the effective tariff rate. Case IV exemplifies the obvious positive relationship between the nominal tariff rate on the final product and the level of effective protection.

The above illustration is, of course, highly simplified. In practice there will

be a variety of inputs each with different tariffs. The presence of non-internationally traded inputs and services, excise taxes, export subsidies and taxes must also be recognised. A further problem arises when, as often happens, protection leads to an overvaluation of the exchange rate—the expression "value added at world market prices" is then no longer unambiguous, since its magnitude relative to domestic value added depends on whether the intitial (overvalued) exchange rate or the equilibrium free trade exchange rate is employed.

Extensions of the Concept

When an industry uses more than one input, the value of each input must be deflated by its respective nominal tariff. Thus, value added at world prices in the i th industry (V_i) becomes, in symbols:

$$V_i = P_i. 1/(1 + t_i) - \Sigma_j A_{ij}. 1/(1 + t_j)$$

P_i = value of domestic production of i th industry.

t_i = nominal tariff on i th output.

A_{ij} = value of j th input in total production of i th industry.

t_j = nominal tariff on j th input.

i, j refer to individual industries.

Given that domestic value added (W_i) equals ($P_i - \Sigma A_{ij}$), the effective tariff formula can be simply expressed as:

$$z_i = \frac{W_i - V_i}{V_i}.$$

The values of P_i and A_{ij} for each industry can be read off from an input-output table.

Non-internationally traded goods and services must be treated separately since free trade alone cannot ensure equality between domestic and world prices. In the case of goods such as electricity, gas and water, transportation costs are usually prohibitive. The price of services, such as construction, banking and insurance etc. on the other hand, can be equalised only by factor mobility—one cannot export factories, only factory builders. Protection affects the price of these non-traded goods and services, however, by raising the costs of their material inputs. A common assumption is that these extra costs are passed on to the consumer of non-traded goods and services in the form of higher prices. Thus, if 20 per cent of construction costs consist of imported builders' materials subject to a 40 per cent duty, we infer that the

price of construction services is raised by 8 per cent as a result of protection. Consequently, the relevant "tariff" on construction inputs into a particular industry is 8 per cent.[5]

In many countries excise taxes apply to only a few commodities. In the EEC, however, they are more important and Johnson and Grubel [12] have shown how the effective tariff formula can be modified to allow for these taxes. Distortions may also arise due to taxes or subsidies on exports. An export subsidy is analagous to a tariff in that it raises domestic production relative to its free trade level, whereas an export tax is analogous to an import subsidy. To obtain value added at world prices in an industry benefiting from an export subsidy, one deflates the value of exports by the percentage subsidy. In the case of an export tax, the value of exports would be raised by the percentage of tax when computing value added at world prices.[6]

Although usually positive, the sign of the effective tariff may in certain circumstances be negative. If tariffs on material inputs are sufficiently high, it is conceivable that the protection provided to the industry by the nominal tariff on its final output is not sufficient to compensate for the higher costs of inputs. In such instances, the negative effective tariff shows that the industry is discriminated *against* by the system of protection.[7] Negative effective tariffs may also occur if the value added at world prices happens to be negative. The negative value added may reflect gross wastage of raw materials or heavy transportation costs of raw materials relative to the assembled product. It may also be due simply to errors in the data used in calculating free trade value added.

It is customary to distinguish between *gross* and *net* effective tariffs. The *gross* effective tariff rate measures the percentage excess of domestic value added over value added at world prices, with the latter expressed at the exchange rate operating in the *cum*-protection situation. However, there may be cases where devaluation is necessary in order to preserve balance of payments equilibrium as tariffs are eliminated. Whether and to what extent such action is necessary depends on the foreign and domestic demand and supply responses to free trade prices. Hence, we must estimate the increase in imports and exports likely to follow the introduction of free trade, and, if possible, combine these estimates with an assessment of the magnitude of capital

[5]This approach implies a perfectly elastic supply of primary factors in the nontraded goods and services sector. An alternative approach has been suggested by Corden [11] which avoids this assumption. Empirical studies suggest that the two methods of treatment yield closely similar effective tariff estimates.

[6]Export taxes may have the effect of protecting industries which use exported goods as inputs. Thus Lewis and Guisinger [16] cite the case of Pakistan where a heavy export tax on raw jute subsidises domestic manufacturers of jute in that country. Prohibitions on the export of such goods as scrap metal, sheepskins and timber from Ireland also provide a degree of protection to Irish industries using these goods. Note, again, that "world" prices refer to the price paid to the producer under free trade conditions. It is not implied that the export tax affects the ruling world market price, but only that the price actually received by the domestic producer is reduced.

[7]Reverting to case 1, in Table 1, if a tariff of 50 per cent were levied on inputs, value added at world prices exceeds domestic value added, thus yielding a negative effective tariff of −16·6 per cent.

inflows and outflows. Then with the aid of certain simplifying assumptions, it is possible to indicate the exchange-rate adjustment required to restore equilibrium. To adjust the effective tariff rates, world prices can be revalued (in terms of domestic currency) at the exchange rate that would obtain under free trade conditions. If the actual exchange rate is overvalued relative to the free trade situation (as is frequently the case), then *gross* effective rates of protection would require a downward adjustment. Effective tariff rates so adjusted are called *net* effective rates.

Effective Tariffs and Exports

In trade discussions it is usual to distinguish between export and import-competing industries, the former catering partly for the domestic market but also engaged in the export trade, the latter engaged wholly in serving the domestic market and striving to maintain its share against foreign competition. The terms "importable" and "exportable" are thus devoid of ambiguity in the international trade models. However, for most developed countries inter-industry divisions cannot be made along these lines. Here the typical situation is one of industries enjoying relatively high rates of protection and simultaneously exporting a significant proportion of total output. How should these exports be treated in effective tariff calculations?

In this study, we begin by calculating a set of unadjusted tariffs (z) on the assumption of zero exports. They indicate the degree of protection provided to sales on the domestic market. The overall protection to industry is thus overestimated since exports are sold at competitive "world" prices and the value added on this portion of domestic production will presumably not be reduced when free trade is established. The usual way of handling this situation is to assume a zero nominal tariff on exports. An *adjusted* nominal tariff for each industry is then obtained as the weighted average of the tariff on domestic sales (multiplied by their share in domestic production) and a zero tariff (multiplied by the export share of domestic production). If an industry's nominal tariff (t) is 36 per cent and one-fifth of output is sold abroad, the *adjusted* nominal tariff (t_a) is defined as: $(36 \times 1/5) + (0 \times 4/5) = 28.8$. If exporters can purchase their material inputs requirements without paying duty, the tariff on these inputs must also be adjusted, the proportion of duty-free inputs being assumed equal to the proportion of final output exported. No adjustment is necessary for non-traded goods and services since the manufacturer pays the implicit tariff irrespective of the destination of his sales. Effective tariffs calculated on the basis of adjusted nominal tariffs are referred to as *adjusted* effective tariffs (z_a).

By raising the return per unit of value added on domestic market sales, protection actually discourages exports. The disincentive thus arising is termed the *bias against exports*. This bias is formally defined as the percentage excess of domestic value added (under protection) over value added by

exporting expressed as a percentage of the latter. Despite its similarity with the effective tariff definition, the bias against exports is usually lower than the effective tariff. This is because of the pervasiveness of duty-drawbacks on materials for use in exports and other financial incentives to export, which tend to raise the value added in exporting above the free trade value added. Suppose in a particular industry these exports concessions are equivalent to a 5 per cent nominal subsidy on exports, one then calculates an *effective export subsidy* in exactly the same way as an effective tariff. If the effective export subsidy turns out to be 10 per cent and the effective tariff 20 per cent, the *bias against exports* is then computed as (120–110) 110 =9 per cent. This shows that the return per unit of value added from sales in the domestic market is 9 per cent higher than from export sales, after making allowances for all tariffs and other product subsidies and taxes. A negative *bias against exports* coefficient indicates that the structure of protection discriminates in favour of exports.

Interpretation of Effective Tariffs

Effective tariffs can be interpreted in four ways. First, we can view the effective tariff as indicating the maximum amount, in percentage terms, by which the efficiency of domestic producers can fall short of that of their foreign competitors. In other words, the effective tariff measures the extent to which domestic manufacturers are "cushioned" from the rigours of international competition. Secondly, if effective tariffs are ranked by order of magnitude, we may be able to predict the resource-allocation effect of protection. In other words, if activities are ranked along a scale in ascending order of effective rates, it is, under certain strict assumptions, possible to claim that resources will move out of industries with the highest effective rates into less heavily protected activities once trade is liberalised. Thirdly, effective tariffs may be used to indicate static comparative advantage—those industries requiring the highest protection being deemed to be relatively less suited and those with low or negative protection relatively more suited to the country's resource-endowment. Finally, effective tariffs serve the purpose of indicating the domestic resource cost of foreign exchange. Thus an effective tariff of 50 per cent on a product would indicate that the domestic resource cost of obtaining the product is 50 per cent higher than the cost of obtaining it at the current exchange rate through international trade.

Each of these interpretations depends for its validity on a number of assumptions. Effective tariffs can be viewed in the first sense only if we assume: (a) an infinitely elastic supply curve of imports, (b) zero elasticity of substitution between inputs and (c) constant returns to scale. If import prices were to fall as domestic production of import-competing goods expands, the degree of protection would be overestimated by the tariff. If assumptions (b) and (c) are violated, effective tariffs based on the domestic input-output

table will also be biased to a certain extent.[8] To validate the remaining three interpretations we need even stricter assumptions. For example, the tariff rate must measure the rate of divergence between the domestic and the world price of traded goods i.e. there must be no "water" in tariffs.[9] In addition, the market must be perfectly competitive and the supply elasticities of primary factors must be similar. The restrictiveness of these assumptions is obvious and in general, conclusions regarding the resource allocation effects of protection or the domestic resource cost of foreign exchange cannot be drawn on the basis of effective tariffs alone, without supplementary data at an institutional level.

Apart from these conceptual difficulties, effective tariff estimates are subject to many limitations at an empirical level. For instance there are many types of government intervention outside the orbit of commercial policy which distort foreign trade patterns but which are not considered in effective tariff calculations. Typically, no allowance is made for the effects of corporation and income tax systems, and of various non-product subsidies such as government-sponsored training schemes for industrial labour, special depreciation allowances, grants for improvement of capital stock etc. A further limitation is the large margin of error attached to effective tariff estimates. Thus, the calculation of an average nominal tariff for each industry involves the use of arbitrary procedures whose appropriateness cannot always be guaranteed. The size of the effective tariff, on the other hand, is often quite sensitive to the height of the nominal tariff, especially in cases where value added is a small proportion of total output. A certain unavoidable degree of uncertainty also attaches to the input-output coefficients used in the computations both because of the error possibilities inherent in constructing the input-output table itself and because of the possibility of substitution between inputs as a result of protection.

While these limitations should be borne in mind when evaluating the results of the study, the usefulness of effective tariffs must also be acknowledged.

In the first place, an effective tariff indicates the extent of protection provided to a particular industry by the system of protection as a whole, taking into consideration not alone nominal tariffs on the final product but also tariffs on intermediate goods, implicit tariffs on non-traded goods and services, the share of value added in output and other relevant factors. With the aid of effective tariffs, it is possible to evaluate the structure of protection

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[8]The problems raised by substitution between inputs have been extensively analysed at a theoretical level. Empirical studies suggest that substitution is not as an important a problem in practice as the theoretician might expect. One finds no evidence of the systematic differences in effective tariff estimates that would prevail if input substitution occurred to a significant extent.

If calculations are made from domestic input-output coefficients, we tend to overstate effective protection in increasing cost industries and to understate it in decreasing cost industries.

[9]Strictly speaking this is also required for the first interpretation. If there is "water" in input tariffs, for example, the effective tariff measure will underestimate the permissable size of the efficiency gap between domestic and foreign producers. "Water" in final goods tariffs, on the other hand, creates no problem since the effective tariff will still measure the "cushion" afforded to domestic producers as a group against their foreign competitors.

and to assess its effects on individual industries. If effective tariffs differ significantly between various activities, we can immediately ask why this is so. Does this discrimination accord with a rational and preordained line of policy? Or is it the result of *ad hoc* decisions taken without regard to the interdependence of economic activities?

Secondly, by protecting the home market, a disincentive to export is created since exports become less profitable than domestic sales. With the aid of effective tariffs we are able to measure the extent of this bias against exports.

Effective tariffs can also be employed to measure the static production costs of protection. Since domestic production responds to effective rather than nominal protection, effective rather than nominal tariffs are obviously the appropriate tool of analysis to measure the production loss. The consumption loss of protection can, theoretically, be measured with the aid of nominal tariffs alone. The total allocative loss is then the sum of a production and a consumption effect.

The effective tariff is thus a convenient tool for measuring and evaluating the system of protection in an economy. Effective tariffs are not *per se* sufficient to carry out this evaluation, but are certainly an indispensible complement to any such study. Our next task is to examine the main features of the Irish system of effective protection.

3. THE STRUCTURE OF IRISH PROTECTION

Calculating Effective Tariffs

Our starting point is nominal tariffs on individual products classified according to the *Official Import List* for the year 1966.[10] Specific tariffs are converted to *ad valorum* rates by expressing the specific duty as a percentage of unit value (calculated from Irish import data). Tariff discrimination by area of origin of the products imported is dealt with by assigning different weights to the full and the preferential tariff according to the geographical distribution of each import category. (The precise treatment of this and related issues is described in Appendix I.)

The next task is to sort these tariffs into groups corresponding to the industries included in the 150 sector 1964 input-output (IO) table.[11] A useful feature of the IO table is the division of imports into competitive and complementary sections. It is thus possible to identify the tariff (or tariffs) relevant to each product included in the IO worksheets—a link in other words is established between import data and domestic production statistics. A list of competitive imports, their respective tariffs and the output of the domestic product with

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[10]This list is more detailed than the four-digit SITC.

[11]The published version contains 17, 33 and 92 sector IO tables. Access to the more detailed data is by courtesy of the Central Statistics Office.

which they compete can thus be compiled. The average nominal tariff for each industry is then computed as the weighted average of the individual tariffs, weights being proportional to the share of each individual product in the total output of the industry.

In the rare instances where duties are charged on complementary imports (unassembled motor vehicles for example), they are treated in the same way as any other tariff on inputs and are hence incorporated into the effective but not the nominal tariff calculations for the affected industry or industries.

The effect of protection on prices of services and nontraded goods was calculated on the principles described earlier. We assume that cost increases due to tariffs on inputs into these services are passed on to the consumer. The implicit nominal tariff on depreciation had also to be estimated. As the components of depreciation are not distinguished in the IO table, we assume arbitrarily that two-thirds consisted of expenditure on imported producer capital goods (PCG) and the remaining one-third consisted of nontraded goods and services and primary factors. (The derivation of the average PCG tariff is described in Appendix I.) Our effective tariff rates are thus expressed as a percentage of *net* value added (i.e. wages plus profit, excluding depreciation).

Although tariffs refer to 1966 and the IO coefficients are based on 1964 data, it is unlikely that the input structure changed appreciably in the intervening period.

Nominal Tariffs and Price Differentials

So far we have assumed that the nominal tariff represents the difference between domestic price and world (i.e. import c.i.f.) price, *with due allowances for quality differences*. It is possible that certain tariffs exaggerate the disparity between domestic and foreign prices. This is likely to occur whenever the tariff is prohibitive.[12] The domestic/world price differential may exceed the nominal tariff whenever, as sometimes happens in the Irish system, tariffs are combined with quantitative restrictions.

Discrepancies between the tariff rate and the price differential can be corrected only by means of direct price and quality comparisons. This is a notoriously difficult task. The core of the difficulty lies in identifying a foreign product which is in every respect identical with the domestically produced good. In the case of standardised goods, the problem is less serious. Thus comparisons between Irish and EEC prices of beef, dairy products, cereals, sugar beet etc. are feasible and are employed in this study. Where industrial commodities are concerned, however, product differentiation is the rule and the researcher faces formidable obstacles. Even in those cases where the physical characteristics of the foreign and domestic commodities are more or

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[12]It may also occur even if the tariff is nonprohibitive. During the 'thirties, for example, the Irish government sometimes levied tariffs at a rate deliberately above that required by domestic producers, on the understanding that this "security margin" would not be availed of. These agreements were not enforced in any systematic way, however.

less identical,[13] one cannot take foreign and domestic prices at face value without having regard to the conditions of sale, terms of delivery, credit terms and range of goods offered etc., all of which may vary between foreign and domestic suppliers and which would then constitute important quality differences between the domestic product and its counterpart abroad.

The only formal study on the subject of price comparisons undertaken in Ireland was Nevin's 1962 paper [23] in which British and Irish prices were compared directly with the aid of retail list price schedules. His results show that: (*a*) the percentage difference in price between UK goods selling in Ireland and their counterparts in the UK tends to equal the nominal tariff, i.e. tariffs are "passed on" to the Irish consumer, and (*b*) where the identical product is manufactured in Ireland and imported from the UK, the UK/Irish price differential varies considerably from commodity to commodity but on average lies below the nominal tariff rate. The average excess of domestic over UK price was only 8 per cent for the latter group of products.[14] This figure diverges considerably from our average preferential tariff for consumer goods imports of 19 per cent (see Appendix I for derivation of this figure). Price comparisons attempted by the CIO survey terms in their reports on Irish industries yielded much the same results as Nevin's study: namely, that while Irish prices (and costs) are generally higher than UK prices, the size of the differential varies enormously as between different products and on average lies below the nominal tariff. But neither Nevin nor the CIO teams found it possible to correct for quality differentials between the Irish and the corresponding UK commodities.

The evidence, therefore on the relationship between the nominal tariff and the domestic/foreign price differential is uncertain, due primarily to our inability to devise a satisfactory method of measuring quality differentials. This is an unsatisfactory situation. It means that we have no rigorous assessment of the validity of our assumption of zero "water" in tariffs. Furthermore it predisposes us to avoid price comparisons in all cases except where absolutely essential (e.g. when quotas are imposed or tariffs prohibitive).[15] Consequently we are obliged to take nominal tariffs at their face value throughout most of this study, although the issue is reverted to later in our assessment of the cost of protection.[16]

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[13]Standardised industrial commodities are most often found among intermediate goods at low levels of fabrication e.g. paper, fertilisers etc. (see Intermediate Goods 1, notes to Table 3).

[14]Too much emphasis, as Nevin stresses, must not be placed on this figure, which is an unweighted arithmetical average of price observations. First, Nevin's coverage is limited—textile, leather, clothing, wood, furniture and printing industries are not included. Secondly, and most important, no allowances are made for quality differentials between Irish and UK products nor is allowance made for different standards of ancillary services such as credit terms and delivery dates.

[15]See Table A. 1 for details of actual price comparisons undertaken.

[16]In their painstaking study of the effects of free trade on Canada, the Wonnacotts [31] also came to grief on the issue of price comparisons. Only in the case of one industry—motor assembly—did they find it possible to derive meaningful price comparisons.

The Choice of Industries

The activities listed in the Irish IO table can be divided into two groups. The first includes agriculture, mining, forestry and processing of agricultural products. The second consists of four food processing industries and thirty-four manufacturing activities, comprising in all thirty-eight industries. Our effective tariff analysis is concerned with this second group.

