THE
ECONOMIC RESEARCH INSTITUTE

The Cost Structure of Irish Industry, 1950-60

by

EDWARD NEVIN

THE ECONOMIC RESEARCH INSTITUTE

EXECUTIVE BOARD 1964-65

The Cost Structure of Irish Industry, 1950-60

The Cost Structure of Irish Industry, 1950-60

by EDWARD NEVIN[*]

1. INTRODUCTION

1. In order to examine the cost structure of Irish manufacturing industry—and especially the size and behaviour of its profit margin—it is necessary to make estimates of the total factor input at the cost of which output was secured. This study presents an estimated reconstruction, based on Census of Production and other data, of the structure of all cost elements which went to make up the final selling-value of the output of Irish manufacturing industry during each of the years 1950–60. The object of the analysis is to throw some light on the relative significance of various categories of cost in the overall rise in the prices of Irish manufactured goods during the period. In some respects the analysis is similar to that conducted by J. C. R. Dow for the British economy over the period 1946–54.[1] It differs from Dow's analysis, however, in seeking to examine a more narrowly-defined sector in greater detail and for a longer period of years. It must be emphasised at the outset, that the present study makes no attempt to investigate the trend of costs in a causative sense; it seeks to establish *what* happened, rather than why. It resembles, in principle and technique, a comparable study carried out by the present author for British manufacturing industry over the period 1948–61, the results of which have been published elsewhere.[2]

2. Put briefly, the technique of analysis consists of the application of what would appear to be reliable indicators to basic input-output data—in the Irish case to the input-output table for 1956. The only exception to this generalisation is that the estimates for capital consumption are those presented in a previous Institute paper,[3] rather than those used in the national income estimates themselves, which are essentially based on income-tax data. The use of the input-output estimates permits one to come fairly close to a value-added basis, rather than that of gross and net output as revealed in the Census of Production.

3. The benchmark data for 1956 were extended backwards and forwards with the aid of various indicators. The precise details of these are set out in the notes to Appendix Table A; very broadly they were as follows:

   (a) *Agricultural inputs :* gross output of Irish agriculture *less* exports *less* consumption on farms.

   (b) *Other domestic materials :* total purchases of materials *less* imported materials *less* agricultural materials.

   (c) *Imported materials :* C.S.O. series for " materials for further processing (non-agriculture)" in foreign trade statistics.

   (d) *Rent and rates :* total buildings in use, combined with indices of average levels of rent and rates respectively.

   (e) *Labour :* total wages and salaries, Census of Production.

   (f) *Taxes less subsidies :* totals of revenue from relevant taxes and expenditure on industrial subsidies.

As stated earlier, the totals for capital consumption were taken from an earlier study of the capital stock employed in Irish manufacturing industry. Profits were taken as the difference between total sales value and total costs, including taxes.

4. A special word is necessary concerning imports. In the first place, the input-output table gives estimates of the direct purchases of imports by each industrial group, and it is these which have been used throughout this study. It should be remembered, however, that this will neglect the import content of materials, including semi-manufactures, from other parts of the domestic economy. Any attempt to make allowance for these indirect imports would have complicated the analysis very considerably; furthermore, since the study is primarily concerned with comparative movements over time, it would have added relatively little to the significance of the findings. A second point about imports is that their notorious instability in the

[*]The author of this paper was a Senior Research Officer of the Economic Research Institute. The paper has been accepted for publication by the Institute. The author is responsible for the contents of the paper including the views expressed therein.

[1]J. C. R. Dow, "Analysis of the generation of price inflation. A study of cost and price changes in the United Kingdom, 1946–54," *Oxford Economic Papers*, Vol. 8, No. 3, October 1956 and Vol. 9, No. 1, February 1957.

[2]"The cost structure of British manufacturing, 1948–61," *Economic Journal*, Vol. LXXIII, No. 292, December 1963; Economic Research Institute Reprint No. 3.

[3]*The capital stock of Irish industry*, Economic Research Institute Paper No. 17, Dublin 1963.

short run in the face of stock movements makes a single annual total of imports a relatively poor guide to the actual consumption of imported materials during the year in question. In indexing the benchmark data backwards and forwards, therefore, the external trade data were used in the form of two-year moving averages—e.g., the consumption of imports in 1960 was taken as the average of imports in 1959 and 1960.[4]

5. In order to make it manageable, the analysis was confined to manufacturing industry as a whole, with no separation of particular industrial groups. Like all averages the results therefore conceal the divergences between particular components. The breakdown for 1956 shown in Table 1 gives some idea of the magnitude of the variations involved; for example, while labour costs account for 20 to 35 per cent. of final value in most industries, it accounted for as little as 9 per cent. in the drink and tobacco industry. A similar situation prevails in the case of all other cost elements. For a broad impression of trends over a period of years this variation within an average is not likely to be particularly damaging for a study such as this; it would seriously qualify the extent to which an analysis of industry as a whole at a particular time

[4] In other words it was implicitly assumed that a six-month lag existed between the importation of materials and their utilisation in manufacturing.

could be taken as typical of any given industrial group, however.

