NESC REPORT NO. 10

CAUSES AND EFFECTS OF INFLATION IN IRELAND

By

Professor E. V. Morgan

Price: £5.70p

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NATIONAL ECONOMIC AND SOCIAL COUNCIL

Causes and Effects of Inflation in Ireland

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Professor E. V. Morgan

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased from the
GOVERNMENT PUBLICATIONS SALE OFFICE, G.P.O. ARCADE, DUBLIN 1
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PREFACE

The Council, on the recommendation of the Economic Policy Committee, decided that a comprehensive study on the causes and effects of inflation in Ireland was required. Professor E. V. Morgan was commissioned to undertake this study. The Economic Policy Committee discussed a draft of the report with Professor Morgan at its meeting on 2 December 1974. Professor Morgan in preparing the final draft of his report also had before him written comments from bodies represented on the Council.

The Council at its meeting on 23 January 1975 accepted the view of the Economic Policy Committee that Professor Morgan's report should be published, so that it could be discussed by all interested parties. The decision to recommend that the report should be published does not mean that the Council accepts all of Professor Morgan's analyses and conclusions—indeed, some members are in fundamental disagreement with parts of the report.

Professor Morgan's report was discussed on 18 April 1975 at a one-day seminar attended by academic economists, research workers and other experts. The Council agreed to prepare a report on inflation following the seminar.

At its meeting on 5 June 1975 the Council completed its discussions on a report on inflation. That report was submitted to the Minister for Finance on 11 June 1975 with a recommendation that it should be published as Report No. 9.

CAUSES AND EFFECTS OF INFLATION IN IRELAND

by

E. Victor Morgan

I should like to acknowledge valuable help from Mrs. S. Scott of the Economic and Social Research Institute, Mr. T. Ferris of the National Economic and Social Council, Mrs. Ann D. Morgan and Miss Colette Cregan in research work; and from numerous representatives of business organisations and trade unions, and members of the public service, who gave their time to talk to me. I should also like to thank the members of the Economic Policy Committee of the National Economic and Social Council who commented on the first draft of this report. Many of these comments have helped me to remove inaccuracies and, I hope, make clear points that were obscure or ambiguous. I must emphasise, however, that the opinions expressed in the report are entirely my own. Some of the comments I have received make it clear that, as I had expected, my conclusions on the relative rôles of excess demand and trade union power are not by any means universally accepted. This matter is still highly controversial but in my view it is fundamental if we are ever to regain control over inflation; I have presented all the relevant evidence that I was able to find, and I can only leave readers to judge whether my conclusions are rightly drawn.

E. Victor Morgan January 1975

SECTION I

THE DEFINITION AND MEASUREMENT OF INFLATION

Some Basic Problems

Though the fact of inflation is painfully familiar, it is not easy to define; most people think of it in terms of rising prices, but the price rises are the symptoms, not the disease itself, and not all price rises are even inflationary symptoms, e.g., those that may result from taxes imposed in a *deflationary* budget.

The most general definition is that inflation is a condition in which the money income of a community rises faster than its real income, but this raises the problem of how to measure real income. For some homogeneous goods and services it is possible to record physical volumes of output, e.g., tons of cement or passenger miles of public transport; but there are many goods and services for which this is not possible, and in any case, we cannot add up all the multitude of different products that make up the national income without using money values and, hence, prices. So if we want to measure inflation we have to fall back on some kind of average rate of increase of prices, expressed as an index number. In using index numbers we are, as it were, taking the patient's temperature and this is not always an accurate indicator of the progress of the disease.

Even this raises two sets of problems. First, nearly all the readily available index numbers measure price including tax, and so reflect changes in tax rates that may have nothing to do with inflation, or may even be intended to counteract it. The only index that is, in principle,

free from this blemish is the implicit "deflator" derived from estimates of national income at current and at constant "factor cost". However, there are a number of other drawbacks to the use of this index, including the fact that in Ireland it is only available annually and with a long time-lag.

Secondly, the use of an index number involves constructing a single figure to measure either changes in the aggregate cost of a given "parcel" of goods or an average of the price changes of a number of different goods. There are several methods by which this can be done and they do not produce by any means identical results. A further complication is that the components of an index have to be "weighted" so that each has an influence on the final figure proportionate to its importance. But the importance of different goods varies between different groups of people, and changes from time to time. The choice of weights may have an important effect on the behaviour of an index number. In particular, "base-weighted" indexes (i.e., those measuring changes in the cost of a parcel of goods bought in a "base" year some time ago), tend to show bigger price rises than "current-weighted" indexes (those designed to measure the cost of a "parcel" bought in the most recent period under consideration). The reason for this is simply that purchasers tend to switch from goods that have risen in price a lot to those that have risen less, so that goods showing a high price rise will be less important and will have smaller weights in a current-weighted index than a base-weighted one. For all these reasons, price index numbers give only an approximate measure of inflation, but they are the only measure that we have.