Agriculture is excluded from this study, not because it is unprotected (import restrictions are placed on a wide range on agricultural output) but because agricultural protectionism in this country and elsewhere in the "developed" world is unlikely to be dispensed with for some time to come. Thus, we consider the structure of protection relative to a situation of free trade in industrial goods only. The limitations thereby imposed on our conclusions are slight, first because it is unlikely that agricultural output will be *adversely* affected by membership of the EEC or any other trading arrangement Ireland might enter and, secondly, because of the limited interdependence between the agricultural and industrial sectors. On the last point, the limited dependence, in so far as production flows are concerned, of agriculture on the industrial sector is apparent from even a cursory examination of the IO table. Purchases of industrial goods by agriculture amount to less than 16 per cent of total agricultural output.[17] The most important industrial input is fertilisers which is sold to the Irish farmer at subsidised prices broadly comparable with the world price. Higher prices must be paid, of course, for certain types of agricultural machinery and farm equipment whose production is sheltered by tariffs (e.g. wire fencing, corrugated sheets etc.). The importance of these items in farmers' total costs is however, minimal.[18]

On the other hand, agricultural inputs are not in general an important ingredient in total industrial costs of production. The sole exception is the food processing sector. These industries, however, tend to be characterised by low value added shares in total output (8 per cent on average) and usually come within the orbit of agricultural policy. Hence it seems best to classify the following food processing industries as part of the agricultural rather than the industrial sector: livestock slaughtering, dairy products, flour milling and bread, animal feed and sugar refining. This leaves only four food-processing industries for inclusion in this study: biscuits, margarine, confectionery and fruit/vegetable processing. These industries have higher value added shares (13–30 per cent range), are less dependent on agricultural inputs and less insulated from foreign competition than the typical industry in the food-processing sector.

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[17]Animal feedstuffs are excluded since their price depends crucially on the price of imported and domestic agricultural products.

[18]The implicit tariff on services (including repairs) is also relatively unimportant for agriculture.

It must be emphasised that effective tariff analysis is based solely on production flows. Thus farmers' real income may suffer as a result of protection in so far as the price of consumer goods is raised, but this phenomenon lies outside the scope of a study of effective tariffs. Furthermore, while our conclusion applies to the generality of agricultural output certain individual products may have been more seriously affected by protection.

Fishing, forestry and mining can also be excluded since direct production linkages with the industrial sector is slight. Fishing and forestry come within the ambit of agricultural policy, whereas mining enjoys virtually no formal protection.

This leaves us with thirty-eight manufacturing industries whose nominal and effective rates of protection will now be analysed.

Nominal and Effective Tariffs .

Nominal and effective tariffs for Irish industry are presented in Table 2. The industries are ranked according to the height of their effective tariff. In addition, Table 2 shows value added share (VA/DP) and the proportion of dutiable inputs in total output (TI/DP). The height of each effective tariff may be substantially explained in terms of these variables together with nominal tariffs on output.[19] The information provided in the last three columns of the table will be discussed at a later stage.

TABLE 2 : *Effective Tariffs, Value-added Share and Traded-Input Share of Irish Manufacturing Industries 1964–1966*

	(1)	(2)	(3)†	(4)	(5)	(6)	(7)
	z	t	$\dfrac{X}{DP}$	$\dfrac{VA}{DP}$	$\dfrac{TI}{DP}$	Effective rate of export incentive	Bias against exports
$z < 0$							
36. Cotton etc. Yarns and Thread	−114	37	25·7	23·7	*	15·1	n.a.
$z \geqslant 200$							
48. Paints/Oils	362	36	8·3	21·5	5·3	15·8	298
55. Other Electrical Equipment	281	39	37·6	30·1	5·2	8·3	253
37. Ropes/Mats	262	31	35·1	25·3	8·4	7·9	235
29. Chocolate/Sweets	243	29	20·0	25·2	29·7	2·3	233
35. Cotton etc. Cloth	218	50	21·7	29·3	38·0	9·3	192
44. Paper	218	26	20·3	26·8	7·8	17·1	172
30. Fruit and Vegetable Processing	210	28	17·8	23·7	33·3	6·4	192
27. Biscuits	206	32	6·6	30·1	37·5	8·8	181
$z < 200 \geqslant 100$							
34. Wool Yarn and Thread	181	24	19·9	18·2	63·2	7·0	163

[19]But the average nominal tariff on each industry's inputs is not included in Table 2.

TABLE 2: *Effective Tariffs, Value-added Share and Traded-Input Share of Irish Manufacturing Industries 1964–1966*

—*continued*

	(1)	(2)	(3)†	(4)	(5)	(6)	(7)
	z	t	$\dfrac{X}{DP}$	$\dfrac{VA}{DP}$	$\dfrac{TI}{DP}$	Effective rate of export incentive	Bias against exports
$z < 200 \geqslant 100$							
30. Margarine	176	28	*	13·5	65·1	14·1	142
40. Shoes/Leather	168	44	26·5	37·4	34·7	9·7	144
33. Wool Cloth	153	36	20·0	28·3	55·3	7·8	134
57. Road Vehicles	142	32	*	19·6	*	17·2	107
54. Cables/Transformers	137	22	41·0	19·7	33·9	20·0	97
52. Metals for Construction	131	24	11·0	28·2	*	6·8	116
54. Plastics	120	26	35·8	36·1	*	10·0	100
46. Tanning (excl. Fellmongery)	102	18	60·5	28·7	39·2	11·7	80
49. Medicaments/Soap	100	32	24·3	39·6	6·7	21·9	64
$z < 100 \geqslant 50$							
41. Clothing	90	46	24·8	34·1	49·9	8·2	70
53. Farm Machinery	88	28	20·4	39·6	16·8	11·2	69
42. Lumber/Builders' Wood	89	34	21·1	30·9	16·6	12·2	69
39. Hosiery/Knitting	87	35	28·9	29·6	51·2	9·7	70
52. Metal Consumer Goods	78	23	23·0	34·0	13·6	6·0	68
50. Glass/Pottery	75	29	19·7	48·7	6·8	11·5	58
38. Rugs/Blankets	66	29	31·1	26·4	57·4	10·2	51
47. Fertilisers	58	20	*	23·0	*	15·5	33
43. Wood Products	56	27	24·8	47·9	33·0	12·2	39
43. Furniture	54	30	*	45·5	38·9	12·9	36
59. Petroleum/Rubber	53	10	9·8	21·0	*	25·2	22
53. Domestic Machinery	47	11	64·6	25·1	6·7	19·1	24
$z < 50$							
51. Clay/Cement	40	18	14·6	38·2	11·6	21·1	16
45. Printing/Publishing	29	18	15·5	48·3	30·2	7·7	19

TABLE 2: *Effective Tariffs, Value-added Share and Traded-Input Share of Irish Manufacturing Industries 1964–1966*

—continued

	(1)	(2)	(3)†	(4)	(5)	(6)	(7)
	z	t	$\dfrac{X}{DP}$	$\dfrac{VA}{DP}$	$\dfrac{TI}{DP}$	Effective rate of export incentive	Bias against exports
$z < 50$							
32. Tobacco	26	10	*	31·7	*	26·8	—
44. Paper Products	19	20	21·8	34·4	51·0	13·3	5
38. Bed/Kitchen Linen etc.	10	27	17·7	20·2	57·2	13·1	−3
31. Beverages	3	2	30·5	43·3	14·6	18·2	−1
53. Other Machinery	—	—	95·5	30·1	*	13·3	−13

NOTES:

t = nominal tariff rate (%)

z = effective tariff rate (%)

$\dfrac{X}{DP}$ = exports as percentage of gross domestic production.

$\dfrac{VA}{DP}$ = share of net value added in gross domestic production.

$\dfrac{TI}{DP}$ = traded inputs supplied by domestic producers *plus* competitive imports, as a percentage of gross domestic production.

† = "invisible" exports, i.e. sales to foreign tourists are not included in the export figures. For some industries (clothing for example) our X/DP ratio may consequently underestimate the true export share.

n.a. = not available.

* = less than 5 per cent (applies only to columns 3, 4 and 5).

A striking feature of Table 2 is the wide variation in effective tariffs. Industries at the top of the list are protected by effective tariffs of over 200 per cent whereas those at the bottom of the scale receive almost zero protection. Similar, although less dramatic, differences are observable between inter-industry nominal tariffs. At the upper end of the scale, we have cotton and synthetic cloth (50 per cent), shoes/leather goods (44 per cent) and clothing (46 per cent), whereas beverages, tobacco and petroleum have nominal rates of protection no greater than 10 per cent.

Heading the effective tariff list is cotton/synthetic yarns and cloth, whose negative tariff reflects not high input relative to output nominal tariffs but rather negative value added at world prices. This suggests an extremely

high rate of protection. Next, eight industries have effective tariffs in excess of 200 per cent. In four cases (other electrical equipment, ropes/mats, paper and paints/oils), the high effective tariff may be due to the low TI/DP ratio which suggests that input tariffs are not important for these industries. Nominal tariffs on all eight industries, however, are well above the all-industry average of 25 per cent.

The contrast between the highly protected industries and those with effective tariffs under 50 per cent is quite marked. First, we note the higher value added share in the less protected group of industries, indicating that even if nominal tariffs on these industries were the same as those elsewhere their effective protection rates would still be relatively low. Secondly, one observes the much higher proportion of importables used in the production process (tobacco being an exception).[20] Thus, in the case of paper products and bed/kitchen linen etc., input tariffs have considerably diminished the amount of protection provided by the tariff on their output. Finally, low effective tariffs on drink and tobacco can be ascribed to the low nominal rates on these products.

The bulk of Irish manufacturing industry has effective tariffs lying within the range 50–200 per cent. At the upper end of the scale, we have the margarine industry which despite its relatively heavy dependence on protected inputs (chiefly vegetable oils) still enjoys substantial protection. In this case, the small proportion of value added magnifies the already high nominal tariff. Metal consumer goods, in contrast, offer an example of an industry whose purchases of importables reduce substantially its effective protection.

Rank correlation coefficients between each of the three determinants (t, VA/DP and TI/DP) of effective tariffs and level of effective protection were computed. The correlation between t and z was reasonably close (0·60 and significant at a 95 per cent level), indicating that industries with high nominal tariffs will usually, but not always, have high effective tariffs also.[21] On the other hand, no significant relationship between either the share of value added or the proportion of dutiable inputs, and effective tariffs could be discerned. Thus, there is no evidence to suggest that those industries which add most to the national product per unit of output received more protection than any other. In fact, it appears that the firm which merely assembles or packages an imported product receives just about the same and in many instances more protection than the firm which manufactures that product from its raw material stage.

In order to compress the details of Table 2 into more manageable form industries have been divided into eight groups. The nominal tariff of each group is obtained as the sum of individual industry tariffs weighted by its share of the total group's output. The aggregation procedure for effective

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[20]"Importables" are domestically produced import-competing goods *plus* competitive imports.

[21]The cotton yarns industry had to be excluded from the calculations on account of its negative tariff.

tariffs, on the other hand, is to weight each effective tariff by the share of its free trade value added in total free trade value added. The tariffs appropriate to each industry group are recorded in Table 3.

TABLE 3: *Nominal and Effective Tariffs for Irish Industry, Classified by Groups*

Industry Group	(1) t	(2) t_a	(3) z	(4) z_a
1. Processed Foods	29·6	25·6	220·6	171·6
2. Tobacco and Beverages	4·6	4·1	7·6	5·9
3. Construction Materials	22·8	18·9	35·9	28·5
4. Intermediate Products I	20·5	17·1	133·0	87·0
5. Intermediate Products II	30·0	23·4	97·3	62·6
6. Nondurable Consumer Goods	35·9	27·5	79·4	51·5
7. Consumer Durables	31·0	27·0	138·8	103·1
8. Machinery	5·7	3·3	19·3	7·5
1–8 All Manufacturing	25·5	20·5	85·0	58·2

NOTES:

Processed Foods: Biscuits (27), Chocolate/Sweets (24), Processing of Fruit and Vegetables/Margarine (30).

Tobacco and Beverages: as in Table 2.

Construction Materials: Timber/Builders' Wood (42), Clay/Cement (51).

Intermediate Goods I: Thread and Yarn (34, 36), Paper (44), Tanning (46), Paints/Oils (48), Fertilisers (47), Glass/Pottery (50), Petroleum/Rubber (59).

Intermediate Goods II: Textile Fabrics (33, 35), Ropes/Mats (37), Wood Products/Furniture (43), Paper Products (44), Medicaments/Soap (49), Metals for Construction (52), Cables/Plastics (54).

Nondurable Consumer Goods: Rugs/Bed Linens (38), Hosiery/Knitting (39), Shoes/Leather Goods (40), Clothing (41), Printing/Publishing (45).

Consumer Durables: Metal Consumer Goods (52), Road Vehicles (57), Other Electrical Equipment (55).

Machinery: Farm/Domestic Machinery (53), Other Machinery (53).

t = average nominal tariff obtained by weighting each industry's t by output.

z = average effective tariff, obtained by weighting each industry's z by value added at world prices.

t_a = nominal rate multiplied by percentage of output retained for domestic use (i.e. average rate of nominal protection assuming a zero nominal tariff on exports).

z_a = "adjusted" effective rate, using t_a rather than t on final output and assuming zero tariff on traded inputs absorbed by that part of final output which is exported.

First, consider nominal tariffs, in particular groups 4, 5 and 6. Intermediate products have been divided into products at low levels of fabrication (inter-

mediaie products I) and those at higher levels of fabrication (intermediate products II) evidenced as a rule by higher value added shares in total output. The average nominal tariff on the former group is 20 per cent compared with a 30 per cent nominal tariff on the second group. An even higher level of nominal protection (36 per cent) is afforded to goods at the next level of fabrication, namely nondurable consumer goods. A pattern of escalation, therefore, can quite easily be discerned at the nominal tariff level.

The question arises as to whether the "cascading" of nominal tariffs according to degree of fabrication carries over to effective rates. We can see from Table 3 (column 3) that this is not so. In fact the ranking of the three industry groups—intermediate products I and II and nondurable consumer goods with effective tariffs rates of 133, 97 and 79 per cent respectively—varies *inversely* with the height of their respective nominal tariffs! Nondurable consumer goods have the highest nominal tariff but the lowest effective tariff of the three groups of industries. The Irish system of protection, therefore, does not discriminate systematically in favour of products at a higher level of fabrication. In fact precisely the opposite is the case.[22] This raises the question of whether backward linkages have been promoted unduly (i.e. would it be better to import more raw materials in processed rather than unprocessed form?) and whether industries at higher levels of fabrication have not been unduly penalised by high tariffs on their material inputs.[23]

Low average nominal and effective protection rates are found in the machinery industries. However, closer examination shows that the average tariff on machinery conceals quite significant inter-industry variation in effective tariff levels. For instance the hoisting equipment and optical and precision machinery industries which account for a large proportion of the group's output, are essentially export industries which receive no protection at all, whereas tariffs on farm machinery (28 per cent) and domestic machinery (11 per cent) are fairly high. Certain types of machinery receive significant protection, therefore, but their percentage share of total machinery production is small.

Effective tariffs are highest on processed foods (221 per cent) and consumer durables (139 per cent). In both cases, the high effective tariff can be explained partly by reference to the level of nominal protection (other electrical equipment 49 per cent, for example) and partly by the low value added share in total outputs. This last point may at first sight appear implausible, but Ireland's

consumer durables industries consist to a substantial extent of low value added assembly operations rather than the manufacture of consumer durables from the earliest stages (the road vehicles industry being an outstanding example). We have already seen that the tariff structure tends to provide exceptionally high effective protection to activities of this type.

At the opposite end of the scale, we have beverages and tobacco industries with low nominal and effective tariffs. Protection on construction materials (23 per cent nominal and 36 per cent effective) is also below the manufacturing average perhaps because tariffs were considered unnecessary owing to the natural protection afforded to many products in this group by high transport costs·

Before proceeding to the next section, two final issues must be raised. The first concerns the dispersion of effective tariffs at an *intra*-industry level, the second relates to the problem of "depyramiding" of tariffs.

It is obvious that many of the industries considered here consist of a quite heterogeneous group of products. The possibility thus arises that an individual industry tariff may conceal quite wide variations in effective tariffs on its constituent products. The nominal tariff for different products included under the same industry heading certainly varies to some extent. These variations may well carry over to effective protection rates, but in the absence of input-output data at the requisite level of disaggregation, we have no way of checking whether or not this carry-over occurs. Hence, even though the effective tariff on an industry is low, this does not necessarily preclude the possibility of certain activities in that industry receiving quite high effective rates.

Although nominal tariffs tend as a rule to increase with the level of fabrication, this is not always so. Cases have been cited in the textile industry of finished goods (e.g. woollen garments) receiving less nominal protection than their raw materials (fabrics) and a special committee was set up by the Government in 1968—the Committee on De-pyramiding of Tariff Protection—to investigate the problem. With the aid of effective tariff analysis, it would be possible to assess whether or not the input tariff is sufficiently high to result in an actual discrimination against a particular activity relative to the free trade situation (i.e. whether the effective tariff is negative or positive). Moreover, effective tariff theory shows that as a general rule levels of protection can be kept uniform throughout industry only if nominal tariffs are escalated according to degree of fabrication.

Adjusted Effective Tariffs and the Bias Against Exports

To obtain adjusted nominal tariffs, one assumes that exports are sold at world market prices and then assigns a zero nominal tariff to the portion of gross output exported. Adjusted effective tariffs, as we explained in the first section, are calculated from adjusted nominal output tariffs with allowances made for duty remissions on imported inputs. Adjusted nominal (t_*) and effective (z_*) tariffs are shown in Table 3.

It is clear that the adjusted tariff structure alters in no fundamental respect our conclusions based on the original unadjusted structure. Both the escalation of nominal tariffs and the reverse escalation of effective tariffs with degree of fabrication (consumer durables being an exception) continues to exist. However, the ranking of industries by z differs slightly from that of z_*.[24] Industries with low export ratios such as biscuits, paints/oils and wool yarns ascend the scale, while industries with a high export content, such as other electrical equipment and ropes/mats, emerge with relatively lower rates of protection (see Table 2). Apart from this, the adjustment requires no further modification of our analysis. The rank correlation coefficient between z and z_* is a highly significant 0·90.[25]

The *bias against exports* coefficient was defined earlier as the percentage excess of value added on the domestic market over value added by exporting. To calculate this coefficient we need effective tariff estimates and estimates of the effective rate of export subsidy. The latter, in turn, compares the present situation, taking account of all direct and indirect subventions to exports, with an idealised free trade situation in which all these subventions are eliminated.

In Ireland, there are virtually no instances of direct government subsidies or taxes on industrial exports. On the contrary, a certain degree of discrimination *against* exports arises as a result of the higher prices of nontraded goods and services relative to the free trade situation. Thus, although exporters are allowed remission of duty on the inputs they themselves import, no compensation is allowed for duty paid on indirect imports. However, this disadvantage must be weighed against the incentive offered to exporters in the form of income and corporation profits tax relief. Other incentives are provided to exporters (through agencies such as Coras Trachtala) but there is no way of quantifying their contribution to each individual industry. Hence our calculations include only the tax relief on one hand and the higher price of services and nontraded goods on the other.

Under the tax relief scheme, complete tax exemption is provided on that portion of output which is exported. Thus, given the normal tax liability on profits of 50 per cent in 1966 and assuming a profits/turnover ratio of 6 per cent, the tax exemption on exports would be equivalent to a 3 per cent "incentive" on final output. The term "incentive" is used rather than "subsidy" in order to emphasise the distinction between these two forms of export support. For one thing, the tax relief is useful only when profits are being earned. Moreover, given the variability of profits, the value of the incentive fluctuates from year to year, thereby tending to reduce its effectiveness.

In calculating the incentive equivalent of the tax exemption on exports, the ratio of profits to total output is first computed for each industry on the basis

[24]The necessary data at industry level are not included in the tables.