6. There is one further point arising from the industrial breakdown given in the 1956 input-output table and the Census of Production. The expression "purchases from other industries" is capable of a number of meanings. At one extreme it could refer to all purchases from all other enterprises, including those within the category of manufacturing industry; at the other, it could refer only to purchases from sectors outside manufacturing. The choice cannot affect the absolute magnitude of the totals for other cost elements but, by changing the value of both material purchases themselves and gross output, it can and will affect their relative magnitude. There is no single answer to a problem of this sort, and for a comparative study such as this, little significance attaches to the precise convention adopted provided that consistency is retained throughout the period under review. Arbitrarily, therefore, as something of a compromise the industrial classification shown in Table 1 was employed and purchases were taken as all purchases outside the group itself—e.g., purchases by the food industry were taken as purchases from all industries other than food, and so on. The totals for manufacturing industry were then taken as the sum of the totals for the component groups.

TABLE 1: INDUSTRIAL COST STRUCTURE, 1956*

% of total

Industry	Home materials	Imports	Labour	Capital	Profits	Net taxes
1. Food	72·7	15·9	13·0	2·8	4·2	—8·6
2. Drink and Tobacco ..	9·6	10·1	8·8	2·6	9·3	59·6
3. Textiles	16·2	46·3	21·8	3·4	12·3	—
4. Clothing	36·5	19·7	28·9	1·9	12·2	0·8
5. Wood	20·8	31·7	33·6	3·0	9·9	1·0
6. Paper	13·1	31·9	36·2	5·6	11·9	1·3
7. Chemicals	15·3	57·6	16·1	3·4	6·8	0·8
8. Minerals	30·6	23·5	27·1	4·7	12·9	1·2
9. Metal Products ..	12·9	46·0	28·2	1·5	8·0	3·4
10. Other manufacturing ..	15·7	40·1	27·1	5·7	10·0	1·4
TOTAL ..	35·9	24·0	19·0	2·8	8·2	10·1

*In this and subsequent tables, " Clothing" includes leather and footwear, "Paper" includes printing and the term "Minerals" is taken to refer to the processing of non-metalliferous mining products—glass, bricks, pottery, cement, etc.

2. TOTAL COSTS, 1950-60

7. The detailed breakdown of manufacturing costs at current prices during 1950–60 is shown in Appendix Table A. A more digestible summary is shown for alternate years in Table 2.[5] The items

[5] All the items are shown separately, however, in Appendix Table B.

have been classified into what would seem a convenient grouping. Expenditures on rent and rates, for example, have been added to those of domestically-produced materials and services to give a single total for "home materials". Similarly,

the term "taxes"[6] covers both indirect taxes on products and materials used *minus* any subsidies received.

8. Between 1950 and 1960 the total market value of the output of Irish manufacturing industry sold to the rest of the world, including, of course, the rest of the Irish economy, rose by nearly £200 million in current prices, or by 90 per cent. over the 1950 total. Part of this represents an increased volume of output—in real terms output rose by about 35 per cent. over the whole period. An index of unit costs (1953 = 100) therefore rises from about 78 in 1950 to 110 in 1960, or by some 40 per cent. The percentage distributions (similar to those shown in Table 2) were therefore corrected by an index of unit costs to show how changes in unit cost have been distributed amongst the various categories. The pattern of movement may perhaps be best seen from the diagrammatic representation in Fig. 1.

9. The period can be said to fall into three broad phases :
    (i) 1950–53 : when the index of unit costs rose from 78 to 100 ;
    (ii) 1954–56 : when the index fell from 100 to 98 ; and
    (iii) 1957–60 : when the index rose again from 98 to 110.[7]

[6]The fact that taxes are included in the succeeding tables under the general shorthand expression "costs" does not necessarily imply adherence to any particular theory of tax incidence. If the level of taxation had been different the tables could have revealed an equivalent change in *either* final market value *or* in the profit margin, depending on whether the tax concerned was or was not passed on to the consumer in the form of higher prices.

[7]It should be noted, however, that a small element of this rise is something of an optical illusion ; the commencement of oil refining in 1959 involved the transfer of a substantial tax revenue previously collected as Customs duties (and excluded from the tables) into the categories of excise duties imposed on home industry. By 1960 the amount involved was nearly £13 million. If this was excluded the rise in the index of unit costs between 1956 and 1960 would have been from 98 to 106–7 rather than from 98 to 110.