Irish Price Index Numbers

Table 1.1. shows a number of Irish price index numbers adjusted where necessary to a common base, 1953=100, while Table 1.2 shows year to year changes. The tables show several interesting features.

First, there are considerable differences in the rate of increase of the different series. For reasons that will be discussed shortly, the implicit "deflator" derived from estimates of gross domestic product (GDP) shows the biggest rise, followed by the consumer price index. Consumer prices have risen more than wholesale prices, probably because

TABLE 1.1

Index numbers of prices

1953=100

Year	Consumer	Wholesale			Import unit values	Export unit values	GDP*(a)* deflator
		General	Agriculture	Industry			
1954	100·1	98·6	98·7	98·0	100·7	98·4	96·2
1955	102·7	101·6	103·1	98·4	104·1	101·4	102·5
1956	107·1	103·1	93·5	102·8	106·1	95·9	104·7
1957	111·5	109·9	99·8	108·7	111·9	97·6	108·1
1958	116·5	113·5	102·5	112·3	107·0	100·1	114·4
1959	116·5	113·5	102·4	112·8	104·7	104·0	116·9
1960	117·0	112·9	99·6	114·4	106·6	102·2	117·6
1961	120·2	114·7	100·0	116·4	107·7	101·0	120·5
1962	125·3	118·3	101·7	120·8	107·6	101·9	126·0
1963	128·4	119·8	102·2	122·4	109·4	103·9	129·7
1964	137·0	126·8	113·1	128·1	110·4	109·6	142·2
1965	143·9	131·6	117·7	132·5	112·9	110·9	148·4
1966	148·2	134·2	115·9	137·9	112·9	112·9	155·0
1967	152·9	137·7	118·3	143·0	112·2	112·9	160·6
1968	160·1	145·9	130·4	149·4	121·5	121·1	167·6
1969	172·0	156·4	134·1	159·8	126·4	128·5	182·4
1970	186·1	164·7	140·3	168·3	135·0	137·0	198·8
1971	202·8	173·6	150·1	176·9	143·1	147·5	219·1
1972	220·2	191·7*(b)*	182·3	189·5	149·7	167·4	249·1
1973	245·4	225·4	235·2	215·8	169·0	278·9	278·9
1974	287·0	249·2*(c)*	246·9*(d)*	246·2*(c)*	235·3*(e)*	239·6*(e)*	...

(a) Derived from expenditure estimates. CSO warn that figures prior to 1958 are less accurate than those for later years.

(b) Includes VAT from 1 November 1972.

(c) First two quarters.

(d) First three quarters.

(e) First five months.

Source: Irish Statistical Bulletin; Review of 1973 and Outlook for 1974; National Income and Expenditure; Trade Statistics of Ireland.

TABLE 1.2

Annual percentage change in prices

Year	Consumer	Wholesale			Import	Export	GDP deflator
		General	Agriculture	Industry			
1954	0·1	−1·4	−1·3	−1·2	0·7	−1·6	−0·4
1955	2·6	3·0	4·5	0·4	3·4	3·0	2·9
1956	4·3	1·5	−9·3	4·5	1·9	−5·4	2·1
1957	4·1	6·6	6·7	5·7	5·5	1·7	3·2
1958	4·5	3·3	2·7	3·3	−4·4	2·6	5·9
1959	0	0	−0·1	0·1	−2·1	3·9	2·1
1960	0·4	−0·5	−2·7	1·4	1·8	−1·7	0·6
1961	2·7	1·6	0·4	1·7	1·0	−1·2	2·5
1962	4·2	3·1	1·7	3·8	−0·1	0·9	4·6
1963	2·5	1·3	0·2	1·3	1·7	2·0	2·9
1964	6·7	5·8	6·6	4·7	0·9	5·5	9·6
1965	5·0	3·8	4·1	3·4	2·3	1·3	4·4
1966	3·0	2·0	−1·5	4·0	0	1·8	4·4
1967	3·2	2·6	2·1	3·7	−0·6	0	3·6
1968	4·0	6·0	10·2	4·5	8·3	7·3	4·4
1969	7·4	7·2	2·8	7·0	4·0	6·1	8·8
1970	8·2	5·3	4·6	5·3	6·8	6·6	9·1
1971	9·0	5·4	7·0	5·1	6·0	7·7	10·2
1972	8·6	10·4*(a)*	21·6	7·1	4·6	13·5	13·7
1973	11·4	17·6	30·7	13·9	12·9	22·3	12·0