[25]For the sake of simplicity, tax rebates on exports have not been allowed for in the z calculations. As we observe later, the subsidy equivalent of these rebates is small relative to the tariff. We have found (but it is unnecessary to present the results here), that their inclusion does not materially affect any of the above conclusions, although it would tend naturally to raise somewhat the value of z_*.

of 1964 input-output data. Multiplying this ratio by the tax rate (0·5), we obtain the required nominal incentive equivalent. The *effective* rate of export incentive is then calculated by means of the effective tariff formula. A limitation of this procedure is the assumption of equal profit/turnover ratios on exports and domestic sales. Export orders are often much larger than domestic orders which tends to permit a lower profit ratio on export turnover. The profit data are also subject to obvious limitations. However, our estimates should succeed in indicating the correct order of magnitude of the effective incentive.[26]

Nominal rates of export incentive are invariably low, usually less than 5 per cent. This figure is slightly exceeded in industries such as beverages, tobacco, clay/cement and petroleum/rubber where profit ratios on turnover are above average. Effective rates of export incentive (see Table 2, column 6) exceed the nominal rates, suggesting that the disadvantages of higher input prices are fully offset by the tax relief scheme. The effective rates are still quite low, however, both in absolute terms and relative to the effective tariff.

We are now in a position to calculate the *bias against exports* coefficient and the results are given in Table 2, column 7. Because of the special scheme of incentives to industrial exports and the concessions on dutiable inputs, the bias against exports inherent in the Irish protective structure is significantly lower than the effective tariff rates.[27] However the absolute magnitude of the bias still remains extremely high. It exceeds 100 per cent in 15 industries and 50 per cent in 24 industries. The export bias is negative only for the bed/kitchen linen, beverages and other machinery industries.

These results have an important bearing on the failure of Irish firms to develop export markets. On the one hand, it is true that a secure home market serves as a useful base from which to expand into the more risky and volatile international market. Against this, however, given the system of protection, the cultivation and expansion of home market sales tended to provide more profitable opportunities than the export market, even if higher costs due to shorter production runs and excessive variety of output were incurred and despite the financial inducements of the export incentive schemes. Furthermore, it is clear that only by reducing tariffs or raising export incentives can the bias against exports be reduced.

On the basis of the above analysis, we would expect to find low export/production ratios in many Irish industries. These expectations are to a certain extent confirmed by reference to the 38 industries listed in Table 2. The export/production ratio for 10 industries fell below 15 per cent and the ratio was less than 25 per cent for 25 industries. Of course, the bias against exports

[26]Although IDA capital grants to new firms could be construed as an implicit export incentive, they would not affect the allocation of already established firms' output as between exports and domestic sales to a comparable degree.

[27]In many countries the government is less sensitive to the needs of exporters. The latter often have to purchase their inputs at protected prices, thus creating a bias against exports which is greater than the effective tariff rate.

is not the only possible explanation of this phenomenon. First, transport costs could explain the low export ratios observed in aerated mineral waters, sawn lumber and concrete products. Secondly, UK import restrictions have doubtless adversely affected clothing and textile exports and the Common External Tariff acts as a serious disincentive to Irish manufacturers attempting to gain a foothold in the European market. Finally, it is sometimes asserted that products manufactured in Ireland under a licence arrangement with foreign firms are intended exclusively for the home market with no legal provision being made for expansion into foreign markets. However, the bias against exports indicates that there was little incentive for licensees to place pressure on foreign parent companies to authorise exports.

While many Irish manufacturing activities have low export ratios and hence fit easily into the above theoretical framework, the behaviour of many other industries is less easy to explain. As already noted, some highly protected industries have extremely high export ratios. Four of the 38 industries in Table 2 have export ratios exceeding 40 per cent and 12 industries have export ratios greater than 25 per cent of their output. This phenomenon deserves special attention in any study of the role of protection in the Irish context.

Coexistence of Exports and Protection

Four reasons can be adduced to explain the coexistence of high export ratios and protection in Irish industry: (*a*) exports originate in a select number of firms in each industry; (*b*) the type of product exported differs from the type of product produced for domestic consumption even though they may be included under the same tariff heading and product group; (*c*) exports are sold at marginal variable cost by firms which recoup fixed costs through sales on the protected home market; and (*d*) certain exports can be attributed to a temporary competitive advantage created by the UK tariff as a result of which Irish producers have access to raw materials at cheaper prices than their UK competitors. Each of these factors will be discussed briefly in turn.

(*a*) Export Firms

To qualify for an IDA grant, prospective enterprises usually have to be export oriented and must not sell products on the home market which are directly competitive with those of already existing Irish manufacturers. As a result, a substantial number of new firms were established during the 'sixties which typically exported about three-quarters of their total output. The striking contribution of these enterprises to export growth is reflected by the fact that roughly 60 per cent of the increase in manufactured goods exports between 1960 and 1966 was supplied by new enterprises, which accounted

for only 26 per cent of the increase in the output of transportable goods industries during the same period.[28]

More detailed information on grant-aided projects is provided in Table 4. As this table shows, these firms are concentrated heavily in the food, metals and engineering, textiles and chemical industries. Their export-production ratios exceed those of all other establishments in each industry group and the *average* export ratio (75 per cent) of grant-aided projects is four times larger than the corresponding average (18 per cent) for all other establishments. Furthermore, the share of grant-aided firms in the total exports of each industry group, while never less than significant, in some cases completely overshadows the share of other establishments. Thus, grant-aided exports are 100 per cent of total exports in wood and furniture, 74 per cent in chemicals and 63 per cent in metals and engineering.

TABLE 4: *Gross Output, Exports and Export/Production Ratios of Grant-Aided Establishments and of All Other Establishments, Classified by Industrial Group, in 1966.*

Industry Group	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Grant-Aided Establishments			All Other Establishments			Grant-Aided Exports as percentage of Total Exports
	Gross Output (£m.)	Exports (£m.)	Ratio (2)÷(1)	Gross Output (£m.)	Exports (£m.)	Ratio (5)÷(4)	
1. Food	10·9	7·5	68·8	235·7	72·1	30·6	9·4
2. Drink and Tobacco	—	—	—	81·4	8·7	10·7	—
3. Textiles	5·7	3·1	54·4	55·0	8·6	15·6	26·5
4. Clothing and Footwear	3·1	2·7	87·1	33·3	5·6	16·8	32·5
5. Wood and Furniture	2·6	1·7	65·4	13·4	—	—	100·0
6. Paper and Printing	1·7	1·4	82·3	33·7	3·1	9·2	31·1
7. Chemicals	5·1	4·9	96·1	31·4	1·7	5·4	74·2
8. Structural Clay and Cement	2·3	2·0	87·0	20·2	3·0	14·9	40·0
9. Metals and Engineering	12·7	9·9	78·0	100·3	5·7	5·7	63·4
10. Other manufacturing	5·1	3·5	68·6	45·0	8·4	18·7	29·4
11. Mining and Turf	0·3	0·3	100·0	18·5	4·7	25·4	6·0
Total Transportable Goods	49·5	37·1	75·0	663·9	121·5	18·3	23·4

Sources: Survey of Granted-Aided Industry [30], Table 2. 13, p. 45, and computed from *Review of 1969 and Outlook for* 1970,, Table (1).

Evidence provided by the CIO reports and the recently published surveys of the *Committee on Industrial Progress* suggests that Irish exports tend to emanate from a small number of firms exporting a major proportion of their output. Thus the 1970 *Report on Women's Outerwear* [10] shows that thirteen firms

[28]These figures are derived from Table 3 of the *Survey of Grant-Aided Industries* [30]. Adjustments have been made for exports from Shannon and revised 1966 figures are employed in place of the Survey's estimates. The Survey's figures in fact exaggerate the contribution of grant-aided projects to total export growth.

exporting 80–100 per cent of their output accounted for 62 per cent of the industry's total exports. A survey of the Metal Trades Industry [10] shows that 7 out of 64 firms contributed 70 per cent of the industry's exports in 1968. According to the *Report on Fruit and Vegetable Processing* [10], most firms in that industry export no more than 5 per cent of their total sales, with only one firm, Erin Foods Ltd., accounting for the bulk of processed food exports. From a recent *Report on the Plastics Industry* [19] we find that 26 firms export 90 per cent or more of their output (many of which were established after 1960). These account for a quarter of the industry's output and 67 per cent of total exports. Against this, 65 firms export less than 10 per cent of their sales. A study of the Hosiery and Knitting industry [10] shows that the top eleven exporters account for nearly 70 per cent of the industry's exports.

It is unnecessary to adduce further examples. That the exports of most industries can be traced to a quite limited number of enterprises which tend typically to concentrate almost exclusively on the export market appears as one of the most striking features of modern Irish industry. These export firms appear to consist primarily, but not exclusively, of IDA-sponsored enterprises, the majority of which are under foreign control.[29] Coexisting with these firms are traditional firms whose exports tend typically to constitute a marginal proportion of their total output. The evidence, therefore, points strongly to a *dualistic structure* of Irish industry, this dualism being based not on *inter*-industry differences but on the distinction at an *intra*-industry level between export oriented and home market oriented firms.

(b) Export Products

In certain instances, an industry's exports consist of a narrow range of products which can unambiguously be called export goods, while the remainder of the industry's output is sold on the domestic market. Thus, exports of the tanning industry consist primarily of upper leather (almost three-quarters of domestic output of this product is sold abroad) whereas heavy leather is clearly an import-competing product. Similarly, exports of the wood products industry consist of an exceedingly narrow range of products (relative to the total number of products of the industry), the most important of which is bowling alley equipment virtually all of whose production is exported. "Cement" exports often consist of clinker, a by-product of cement as normally defined. Cables/transformers whose export ratio is 41 per cent may serve as a final example. Here we find that bare cables are exported, whereas insulated cables are not: again almost every meter produced in the country in 1964 was exported but virtually no transformers. But the distinction between an export-product and other products is often very fine. Even at a four-digit SITC level of disaggregation, one often finds the two types of products included under the same heading.

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[29]According to the *Survey* [30], roughly 75 per cent of IDA projects are under foreign control.

Thus, the role of protection emerges as that of protecting not particular industries, but rather certain firms and establishments within each industry; not each and every product of an industry but only a specific range of products. Of course the export-product tends frequently to be manufactured solely by the export-firm. Nuts and bolts produced for export, for example, differ quite radically from those produced for domestic use, and are manufactured by different enterprises.[30]

(c) Marginal Cost Pricing

The analysis so far suggests that protection and exports are quite independent of one another. Firms exporting the major share of their output are naturally indifferent to the degree of protection afforded on the domestic market. Their output is protected for purely accidental reasons. Protection is anything but irrelevant, however, to the domestic market oriented firms. It is thus quite conceivable and in no way inconsistent for an industry to have a high export ratio and simultaneously to require substantial protection.

But exports and protection cannot be viewed as separate and nonrelated phenomena in all cases. For example, protection plays an important part in maintaining the financial stability of firms which export a certain percentage of their sales at prices equal to marginal variable cost and then recoup fixed costs by charging higher prices on the protected domestic market.[31] Price discrimination of this type implies the presence of monopolistic influences in the domestic market, a not unreasonable implication in the Irish context. The important feature of this situation is that as protection in the home market is eroded, the basis for continuing these exports is undermined. Consequently, the fact that a firm happens to export does not *ipso facto* guarantee its survival in conditions of free trade. Although there is no way of assessing the precise importance of marginal pricing in explaining Irish exports, it is doubtless significant for many Irish firms.

(d) Special Circumstances

As already noted, Irish exporters are permitted duty-free access to all material inputs embodied in their sales abroad, a concession which provides them with considerable cost advantages over their UK competitors. In the case of textiles, the competitive edge thereby obtained by Irish manufacturers is sufficiently important to warrant a special limitation of these exports being agreed upon by the two countries under the terms of the Cotton Textiles

[30]Almost all our exports of this product are produced by *SPS International* an export based US subsidiary and consist of products suitable for precision equipment.

[31]The *Report on the Fruit and Vegetable Processing Industry* stresses this point [10, p. 41]. We may add that monopolistic price discrimination is not the only reason why domestic prices are higher than export prices—for example, material inputs are duty-free if used for export etc.

Agreement (1966). The advantage conferred on the Irish manufacturer by UK protection cannot, however, be expected to last. As UK tariffs are reduced, material input prices will be brought into line with the Irish exporters' level. Cotton textiles, shirts, and certain types of paper product exports, however, are the only commodities substantially affected by this distortion.

The foregoing analysis of the relationship between protection and exports throws light on two important questions. The first relates to the role of protection in industries where a significant proportion of output is exported. If most Irish industries are efficient enough to export, one might be tempted to conclude that the Irish tariff is completely redundant. This, as we have seen, is certainly not the case. Secondly, it might be asked why so many Irish firms have not branched out before now into export markets and availed of the economies of scale which an extension of output would have created? The high *bias against exports* coefficient illustrates clearly the point that, by raising the return per unit of value added on domestic market sales, protection tended to deflect attention away from export markets. In other words, the relative inactivity of traditional firms in export markets despite the existence of export incentive schemes can to a large extent be rationalised in terms of the simple dictates of profit maximisation. The same dictates explain why firms with a certain degree of monopolistic control of the home market had an incentive to export a small proportion of their output at marginal cost price.

4. PROTECTION AND THE EQUILIBRIUM EXCHANGE RATE

Hitherto only *gross* nominal and effective protection rates have been calculated. In order to obtain *net* rates, we must first estimate the degree of overvaluation (if any) of the *cum*-protection exchange rate. This proves a rather difficult task in the Irish context. First, there are no reliable export demand elasticities for Irish manufactured goods exports. Secondly, and more important, the extent or existence of overvaluation happens to depend on the assumptions made about market prospects for agricultural exports, which in turn are more contingent on intergovernmental trading arrangements than on the free play of market forces. Our estimates are consequently subject to a large margin of error and must be treated with reserve. Furthermore, no attempt is made to analyse possible changes in capital movements as a result of free trade. It must also be emphasised that there really is no such thing as *the* equilibrium exchange rate. Rather there are many such rates, each one corresponding to a different set of domestic and foreign economic and trade policies. But corresponding to any one such set of policies, the equilibrium exchange rate is defined as that exchange rate which ensures balance of payments equilibrium.

Methodology

We assume initially that the balance of trade is in equilibrium in the sense that exports plus net long-term capital inflow equals imports. Assume furthermore that trade liberalisation has no effect on capital flows. The first task then is to estimate the increase in imports and reduction in exports caused by the elimination of protective measures. The second step is to indicate the amount of devaluation required to bring the balance of trade back into equilibrium. This provides us with a free trade equilibrium exchange rate from which *net* tariffs can be computed. Since the formulae employed are discussed in detail elsewhere [14], they can be described briefly here.

To compute the increase in imports we use:

$$\Delta M = M \cdot t/(1+t) \cdot \eta_m \quad \ldots \quad (1)$$

where the change in imports (ΔM) is a function of the level of imports (M), the height of the tariff (t), and the price elasticity of import demand (η_m). The implicit assumption of an infinitely elastic supply of imports is acceptable in Irish circumstances. Furthermore, since almost all Irish imports are non-agricultural, the elasticity approach can be applied to total imports.

A similar formula is employed in the export calculations:

$$\Delta X = X \cdot s/(1+s) \cdot \epsilon \quad \ldots \quad (2)$$

The change in exports is viewed as a function of the level of exports (X), the rate of export subsidy (s) and the supply elasticity of foreign exchange (ϵ). If we assume constant costs in export activities, it is possible to establish that the foreign exchange elasticity equals one plus the foreign price elasticity of demand for exports. Thus, a (minus) unit demand elasticity for exports would imply a foreign exchange supply elasticity of zero.

The percentage devaluation $\dfrac{R'}{R}$ required to correct the balance of trade deficit ($\Delta M - \Delta X$) is given by (3):

$$\Delta M - \Delta X = \left(\frac{R'}{R} - 1 \right) \left(\epsilon \cdot X - \eta_m \cdot M \right) \quad \ldots \quad (3)$$

The evident affinity between (3) and the two preceeding formulae reflects the fact that a devaluation is equivalent to the simultaneous imposition of a tariff on imports and subsidy on exports equal, in percentage terms, to the amount of the devaluation.

Once the equilibrium exchange rate (R') is obtained, *net* nominal and effective tariffs (t' and z' respectively) are obtained from (4) and (5):

$$\frac{R'}{R} = \frac{1+t}{1+t'} \quad \ldots \quad (4)$$

$$\frac{R'}{R} = \frac{1+z}{1+z'} \quad \ldots \quad (5)$$

This shows that if the existing exchange rate (R) is devalued (R′>R), the *net* effective tariff will be smaller than the *gross* effective tariff. The effect of overvaluation, it will be recalled, is to keep import prices (valued in domestic currency) lower than they would otherwise be, which reduces the amount of protection the manufacturer receives on his final product (although naturally it also keeps prices of imported material inputs below their equilibrium level).

Turning from the formulae themselves to the information needed to apply them, the requisite data are readily available for imports. Estimates of import demand elasticities are taken from McAleese [18]. The average nominal tariff on the three import categories, producer's capital goods, materials for further production and consumer goods, can then be employed in conjunction with these price elasticities to yield an estimate of the increase in imports as a result of free trade. Two estimates are provided—one based on upper bound elasticities, the other based on lower bound elasticities.

It has proven much more difficult to obtain export elasticities. Consider, first, industrial exports alone. No price series for these exports exist and an attempt by Baker [2] to substitute unit labour costs as a proxy for price led to inconclusive results. In the absence of direct estimates, therefore, it seems best to consider the price sensitivity of import demand in our major export markets. Balassa's [4] estimates indicate high price elasticities for imports of finished manufactures in the UK, EEC and EFTA markets (2·7, 3·1 and 2·3 respectively). Since elasticities of substitution are higher than demand elasticities, we have decided to take 3 as a lower bound estimate of the price elasticity of demand for Irish exports. As an upper bound, an elasticity of 6 has been chosen. The choice of elasticity values is necessarily rather arbitrary. Hence, the gap between the upper and lower bound is made deliberately wide.

Owing to the pervasiveness of quotas in international trade on agricultural produce, it would be impossible, even if the relevant elasticities were known, to apply the elasticity approach to this section of Irish exports. Hence for the sake of simplicity we make the extreme but not altogether unrealistic assumptions of zero foreign demand elasticities for Irish agricultural exports and zero domestic demand elasticity for imports of agricultural produce into Ireland. This in effect implies that neither agricultural exports or imports will display any sensitivity to changes in price.[32]

The Context of Free Trade

Our aim is to measure the extent of overvaluation of the currency in the protected situation as compared with the "free trade" situation. The latter situation is far from being unambiguous. It could mean free trade on a unilateral basis or free trade simultaneously established in all countries.

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[32]This assumption is certainly consistent with O'Connor's [24] remarkable finding that receipts on marginal dairy exports to non-UK markets amounted to only £0·25 per £1·00 government subsidy. A further implication of this assumption is that the Irish Government continues to protect agriculture.

Alternatively, free trade could refer to trade in industrial products only or trade in all commodities, agricultural and industrial. Estimates of the overvaluation of the currency depend greatly on the particular definition of free trade chosen. Two cases only are considered here. First, we estimate the extent of overvaluation in 1966 on the assumption of a unilateral move to free trade by the Irish government. In the second situation, the elimination of Irish protective measures is accompanied by reciprocal concessions on the part of the UK and the EEC.