10. As Table A shows, between 1950 and 1953 total costs (excluding profits) rose by about £61 million, while reduced expenditure on imports accounted for a further £4 million. The cost to the final consumer, however, went up even more, by some £84 million—both the profit margin and the net tax element increasing sharply in both absolute and relative terms. When unit values fell between 1953 and 1956, however, the wage and salary earners were clearly the major beneficiaries. The cost of all purchases of materials and services was reduced by about £2 million (despite a 4 per cent. rise in real output), but the consumer spent about £5 million more on the final output. This corresponds closely with the increase of about £7 million in labour costs over the period ; profits and net taxes were substantially unchanged. As a result the share of labour costs in final value rose from 16·7 to 19·0 per cent. of the total.

11. Of the rise in unit costs between 1956 and 1960, however, it is clearly the increased expenditure on materials—especially domestic materials—which accounted for the greater part. Total purchases outside manufacturing industry rose by some £63 million while the total cost of the output to consumers (apart from the rise of about £20 million in net taxes—see footnote 7 above) rose by £84 million. Primary inputs thus accounted for only a quarter of the increased cost, although they represented 30 per cent. of total costs in 1956.
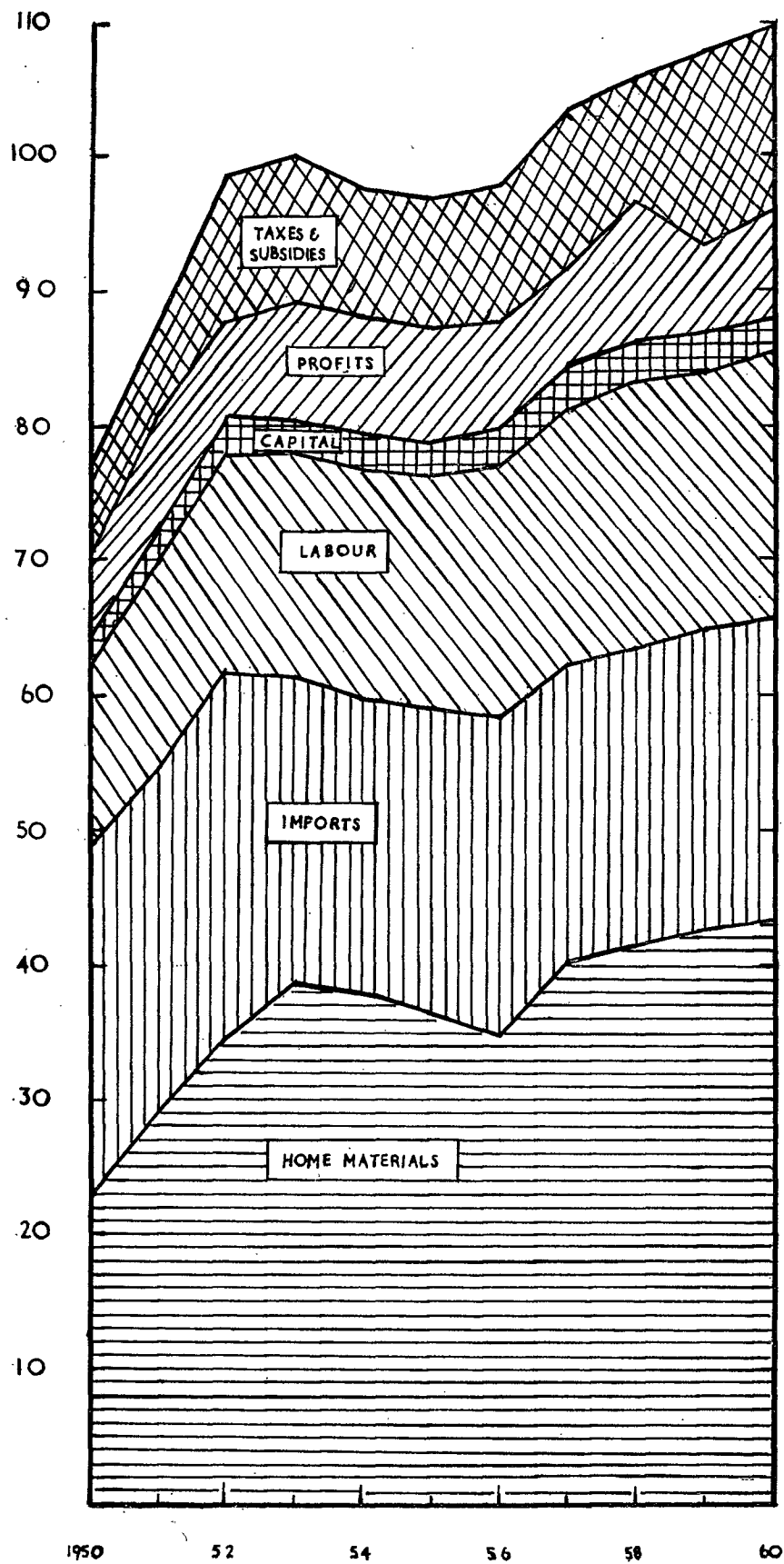
12. Leaving aside the rather spurious rise in the share of net taxes in 1959 and 1960, to which reference has already been made, the broad impression left by the movements in Fig. 1 is that the relative share of primary inputs has remained extraordinarily stable over the years in question. In 1950, labour, capital consumption and profits together accounted for 27·8 per cent. of total costs ; by 1956 this share had risen to 30 per cent., but in 1960 it was back again to 27·4 per cent.—almost