(a) Includes VAT from 1 November 1972.
Source: Table 1.1.

the service of retailing, which is generally labour-intensive, has become relatively more expensive in relation to manufacturing, where there are more opportunities for offsetting rising labour costs by mechanisation. Differences in weighting between the two series may also have contributed to the faster rise in consumer prices.

Agricultural prices, which are largely governed by conditions in world markets, rose very slowly until the late '60s; but the pace then quickened and the rise from 1971 to 1973 was nearly 57%.

Both import and export prices (which are unit values derived from the trade returns) have risen much less than the general domestic

price level over the period as a whole. However, export prices rose more than consumer prices in 1972, and both export and import prices rose faster than consumer prices in 1968 and 1973. From 1953 to 1957 import prices were rising faster than those of exports; the gap was practically closed in 1959 but re-appeared in the early '60s. From 1964 to 1971 the two index numbers were very close together, but then exports began to rise faster and from 1971 to 1972 they rose by 13·5% against only 4·6% for imports. For 1972/73 the corresponding figures were 22·3% and 12·9%.

Further light is thrown on the high rate of increase of the GDP deflator by the information in Table 1.3. Because of the difficulty of getting accurate information for earlier years, this table goes back only to 1958. It shows the implicit deflators, obtained by dividing the constant price estimates into the current price ones, for the four main components of national expenditure—consumer's expenditure; current spending on goods and services by public authorities; gross fixed capital formation; and exports. The rise in consumer prices and export prices coincides almost exactly with that shown, over the corresponding period in the index numbers of Table 1.1. This is not surprising since a great deal of common information must be used in compiling the two sets of figures.

There is no index directly comparable with the deflators for gross fixed capital formation and spending by public authorities. The former shows a relatively small rise, but the cost of goods and services bought by public authorities went up by 198% between 1958 and 1973 compared to 117% for capital goods, 109% for consumer goods and only 99% for exports. This very big increase may be partly explained by the increase in the relative cost of labour-intensive services already mentioned in connection with retailing. It may also reflect a relative increase in the remuneration of public sector employees which, in turn could be associated with rising demand created by the rapid increase in public spending discussed in Section IV.

Even allowing for this big rise in the prices of public sector goods and services, it still appears that the GDP deflator in Table 1.3 has risen

by more than the average of its major components. The reason for this is that the expenditures shown in the first four columns all have some import content and, as already noted, the price of imports rose much less than that of domestic goods.

Despite the differences between the performance of different index numbers, there are some features that emerge very clearly from them all: prices in general showed an upward trend throughout the period, and there was a marked acceleration in the trend rate of inflation after 1967. However, the rate of increase has been by no means regular, and four periods of high inflation stand out fairly clearly—1956-58, 1962, 1964-65, and 1968 onwards. The last has, of course, been by far the most severe and long-continued.

TABLE 1.3

Implicit price deflators for main components of national expenditure

1958 = 100

Year	Consumers' expenditure	Public authorities' current spending	Gross fixed capital formation	Exports	GDP
1959	100·4	102·8	100·0	102·7	102·2
1960	101·2	106·7	101·9	101·7	103·8
1961	103·6	112·0	105·2	101·5	105·3
1962	107·7	118·7	108·8	103·1	110·2
1963	110·4	124·0	110·9	105·2	113·4
1964	117·5	143·0	117·8	110·4	124·3
1965	122·5	150·9	122·1	112·8	129·8
1966	126·7	157·3	125·4	114·8	135·5
1967	130·4	160·4	130·3	115·4	140·4
1968	137·0	172·6	135·0	122·9	146·5
1969	147·4	187·5	145·5	130·4	159·5
1970	159·8	212·4	157·3	139·0	173·9
1971	173·7	233·7	174·7	149·3	191·6
1972	187·8	265·3	191·8	167·3	217·9
1973	209·2	298·2	216·8	198·8	243·9

Source: National Income and Expenditure 1972. Tables A5 and A6 and corresponding tables for earlier years. 1973 figures are from "Review of 1973 and Outlook for 1974" and are provisional.