Case 1:

Using (1), we estimate a £30m—£60m increase in imports, for the most part consisting of increased consumer goods imports (these and subsequent figures are in 1966 prices).[33] The removal of export incentives would on the other hand reduce industrial exports by £9m—£18m, depending on the assumed value of the export demand elasticity (3 or 6). We assume no change in agricultural exports and imports (i.e. zero foreign demand elasticity and zero domestic supply elasticity) for reasons already explained. The trade deficit to be eliminated by devaluation is then estimated to lie within the range £39m to £78m.

Before applying the devaluation formula (4), the import and export elasticities must be adjusted to take account of the repercussions of devaluation on domestic costs and through them on the prices quoted by Irish producers. Black, Simpson and Slattery [7] find that every 10 per cent increase in material input prices in Irish manufacturing industry leads to a 5¼ per cent rise in output prices. Naturally, a 10 per cent devaluation would not raise *all* input prices by this percentage, only those which are imported, but the secondary effects of devaluation (through increased costs of services, capital equipment and labour costs etc.) may well be sufficiently large to justify the use of these authors' simple formula. Thus we assume that the price quoted by Irish manufacturers will rise by half the amount of the devaluation, an assumption which is incorporated into (3) by reducing the price elasticities by half.

Armed with these assumptions and bearing in mind the considerable error possibilities of calculations such as these, we find from formula (3), that a 19 per cent devaluation would be required to restore balance of trade equilibrium.[34]

Case 11:

In this situation, the Common External Tariff and UK duties on Irish exports would be eliminated simultaneously with Irish protective measures.

[33]To derive this figure we need price elasticities and average nominal tariffs on each category of imports. Details regarding the derivation of average nominal tariffs are relegated to the Appendix, and the tariffs themselves are presented in Table A2.

[34]Two estimates are calculated—one with lower bound elasticities and a £39m. deficit, the other with upper bound elasticities and a £78m. deficit. The required devaluation is the same in each case.

While this will not affect out import estimates, the expanded market opportunities for Irish industrial and agricultural exports must be explicitly allowed for.

With 1966 as the benchmark year, we first consider the expected expansion in Irish industrial exports attributable to the removal of all UK protection on Irish goods. Only a limited range of Irish industrial exports were dutiable, mostly textiles and clothing containing silk or man-made fibres. To estimate the amount of Irish exports falling within the dutiable category, downward adjustments were made, on the basis of official estimates, to Irish exports to the UK under each SITC heading of Table A3. A figure of £5m for total dutiable exports to the UK was thus obtained. Applying export elasticities of 3 and 6, we find that industrial exports to the UK could be expected to rise by £4m— £8m on the basis of the lower and upper bound elasticity estimates respectively.

Next we consider the implications of membership of the EEC for our industrial and agricultural exports.[35] Taking industrial exports first, the 1968 common external tariff is converted from the Brussels nomenclature to a four-digit SITC classification.[36] Irish exports to the EEC under each SITC heading are listed and, applying the same techniques as before, we estimate an increase in exports of between £4m and £7m. The highly conjectural nature of this estimate must be emphasised. It ignores the effects of EEC membership on foreign investment and assumes that if Ireland's exports to the EEC under a particular SITC heading were zero prior to the elimination of the tariff, they will remain at zero after its removal.

As has already been explained, EEC agricultural prices are substantially above the Irish domestic price. At present levels of production and EEC prices, the value of cattle and beef exports would increase by £50m. and dairy products by another £40m.[37] Of course, these figures are expressed in 1969 prices and the EEC industrial export figures are in 1968 prices. It is clear, however, after performing the necessary adjustments that the Irish pound will not be overvalued in the context of EEC membership. The increased value of agricultural exports will quite adequately compensate for any net worsening of the balance of trade in industrial goods.[38] The conclusion would hold even if, as is possible, real agricultural prices in an enlarged Common Market are somewhat lower than the 1969 level.[39]

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[35] We assume the UK also joins the EEC so our position in the British market is not prejudiced by this move.

[36] Owing to the inordinate size of the table containing this information, it is not included here but is available from the author on request.

[37] Figures taken from *The Irish Farmer in The European Community*, (The Irish Council for the European Movement). They do not take Ireland's contribution to the CAP into account.

[38] Expressed in 1969 prices, the increase in imports becomes £34m.—£68m., the rise in UK exports £5m.—£10m. and in EEC exports £3·9m.—£7·8m. The deficit is comfortably covered by the gains in agricultural exports.

[39] This conclusion would be further strengthened by including the value of the agricultural concessions to Irish exports under AIFTA. The value of these concessions amounts to roughly £4m. On the other hand, no account is taken here of the potential adverse effects of loss of our preferential position in the UK market.

Finally, it must be emphasised that this is not at all intended as a definitive treatment of the "static" effects of trade liberalisation within or without the EEC. A number of problems have been deliberately skirted in the interests of brevity. The chief aim of the present section, it will be recalled, is to arrive at an approximate assessment of the extent of overvaluation in order to enable nominal and effective tariffs to be adjusted accordingly. The analysis of this section has adhered to strictly mechanistic formulae which serve quite adequately the purposes in hand. But a full scale study of the effects of trade liberalisation requires a paper in itself and the present examination of the protective structure is designed primarily as a complement to rather than a substitute for such a paper.

International Tariff Comparisons

We conclude that the extent of *cum*-protection overvaluation of the currency lies somewhere between zero and 19 per cent depending on the assumptions made about agricultural exports. We may suppose therefore that the true *net* nominal and effective tariffs lie within the range of the values in Table 2 and the set obtained by assuming a 19 per cent devaluation and applying formulae (4) and (5) above. In comparing Irish tariffs with those elsewhere and, later, in our discussion of the costs of protection, we avail of both sets of estimates. The adjusted nominal and effective tariffs are henceforward referred to as t_n and z_n respectively.

TABLE 5: *Average of Nominal and Effective Tariffs for Four Commodity Categories: Ireland (1966) and Other Countries (1962)*

Industry Group	Ireland				United Kingdom		Common Market		Sweden		Japan	
	t	t_n	z	z_n	t	z	t	z	t	z	t	z
1. Intermediate Products I	20·5	1·0	133·0	95·8	11·1	23·1	7·6	12·0	3·0	5·3	11·4	23·8
2. Intermediate Products II	30·0	9·2	97·3	65·8	17·2	34·3	13·3	28·3	8·5	20·8	16·6	34·5
3. Consumer Goods	33·8	12·4	99·0	67·2	23·8	40·4	17·8	30·9	12·4	23·9	27·5	50·5
4. Investment Goods	5·7	—7·8	19·3	2·0	17·0	23·0	11·7	15·0	8·5	12·1	17·1	22·0
5. All Commodities	25·0	5·0	79·1	50·4	15·5	27·8	11·9	18·6	6·8	12·5	16·2	29·5

Sources: Irish figures computed; otherwise figures obtained from Balassa [4, p. 56].

Notes: Groups I and II as defined in Table 3: consumer goods comprises consumer durables plus nondurables, but excludes food products. Irish average for manufacturing in Table 3 is adjusted so as to ensure comparability with the figures of other countries.
t = nominal tariff: z = effective tariff.
Subscript n refers to tariffs estimated on basis of 19 per cent overvaluation.

In Table 5, Irish *net* tariffs obtained under the two alternative assumptions about overvaluation are classified under four main product headings.

As we would expect, t_n and z_n are invariably lower than t and z. Furthermore, the proportionate decline in t_n relative to t is much higher than the decline in z_n relative to z. This reflects the fact that a 19 per cent overvaluation, while diminishing the amount of nominal protection on final output, reduces the effective tariff by much less owing to the lower prices (in terms of domestic currency) of MFP and PCG imports at the overvalued exchange rate.

Although international tariff comparisons must be treated with some reserve, the level of Irish effective tariffs (z or z_n) in the mid-sixties was remarkably high relative to that prevailing in the advanced countries of Europe. Ireland's average effective protection on manufactured goods is in the 50–79 per cent range compared with 28 per cent in the UK, 19 per cent in the EEC and 29 per cent in Japan. Between 1966 and 1971, the Irish tariff has fallen by roughly 50 per cent,[40] whereas as a result of the Kennedy Round of tariff reductions those of our major trading partners have fallen by almost 35 per cent in the same period. Thus the differential has narrowed considerably over the past few years. At the current exchange rate parity, Ireland's average nominal tariff has now fallen to 12·5 per cent compared with expected (1972) average nominal tariffs of 10·8, 8·6 and 10·7 per cent for the UK, the EEC and Japan respectively, after the Kennedy Round is completed. However, the data in Table 5 underline the special importance of the distinction between nominal and effective protection in the Irish economy. Thus, whereas effective rates are roughly twice the nominal tariff in other countries, they are a much larger multiple of nominal tariffs in Ireland. As a result, the present Irish effective tariff rate is still more than twice that of the UK and the EEC.[41]

5. THE COST OF PROTECTION

Analysing the Cost of Protection

The effective rate of protection indicates the extent of the gap between domestic value added per unit of output and value added per unit of output as it would be under free trade conditions.[42] Part of this gap may be explained by higher production costs. Another part may be attributed to excess returns to labour or capital. A further portion of the difference between domestic and free trade value added may merely reflect unutilised protection. It is obviously important to examine the constitutent parts of the disparity in the two value added figures in some detail. This we now propose to do, as a prelude to our quantitative estimate of the cost of protection.

[40]Irish 1966 figures include the first 10 per cent reduction under the AIFTA agreement. Ireland's tariff reductions were undertaken only *vis-a-vis* the UK whereas the Kennedy Round reductions were extended to all GATT countries in accordance with most favoured nation clause. Consequently, the fall in protectiveness in Ireland tends to be overestimated relative to that of the advanced countries.

[41]Tariff data for countries other than Ireland were obtained from Baldwin, *Non-tariff Distortions of International Trade* [7].

[42]In other words, the effective tariff attempts to measure the *resource-pull*, created by the protective structure, into a particular industry.

The higher production costs observed in protected industries may be attributed to three independent causes: (a) losses due to failure to exploit economies of scale, (b) X-efficiency losses and (c) static comparative advantage losses.

Economies of scale depend on the size of the market. By artificially raising the rate of return on domestic market sales, protection has led to the establishment and maintenance of firms which cater primarily for the home market. To what extent has the small size of the domestic market resulted in higher unit costs for these firms?

No attempt to provide a specific answer to this question can be made here. However, it is worthwhile pointing out that Ireland's high rates of protection have not generally attracted industries whose optimum plant size is much above that required to serve the domestic market. The road vehicles industry is, of course, an outstanding exception: the optimum plant size in this industry has been estimated to exceed 300,000 vehicles per annum, a rate of output which far exceeds the current annual sales of all Irish assembly plants combined.[43] Such cases, however, are rare. In fact, a surprising and often neglected feature of modern industry is the relatively small size of the optimum plant. This is compatible with Linehan's finding that the average Irish plant size in nine out of ten industry groups actually exceeded that of Belgium or Norway, both of which adhere to relatively free trade policies.[44]

Losses due to failure to exploit economies of scale, therefore, pertain more to the conduct of operations within a given plant than to the absolute size of the plant. In particular, the typical Irish firm tends to produce a broader range of goods than a fully efficient firm should. In the confectionery industry, for example, it was reported that some firms were producing up to 75 different products. The two largest firms in the electrical equipment industry manufactured 22 main lines running into 600 varieties.[45] These figures are not conclusive but give an impression of the extent of the problem. In fact, the CIO synthesis report notes that only two industries, leather and fertilisers, of the total number reviewed appeared *not* to have incurred higher unit costs due to undue diversification of output.[46]

In modern economic jargon, therefore, one could say that economies of scale losses due to protection in this country relate to "horizontal" rather than

[43]See Wonnacott and Wonnacott [31], Chapter 13.

[44]Linehan [17], Table A10. Linehan's study refers only to establishments employing 10 or more persons. Industry size is calculated according to numbers employed. Average number of persons employed per establishment (plant) for Ireland (1958), Belgium (1947) and Norway (1960) respectively are as follows: metals and engineering 88, 77, 76; chemicals etc. 49, 88, 88; textiles 113, 81, 77; drink and tobacco 99, 51, 87; other manufacturing 61, 48, 42; paper and printing 81, 51, 64; clay products 79, 72, 51; clothing and footwear 63, 34, 43; food 50, 41, 33; wood and furniture 35, 25, 24. Average for all manufacturing: 70, 61, 54. In his study of concentration in Canadian manufacturing industries, Rosenbluth [27] shows that average firm size in Canada and the United States are similar. The greater economies of scale in the United States are thus associated with greater concentration of production within the firm. (That is, the individual Canadian firm tends to produce a broader range of goods than does an individual US firm.)

[45]Data derived from relevant CIO Reports [9].

[46]The two exceptions are easily explained. The leather industry achieves scale economies by exporting 63 per cent of its annual output, whereas traditional economies of scale rather than hozizontal economies are relevant to the fertiliser industry.

"traditional" economies, the former referring to the reductions in unit cost obtainable by curtailing the range of products produced in a plant of given size, the latter to reductions in unit cost obtainable through the construction of larger plants to produce a single commodity. Further losses may also be incurred by failure to exploit purchasing and marketing economies. The recent spate of mergers in Irish industry and the initiation of joint inter-firm marketing ventures in the confectionery and furniture industries indicate that attempts are now being made to capture these economies which had hitherto been neglected.

The second cause of higher production costs under protection consists of *X-efficiency losses*. The neo-classical theory of the firm rests on the assumption of cost minimization i.e. given a choice of various inputs, each firm chooses that combination which minimises the total cost of production of any specific output. In practice, the aim of cost minimisation is not always realised. Invariably some firms utilise their resources much better than others—as any management consultant will testify. Leibenstein [15] in 1966 coined the term "X-efficiency" to describe the difference between actual observed unit costs and minimum potential unit costs. A firm's X-efficiency is low when the gap between its unit costs and minimum unit costs for a plant the same size is large. A low degree of X-efficiency reflects "organisational slack" and lack of motivation. Monopolistic industries and industries sheltered from foreign competition are, in Leibenstein's view, especially likely to exhibit a low degree of X-efficiency.

The relevance of this concept to the Irish context is obvious—the protected Irish manufacturer faces a captive market whose small size encourages the formation of formal or informal monopolistic arrangements. (Protection, it may be noted, may also create X-efficiency losses by permitting technological "lags" between the Irish manufacturer and his foreign counterpart.) References to poor quality management and use of antiquated production techniques are to be found in almost every CIO report. Although difficult to assess in quantitative terms, it is likely that X-efficiency losses are pervasive in Irish industry and constitute a significant proportion of the total cost of protection.[47]

Static comparative advantage losses are the standard textbook losses of protection Assuming full employment, perfect competition, absence of scale economies etc., protection in this model attracts resources from efficient export industries to less efficient import-competing activities. Perfect managerial and technical competence are assumed which means that inefficiency arises exclusively from locational and factor-price disadvantages. Thus, industries with the highest effective tariffs would by implication be those with the greatest comparative disadvantage and hence with the poorest chances of survival under free trade conditions.

[47]Dr O'Dwyer on the basis of an extensive study of the Irish dairying industry, advances a similar point of view [25] p. 10.

Given the restrictive nature of the above assumptions, it is clear that one cannot reach strong conclusions about comparative advantage on the basis of effective tariff estimates alone. In the first place, the majority of Irish industries, irrespective of their degree of protection, contain export firms whose output is similar to that of non-exporting firms. Hence, it would appear that no *inherent* comparative disadvantage exists. Secondly, one cannot, as we have seen, assume perfect managerial and technical competence in protected firms since protection itself lessens the need for such competence. What is needed is an appraisal of the capability of each industry to adapt and adjust to free trade conditions, a capability which in turn hinges on the quality of management.[48] But these considerations have little relevance to static comparative advantage losses. The relative unimportance of these losses, incidentally, is well established by empirical research in other countries. Hence while undoubtedly some activities have been established under protection which are inherently unsuited to the Irish economy, they appear to be quite small in number (the CIO reports mention only road vehicles and cotton yarns) and are not necessarily to be found at the top of the effective tariff list.

The discussion so far has concentrated on the higher production costs in Irish industry caused by failure to exploit economies of scale, low levels of X-efficiency and static allocative inefficiency. Part of the gap between domestic and free trade value added may also be absorbed by "excess" or monopoly returns to factors of production engaged in the protected industries. The disappearance of these returns with the advent of free trade involves a redistribution of income not an increase in income. Monopolistic situations, of course, also result in a loss of consumer's surplus and to the extent that protection prevents the establishment of competitive conditions in the domestic market, this loss ought to be added to the total cost of protection.

The most commonly used method of measuring the degree of monopoly in an economy is by means of concentration ratios. A study by O'Malley [26] in 1965 shows that the concentration of Irish industry is high. In 15 out of 47 industries, the top four establishments account for over 67 per cent of the industry's output.[49] Since firm size and plant size are not coterminous, O'Malley notes that this figure tends to underestimate the extent of firm concentration.

[48]In Balassa and Schydlowsky's words, viability has to do with dynamic rather than static comparative advantage, the former being considerably more difficult to assess than the latter:
"the appraisal of dynamic comparative advantage would require making adjustments for reductions in cost due to factors such as the exploitation of internal and external economies and learning by doing. Needless to say it is difficult to carry out such adjustments in practice, in part because information on potential improvements is limited and in part because actual improvements often fall short of potential ones by a margin difficult to estimate." [6, p. 356].

[49]The following were included in the list of highly concentrated industries: brewing, cement, glass/pottery, fertilisers, assembly of vehicles, tobacco. The remaining industries are classified differently to ours or alternatively are export-oriented and/or non-protected industries. The following protected industries could be included in the monopolistic group (IO number of industry in parenthesis): biscuits (27), margarine (30), woollen yarn (34), jute goods and ropes matting (37), paper (44), leather (46), vegetable and animal oils (48), iron and steel bars (52), petroleum/rubber (59). Considerable rationalisation of the paper and leather industries has occurred in recent years which explains their inclusion in the list.

Furthermore, some of the CIP industrial groups (e.g. textiles) include a number of distinct industries. Thus monopolistic situations obtaining in the woollen yarn, jam, biscuit, margarine, and processed vegetable oils industries (to give but a few examples) are not captured by O'Malley's measure. Against this, the association between high concentration ratios and monopoly power cannot be assumed without reference to the competitiveness of imports. Hence the brewing and tobacco industries operate in a competitive market despite their high concentration ratios because these industries receive quite a modest degree of protection and their share of the domestic market is subject to foreign competitive pressure. Nevertheless, after making all the necessary qualifications, one can still safely conclude that in many Irish industries, opportunities for formal or informal market collusion are relatively abundant.[50]

The final constituent of the gap between domestic value added and free trade value added as measured by the effective tariff formula is unutilised protection. The problem of the "redundancy" of tariffs has been discussed earlier in this study. To the extent that a redundant element exists, free trade value added and the effective tariff will both be biased. As far as possible we have tried to correct for redundancy but the difficulties are manifold. Direct price comparisons on their own are of limited value without allowances for differences in product quality and quality of ancillary services (e.g. conditions and speed of delivery, credit terms etc.) between the domestic good and its foreign counterpart. There is an unavoidable region of ignorance here which neither the expert knowledge of the CIO survey teams, Nevin's price comparisons or our own research can totally dispel.

Despite this uncertainty over individual detail, a number of observers have surmised that ex-factory Irish manufacturing costs exceed those of the UK by 10 to 15 per cent *on average*.[51] Since the average tariff lies in the 20 to 25 per cent range (see Table 3) this on the surface suggests a significant degree of tariff redundancy. On the other hand, it must be noted that, in some sectors of industry, the tariff shelters the Irish producer from European rather than British competition and hence the appropriate basis of comparison would have been the Irish/European cost differential. Moreover, it is not clear whether excess profits are included in the cost figure. But even if one accepted a 10–15 per cent cost differential as representing the true domestic/foreign price differential, Irish effective tariffs would still be extremely high. This point must be emphasised, since the fact that 10–15 per cent higher total costs may mean an efficiency differential twice or three times this percentage (i.e. when the higher costs are expressed as a percentage of value added rather than total costs), is not always fully appreciated.