TABLE 2 : COST STRUCTURE OF IRISH MANUFACTURING INDUSTRY, 1950–60*

(At current prices)

	£ million						% of total					
	1950	1952	1954	1956	1958	1960	1950	1952	1954	1956	1958	1960
1. Home materials ..	63·2	94·4	116·2	107·5	130·2	159·4	29·6	35·3	38·9	35·6	39·1	39·2
2. Imports (direct) ..	71·3	72·9	66·8	72·6	69·9	83·4	33·4	27·3	22·4	24·0	21·0	20·5
3. Labour	38·0	44·4	52·1	57·3	61·4	72·3	17·8	16·6	17·4	19·0	18·5	17·8
4. Capital consumption	5·7	7·2	7·6	8·6	9·3	9·8	2·7	2·7	2·5	2·8	2·8	2·4
5. Profits	15·5	19·3	26·8	24·8	31·8	29·3	7·3	7·2	9·0	8·2	9·6	7·2
6. Net taxes	19·7	29·3	29·2	31·5	30·0	52·0	9·2	11·0	9·8	10·4	9·0	12·8
TOTAL FINAL VALUE	213·4	267·5	298·6	302·3	332·5	406·3	100	100	100	100	100	100

*Totals in this and subsequent tables may not coincide with the sum of individual items because of rounding.

110

100

90

80

70

60

50

40

30

20

10

TAXES &
SUBSIDIES

PROFITS

CAPITAL

LABOUR

IMPORTS

HOME MATERIALS

1950   52   54   56   58   60

FIG. 1

4

identical with the 1950 figure. The really striking change has been the shift in the relative importance of home and imported materials respectively. In 1950 home materials and direct imports accounted for 69 per cent. of total pre-tax costs; in 1960 this share was virtually unchanged at 68 per cent. But whereas in 1950 direct imports accounted for 53 per cent. of these purchases, by 1960 their share had fallen to 34 per cent.

13. It is possible, of course, that this decline in the relative importance of direct imports in the cost structure of Irish manufacturing has been offset by a compensating increase in indirect imports—i.e., in the import content of materials and components purchased from other domestic industries. Even if this has happened, its effect has not been such as to substantially modify the conclusion. In 1950 imports of materials for further production outside agriculture amounted to about 41 per cent. of the gross output of Irish manufacturing, including purchases and sales from and to all other manufacturing enterprises; by 1960 this proportion had fallen to less than 31 per cent.

3. PRICE AND VOLUME CHANGES

14. Much of the rise in unit costs previously referred to has obviously been due to increases in the prices of inputs, rather than in the quantity used. In Appendix Table B, therefore, the estimates of Table A have been re-calculated in 1953 prices; it will be seen that in constant prices the final market value of manufacturing output rose from about £262 million in 1950 to £355 million in 1960, which implies that of the rise of about £193 million in output at current prices about £100 million was due wholly to price changes.

15. In Table 3 the relative importance of price and volume effects is shown for each of the major elements in final value, the period 1950–60 being divided into the three phases identified earlier— 1950–53, 1954–56 and 1957–60. It will be observed that these differ materially in their character.

16. In the first phase, volume effects (i.e., increases in cost due to increased real inputs) and price effects had roughly equal impact on total manufacturing costs. In this case the major item in the inflationary contribution was the increased prices of materials, both domestic and imported, which is hardly surprising in view of the relative importance of such materials in total costs. In 1954–56, however, the comparative role of wage inflation in Irish manufacturing was considerably greater, accounting for nearly 90 per cent. of the total price-effect on costs, compared with only 18 per cent. during 1950–53. (Similarly, of the total increase in labour costs, price effects accounted