Consumer Prices in Ireland and the UK

The index number most widely used as a measure of inflation is that for consumer prices. It has the advantages that it measures inflation at the point where it has its maximum impact on ordinary life and on political decisions; and that broadly comparable index numbers are readily available for a large number of countries and at fairly frequent intervals.

Table 1.4 and Chart 1.1 show the Irish consumer price index and its UK counterpart, the index of retail prices, both recalculated to a base of 1953=100. The third column of Table 1.4 shows the Irish index as a ratio of the UK one, so that a rise in this figure implies that prices were rising faster in Ireland than in the UK and vice versa. From 1953 to 1961 (apart from 1957-58) the Irish price rise was the slower and by 1961 the gap between the two indexes was over 4 percentage points. This gap was virtually closed by the rapid Irish inflation of 1964-65 and in the five years 1964-68 the gap varied only from 0·1 to 1·0 points. In 1969 the Irish index moved ahead for the first time; from 1966 to 1973 Ireland had the higher increase in each year except 1971.

It is also worth noting that in three of the four periods of high inflation Irish prices rose faster than those of the UK, while in the fourth, 1962, the two index numbers rose by equal proportions.

Before accepting these findings at their face value we tried to test whether there could be a statistical illusion due either to the weighting of the two Index numbers or to changes in the relative importance of indirect taxes in the two countries. These tests, on which the statistical work was undertaken by Mrs. S. Scott of the Economic and Social Research Institute, presented a lot of difficulties. Only the main conclusions are summarised here and the details are presented by Mrs. Scott in an appendix.

In order to see whether differences in weighting had any significant effect, the Irish consumer price index was recalculated for 1972 and 1973 on a November 1968 base, and using UK weights. Since UK