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[50]Monopoly power can also be'exercised by labour in order to obtain excess returns. This will occur no matter what commercial policy is followed, of course, but the threat of loss of employment through increased foreign competition acts as a constraint in free trade conditions. This constraint is substantially neutralised under a regime of high effective tariffs.

[51]*The Challenge of Free Trade*, Confederation of Irish Industries (1966), p. 11.

A final point relates to what is often called "irrational" preferences for foreign goods. Although by no means an exclusively Irish phenomenon, the prejudice towards foreign goods merely because they are foreign has often been inveighed against by Irish commentators.[52] Part of this preference stems simply from the desire for variety. Whatever its source, however, it is evident that the tariff protects domestic manufacturers against this "irrational" factor as well as against the consequences of productive inefficiency. Hence "water" in tariffs need not necessarily be devoid of protective significance. On the contrary a high level of protection in these circumstances suggests that a considerable degree of adjustment towards export sales may still be required from domestic producers if they are to maintain output at its *cum-protection* level.[53]

A Quantitative Estimate of the Cost of Production

During the last decade and a half, the costs of protection have been discussed extensively at an empirical and theoretical level. Ryan's [29] estimate of the cost of protection to the Irish economy during the 1930's employs the Brigden method in conjunction with nominal tariff rates.[54] Since then many empirical studies of the cost of protection to European countries, Australia, the United States and certain developing economies have appeared. We complete this discussion of effective tariffs with yet another measurement of the costs of protection—for Ireland this time, for the year 1966, and using effective rather than nominal tariff rates.

The cost of protection has a consumption aspect and a production aspect. The former refers to the loss of consumer's surplus due to import restrictions. The size of the consumption cost is a function of the level of *nominal* tariffs and the price elasticity of demand for importables. On the production side, protection creates losses due to the higher cost of manufacturing importables domestically as opposed to purchasing them from abroad. To compute the production cost of protection, estimates of *effective* tariffs are employed in conjunction with estimates of price elasticity of supply. In this study, we consider only the production cost of protection, since this is the most important cost quantitatively and also the most easily interpreted.

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[52]Perhaps the most distinguished being Jonathan Swift: "It is wonderful to observe the bias among our people in favour of things, persons, and wares of all kinds that come from England. The printer tells his hawkers that he has got an *excellent* new song just brought from *London* . . ." (*A Proposal for the Universal Use of Irish Manufacture, 1720*).

[53]The tentative and nonrigorous nature of this inference is quite obvious. "Irrational" preferences in fact cannot be incorporated into the pure theory of effective protection, since they introduce the question of resource-movement rather than resource-pull. The effective tariff measures the latter, but in general will not succeed in measuring the former.

[54]The Brigden method, evolved in the course of a study of Australian protection in 1929, is basically the same as that described later in this chapter. It is an estimate of the production loss of protection and ignores the consumption side

The cost of protection can now be estimated as the sum of the product of each industry's adjusted effective tariff (z_i) and its free trade value added. Two estimates of free trade value added are used—the first assumes 19 per cent overvaluation and the second zero overvaluation of the current exchange rate. This yields two separate estimates of the cost of protection—£31·3 m. and £37·2 m. Expressed as a percentage of 1964 GNP (the year to which our production data relates), the cost of protection to the Irish economy lies within the range 3·3–3·9 per cent of GNP. This figure can be compared with the Wonnacotts' [31] estimate of 4·5 per cent of GNP as the cost of protection for the Canadian economy in 1966.[55] Taken as a percentage of total industrial net output, the cost of Irish protection is estimated at between 11·1 and 13·2 per cent.[56]

The validity of these figures as estimates of the opportunity cost of protection depends on a number of assumptions. First, we assume that resources can be shifted from import-competing activities to export activities without creating long-run unemployment. Secondly, we assume the absence of external economies, internal price distortions or any other special factor such as vulnerability to temporary or sporadic dumping which might justify the use of tariffs as a means of achieving an optimum allocation of resources. A further assumption is the absence of a terms of trade effect of protection.[57] Finally, our method of calculation implicitly assumes constant costs. If firms operate under decreasing costs (and we have agreed that this is likely to be the case in many industries) than our figures underestimate the costs of protection. Against this, an upward bias arises owing to our inability to separate X-efficiency losses from excess profits or returns to labour, i.e. the loss of monopolistic "rents" represents a redistribution of income which should not be added to X-efficiency losses in the total cost of protection.

Thus, the estimates of the cost of protection are necessarily rough, but they do indicate the order of magnitude of this cost. The figures show clearly that the cost of protection to the Irish economy is by no means negligible, especially when considered in relation to total industrial output. The critical assumption, of course, is the ability of Irish industry to recoup its losses on the domestic market under free trade by changing its product mix and expanding exports. If sufficient flexibility exists, savings of the order of 3–4 per cent of GNP and 11–13 per cent of industrial production can be expected.

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[55]Estimates of a similar order of magnitude were found by Balassa and associates in their study of protection in Norway and Mexico, two economies whose size and degree of industrial development are not widely different from the Irish [5].

[56]The reader will note that "water" in tariffs will involve an overestimation of the degree of devaluation required to restore balance of trade equilibrium. Hence, our lower estimate of the cost of protection based on a 19 per cent overvaluation could be interpreted, if one so desired, as a measure of the cost of protection assuming a 19 per cent "water" content in the average tariff. This would be equivalent to the assumption of a 12·4 per cent price differential between Irish and foreign consumer goods (see table 5).

[57]In technical terms, if the foreign offer curve is less than perfectly elastic, the optimum tariff is positive *not* zero and further reductions in protection would, after this optimum is reached, actually reduce national welfare.

6. SUMMARY AND CONCLUSION

The Height of Effective Tariffs

The best available measure of the amount of protection provided to an industry by a system of import restrictions is the effective tariff rate. This measure takes account of nominal tariffs on final output and material inputs, implicit tariffs on services and nontraded goods and the share of value added in total production. Studies of protection based on nominal tariffs alone can often be misleading. Thus, a low nominal tariff on output can provide a very high rate of effective protection in cases where, for example, the value added share and input tariffs are both low.

Effective tariffs in Ireland are exceedingly high and much higher than one would expect from a consideration of nominal tariffs. More specifically, the average Irish *nominal* tariff on industrial goods in 1966 was 25 per cent compared with the UK's 15 per cent and the Common Market's 12 per cent. The average *effective* tariff, on the other hand, was 79 per cent in Ireland as compared with 28 and 19 per cent for the UK and Common Market respectively. Thus the differential between Ireland's and these countries' nominal tariffs is greatly magnified when converted to effective tariff terms. Since 1966, the Irish tariff has been reduced by roughly 50 per cent (to a nominal tariff average of 12·5 per cent) under the terms of the Anglo-Irish Free Trade Area Agreement (AIFTA), whereas those of the advanced countries will have declined by 35 per cent by 1972 in accordance with the Kennedy Round tariff agreement. Despite the considerable narrowing of the gap between the Irish and the UK and EEC tariff levels in recent years, however, Ireland's effective tariff level still remains more than twice as high as that of our main trading partners.

The height of the Irish effective tariff can be explained by a number of factors. First, many Irish industries, such as woollen yarn, margarine, road vehicles and cables/transformers consist of processing or assembling activities where the value added share in total production is quite small. Hence quite moderate nominal tariffs on their output give very substantial effective protection to these activities. Secondly, nominal tariffs on output are themselves quite high in many industries, exceeding 40 per cent in the cotton cloth, shoes/leather and clothing industries for example. A third factor explaining our high effective protection rates is the substantial share of complementary (and hence usually duty-free) imports in the total material input bill of industries such as paper, ropes/mats, fats/oils, cotton, yarn and plastics. As explained in the text, the lower the nominal tariff on material inputs, the higher the effective tariff corresponding to a given nominal tariff on output and value added share.

Two aspects of our effective tariff structure are particularly noteworthy. First, the variability in the level of protection between industries is large, no

less than nine industries having effective rates over 200 per cent, seven industries with effective tariffs less than 50 per cent and the remaining twenty-two industries enjoying an effective rate of protection in the range 50–200 per cent. The wide dispersion in effective tariffs reflects the rather haphazard manner in which protection was offered to Irish industry, with insufficient regard being paid to the full protective implications of a given rate of nominal protection. On the other hand, nominal tariffs appear to have been escalated in a more rational fashion, with products at higher levels of fabrication (non-durable consumer goods) receiving higher nominal protection than goods at a lower level of fabrication (intermediate goods). There are exceptions to this rule, however. The nominal tariff on certain finished cotton and woollen garments is actually less than the nominal rate of protection on their raw materials. This may well imply that the effective rate of protection on the final stage of manufacture falls below that of earlier stages. Such anomalies give rise to "depyramiding" problems when across-the-board tariff reductions are being made.

A second important aspect of the Irish system of protection is the absence of any direct relationship between the share of value added in total production and the level of effective protection. Thus, it happens that many industries with high value added actually receive less protection than industries with quite low value added shares. For example, glass pottery with a value added share of 49 per cent is protected by a 75 per cent effective tariff, whereas an effective tariff of 181 per cent is provided for the woollen yarn and thread industry whose value added share is only 18 per cent. Under the Irish system, it appears that the firm which merely assembles or packages a particular product tends to receive as much and sometimes more protection as the firm which manufactures the product from its raw material or intermediate stage.

A remarkable feature of Irish industry is the co-existence of high rates of protection and high export/production ratios. On this point, we noted that the conventional distinction between import-competing and export industries, essential to virtually all models of international trade theory, has only limited application in the Irish context. In general, the relevant distinction is between export and import-competing *firms*. Both types of firm are observed in most industries (obvious exceptions being cement and fertilisers). A dualistic structure of Irish industry can be observed whereby highly efficient export-oriented firms produce side-by-side with traditional and usually less efficient import-competing firms. The former will sometimes produce different commodities to the latter (quite heterogeneous products are often included under the same industry heading) or else more sophisticated brands of the same commodity. Export firms do not encroach upon the sales of the traditional firms, partly because they are debarred from doing so under the terms of the IDA grant scheme and to some extent perhaps, because of a reluctance on the part of the more efficient firms to initiate an aggressive sales policy in the home market. A small sheltered market such as Ireland's is congenial to an

attitude of "live and let live" which inhibits active competition. In any event, given the demand for variety on the home market and the prevalence of differentiated rather than standardised products, there is a limit to any increase in sales obtainable by export firms at the expense of the traditional group, while still keeping their product range within reasonable bounds.

Protection, Exports and the Viability of Industry

The dichotomy between import-competing and export firms can be attributed to a large extent to economic policy. First, most IDA grants over the last decade and a half have been awarded only to firms which plan to export the major proportion of their output. Secondly, the system of protection to a certain degree discourages the expansion of exports from firms already catering for the home market. It does this in two ways: (a) by raising the price of non-internationally traded inputs and services to exporters (e.g. packaging costs etc.) relative to the price that would obtain in free trade conditions (duties on traded inputs are, of course, repaid, so there is no disincentive to export arising on this score) and (b) by increasing the profitability of domestic relative to export sales. This is not to deny, of course, that a secure home market base has in some cases been used as a stepping stone to the development of export outlets. Nor, as we show in the main text, do the above arguments preclude the possibility of protection enabling firms to export a small share of their output at marginal cost prices.

A *bias against exports* index was constructed which expresses the excess value added in production for home sales over value added in export production, after allowing for the fact that material inputs for use in exports can be obtained duty-free and export profits are tax-free. For twenty-four out of thirty-eight industries we found the bias against exports exceeds 50 per cent. This is an exceedingly high figure. It helps us to understand why Irish firms typically did not avail of the economies of scale obtainable through cutting back the range of products manufactured for the home market and concentrating on more specialised products for sale in home and export markets.

The analysis of the effects of export-tax relief showed how limited this incentive is relative to a tariff. In general, complete remission of taxes on export profits is "equivalent" to less than a 5 per cent product subsidy on exports and hence offers no greater incentive to exports than would a 5 per cent nominal tariff to import-competing activities.[58] Since the average Irish tariff exceeds 20 per cent, tariff protection has had a much greater influence on resource allocation than export-tax reliefs. Hence for an already established firm, the incentives to export were still weak in 1966 compared to the incentives created by the tariff system to concentrate on domestic market sales.

[58] The "equivalence" is in fact rather tenuous since the export-tax relief benefits only those firms whose profitability is high. The dependence on profits actually earned also means that the significance of tax-relief fluctuates from year-to-year. This uncertainty would tend to undermine further the effectiveness of export-tax relief relative to an outright export subsidy.

It was not feasible in the present study to explore in any depth the relation-ship between the height of individual industry tariffs and the growth of that industry. The orthodox approach in assessing the effectiveness of protection is to provide some measure of the extent of import substitution in the protected industries. Apart from the theoretical difficulties associated with the measure-ment of import substitution, lack of adequate data inhibits research on this subject. In the Irish case, the difficulty of deriving a time series of competitive imports would make any attempt to measure the extent of import substitution an onerous and time-consuming task. A direct comparison between the growth of a limited number of industries included in the 1964 IO table and their (1966) effective tariff was all that could be undertaken.

No clear relationship appears to exist between the height of an industry's effective tariff and growth of output. Ropes/mats, a highly protected industry, has grown rapidly, but at the same time other highly protected industries such as fruit and vegetable processing and confectionery have experienced below-average growth rates of output. Industries with relatively low effective tariffs reveal a similar lack of uniformity as far as the growth of output is concerned.

The lack of correlation between growth rates of production and level of protection is not surprising. First, the elasticity of demand for the output of each industry with respect to GNP has not been allowed for. As GNP grows, demand for some products will grow proportionately and *vice versa* for other products. Secondly, changes in technology lead to the displacement of certain industries in favour of others (e.g. the changeover from copper tubes to plastic tubes, and from natural to synthetic leather etc.). Finally, no account is taken of the growth of export-created industry sponsored by the Industrial Development Authority. These enterprises are included in the same statistical group as the old establishments, but as we have stressed earlier the two types of enterprise have quite distinctive characteristics. Hence one cannot draw any inference as to the influence of protection on growth of protected industries without a more detailed study of the nature of the growth process itself.[59]

The relationship between the degree of protection and the viability of industries was also found to be uncertain. Two factors are responsible for this. First, the coexistence of export firms and traditional firms within many industries suggests the absence of any inherent comparative disadvantage in these activities *per se*. Even if the products exported are sometimes different from those sold on the domestic market, there is no evidence that the optimum plant size and factor requirements of the export firms differs radically from that of traditional firms in the same industry. Secondly, even non-exporting indus-tries with high tariffs cannot be dismissed as nonviable without regard to possible improvements in the quality of management and the workforce (i.e. X-efficiency increases). However, the ability of management to adapt and

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[59] Ideally, we would also need effective tariff estimates for 1953, since the structure may have changed between then and 1966.

reorganise can be determined only by detailed consideration of each industry at an institutional level: it cannot be inferred from the height of the effective tariff. Since the quality of management probably differs as much between firms within the same industry as between industries themselves, one could also argue that the relevant issue is the viability of *firms* rather than the viability of *industries*. Furthermore, if account is taken of economies obtainable by horizontal specialisation it seems as likely that producers would be driven out of the production of *specific lines* as out of production altogether. Thus, after rationalisation, there might be almost as many firms, with each specialising in a restricted range and doing so at low cost levels.[60]

In this regard the motor vehicle industry is the exception which proves the rule. Here we have a multiplant industry whose *combined* output falls below the minimum level required to operate one plant at maximum efficiency.[61] Thus, even complete rationalisation may not be sufficient to guarantee long-run viability unless it were accompanied by the development of an export trade.

There is, therefore, no substitute for an empirical investigation at firm and industry level as a means of discovering the extent to which various economic activities are viable under conditions of free trade. High effective tariffs can be interpreted as warning signals, indicating that individual firms could be earning quite satisfactory profits and yet operating at low levels of efficiency. The crucial difference between Ireland and other countries whose effective tariffs have been estimated is that almost *all* our industries are highly protected by international standards. There are very few of which one could say that free trade will require no change in production and marketing techniques and no threat whatsoever to survival.

Dumping is a recurrent source of concern to Irish manufacturers since Independence. That dumping is practiced on a considerable scale in international trade is a generally accepted belief. It is less easy to convince nations that they themselves are the guilty parties! We have seen how the combination of high effective tariffs and a small domestic market provides an obvious incentive to the Irish producer to "dump" exports abroad (i.e. sell them at a price below the domestic price). Thus it is scarcely surprising to find that complaints about the dumping of Irish goods (pianos, toilet seats and upper leather for example) have been received by the British Board of Trade.

On the import side, there is the possibility that anti-dumping measures can be employed as a form of disguised protection. From the consumer's point of view, dumping confers an advantage in that he pays less than his counterpart in the producing country for exactly the same commodity.[62] A small

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[60]This argument presupposes the existence of opportunities for export, a question we consider below.

[61]While the CIO report cites 60–100,000 vehicles per annum as the appropriate scale of operation for an optimum-sized plant, it is worth noting that Bain's study [1] of the US industry cites a figure of 300,000 vehicles per annum as the minimum requirement.

[62]Of course, if dumping is predatory (i.e. a short term expedient designed to eliminate competitors after which non-dumped "normal" prices are charged), this statement ceases to be valid.

country's gains are likely to be especially large here, since its own demand, being a small proportion of world demand, is unlikely to force upwards the price of the dumped good. The domestic producer naturally takes a different view of the issue and in the short-run it seems desirable that he should be protected against dumped imports. However, if dumped imports of particular products are likely to be available on a permanent basis, the argument in favour of anti-dumping legislation loses much of its force. A case could then be made for urging Irish manufacturers to specialise in quality (perhaps higher-priced) goods which cannot be dumped and recoup lost domestic sales by increased exports. Such action would be nothing more than the logical concomittant of a free trade policy.

Protection, Agriculture and the Cost of Protection

Industrial protection can adversely affect the agricultural sector in two ways: first, by raising the price of industrial goods used by farmers and secondly, by lowering the price of agricultural exports through overvaluation of the currency. An important potential effect of protection, it will be recalled, is to maintain the exchange rate at an artificially high parity.

On the first point, we note that industrial goods purchases (excluding animal feeding stuffs) amounted to less than 16 per cent of total agricultural output in 1964.[63] In turn, most of these purchases consist of fertilisers whose price to the farmers is subsidised by the government. Hence, the burden placed on the agricultural sector as a result of the higher price of protected industrial inputs is extremely small. The implicit duty contained in services and non-traded goods has also a negligible impact on the farmers' production costs. On the other hand, the farmer as consumer suffers in so far as he has to pay higher prices for protected consumer goods.[64]

The exchange-rate implications of protection were discussed at some length. Whether or not agricultural exports suffered as a result of protection depends crucially on what one assumes about the sensitivity of world demand to a reduction in Irish food prices. Given the unfavourable market conditions over the last two decades and the severely protectionist policy of the advanced countries towards agricultural imports, it is unlikely that the world demand elasticity is much different from zero. Hence we conclude that, even if the Irish pound were overvalued, agricultural exports would have been only marginally affected.

Thus, in contradistinction to what studies of protection in other countries have shown, we find little evidence of any systematic discrimination against

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[63] Made up as follows: chemicals £14m., other manufactures £6m., dutiable depreciation (assumed to be two-thirds of total depreciation) £6m. Gross output of agriculture in 1964 was £238m. *Source:* 1964 IO Table.