TABLE 3 : CHANGES IN MANUFACTURING COSTS, 1950–60

£ million

Period	Domestic materials	Imports	Labour	Capital	Net taxes	Profits	Total
1950–53 :							
Due to volume	+38·2	−15·8	+ 2·7	+ 0·5	+ 8·4	+ 1.2	+35.2
Due to price ..	+14·1	+11·3	+ 9·0	+ 1·2	+ 4·4	+ 8·6	+48·8
Total ..	+52·3	− 4·5	+11·7	+ 1·7	+12·8	+ 9·8	+84·0
1954–56 :							
Due to volume	− 3·6	+ 1·4	+ 0·3	+ 0·6	− 3·5	+ 1·5	− 3·3
Due to price ..	− 4·0	+ 4·4	+ 7·3	+ 0·6	+ 2·0	− 2·0	+ 8·2
Total ..	− 7·6	+ 5·8	+ 7·6	+ 1·2	− 1·5	− 0·5	+ 4·9
1957–60 :							
Due to volume	+43·6	+ 8·5	+ 2·7	+ 0·5	+15·0	− 9·2	+61·1
Due to price ..	+ 8·5	+ 2·3	+12·3	+ 0·7	+ 5·3	+13·7	+42·9
Total ..	+52·1	+10·8	+15·0	+ 1·2	+20·3	+ 4·5	+104·0
1950–60 :							
Due to volume	+78·2	− 5·9	+ 5·7	+ 1·6	+19·9	− 6·5	+93·0
Due to price ..	+18·6	+18·0	+28·6	+ 2·5	+11·7	+20·3	+99·9
TOTAL ..	+96·8	+12·1	+34·3	+ 4·1	+31·6	+13·8	+192·9

for 96 per cent. during 1954–56 but only 77 per cent. during 1950–53.) Over 1950–54 as a whole, the rise in the prices of materials contributed less than a half of the total cost inflation directly, although within the period the effects in individual years were occasionally greater.

17. What is perhaps of particular interest is the behaviour of profits during these two phases. During 1950–53 the rise in product prices was even greater than that of costs. Without price changes, increased output and productivity would have raised profits by some £1·2 million at 1953 prices; in actual fact the rise in costs was augmented by a rise of £8·6 million in profits over and above this "real" increase in profits, and as a result overall profits were raised by just under £10 million—nearly as much as the increase in labour costs. During 1954–56 the position was reversed; not only were profits not raised by the amount arising from increased output in real terms, but were actually reduced; the cost inflation was to a significant degree absorbed by reduced profit margins and final unit values rose less rapidly than costs. Summing up, it can be said that of the price inflation in Irish manufacturing during 1950–56, increased wages and profits within manufacturing itself accounted for only about 22 and 10 per cent., respectively. The remainder was attributable mainly to the higher costs of domestic materials; increased net taxes also added about 12½ per cent. to final prices.

18. A similar contrast is observable between 1954–56 and 1957–60. The magnitude of the average annual rise in total costs was far greater in the latter period of course, but whereas in the earlier period the rise was wholly inflationary (i.e., corresponding to no increase in real inputs), in the 1957–60 period wider profit margins were allowed to offset the fall in profits which would have arisen from the real forces at work. The cost inflation passed on to the consumer—equivalent in all to some £43 million—owed more to higher profits than to wage inflation, or, for that matter, to price effects from any of the main groups of cost factors. The difference in the relative importance of wage inflation is striking; in 1954–56 about 90 per cent. of the total price effect on costs was directly attributable to labour, but in 1957–60 less than 30 per cent. arose from wage inflation.[8]

19. Over 1950–60 as a whole, then, the importance of the price element in total costs—that is to say,

[8] In the United Kingdom the pattern was reversed. In the earlier period (1955–58) wage inflation caused only 50 per cent. of total price effects; in the latter period (1959–61) the proportion had risen to 87 per cent.

6

the inflationary, as opposed to the real, increase in manufacturing costs—was roughly equal to that of increased real inputs; about 29 per cent. of this was attributable to labour and about 20 per cent. to profit inflation. The bulk of the remainder was attributable to increased prices of materials—domestic and imported in roughly equal measure—and higher net indirect taxes; the role of capital costs was relatively small. Some of this cost inflation, however, was attributable to the maintenance of monetary profit margins; although profits in 1960 were nearly twice as high in absolute terms as in 1950 (at current prices) they would actually have been lower if the 1953 level of prices had applied to cost elements and final products throughout. All of the increased profits earned in 1960 in comparison with 1950, in other words, arose from a policy of passing on to final prices something over and above the full impact of increased costs.

20. Without seeking to embark on a causative analysis of the process, it is apparent that changed demand conditions must underlie the contrast between 1954–56, on the one hand, and both 1950–53 and 1957–60 on the other, so far as the behaviour of profits is concerned. In the latter periods increased costs were not only passed on wholly in the form of higher prices: they were augmented by purely inflationary increases in profits. That this did not happen in 1954–56 is most convincingly explained by the reduced buoyancy of final demand, at home and abroad. The text-book description of the distributive effects of inflation, wherein wages pursue prices and profits upwards but never overtake, could be said to fit 1950–53 and 1957–60, but is manifestly unrealistic in connection with 1954–56.