TABLE 1.4

Consumer price index numbers in Ireland and the UK

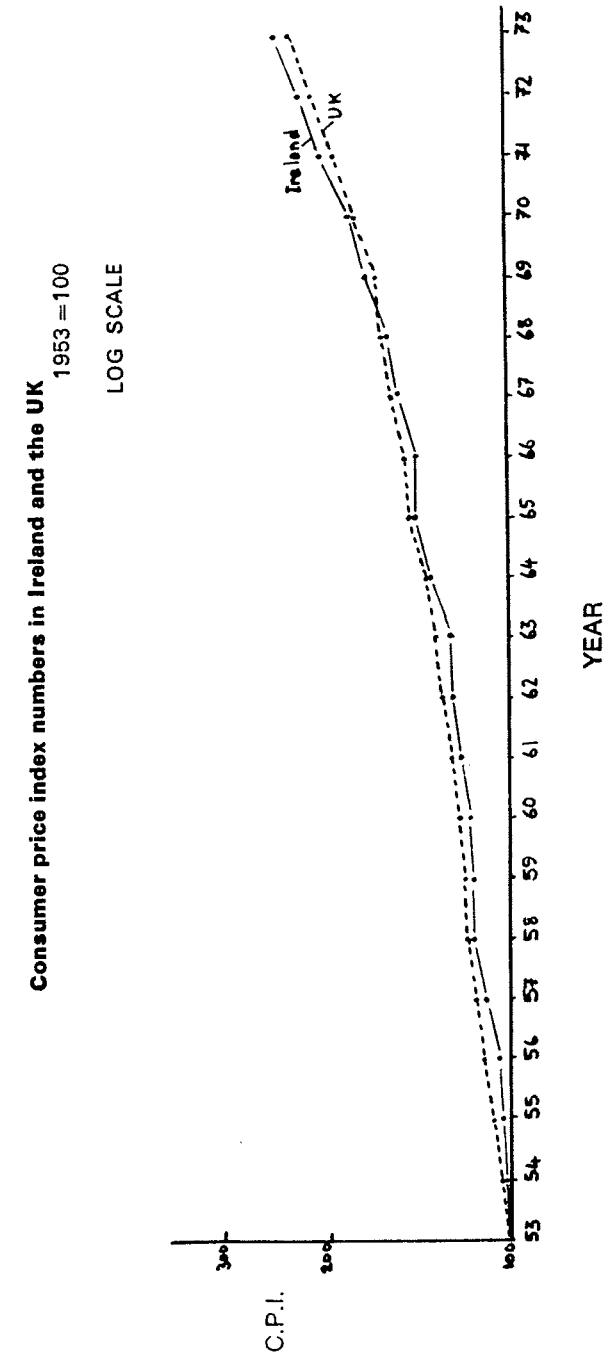
1953 = 100

Year	Ireland	UK	Irish index as % of UK
1954	100·1	101·8	98·3
1955	102·7	106·4	96·5
1956	107·1	111·6	96·0
1957	111·5	115·8	96·3
1958	116·5	119·3	97·7
1959	116·5	120·0	97·1
1960	117·0	121·2	96·5
1961	120·2	125·3	95·9
1962	125·3	130·6	95·9
1963	128·4	133·1	96·5
1964	137·0	137·5	99·6
1965	143·9	144·1	99·9
1966	148·2	149·7	99·0
1967	152·9	153·5	99·6
1968	160·1	160·6	99·7
1969	172·0	169·4	101·5
1970	186·1	180·2	103·3
1971	202·8	197·1	102·9
1972	220·2	211·2	104·3
1973	245·4	230·6	106·4
1974	287·0	267·0*(a)*	107·5

(a) Estimated on basis of January–November figures.
Source: Ireland: Irish Statistical Bulletin;
UK: Annual Abstract of Statistics; Monthly Digest of Statistics.

CHART 1.1

Consumer price index numbers in Ireland and the UK



weights are adjusted annually whereas Irish ones are not, the calculation was done both with constant 1968 UK weights and with current ones. The results are shown in Table 1.5. It is apparent from this table that, during the period 1968-73, differences in weighting have imparted no specific bias in either direction, and the figures using the three different weighting systems are never more than a single percentage point apart. If these differences had so little effect in a time of very rapid inflation, it is most unlikely that they would have been significant in earlier periods. Any doubts as to the comparability of the two index numbers can, therefore, safely be ignored.

TABLE 1.5

Irish consumer price index recalculated using UK weights

November 1968 = 100

Year and quarter		Published CPI	Recalculated using:	
			Current UK weights	1968 UK weights
1972	I	131·5	132·3	132·1
	II	133·5	134·2	134·0
	III	137·2	137·9	137·9
	IV	139·2	140·2	140·0
1973	I	144·7	144·3	145·1
	II	149·1	148·4	149·4
	III	152·6	151·8	152·0
	IV	156·8	156·2	156·9

Source: See text.

We found it impossible to obtain strictly comparable information on the effect of indirect taxation on UK and Irish index numbers. Indirect taxes less subsidies formed 17·1% of UK consumer spending in 1968, 16·0% in 1972, and 15·4% in 1973.

In Ireland, turnover tax, wholesale tax and excise duties accounted for 13·4% of consumer spending in November 1968. In November 1973

VAT had replaced turnover and wholesale taxes. If consumers had bought their 1968 quantities of all goods and services, VAT and excise duties would have accounted for 13·43% of expenditure; if they had maintained their 1968 expenditure pattern, the tax component would have amounted to 14·75%. The estimates for the UK are related to actual consumers' expenditure rather than to an assumed expenditure pattern, and they take account of local rates, import duties and subsidies, which do not enter into our estimates for Ireland.

Between 1968 and 1973 the Irish consumer price index rose by 6·7 percentage points more than that of the UK. The information given above, imperfect though it is, indicates that changes in taxes could, at most, explain only a small proportion of this. Two further pieces of evidence support this view. The Central Bank of Ireland's input-output analysis (shown in Table 7.1) indicates that the contribution of indirect taxes less subsidies to the rise in consumer prices fell sharply in each year from 1969-71. It should be noted, however, that this relative fall was due at least in part to the faster absolute rise in other items. Secondly, the implicit deflators derived from the national income accounts are very similar when calculated on market prices and on factor cost. The 1972 figure (expenditure data, 1968=100) is 148·7 at market prices and is actually a little higher, at 149·8 at factor cost.

Comparison with other EEC Countries

Comparisons with Britain alone are not very satisfactory since that country has one of the worst inflation records among Western industrial states. Table 1.6, therefore, gives comparative figures for the countries of the enlarged European Economic Community (EEC) excluding Luxembourg. Their respective index numbers have been calculated to a common base (1960=100) and year to year percentage changes are shown in brackets.

All the periods of high inflation already identified showed a marked deterioration of Ireland's performance relatively to that of the Community as a whole.

Apart from 1962 and 1964, Ireland performed relatively well up to

TABLE 1.6

Consumer prices in EEC countries

Index numbers 1960=100. Year to year changes in brackets.