[64] A similar burden is also placed on the industrial consumer. But, in his case, protection may also have increased the wage rate. A full examination of this issue lies outside the scope of the present study.

the primary sector arising out of our system of industrial protection.[65] Nor, it may be added, is there any strong evidence of agricultural protection raising input costs in the industrial sector. The food-processing industries are an obvious exception, but international trade in these products is subject to the same restrictions as agricultural produce itself.

These considerations suggest that the cost of protection may be estimated by reference to the industrial sector alone. The cost of protection is an elusive concept and no estimate is completely devoid of ambiguity. From a historical point of view, it is obvious that, without protection, many firms now in operation would never have been established in the first place. On the other hand, once they are established and "teething" problems successfully surmounted, the protection afforded them may become excessive. The cost of protection measure used here and in other studies depends for its validity on the assumption that any reduction in employment created by free trade in one sector of industry will be counterbalanced by an expansion in other sectors. This assumption certainly disposes of many interpretative difficulties. How realistic it is depends on the adaptability of industry and the development of export prospects.

The cost of protection is defined as the excess cost of domestic production over the cost of importing the same bundle of commodities. Using effective tariffs and free trade value estimates (under the assumptions of 19 per cent and zero overvaluation respectively), we calculated the cost of protection as £31m.–£37m. in 1964 prices. This implies a cost of protection prior to the AIFTA tariff reductions equal to 3·3–3·9 per cent of GNP or 11·1–13·2 per cent of industrial production. The cost is sufficiently high to have warranted serious attention even if free trade has not been forced upon Ireland by external circumstances. Provided the underlying assumptions are valid, this estimate also reveals the scope for substantial increases in industrial productivity as tariffs are dismantled.

What does the cost of protection consist of? Part is attributable to losses due to overdiversification and failure to exploit economies of scale, another part to organisational inefficiencies and a third part to static allocative losses. Each type of loss was discussed and we concluded that the first two sources are by far the most important. This conclusion reflects the view, discussed above, that virtually all Irish industry but not necessarily all Irish firms will remain viable under free trade.

Three limitations of our cost of protection estimate must be noted. First, the estimate is based on effective tariff calculations which are in turn subject to considerable error possibilities due to unutilised or incorrectly observed nominal tariffs (especially where specific duties are converted to *ad valorem* equivalents) and insufficiently detailed input-output data. Secondly, no account is taken of the consumption loss created by protection. From the

[65] As pointed out earlier, Irish agriculture is itself protected since the dumping of food surpluses is common practice internationally.

consumer's point of view, protection restricts choice by reducing the variety of goods available at any given price (whereas, paradoxically, protection induces the domestic producer to provide too much variety from the point of productive efficiency). Finally, monopoly profits and returns to labour are included in our calculation as a cost of protection although they should properly be treated as a redistribution of income and not as a potential gain in income attendant upon the establishment of free trade.

Export Prospects

Under free trade, some loss of domestic sales by Irish manufacturers must be accepted as inevitable. What are the prospects of these losses being recouped through increased exports? It is clear that the cost of protection can be interpreted as a true "opportunity" cost only on condition that such redeployment of resources is possible.

While the elimination of UK tariffs under AIFTA gave an impetus to a limited range of Irish industrial exports, this impetus has doubtless exhausted itself by now and Ireland can expect no further trade concessions for her industrial or agricultural produce in the UK market. Easier access to the United States market appears an unlikely prospect, to judge from the protectionist tone of recently proposed trade legislation in that country. However, export prospects to the EEC are more favourable. Membership of an enlarged Community would mean participation in the Common Agricultural Policy (CAP) and the elimination of the Common External Tariff (CET) on Irish exports. The gains obtainable from the CAP have been discussed elsewhere,[66] so we can restrict the discussion to industrial exports alone.

There are different views as to the importance of the CET as a barrier to Irish exports. Some argue that an average tariff of 8–12 per cent,[67] being a small proportion of the final price of a commodity, is easily absorbed by the supplier and hence acts as only a minor deterrent to exports. Others (the present author included) hold the view that the CET is an important barrier to most Irish exports (high quality goods with low price elasticities of demand being the exception) and that its removal will greatly enhance export prospects. Thus, even though the nominal CET may appear low, the effective CET is nearly twice the height of the nominal,[68] so that the Common Market producer receives more protection than it appears. Furthermore, although a tariff of 10 per cent may not be a significant proportion of final price, it is obviously quite significant as a proportion of profits on sales. If the tariff is currently being absorbed by the Irish exporter, its removal should considerably

[66] *The Irish Farmer in the European Community*, Irish Council of the European Movement, Occasional Paper 3. For a dissenting view, see R. D. Crotty, *Irish Agriculture and the Common Market—The consequences and alternatives*, Common Market study group.
[67] The average EEC nominal tariff was 12 per cent in 1962 and will have fallen to 9 per cent by 1972.
[68] Balassa estimates an average EEC effective tariff of 19 per cent corresponding to 12 per cent nominal tariff in 1962.

increase the profitability of export sales. This means that more can be spent on consolidating our position in the EEC market through advertising and sales promotion campaigns or through price reductions.

Despite the rise in the EEC's share of Irish exports from 5·8 per cent in 1959 to 11·3 per cent in 1969, a closer analysis of these exports dispels any apparent contradiction between this rapid growth and our assessment of the CET's adverse effects on exports. First, more than one third of the £33 m. increase in Irish exports to the EEC in this period is accounted for by metal ores, on which the CET is zero. In the case of food exports, which account for a further £6 m. of the total export increase, the CET is partly absorbed by government support schemes to agriculture and, in the case of high quality fish products such as lobsters and eels, could be passed on to the final consumer. Considerable increases have also occurred in exports of surgical instruments (SITC 8611–19) on which the CET is zero and in medicinal and pharmaceutical products on which a high nominal CET is levied but whose effective CET is below average.[69] Thus, a substantial part of the export increase to the EEC was composed of products whose effective protection in the EEC is either zero or rather lower than average. Of course the existence of export incentives also helps to counteract the disincentive to export created by the CET. If capital grants to new firms are added to the export tax remission, it is understandable that some firms (particularly those recently established in Ireland) were able to absorb the CET without unduly straining profit margins.

Hence we conclude that the successful growth of EEC exports during the past decade proves in no way incompatible with the assertion that substantial opportunities for export will be opened up by the elimination of the CET. These opportunities should be especially pronounced in product groups such as metal manufactures, precision equipment, hosiery, clothing, wood products and furniture, plastics and rubber goods where the Common Market producer receives above-average effective protection.[70] Membership of an enlarged EEC, of course, has its disadvantages. First, Ireland will lose her preferential position in the UK market. Secondly, the price of certain raw materials will rise owing to the imposition of the CET on hitherto unprotected goods, namely mimosa extracts, raw aluminium,[71] paper pulp, blackboard, newsprint, cocoa and shirting materials. Although Irish export prospects will not be seriously damaged by this last factor, the importance of the former must remain a matter for speculation. The erosion of our preferential position *vis-à-vis* EFTA does not appear to have dampened the overall growth of our exports to the UK, although certain sectors such as textiles have been adversely affected.

[69]Effective tariffs are taken from Balassa's study [3]. According to his calculations, the effective tariff on miscellaneous chemical products is 13·1 per cent.

[70]The effective tariffs are: 26, 24, 41, 25, 29, 30 and 34 respectively (these are Balassa's estimates [3])

[71]The British consider the 9 per cent CET sufficiently important to warrant the establishment of an aluminium smelting plant domestically. Over £35m. in grants is being allocated for this project. Alumina, the raw material from which aluminium is made, has a zero CET.

Conclusion

"Let goods be homespun whenever it is reasonably and conveniently possible."[72] So urged Keynes in a lecture delivered in Dublin in 1933. Without disputing the merits of this injunction in the context of a World Depression, the present study underlines the high economic cost of a policy of self-sufficiency. Even if tariffs are not fully availed of and production costs exceed those of the UK by only 10–15 per cent, this still leaves Irish effective rates of protection extremely high. High effective tariffs, in turn, discourage entrepreneurs from expanding into export markets. The adverse effects of protection on the incentive to export is an aspect of fiscal policy which has not received in the past as much attention as it deserves.

Unilateral tariff reductions, undertaken without any reciprocal concessions on the part of a country's trading partners, are a rare occurrence, chiefly because of the considerable strains placed on the balance of payments by such action. It is clear that had this study been confined to an analysis of AIFTA alone, our results would be far less optimistic than they are. As it happens, the favourable prospects for agricultural and industrial exports in the context of EEC membership justify a guarded optimism regarding our ability to dispense with protectionism without prejudicing either the existing exchange rate parity or the survival of our industry. Naturally, this conclusion is contingent on our keeping the rate of domestic inflation in line with that of the UK and EEC.

With the advent of free trade, Ireland abrogates the use of a most effective tool of economic development, namely, the power to interfere directly with the incentive to import and export. A new strategy of economic development, suitable to the conditions of a semi-industrialised country, is being evolved. A key element in this new policy is the system of incentives to new industry, much of which is financed from abroad. Ireland's present incentive scheme to foreign industry appears to contravene (in letter if not in spirit) the rules of trade laid down by the EEC and a matter of major concern to this country is whether the European Commission will agree to the continuance of export tax reliefs should we become members of the Community. The increasing competitiveness of the market for foreign capital is also a matter of some disquiet both in Ireland and in the EEC. Countries are vying with each other in their efforts to attract new capital to their less developed regions. The sensitivity of capital investment flows to ever increasing financial blandishments is a matter about which we know very little. But some studies suggest that they are excessive in the sense that some firms would have located where they did even if much lower incentives had been offered. A detailed discussion of these and other issues related to Ireland's future industrial policy is a natural sequel to the present study.

[72]Quoted in James F. Meenan, *The Irish Economy Since 1922*, Liverpool University Press, 1970 [20 p. 319].

Nominal Rates of Protection 1966

Nominal Tariffs

Nominal tariff rates have been obtained from the *Customs and Excise Tariff of Ireland* 1966. This document records the level of tariffs as at the first of July 1966, thus including the first 10 per cent reduction in tariffs under the Anglo-Irish Free Trade Agreement (AIFTA).

Irish imports are classified according to the *Official Import List,* a classification considerably more detailed than, but reconcilable with, the United Nations' SITC. The Irish Tariff, on the other hand, is expressed in terms of the Brussels nomenclature, but commodity items to which each tariff heading refers are described by reference to the *Import List* numbers. Thus, a link is established between trade and tariff data.

Two sets of nominal tariffs are estimated. The first set consists of nominal tariffs corresponding to each four-digit SITC commodity group (see Table A1). The second set consists of nominal tariffs corresponding to each industry (see Table 2 of the main text). The purpose of calculating the SITC set is to arrive at average tariffs for consumer, intermediate and capital goods imports. The industry tariffs, on the other hand, are employed in the effective tariff analysis. Different computational procedures had to be used in estimating each set. Thus, the industry tariffs are obtained by weighing individual tariffs by the share of the commodity concerned in total production; whereas international trading weights are used when aggregating SITC tariffs and, usually, arithmetical weights in proceeding from *Official Import List* tariffs to a four-digit SITC level. Often, however, production data in the 150 sector IO worksheets is expressed in fairly aggregate terms and a number of SITC tariffs have to be aggregated. In this event, international trading weights must also be employed. Apart from the different weighting schemes, the methods by which the SITC and industry tariffs and the problems of interpretation which arise are quite similar and henceforth we consider only SITC tariffs. Unless the contrary is explicitly stated, the reader can assume that the procedures described below are applicable to both sets of tariffs.

The four-digit SITC classification is sufficiently detailed to permit an adequate evaluation of our system of nominal protection, while at the same time having considerable advantages when the problem of choosing appropriate weights for averaging tariffs arises. Ideally, the correct weight for each tariff is the free trade level of imports of the protected commodity. Since this figure is unobservable, we must have recourse to some substitute such as, for example,

the imports of some other country with a trade and income structure broadly similar to our own but yet which applies no tariffs or quotas on foreign trade.[1] Hence the usefulness of ensuring comparability between the Irish tariff classification and the international trade classifications.

The Irish tariff is expressed in even greater detail than the SITC, so that frequently many different tariffs are included under a single heading. Furniture (SITC 8210), for example, has been broken down into about 40 separate items by the Irish tariff, with a different duty on each item. In general, our procedure has been to take an arithmetic average of the various individual tariffs. This involves little error when, as often is the case, the dispersion of the individual tariffs is small.[2] The alternative procedure—to calculate a weighted average of the individual tariffs, with weights corresponding to the import share of each item—would be onerous to compute and liable to a downward bias since low-tariff items tend to receive undue weight.

Some tariffs are expressed in specific rather than *ad valorem* terms. The specific duty is converted to *ad valorem* terms by expressing it as a percentage of the unit value, the necessary trade data being obtained from *Trade and Shipping Statistics* for the year 1966.

Ireland offers preferential tariff rates to Northern Ireland, the UK and Commonwealth or ex-Commonwealth countries.[3] In practice, the two most important rates are the United Kingdom rate and the full rate. The absolute difference between these two rates varies from commodity to commodity but the full rate frequently exceeds the United Kingdom rate by 10 to 20 percentage points. It follows that one's view of the height of the Irish tariff would be markedly affected by the particular rate one happened to examine.

Some method of determining an average tariff for each SITC group allowing for geographical origin must once again be found. For reasons already noted, "own" import weights (i.e. current Irish imports weights) could not be used. Accordingly, the following procedure was adopted:

(*a*) the tariff of the area supplying the largest percentage of each SITC group's imports is always chosen.

(*b*) an arithmetical average of this tariff and the tariff of the second largest supplying area is taken whenever (i) the latter's imports amount to more than 30 per cent of total imports or (ii) whenever the sum of the two areas' imports adds to less than 85 per cent of the total and the second largest area's share exceeds 20 per cent.

[1]Ryan used 1924 Irish import flows as weights for his nominal tariffs, arguing that protection at that time was negligible. This procedure was permissible in measuring tariff levels during the 1930's (although Ryan provides ample warning of its possible inadequacies).

[2]This procedure is not applied rigidly in every instance. An item such as terpenic by-products with zero duty but whose imports amount to less than one per cent of the total imports of synthetic perfumes (SITC 5512), would obviously have to be ignored. Exceptions of this type are, however, rare.

[3]In deference of the United Nations' recommendation to members not to trade with Southern Rhodesia, imports from that country were prohibited (except under license from the Minister of Industry and Commerce) in 1966.

To illustrate the working of this rule, consider the example of knotted carpets (SITC 6675). Slightly less than 60 per cent of imports came from India—hence we immediately apply the preferential tariff rate (in this case equal to the full rate of 49 per cent). A further 25 per cent of carpet imports came from the UK, hence the UK tariff of 29 per cent (just barely) qualified for admission and the arithmetic average is taken to yield a tariff of 38 per cent. The arbitrary nature of the procedure is exemplified by the narrowness of the margin by which the UK tariff entered the calculations. Such marginal cases are, however, rare. Normally we find the UK dominating the import group. If its share exceeds 70 per cent then the UK tariff alone is taken as representative. If the UK share is 60 per cent, and another area's share 30 per cent, then equal weight is given to each area's tariff. Thus, whereas in the carpets example above we may tend to underestimate the degree of protection by including the UK tariff, in other instances the danger may be one of overestimation.

Nontariff Barriers

A nontariff barrier is any law, regulation, policy or practice of a government that has a restrictive effect on (international)trade. The most familiar types of nontariff barrier are quotas, discriminatory domestic taxes and government regulations regarding the classification and purchasing of imports. Nontariff barriers, of course, also include direct and indirect government subsidies to domestic producers supplying the home market, In this study, we adhere to a narrow definition of nontariff barrier and consider only *quotas, government regulations* and the *domestic tax system.*

The "tariff equivalent" of a quota is calculated by expressing the difference between foreign c.i.f. price and current domestic price as a percentage of foreign price. The requisite information on prices is difficult to obtain, however, and our estimates of "tariff" equivalents are subject to a large margin of error.[4] By 1966, the number of industrial commodities subject to quantitative restriction was extremely small, only about one per cent of total imports being protected in this way. Quotas are also placed on agricultural imports.

Although usually associated with imports, quantitative restrictions are also placed on the export of certain goods such as scrap metal, timber, lead, sheepskins and pelts in order to provide adequate supplies to domestic producers using these goods as inputs. The number of industrial commodities so affected is negligible, whereas export quotas on agricultural produce are often designed to ensure proper quality control or else to place the distribution of exports in the hands of a centralised government agency. Accordingly, export quotas are not taken account of in this study.

Protection via government import regulations takes many forms. In the case of certain wooden articles including furniture, and pottery, the Irish

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[4] See Table A 1 for details of the price comparisons actually made in this study.

Government requires that imports must have their country of origin marked in both the Irish and English languages. Handling costs are thereby raised, since foreign producers must segregate exports to Ireland and have them specially stamped. The nominal tariff on these commodities may to this extent underestimate the disparity between foreign and domestic price. Another source of discrimination against imports is government pressure on state-sponsored bodies to buy Irish. In addition, the payment of certain government and local authority grants is often conditional on the recipient purchasing Irish materials wherever possible. An example is new housing grants where government policy protects domestic manufacturers of locks, basins, bathroom utensils and other household requirements. By not making allowances for this type of government interference, it is possible that the tariff calculations in this study underestimate the degree of protection afforded to certain commodities.

Excise duties are placed on beverages, tobacco, matches, tyres and petroleum products. In measuring the amount of protection afforded to these products, it would obviously be incorrect to consider the tariff in isolation, without regard to the corresponding excise duty. Thus, a specific tariff of £13 5s. 6d. per proof gallon was charged on imported distilled alcoholic beverages in 1966 compared with an excise tax of £11 15s. 6d.[5] The net protection afforded is therefore £1 10s. od. per proof gallon which in *ad valorem* terms, equals an implicit tariff on 11 per cent.[6]

The absolute level of excise taxes, as opposed to the difference between them and tariffs, becomes important when these taxes are charged on materials for use in industry. Excise taxes on inputs reduce the level of effective protection *vis-à-vis* foreign producers whose inputs are not subject to similar taxes. With a single exception (the tax on hydrocarbon oil), excise taxes are not levied on industrial inputs in Ireland.[7] Since turnover taxes are not placed on inputs and are levied at equal rates on domestic and imported final goods, their imposition leads to no distortion of trade patterns and hence they do not enter our calculations here.

Remission of Customs Duties[8]

Exemption from import duties is offered in a number of instances. First, if a manufacturer can show that imported products are to be used as inputs

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[5] An average of spirits warehoused more than and less than five years is taken.

[6] This is the relevant tariff when estimating the consumption impact of a realignment of customs duty to the excise rate. Of course, the nominal rate of protection on output *before* tax is considerably higher (£1.10s..od. as a percentage of £2.14s..od., the import c.i.f. unit value) and this is the relevant rate for our effective tariff calculations.

[7] Even in this case, the excise duty effectively applies only to hydrocarbon oil used by motor vehicles— rebates are automatically granted on oil used for industrial purposes. In the event of an added value system of excise taxes similar to that of the EEC being set up, a re-examination of the structure of Irish taxes would of course be necessary.