21. It follows that if changes in the distribution of total costs in real terms are compared with those in money terms something of a contrast arises. This is shown in Table 4, the end-years being assumed

TABLE 4: TOTAL COSTS IN IRISH MANUFACTURING, 1950–60

	At current prices		At constant (1953) prices	
	1950	1960	1950	1960
Domestic materials	29·6	39·2	29·5	43·7
Imports (direct) ..	33·4	20·5	31·5	21·6
Capital	2·7	2·4	2·6	2·4
	65·7	62·1	63·6	67·7
Taxes (net) ..	9·2	12·8	9·2	12·5
Labour	17·8	17·8	17·9	14·8
Profit	7·3	7·2	9·2	5·0
	100·0	100·0	100·0	100·0

to constitute a representative position at the beginning and end of the period respectively. In terms of current prices the table suggests a fall during the period in the proportion of final value accounted for by materials and capital consumption. Price changes apart, however, the relative importance of materials and capital cost would have been increased. The share taken by labour and profit, on the other hand, was virtually unchanged in terms of current prices. In real terms, however, it fell from 27·1 per cent. in 1950 to 19·8 per cent. in 1960.

22. How far it is useful to speculate on what would have happened to the various cost elements in the absence of price movements which in fact did occur is, of course, highly questionable. The contrast between the shifting input-pattern in real and money terms does illustrate, however, the way in which the conclusions to be drawn from cost-data

such as those discussed here can vary according to which price-level is assumed to apply. For example, the analysis of costs in constant prices would suggest that between 1950 and 1960 the impact of final price of, say, a 10 per cent. rise in labour costs—all other magnitudes remaining unchanged in absolute terms—fell from about 1·8 to about 1·5 per cent. The course of money wages over the period has been such, however, that this conclusion would be an incorrect one; in terms of current prices the effect on final value of a 10 per cent. rise in labour costs, cet. par., in fact remained at about $1\frac{3}{4}$ per cent. between the two years. Similarly, the impact on final value of a 10 per cent. rise in import costs, cet. par., in terms of constant (1953) prices fell from 3·2 per cent. in 1950 to 2·2 per cent. in 1960; in terms of current prices, however, it fell from 3·3 per cent. to 2·1 per cent.

4. PROFITS AND PROFITABILITY

23. The question of how the level of profit in Irish industry compares with profits in industry elsewhere has frequently been posed and is of obvious importance. The difficulties attached to international comparisons of this kind are well enough known and need not be further stressed here. The analysis presented in this paper, and in the corresponding analysis of British manufacturing industry to which reference has already been made, does permit some sort of rough comparison to be drawn. The data are set out in Table 5.

24. Profits are conventionally measured as a rate of return on capital employed, and this is done in cols. 4 and 5 of the table. It is rather surprising that except in 1950 the rate of profitability on manufacturing capital has consistently been higher in Ireland than in Britain. The reliance which can be placed on this result, however, is severely limited. The difficulty is that the capital stock can be valued in different ways, and its total value is not an unambiguous concept. In particular, the capital stock estimates for the United Kingdom approximate to a gross replacement value, whereas those

TABLE 5 : PROFITS AND PROFITABILITY IN BRITISH AND IRISH MANUFACTURING INDUSTRY, 1950–60*

Year	Profits £ mn.		As % of			
			Capital stock		Turnover	
	Ireland	U.K.	Ireland	U.K.	Ireland	U.K.
1	2	3	4	5	6	7
1950 ..	15·5	1,258	11·3	12·0	6·7	9·9
1951 ..	24·9	1,476	16·1	12·7	9·3	9·6
1952 ..	19·3	1,205	10·7	9·1	6·6	7·6
1953 ..	25·3	1,350	13·5	9·8	7·8	8·2
1954 ..	26·8	1,579	14·2	11·2	8·2	9·0
1955 ..	26·6	1,691	13·4	11·2	8·0	9·0
1956 ..	26·8	1,621	11·6	9·9	7·5	8·2
1957 ..	22·0	1,706	9·8	9·7	6·4	8·1
1958 ..	31·8	1,637	13·8	8·8	8·7	7·8
1959 ..	22·9	1,877	10·0	9·9	5·8	8·5
1960 ..	29·3	1,928	12·3	9·9	6·7	7·9

*Sources : IRELAND :—Col. (2) :   Appendix Table A.
                   Col. (4) :   Capital stock from Nevin, op. cit.
                   Col. (6) :   Turnover as shown in Annual Census of Production.

     U.K. :—   Col. (3) and (5) : Nevin, "The cost structure of British manufacturing," loc. cit.
               Col. (7) :   Gross output from Census of Production; non-census years interpolated with aid of index of industrial production and index of final output values.

employed for Ireland probably approximate more closely to a net (i.e., written-down) value. This difference between gross and net valuation could easily account for—and indeed reverse—the suggested relationship between the profitability of industrial capital in the two countries.

25. The calculation of profits in relation to gross output—as shown in cols. 6 and 7—is therefore a more reliable one for comparative purposes. (In this context gross output is taken as including all sales and purchases to or from all other enterprises.) It will be seen that, again with one exception (1958), the relationship is now reversed; the profit rate in Irish industry is consistently smaller than in Britain, although the difference between the two countries is not generally very large. How far the comparison would be affected if some allowance were made for differing tariff levels is, of course, very much another story and this is too big an issue to investigate here.

5. CONCLUSION

26. Since the primary aim of this article has been to describe and illustrate a technique of cost/price analysis, rather than to examine any particular proposition regarding Irish industry, there would not appear to be need for a summary of the issues discussed in the previous sections. The main point is that the method permits an analysis of changes in the various cost ingredients in terms of final price rather than of net output or value added, which for many types of problem is a step in the direction of realism. The object of this paper has been to set out the results in such a form as to allow readers interested in particular aspects of industry to apply them in the most convenient way.

27. The method is clearly capable of extension, although probably at the cost of reduced reliability. For example, estimates of the cost structure of particular industries within the broad manufacturing sector might reveal interesting divergences in labour costs, profit margins, and so on. Again, concepts such as "real wages" often have an element of ambiguity which aggregation tends to conceal. From the point of view of labour, real wages are measured by relating money wages to the cost of living; from the entrepreneur's point of view, however, the more important concept is money wages in terms of the price of his own particular product. The higher the level of aggregation, the less easy it is to disentangle the two concepts.

28. The accuracy of this type of analysis can only be satisfactorily tested, of course, as input-output tables appear from time to time. In the nature of the case, this is unlikely to be a frequent occurrence and the checks are bound to relate several years back in time. A method such as that described here could therefore have a useful role for the assessment of the effects of policy measures —tariff changes, wage policies and so on—which cannot always await the availability of full input-output data.

8

APPENDIX TABLE A

COST STRUCTURE OF IRISH MANUFACTURING INDUSTRY, 1950–60

£ million at current prices

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
1. *Domestic materials*											
1.1 Agricultural	50·3	55·2	55·7	61·8	61·6	67·4	66·2	64·9	60·1	70·2	65·1
1.2 Industrial	7·4	15·4	22·8	31·7	32·3	28·6	24·2	34·1	41·5	44·1	56·0
1.3 Services	4·9	10·3	15·2	21·2	21·6	18·1	16·3	22·7	27·7	29·4	37·3
1.4 Total	62·6	80·9	93·7	114·7	115·5	114·1	106·7	121·7	129·3	143·7	158·4
1.5 Imports (direct)	71·3	71·6	72·9	66·8	66·8	71·7	72·6	67·6	69·9	75·6	83·4
1.6 Total materials	133·9	152·5	166·7	181·6	182·3	185·8	179·3	189·3	199·2	219·4	241·8
2. Rent	0·6	0·7	0·7	0·7	0·7	0·8	0·8	0·8	0·9	0·9	1·0
3. Rates	0·6	0·6	0·6	0·7	0·7	0·8	0·9	1·0	1·1	1·1	1·2
4. Total purchases	135·1	153·7	168·0	183·0	183·8	187·4	181·1	191·2	201·1	221·4	244·0
5. Labour	38·0	42·5	44·4	49·7	52·1	54·9	57·3	57·9	61·4	65·4	72·3
6. Capital consumption	5·7	6·3	7·2	7·4	7·6	8·1	8·6	9·1	9·3	9·4	9·8
7. Profits	15·5	24·9	19·3	25·3	26·8	26·6	24·8	22·0	31·8	22·9	29·3
8. Total costs	194·3	227·3	238·9	265·4	270·3	277·0	271·8	280·2	303·6	319·2	355·4
9. Taxes	29·1	30·2	36·8	38·8	38·1	39·0	39·9	42·2	41·6	51·4	57·9
10. Subsidies	−9·9	−12·7	−8·2	−6·8	−9·7	−9·5	−9·4	−7·4	−12·7	−3·2	−7·1
TOTAL FINAL VALUE	213·4	244·8	267·5	297·4	298·6	306·5	302·3	315·0	332·5	367·3	406·3