[8] The author is indebted to Mr B. Moloney of the Department of Industry and Commerce for information kindly supplied on the operation of the duty-free licensing system.

into output destined for export, duty-free licenses are automatically issued by the Government. Thus, exporters may import all their materials requirements duty-free, irrespective of whether domestic substitutes are available or not. Secondly, duty-free licenses to import a particular commodity are issued whenever it is shown to the satisfaction of the authorities that no domestic substitute for imports exists. Although the Irish Tariff is exceedingly detailed, the range of commodities covered by the tariff headings sometimes exceeds the range of domestically produced substitutes. Thus cheap cotton blankets may be imported free of duty, but more expensive types, directly or indirectly competitive with Irish-made wool blankets, are liable to the full tariff. Copper tubes of certain dimensions only are produced in Ireland, hence duty-free licenses are awarded for sizes outside the range provided by domestic producers. However, before a licence is issued on these grounds, the applicant must have his application endorsed by a representative group of manufacturers confirming their inability to supply the goods in question or any reasonable substitutes. The manufacturers are unlikely to apply an overly restrictive definition of what constitutes a "reasonable" substitute for an imported good. In practice, therefore, it is by no means easy to obtain duty-free licenses on grounds of non-availability. Thirdly, duty-free licenses are issued to relieve temporary bottlenecks in domestic supply, due to strikes, unexpected increases in demand etc. Fourthly, in some instances duties are deliberately made prohibitive; the duty-free licensing system then acts *de facto* as a method of quantitative control.[9] Finally, some licenses are issued in proportion to a manufacturer's purchases of domestic goods, to compensate for the higher price of these goods and/or to encourage the purchase of Irish goods in larger quantities.

It could be argued, therefore, that the operation of the duty-free licensing system does not undermine the protective impact of the tariff. The interests of domestic producers of a commodity are invariably given priority when issuing licenses for that commodity or close substitutes for it. However, against this, by ignoring the licensing system, we tend to overstate the disabilities incurred by firms using domestically produced inputs. Adjustments can be (and are) made to allow for the automatic remission of duty on materials for use in exports. The data were not sufficiently refined, however, to permit any further adjustments. This means that the materials input tariffs tend to overestimate the true average price differential from the point of view of the industry using these inputs. An upward bias is also created in our SITC tariff estimates, since only that proportion of imports on which duty is actually exacted will increase as tariffs are eliminated.

Average Nominal Tariffs

Irish tariffs classified according to the SITC are presented in Table A1 of

[9] Data on duty-free licenses are not published. The Revenue Commissioners have kindly made available to the author figures on remission of duty under each tariff heading. No information is collected, however, at an individual tariff item level corresponding to the *Import List*.

the Appendix. Details of the chief area of origin of the imports to which the tariff relates together with remarks on any peculiar feature of the tariff itself are also included. Nominal tariffs are grouped into three divisions: (a) producers' capital goods (PCG) imports (b) materials for further production (MFP) imports and (c) consumer goods ready for use (CG) imports.

Having classified the individual tariffs in this way, the next problem is to obtain an appropriate average tariff for each group. As noted earlier an arithmetic average cannot be used since this method grants equal weight to each individual tariff. Averaging by "own" import weights results in a downward bias since the more restrictive is the tariff the less weight it receives. In an effort to avoid these problems a set of weights based on 1966 Danish imports was employed. Since Denmark has pursued a policy of free trade for many years, it was hoped that Danish weights will provide a useful approximation to the free trade structure of Ireland's imports. Experimentation with other weighting schemes (for example, we also tried using the imports of the combined industrial nations as weights) suggested a rather low sensitivity of the average tariff to different weights.

Two sets of tariffs are calculated. First, an average tariff on all imports irrespective of origin is obtained. Since most dutiable manufactured goods imports come from the UK and EEC, the average tariff calculated in this manner could be taken as representative of the fall in import prices that would occur if Ireland together with the UK joined the Common Market. Secondly, an average tariff on UK imports is obtained. which also takes account of the various products excluded from the AIFTA agreement.[10] The AIFTA average tariff will naturally be lower than the average tariff on all imports.

The average tariff on PCG imports (12·7 to 12·9) per cent may at first sight appear rather high, since it is generally recognised that capital goods are not produced in Ireland to any considerable extent. However, a glance at the tariff list for PCG imports in Table A1 shows that while this generalisation certainly applies to the large proportion of capital goods and especially to heavy machinery, there exists a range of light capital goods which are produced domestically behind a high tariff wall. Thus, although the majority of PCG imports enter the country without payment of duty, the average tariff is still roughly 10 per cent owing to the heavy protection afforded to domestically produced capital goods such as agricultural machinery and equipment, electrical transformers, motors and meters, locksmiths' wares etc.

Protection on materials for further production is low, the Danish weights suggesting a duty of 7·9 per cent to 8·7 per cent. As in the case of PCG duties, the average is depressed by the existence of large quantities of MFP imports for which no domestic substitutes are available and which accordingly are imported duty-free. MFP imports which are liable to duty include such

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[10]Some products excluded from AIFTA such as biscuits have specific rather than *ad valorem* duties and hence the protection tends to be dissipated by inflation over time. But we have not taken explicit account of this fact in our estimates.

products as textiles, leather, plastics, paper, building materials and certain types of electrical equipment.

Finally, the average tariff on consumer goods imports is highest perhaps because possibilities of import substitution are greatest for this type of commodity. The average CG nominal tariff (24 per cent) approximates very closely to the corresponding 1962 nominal tariff level of EEC countries and the UK (18 and 24 per cent respectively).[11] The difference between the "AIFTA" tariff and the "World" tariff is small (19 per cent as compared with 24 per cent), owing to the large proportion of UK imports included in the CG category. The UK, it will be recalled, supplied almost 70 per cent of Ireland's Section 8 imports in 1966.

These average tariffs are now ready to be applied in conjunction with our elasticity estimates in formula (1) of the text, in order to obtain "static" estimates of the effects of trade liberalisation.

[11]See Balassa, [4] p. 56. In Table 5 of the main text, we also compare consumer good nominal tariffs but the bundle of goods concerned and the weighting scheme employed differ substantially. Here we are interested in the bundle of goods consumed, there with the bundle of consumer goods produced; in this appendix, tariffs are weighted by share in consumption, in Table 5 tariffs are weighted by share in production.

TABLE A1 : *Irish Nominal Tariff Rates on Imports of Producers' Capital Goods (PCG), Materials for Further Production (MFP) and Consumption Goods Ready for Use (CG) as at 1 July, 1966*

SITC	Description	t	S	Remarks
	1. PRODUCERS' CAPITAL GOODS			
65.	*Made-up Articles of Textile Materials:*			
6561	Bags, Sacks of Textile Materials	38	UK	products containing jute excluded from AIFTA
69.	*Manufactures of Metal n.e.s.:*			
6921	Tanks, Vats for Storage	17	UK	
6931	Wire Cables, Ropes	14	UK	
6932	Wire of Iron or Steel used for fencing	30	EEC	
6933	Gauze, netting wire	26	EEC	UK 20 per cent duty
6934	Expanded Metal	7	UK	
6951	Hand Tools used in Agriculture	18	UK	
6952	Other Hand or Machine Tools	36	UK	a wide range of products covered by this duty
6981	Locksmiths Wares	32	UK	
71.	*Non-Electric Machinery:*			
7121	Agricultural Machinery and Appliances	24	UK, XC	UK duty 18 per cent
7123	Milking Machines and Dairy Farm Equipment	32	UK, XC	UK duty 24 per cent
7129	Agricultural Machinery n.e.s.	9	UK	
7141	Typewriters	30	EEC	UK duty 18 per cent
7183	Food-processing Machines	12	UK	duty applies only to assembled machinery

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
7185	Mineral, Crushing and Moulding Machinery	6	UK	duty of 29 per cent applies only to concrete mixing machinery to which a weight of one fifth has been assigned
7192	Pumps and Centrifuges	32	UK, EEC	UK 24 per cent duty
7193	Mechanical Handling Equipment	15	UK	
7196	Other Machines nonelectrical	30	UK, EEC	UK duty 24 per cent
7198	Machinery n.e.s.	20	UK, XC	UK duty 15 per cent

72. Electrical Machinery:

SITC	Description	t	S	Remarks
7221	Electric Power Machinery	32	UK, XC	UK duty 28 per cent
7222	Electrical Apparatus for protecting Electric circuits	24	UK, EEC	UK duty 18 per cent
7249	Telecommunications Equipment	28	UK, XC	UK duty 24 per cent—apparatus for telephony and telegraphy permitted duty-free
7299	Electrical Machinery n.e.s.	32	UK	high duties on such items as electric capacitors etc.

73. Transport Equipment:

SITC	Description	t	S	Remarks
7323	Lorries and Trucks assembled	32	UK	net price advantage of domestic assemblers computed in same manner as motor cars (7321)
7324	Special Purpose Lorries assembled	24	UK	duty does not apply to fireengines or road sweepers
7325	Road Tractors assembled	35	UK	
7333	Trailers and other vehicles	35	UK	

81. Sanitary Plumbing Apparatus:

SITC	Description	t	S	Remarks
8121	Central Heating Apparatus	10	UK, XC	UK duty 7 per cent applies only to gas burning appliances
8124	Lighting fixtures and fittings	29	UK, XC	⅓ PCG, ⅓ CG, UK duty 24 per cent

2. MATERIALS FOR FURTHER PRODUCTION

SITC	Description	t	S	Remarks
0133	Meat Extracts and Juices	—	UK	a specific duty, equivalent to 58 per cent *ad valorem*, has been judged redundant

04. Cereals and Cereal Preparations:

SITC	Description	t	S	Remarks
0410	Wheat unmilled	—	Canada	quota
0430	Barley ,,	—	UK	,,
0440	Maize (corn) unmilled	—	USA	,,
0451	Rye	—	n.a.	,,

05. Fruit and Vegetables:

SITC	Description	t	S	Remarks
0517	Edible Nuts	10	XC	½ CG, ½ MFP
0520	Dried Fruit	10	XC	½ CG, ½ MFP
0532	Fruit, sugar preserved	12	EEC	
0536	Fruit, temporarily preserved	12	XC, UK	includes fruit pulp
0542	Leguminous Vegetables, dried	16	XC	peas 32 per cent: remainder free, full duty applies in some instances only for certain periods during the year

06. Sugar, Sugar Preparations and Honey:

SITC	Description	t	S	Remarks
0611	Raw Sugar	—	C	quota
0612	Refined Sugar	—	UK	35 per cent MFP, 'free' market highly unstable, quota

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
07.	*Cocoa:*			
0722	Cocoa Powder, unsweetened	68	UK	tariff prohibitive. Imports all enter under duty-free licensing
0723	Cocoa Butter and Cocoa Paste	34	UK	duty applies only to cocoa paste, both these duties are considered redundant: merely by-products of cocoa processing
08.	*Feeding Stuffs for Animals:*			
0812	Bran, Pollard and other by-products from the working of Cereal Grains	—	EEC	quota
0813	Oil Seed Cake and Meal	—	XC	prohibitive duty on soya bean cake taken as redundant, since duty-free licences are automatically issued
0814	Meat and Fish Meal	—	XC	quota
0819	Animal Feeds n.e.s.	—	XC	quota
12.	*Tobacco:*			
1210	Unmanufactured Tobacco	—	XC	excise tax of £3·85 per lb. taken account of in tariffs on finished tobacco products
24.	*Wood, Lumber and Cork:*			
2432	Lumber, sawn planed etc.	33	Canada XC	
2433	Lumber, non-conifer, as above	33	Canada XC	
26.	*Textile Fibres:*			
2612	Unreelable Silk Cocoons and waste	26	UK	
2626	Wool Shoddy	26	UK	
2627	Wood carded or combed	32	UK, XC	UK 24 per cent tariff
2629	Waste of Wool, n.e.s.	39	UK	
2633	Cotton Waste	26	UK	much enters duty-free. Used to make condenser yarn
2634	Cotton, carded or combed	27	XC	
2664	Waste of Synthetic or Carded Fibres	39	UK	
2670	Waste Materials from Textile Fibres	18	UK	
27.	*Crude Fertilisers and Crude Minerals:*			
2713	Rock Phosphates, whether or not ground	8	Morocco	duty of 16 per cent applies only to ground phosphates
2731	Building and Monumental Stone	53	XC	duty applies in practice only to green and black marble and to worked stone
2734	Gravel and Crushed Stone	16	UK	
33.	*Petroleum Products:*			
3321	Motor Spirit	—	UK	Excise=customs duty
3325	Lubricating Oils and Greases	21	UK	
41.	*Animal Oils and Fats:*			
4113	Animal Oils	—	XC	tariff on tallow considered redundant, licenses automatically issued

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
42.	*Fixed Vegetable Oils:*			
4212	Soya Bean Oil	24	UK	duties 4212–4217 refer to refined oils only. These oils are employed in margarine paint and confectionery industries
4213	Cotton Seed Oil	24	UK	
4214	Groundnut Oil	24	UK	
4216	Sunflower Seed Oils	24	UK	
4217	Rape, Colza Oils	24	UK	
4221	Linseed Oil	24	UK	
4223	Coconut Oil	24	UK	
4312	Hydrogenated Oils and Fats	24	UK	
51.	*Chemical Elements and Compounds:*			
5122	Alcohols, Phenols, etc.	—	UK	duty of 36 per cent on sulphonated derivatives of alcohols suitable for use as soap substitute
53.	*Dyeing and Tanning Extracts:*			
5333	Paints, Enamels, etc.	20	UK	½ CG, ½ MFP
55.	*Essential Oils and Perfume Materials:*			
5512	Synthetic Perfume and Flavour Materials	24	UK	refers primarily to materials for food and drink industries
56.	*Fertilisers Manufactured:*			
5612	Phosphatic Fertilisers	16	XC	quota. Basic slag (duty-free) also counted under this heading
5619	Fertilizers n.e.s.	8	UK, EEC	UK duty is zero: non-pref. 16 per cent
58.	*Plastic Materials:*			
5811	Products of Condensation, Polycondensation, and Polyaddition	24	UK	protection applies to semimanufactures and finished manufacturers of division 58. Raw materials such as polyvinyl chloride (PVC) enter duty-free
5812	Products of Polymerization and Copolymerization	24	UK	
5813	Regenerated Cellulose	32	UK	
5819	Other Artificial Resins and plastic materials	24	UK	
59.	*Chemical Materials, and Products:*			
5992	Insecticides, Disinfectants etc.	24	UK	
5995	Starches and Glues, etc.	17	UK, XC	UK 13 per cent tariff
5997	Organic Chemical Products, n.e.s.	6	UK	
5999	Chemical Products n.e.s.	12	UK	
61.	*Leather and Leather Manufactures:*			
6113	Calf Leather	—	UK	duty judged redundant since negligible quantities are produced domestically
6114	Leather of Bovine Cattle	19	UK	duty applies mostly to chrome-tanned leather. Weight of one-third to 36% duty on other leather, 36 per cent duty on sheepskin leather. All other types are duty free
6119	Leather n.e.s.	18	UK	
6121	Machine Leather Belting for use in machinery	7	UK	duty of 14 per cent on transmission belts—all other imports duty free
6123	Uppers, legs of footwear	19	UK	
6130	Furskins, tanned or dressed	18	UK	duty applies to tanned sheepskins and processed furskins

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
62.	*Rubber Manufactures:*			
6210	Materials of Rubber	17	UK	i.e. plates, sheets, rods, etc. Duty of 24 per cent on vulcanised rubber for soling footwear
6291	Rubber Tyres and Tubes	32	UK	net price advantage after allowing for excise duty on domestic tyres
		(1)	(2)	(3)
6294	Transmission Belts, etc.	37	UK	
63.	*Wood and Cork Manufactures:* *(excluding Furniture)*			
6311	Veneer Sheets	40	EEC, UK	UK 36 per cent duty
6312	Plywood	35	XC	
6314	Reconstituted or "Improved" Wood	24	XC UK	UK 18 per cent duty
6318	Wood simply shaped or worked, n.e.s.	8	XC	
6321	Boxes, Cases, Crates, etc.	24	UK	
6324	Builders' Woodwork and Prefabricated Buildings of Wood	24	UK	
6328	Articles of Wood, n.e.s.	21	UK	ladders, broom and brush handles, etc.
64.	*Paper, Paperboard and Manufactures Thereof:*			
6411	Newsprint Paper	36	XC	substantial duty preference to Canada taken account of in tariff averaging
6412	Other Paper in rolls or sheets	28	UK	
6413	Kraft paper and Paperboard	65	XC	½ MFP, ½ CG
6414	Cigarette Paper	—	UK	duty ignored, since this type of paper not produced in Ireland
6415	Machine-made Paper and Paperboard	25	XC, UK	UK duty 18 per cent
6417	Hand-made Papers	19	UK, XC	½ MFP, ½ CG—mostly notepaper and commercial stationery, UK 15 per cent duty
6419	Paper and Paperboard, n.e.s.	30	XC, UK	UK 21 per cent duty
6421	Paper Bags, Paperboard Boxes	21	UK	
65.	*Textile Yarn Fabrics and Related Products:*			
6511	Thrown Silk	25	UK, EEC	duty judged redundant
6512	Wool Yarn	24	UK	
6513	Cotton Yarn, (unbleached) grey not mercerised	39	UK, EEC	UK duty 29 per cent
6514	Cotton Yarn, bleached, etc.	39	UK, EEC	condenser yarn imported under this heading
6515	Yarn of Flax, Ramie and Hemp	24	SC	UK duty 29 per cent
6516	Yarn of Synthetic Fibres	24	UK	
6517	Yarn of Regenerated Fibres	32	UK, EEC	24 per cent UK duty
6519	Yarn of Textile Fibres, n.e.s.	17	XC, UK	Paper and jute yarn, for example. 13 per cent UK duty *ad valorem* taken here.
6521	Cotton Fabrics, woven grey	60	XC	Specific duty is prohibitive, Quota on Asian Products.
6522	Cotton Fabrics, other than 6512	60	XC	UK 40 per cent duty
6531	Silk Fabrics Woven	40	XC	
6532	Woollen Fabrics, woven	36	UK	
6533	Linen, Hemp Fabrics, woven	33	SC	
6534	Jute Fabrics, woven	60	XC	

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
6535	Synthetic-fibre Fabrics	34	UK	
6536	Fabrics, woven or regenerated fibres	32	XC, UK	*ad valorem* equivalent of specific duty is 108 per cent—this figure may be inaccurate hence *ad valorem* rates of *The Tariff* used instead, UK duty 24 per cent
6537	Knitted or Crocheted Fabrics	27	UK	
6539	Woven Fabrics, n.e.s.	32	UK, XC	24 per cent UK duty
6640	Tulle, Lace, etc.	34	UK	
6551	Felts and felt articles	19	UK	
6554	Coated Textile Fabrics	29	UK	
6555	Elastic Fabrics	29	UK	
6556	Cordage, Cables, Ropes	25	UK	
6557	Hat Bodies	18	UK	hat forms, free: hat bodies, 36 per cent
6558	Fabrics for use in machinery	31	UK	
6559	Special products of Textile Materials	20	UK	textile hosepipes, textile belts

66. *Non-Metallic Mineral Manufactures, n.e.s.:*

SITC	Description	t	S	Remarks
6612	Cement	14	UK	large exports of clinker, a by-product of cement, under this heading. Utilised protection assumed to be 10 per cent
6613	Building and Monumental Stone, worked	24	UK	
6618	Building Materials of Asbestos, Cement, etc.	24	UK	
6623	Refractory Construction Materials	33	UK	
6624	Non-Refractory Ceramic Materials	24	UK	
6632	Abrasive Cloths and Papers	22	UK	
6636	Manufactures of Mineral Materials, n.e.s.	25	UK	
6637	Articles of Ceramic Materials, n.e.s.	20	UK	
6643	Drawn or Blown Glass, unworked	29	UK	
6644	Cast Rolled, etc., Glass, worked	29	UK	
6645	Cast or Rolled Glass, unworked	29	UK	
6647	Safety Glass	23	UK	
6648	Sheet or Plate Glass	29	UK	½ CG, ½ MFP
6649	Glass, n.e.s.	5	UK	
6651	Carboys, Bottles, Jars of Glass	29	UK	