APPENDIX TABLE B

COST STRUCTURE OF IRISH MANUFACTURING INDUSTRY, 1950–60

£ million at 1953 prices

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
1. *Domestic materials*											
1.1 Agricultural	61·1	61·0	59·4	61·8	62·4	65·4	70·8	65·0	58·6	68·6	65·4
1.2 Industrial	9·3	16·2	23·1	31·7	33·2	29·4	25·4	35·5	43·8	45·6	57·9
1.3 Services	6·3	12·2	16·8	21·2	21·3	17·1	14·7	20·0	24·0	24·5	31·2
1.4 Total	76·7	89·4	99·3	114·7	116·9	111·9	110·9	120·5	126·4	138·7	154·5
1.5 Imports (direct)	82·6	67·9	68·5	66·8	67·9	71·8	68·2	60·0	63·8	70·1	76·7
1.6 Total materials	159·3	157·3	167·8	181·5	184·8	183·7	179·1	180·5	190·2	208·8	231·2
2. Rent	0·6	0·7	0·7	0·7	0·7	0·7	0·8	0·8	0·8	0·8	0·8
3. Rates	0·6	0·7	0·7	0·7	0·7	0·7	0·8	0·8	0·8	0·8	0·8
4. Total purchases	160·5	158·7	169·2	182·9	186·2	185·1	180·7	182·1	191·8	210·4	232·8
5. Labour	47·0	47·8	47·0	49·7	50·6	50·8	50·0	49·2	49·7	51·1	52·7
6. Capital consumption	6·9	7·1	7·3	7·4	7·7	7·9	8·0	8·1	8·2	8·3	8·5
7. Profits	24·2	23·7	10·9	25·4	31·8	39·1	26·9	19·3	21·7	14·3	17·7
8. Total costs	238·6	237·3	234·4	265·4	276·3	282·9	265·6	258·7	271·4	284·1	311·7
9. Net taxes	23·6	20·1	30·1	32·0	28·4	28·6	28·5	31·1	24·7	41·5	43·5
TOTAL FINAL VALUE	262·2	257·4	262·5	297·4	304·7	311·5	294·1	289·8	296·1	325·6	355·2

9

Notes to Tables

Table A

The 1956 data were taken from the official input-output table for that year (currently unpublished). Each series was taken backwards and forwards by an index number calculated from the following sources:—

Line

1·1 "Other home consumption" of output of Irish agriculture—i.e. total output *minus* farm consumption *minus* exports. For 1950–57, *Statistical Abstract* 1958, (S.A. 1958), Table 61, p. 83. Series continued (by linking with 1957) with gross output of agriculture *minus* value of exports—S.A. 1962, Tables 80–81, pp. 100–2.

1·2 On the basis of the 1956 data, the division of total non-agricultural domestic materials (i.e. 1·4 *minus* 1·1) was taken as 60 per cent industry and 40 per cent services.

1·3 See 1·2. Taken as 40 per cent of 1·4 *minus* 1·1.

1·4 Difference between 1·6 and 1·5.

1·5 Imports of materials for further processing, non-agriculture. Lagged six months (i.e. 1950 taken as half 1949 *plus* 1950)

1·6 Total materials used, Census of Industrial Production (C.I.P.).

2 Total buildings in use—see Nevin, *The Capital Stock of Irish Industry*. Index was multiplied by index of rents. ("Rent" in old retail price index linked to "Housing" in current retail price index.)

3 Same index of buildings multiplied by index of rate poundage (total rate receipts as percentage of all rateable values).

4 Sum of 1·6, 2 and 3.

5 Index from total wages and salaries, C.I.P.

6 Depreciation as calculated in Nevin, *The Capital Stock of Irish Industry*. For 1960, estimates based on an extrapolation from C.I.P. data.

7 Line 8 *minus* (4 *plus* 5 *plus* 6).

8 Line 11 *minus* 9 *plus* 10.

9 Net revenue (to March 31st of following year) from appropriate Customs duties (tobacco, tobacco stocks, motor vehicles) and appropriate Excise duties (beer, spirits, cider, matches, oil, table waters, tobacco and tyres). All data in various S.A.

10 Appropriate subsidies to March 31st of following year (Dairy produce, Pigs and Bacon Commission, Wheat, Food and Fertilisers.) *National Income and Expenditure* 1961, Table A, 16, p. 47 for 1953–60. For 1950–52, series continued back with total subsidies as shown in S.A. national income tables.

11 Gross output (C.I.P.) *plus* Excise taxes (see line 9).

Table B

The series shown in Table A were deflated by the following price indices:

1·1 Output of Agriculture—S.A.

1·2 Output of all industry.

1·3 As for 1·2.

1·5 Imports of materials for further processing (industrial).

2 Rent index—see Table A, Line 2.

3 Rates index—see Table A, Line 3.

5 Average hourly earnings of industrial workers.

6 Price index of capital goods used in transportable goods industries.

9 Sum of 9 and 10 in Table A deflated by cost of living index.

10 1953 value taken backwards and forwards by index of output of all manufacturing industry.

Reprint Series :

THE ECONOMIC RESEARCH INSTITUTE

Publication Series :