67. *Iron and Steel:*

SITC	Description	t	S	Remarks
6731	Wire Rod of Iron or Steel	30	EEC	UK duty 18 per cent
6732	Bars and Rods of Iron or Steel	24	UK, EEC	UK duty 18 per cent
6734	Angles, Shapes and Sections	24	UK, EEC	UK duty 18 per cent
6735	Other Angles Shapes and Sections	24	UK, EEC	UK duty 18 per cent
6748	Coated Plates and Sheets less than 3 inc in thickness	18	UK	
6750	Hoop and Strip of Iron or Steel	21	UK	
6770	Iron and Steel Wire	18	UK	
6781	Tubes and Pipes of Cast Iron	29	UK	
6782	Seamless Tubes and Pipes	11	UK	
6783	Welded Tubes and Pipes	11	UK	
6785	Tube and Pipe Fittings	18	UK	

68. *Non-Ferrous Metals:*

SITC	Description	t	S	Remarks
6811	Silver, partly worked	29	UK	unwrought silver duty-free
6812	Platinum, partly worked	48	EEC	unwrought platinum duty-free
6822	Copper and Copper alloys, worked	39	UK	
6842	Aluminium and alloys, worked	21	UK	
6852	Lead and alloys, worked	7	UK	

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
69.	*Manufactures of Metal, n.e.s.:*			
6911	FSP of Iron or Steel	25	UK	FSP..Finished Structural Parts
6912	FSP of Aluminium	13	UK	
6913	FSP of Zinc	14	UK	
6921	Tanks and Vats	11	UK	
6922	Casks, drums, etc.	18	UK	
6941	Nails, Tacks, Staples	27	UK	
6942	Nuts, Bolts, etc.	37	UK	
6986	Springs of Iron Steel or Copper	31	UK	
6988	Miscellaneous articles of base metal	16	UK	
6989	Articles of Base Metal, n.e.s.	18	UK	$\frac{1}{2}$ MFP, $\frac{1}{2}$ CG
71.	*Machinery, non-Electric:*			
7199	Parts and Accessories, n.e.s.	16	UK	
72.	*Electrical Machinery:*			
7231	Insulated Wire and Cable	18	UK	
7232	Electrical Insulating Equipment	24	XC, UK	UK duty 18 per cent
7291	Batteries and Accumulators	30	UK	
7294	Automative Electrical Equipment	20	UK	quota on sparking plugs
73.	*Transport Equipment:*			
7321	Motor Cars, not assembled	20	UK	"revenue" tariff
7322	Buses, not assembled	16	UK	,, ,,
7323	Trucks, not assembled	20	UK	,, ,,
7325	Road-Tractors for Tractor-Trailer combinations not assembled	20	UK	,, ,,
7326	Chassis for Motor Cars	32		Imports negligible. Same duty as on assembled cars, "revenue" element of 20 per cent
7327	Other Chassis with engine mounted	38	UK	
7328	Bodies, Chassis and frames unassembled	20	UK	revenue tariff
7333	Trailers and other vehicles	42	UK	
81.	*Sanitary Fixtures and Fittings:*			
8122	Sinks of Ceramic Materials	27	UK	
8123	Sinks, sanitary and plumbing fixtures of iron or steel	15	UK	
	Other:			
8611	Optical Elements	40	XC	
8951	Office and Stationery Supplies of Base Metal	25	UK, XC	UK duty 20 per cent
8959	Other Office Supplies	16	UK	

3. CONSUMPTION GOODS READY FOR USE

01.	*Meat and Meat Preparations:*			
0111	Meat of Bovine Animals	—	UK	quota
0112	,, ,, Sheep and Goats	—	C	quota
0113	Meat of Swine	—	n.a.	quota
0114	Poultry	—	SC	quota
0121	Bacon, Ham	—	UK	quota
0134	Sausages	20	UK	quota
0138	Other Prepared Meat	33	UK	quota

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
02.	*Dairy Products and Eggs:*			
0221	Milk and Cream, evaporated	—	UK	all imports of this division are restricted by quotas
0222	Milk and Cream, dry	—	UK	
0223	„ „ „ fresh	—	SC	
0230	Butter	—	n.a.	
0240	Cheese and Curd	—	UK, XC	
0250	Eggs	—	C	
03.	*Fish, Fresh and Simply Preserved:*			
0311	Fish, fresh	—	UK	quota
0312	„ salted	—	UK	
0320	Fish, in airtight containers	35	XC	UK duty 25 per cent, Canada an important supplier of salmon
04.	*Cereals and Cereal Preparations:*			
0460	Meal and Flour of Wheat	—	SC	quota
0470	Meal and Flour of Other Cereals	—	UK	quota
0481	Cereal Grains, prepared in a manner, n.e.s.	18	UK	this SITC group consists primarily of breakfast foods
0482	Malt and Malt Extracts	—	UK	quota. Tariff of 36 per cent on malt extract.
0483	Macaroni Spaghetti and Similar Products	36	UK	imports negligible
0484	Bakery Products, e.g. Biscuits, Cakes	32	UK	
0488	Cereal Preparations, n.e.s.	34	UK	
05.	*Fruit and Vegetables:*			
0514	Fresh Apples	10	XC	UK duty also 10 per cent
0517	Edible Nuts	10	XC	½ CG, ½ MFP
0520	Dried Fruit	10	XC	½ CG, ½ MFP
0533	Jams, Marmalades, etc.	16	UK	
0535	Fruit and Vegetable Juices	17	UK, EEC	UK preferential rate same as full rate
0536	Fruit temporarily preserved	70	Spain	
0539	Fruit and Nuts, n.e.s.	43	XC	refers primarily to tinned fruit
0544	Tomatoes, fresh	28	XC	protection applies only during Irish season
0545	Other Fresh Vegetables	50	XC	quota during certain "control" periods: imports consist exclusively of onions
0546	Frozen Vegetables	20	UK	
0551	Dehydrated Vegetables	25	XC	
0554	Potato Flakes, etc.	10	UK	
0555	Vegetables, n.e.s.	33	UK, XC	UK duty 27 per cent
06.	*Sugar, Sugar Preparations and Honey:*			
0619	Sugars and Syrups, n.e.s.	50	UK	
0620	Sugar Confectionery	25	UK	
07.	*Coffee, Tea, Cocoa and Manufactures Thereof:*			
0713	Coffee Extracts	18	UK	
0730	Chocolate and Food Preparations cocoa or chocolate	38	UK	
0751	Pepper and Pimento	5	C	
0752	Other Spices	7	UK, XC	

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
09.	*Miscellaneous Food Preparations:*			
0990	Food Preparations, n.e.s.	28	UK	Included under this heading are margarine (*t*..28), soups (*t*..29), imitation lard, etc.
11.	*Beverages:*			
1110	Non-Alcoholic Beverages	6	UK	excise duty applies to all items in this division. Tariff represents net price advantage for domestic producers after allowances are made for the excise duty. Rebates of duty are afforded on initial quantities of output.
1121	Wine of Fresh Grapes	67	XC	Primarily a revenue duty
1122	Cider, etc.	16	UK	Cider excluded from AIFTA
1124	Distilled Alcoholic Beverages	11	UK, XC	
12.	*Tobacco and Tobacco Manufactures:*			
1221	Cigars and Cheroots	12	UK, XC	
1222	Cigarettes	10	UK	
1223	Tobacco, Manufactured	10	UK, EEC	UK duty 8 per cent
53.	*Dyeing and Tanning Extracts:*			
5332	Printing Inks	24	UK	
5333	Prepared Paints, Enamels, etc.	36	UK	$\frac{1}{2}$ CG, $\frac{1}{2}$ MFP
54.	*Medicinal and Pharmaceutical Products:*			
5417	Medicaments	30	UK	
5419	Pharmaceutical Goods	24	UK	
55.	*Essential Oils and Perfume Materials:*			
5530	Perfumery and Cosmetics	62	UK, XC	UK duty 54 per cent
5541	Soaps	36	UK	
5542	Washing Preparations	36	UK	
5543	Polishes, pastes, etc.	30	UK	
57.	*Explosive and Pyrotechnic Products:*			
5714	Hunting and Sporting Ammunition	35	UK, XC	UK duty 28 per cent
61.	*Leather, Leather Manufactures:*			
6122	Saddlerly	14	UK	
6129	Manufactures of Leather, n.e.s.	29	UK	golf bags, laces, etc.
63.	*Wood and Cork Manufactures:*			
6327	Manufactures of Wood for domestic or decorative use	33	UK	

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
64.	*Paper, Paperboard and Manufactures Thereof:*			
6413	Kraft Paper and Paperboard	65	UK	½ CG. ½ MFP
6422	Stationery	18	UK	
6423	Exercise Books, etc.	18	UK	
6429	Other Articles, n.e.s.	23	UK	
65.	*Textile Yarn, Fabrics and Related Products:*			
6562	Tarpaulins, Tents, Awnings, etc.	32	UK, XC	UK duty 30 per cent
6566	Blankets, Travelling Rugs and Coverlets	32	UK	
6569	Articles of Textiles Materials, n.e.s.	26	UK, XC	UK duty 24 per cent
6574	Linoleum and Similar Floor Coverings	12	UK	
6575	Carpets and Carpeting	38	UK, XC	UK 29 per cent duty
6576	Other Carpets, Rugs	19	UK	
6578	Mats, Screens, etc. of Vegetable Plaiting Materials	30	XC	
66.	*Non-Metallic Mineral Manufactures:*			
6639	Articles of Ceramic Materials, n.e.s.	20	UK	includes flowerpots, jars, knife-handles, etc.
6652	Glass Tableware	25	UK	
6658	Articles Made of Glass n.e.s.	12	UK	
6664	Porcelain or China Household Ware	36	UK	
6665	Household Ware of Other Ceramic Materials	36	UK	
6666	Ornaments of Porcelain China	30	XC	UK 15 per cent duty
69.	*Manufactures of Metal, n.e.s.:*			
6960	Cutlery, Razors, etc.	40	UK	
6971	Domestic Stoves, Ovens and Parts	25	UK	unassembled parts admitted duty-free
6972	Domestic Utensils of Base Metals	28	UK	
6979	Other Household Equipment	22	UK	
6989	Articles of Base Metal, n.e.s.	18	UK	½ MFP ½ CG
71.	*Non-Electrical Machinery:*			
7194	Domestic Appliances	11	UK	
72.	*Electrical Machinery:*			
7241	Television sets, assembled	36	UK	divergence of 24 percentage points between UK and full tariff for 7241 and 7242
7242	Radios	60	XC	
7250	Domestic Electrical Equipment	30	UK, XC	UK duty 20 per cent
7292	Electric Lamps	45	UK, XC	UK duty 36 per cent
7299	Electrical Machinery and Apparatus	32	UK	½ CG, ½ PCG

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
73.	*Transport Equipment:*			
7321	Passenger Motor Cars, assembled	32	UK, EEC	tariff for 7321 and 7329 take account of revenue element and represent net price advantage of domestic producers. Difference between full and preferential tariff for cars less than £1,300 in price negligible (only 5 per cent points)
7329	Motor Cycles, assembled	24	UK	
7391	Bicycles	30	UK	
81.	*Sanitary, Plumbing, Lighting Apparatus:*			
8124	Lighting Fixtures and Fittings	29	UK, XC	½ PCG, ½ CG, UK duty 24 per cent
82.	*Furniture:*			
8210	Furniture	30	UK	
83.	*Travel Goods and Similar Articles:*			
8310	Travel Goods and Similar Articles	38	UK, XC	UK duty 29 per cent
84.	*Clothing:*			
8411	Clothing of Textile Fabric	48	UK, XC	UK duty 36 per cent
8412	Clothing Accessories	32	UK, XC	UK duty 28 per cent
8413	Apparel and Clothing Accessories of Leather	43	UK, XC	UK duty 36 per cent
8414	Clothing and Accessories, knitted or crocheted	37	UK, XC	UK duty 29 per cent
8415	Headgear	36	UK	
8416	Apparel and Accessories of Rubber	10	UK	
8420	Fur Clothing	48	UK, XC	UK duty 36 per cent
85.	*Footwear:*			
8510		45	UK, XC	quota also in operation—imports allocated on the basis of purchases of domestic footwear. UK duty 36 per cent
86.	*Professional Equipment Photographic Goods, etc.:*			
8611	Spectacles	32	XC	24 per cent UK duty
8614	Cameras	15	UK, XC	UK duty 12 per cent
8615	Cinematographic Cameras	12	XC	
8616	Photographic Equipment	9	XC	UK duty 6 per cent
8624	Photographic Film	15	UK, XC	UK duty 12 per cent
8641	Watches	27	XC	
8642	Clocks	32	UK, XC	UK duty 24 per cent unassembled parts of 8641 and 8642 are duty-free
89.	*Miscellaneous Manufactured Goods, n.e.s.:*			
8911	Phonographs, Tape Recorders	22	UK, XC	UK duty 18 per cent
8912	Phonograph Records, Tapes	7	UK	
8914	Pianos and String Instruments	22	UK, EEC	UK duty 16 per cent
8918	Musical Instruments, n.e.s.	27	EEC	
8919	Parts and accessories	22	UK, EEC	UK duty 16 per cent
8921	Books and Pamphlets	8	UK	Duty of 22 per cent applies only to religious and prayer books
8922	Newspapers and Periodicals	25	UK	Duty charged only when circulation above certain minimum levels is achieved

SITC	Description	t	S	Remarks
		(1)	(2)	(3)
8923	Printed Music Sheets	11	UK	
8924	Picture Postcards	18	UK	
8929	Printed Matter, n.e.s.	22	UK	
8930	Articles of Plastic Materials, n.e.s.	21	UK	
8941	Baby Carriages	34	UK	
8942	Childrens' Toys Games, etc.	40	UK, XC	UK duty 36 per cent
8943	Toy cars	32	UK	
8944	Other sporting goods	44	UK, XC	UK duty 29 per cent
8952	Pens, Pencils	16	UK	
8971	Jewellery	29	UK	
8972	Imitation Jewellery	48	XC	
8991	Articles of Carving Materials	28	UK, XC	
8992	Basket-work and Articles of Plaiting Materials	26	UK, XC	quota on brushes
8993	Candles, Matches	27	XC	
8994	Umbrellas and Similar Articles	24	UK, XC	UK duty 18 per cent
8995	Small Wares and Toilet Articles	33	UK, XC	UK duty 28 per cent
8996	Orthopaedic Appliances	18	UK	
8999	Other Manufactured Articles, n.e.s.	25	UK, XC	UK duty 20 per cent

NOTES:

UK	=	United Kingdom
EEC	=	European Economic Community
XC	=	Extra-Commonwealth
SC	=	Northern Ireland
C	=	Commonwealth
n.a.	=	requisite import data not available
S	=	major supplier(s) as explained in text
t	=	tariff rate in percentage terms
n.e.s.	=	not elsewhere specified.

TABLE A2: *Average Tariffs, calculated on the basis of Danish 1966 import weights, on (a) Imports subject to the provisions of AIFTA and (b) All Imports, classified into Producers' Capital Goods (PCG), Materials for Further Production (MFP) and Consumption Goods ready for use (CG).*

Description of Import	Average Nominal Tariff	
	(a) AIFTA imports	(b) All imports
Producers' Capital Goods (PCG)	12·7	12·9
Materials for Further Production (MFP)	7·9	8·7
Consumption Goods ready for use (CG)	18·6	23·9

Notes: The AIFTA tariff (a) represents the fall in average import price expected to occur as a result of AIFTA with allowances made for products excluded from that agreement etc.

The all-imports tariff (b) represents the fall in import prices consequent on the removal of Irish restrictions on all imports irrespective of their origin.

TABLE A3: *Nominal Tariffs levied by the United Kingdom on Goods originating in Ireland 1965.*

SITC	Description of Product	t (%)
2612	Silk Waste	20
2626	Wool Shoddy	20
2629	Waste of Wool	20
2633	Cotton Waste	20
2634	Cotton Corded or Combed	16
2640	Jute, Raw and Processed	20
2651	Flax, Flax Tow and Waste	20
2652	True Hemp	20
2658	Vegetable Textile Fibres	20
2662	Synthetic Fibres	15*
2663	Regenerated Fibres	20
2664	Waste of Synthetic or Regenerated Fibres	20
6291	Rubber Tyres and Tubes	16
6294	Transmission and Conveyor Belts	22
6299	Other Articles of Rubber	20
6511	Silk Yarn	20
6512	Wool Yarn	20
6513	Cotton Yarn, unbleached	16
6514	Cotton Yarn, bleached	16
6515	Yarn of True Hemp	16
6515	Yarn of Synthetic Fibres	16
6517	Yarn of Regenerated Fibres	16
6519	Other Yarns (jute, sisal etc.)	16
6522	Cotton Fabrics, woven	18
6531	Silk Fabrics, woven	23
6532	Woollen Fabrics, woven	18
6533	Woven Fabrics of True Hemp	20
6534	Jute Fabrics, woven	20
6535	Fabrics, woven of synthetic fibres	18
6536	Fabrics, woven of regenerated fibres	18
6537	Knitted or Crocheted Fabrics	20
6539	Fabrics woven n.e.s.	20
6540	Tulle, Lace, Embroidery	20
6551	Felts and Felt Articles	22
6554	Coated Textile Fabrics	20
6555	Plastic Fabrics	20
6556	Cordage, Cables, Ropes	20
6558	Wadding, Wicks etc.	20
6559	Other products	25
6561	Bags and Sacks of Textile Materials	25
6562	Tarpaulins and Tents	25
6566	Blankets, Travelling Rugs	25
6575	Carpets and Carpeting knotted	26
6576	Other Carpets and Rugs	28

*converted to *ad valorem*

SITC	*Description of Product*	*t* (%)
6577	Tapestries	28
6638	Linings, suitable for brakes and other parts of motor vehicles	16
6647	Safety Glass, for use in motor vehicles	13
6648	Glass Mirrors, for use in motor vehicles	20
7115	Motor Vehicles, Engines and Parts	16
7125	Tractors	15
7191	Air Pumps, Fans, for motor vehicles	16
7222	Electrical Apparatus, parts of motor vehicles	16
7242	Motor Vehicle Radios	13
7294	Automative Electrical Equipment for use in motor vehicles	16
7321	Passenger Motor Cars	17
7321	Special Purpose Lorries	16
7325	Chassis with Engine Mounted	17
7328	Bodies, Chassis and Frames	16
7329	Motorcycles	20
7334	Invalid Carriages	18
8210	Matresses and similar stuffed furnishings	28
8411	Clothing	25
8412	Clothing, Accessories	25
8414	Clothing, knitted or crocheted	30
8415	Headgear	25
8641	Watches	22
8642	Clocks	22
8911	Phonographs	17
8912	Gramaphone Records	10
8914	Pianos	22
8918	Musical Instruments	15
8919	Parts and accessories of 8918	6
8941	Baby Carriages	20
8942	Children's Toys	20
8992	Basket work/Brushes and Brooms	30
8994	Umbrellas	35
8999	Artificial Flowers and Foliage	35

Source: Calculated from Appendix XI, *Free Trade Area Agreement* (Dublin, 1965).

Note: Textiles, Clothing and Headgear, Toys etc. are subject to duty only if they contain silk or man-made fibres. The height of the tariff often varies with the percentage weight of silk and man-made fibres embodied in the product. In such cases an arithmetical average of the various tariffs has been taken.

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