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium *(a)*	101·0 (1·0)	102·2 (1·2)	106·5 (4·2)	110·7 (3·9)	115·3 (4·2)	118·9 (3·1)	122·9 (3·4)	126·1 (2·6)	131·5 (4·4)	135·7 (3·1)	143·2 (5·5)	152·5 (6·5)	163·5 (7·2)
Denmark	106·9 (6·9)	115·5 (8·0)	118·5 (2·6)	125·6 (6·0)	135·1 (7·6)	141·0 (4·4)	157·6 (11·8)	164·7 (4·5)	171·8 (4·3)	184·8 (7·6)	194·3 (5·1)	207·0 (6·5)	233·1 (12·6)
France	104·0 (4·0)	108·3 (4·1)	113·8 (5·1)	116·3 (2·2)	119·6 (2·8)	122·9 (2·8)	127·0 (3·3)	133·7 (5·3)	141·6 (5·9)	149·4 (5·5)	158·4 (6·0)	169·2 (6·8)	183·5 (8·5)
Germany *(b)*	102·7 (2·7)	105·5 (2·7)	109·0 (3·3)	111·4 (2·2)	116·2 (4·3)	119·2 (2·6)	119·6 (0·3)	123·3 (3·1)	126·9 (2·9)	131·9 (3·9)	139·5 (5·8)	148·5 (6·5)	157·8 (6·3)
Italy	102·8 (2·8)	109·6 (6·6)	117·1 (6·8)	123·9 (5·8)	128·0 (3·3)	131·0 (2·3)	134·3 (2·5)	135·6 (1·0)	141·2 (4·1)	148·9 (5·5)	155·8 (4·6)	167·9 (7·8)	189·0 (12·6)
Netherlands	101·9 (1·9)	105·0 (3·0)	108·8 (3·6)	114·9 (5·6)	122·0 (6·2)	127·1 (4·2)	132·3 (4·1)	137·9 (4·2)	146·8 (6·5)	155·2 (5·7)	168·9 (8·8)	180·4 (6·8)	195·3 (8·3)
UK	104·3 (4·3)	107·0 (2·6)	109·0 (1·9)	114·3 (4·9)	119·4 (4·5)	123·9 (3·8)	126·9 (2·4)	134·4 (5·9)	140·7 (4·7)	151·7 (7·8)	165·5 (9·1)	178·2 (7·7)	197·1 (10·6)
Ireland	102·7 (2·7)	107·1 (4·2)	109·7 (2·5)	117·1 (6·7)	123·0 (5·0)	126·7 (3·0)	130·7 (3·2)	136·8 (4·0)	147·0 (7·4)	159·0 (8·2)	173·3 (9·0)	189·9 (8·6)	209·7 (11·4)

(a) Figures exclude rents. *(b)* From 1969 the index refers to all types of households, previously only average income families with four persons were covered.

Source: Ireland, Tables 1.1 and 1.2; OECD Main Economic Indicators, IMF, International Financial Statistics.

1968, but there was then a marked deterioration as can be seen in the following figures:—

Percentage increase in consumer prices in EEC countries 1960/68 and 1968/73

Country	1960/68	1968/73
Belgium	26·7	29·7
Denmark	64·7	42·7
France	33·7	37·2
Germany	23·3	28·0
Italy	35·6	39·6
Netherlands	37·9	41·6
UK	34·4	46·7
Ireland	36·8	53·3

The acceleration of inflation was general; every country except Denmark suffered a bigger percentage rise in consumer prices in the five years 1968/73 than they had done in the previous eight. In the first period, Ireland had an inflation rate lower than the Netherlands, much lower than Denmark and only slightly higher than the UK, Italy and France. In the second, it has a long way the highest rate, 6·6 percentage points worse than the UK and more than 10 points worse than any other member of the Community. Moreover, this was not due to a spectacular once-and-for-all change but was a persistent trend as can be seen from the year to year figures. The Irish inflation rate was exceeded only by the UK in 1971, and by Italy and Denmark in 1973, while in 1969, 1970 and 1972 Ireland had the unenviable distinction of the highest inflation rate in the Community.

Conclusions

The principal index numbers of prices in Ireland show that both import and export prices have risen, since 1953, by much less than domestic prices; while the prices of goods and services purchased by public authorities have risen by much more than the average. Consumer prices have risen more than wholesale prices reflecting a rise in the relative cost of the service of retailing

There was a marked acceleration of the rate of inflation from 1968 onwards. In part this was a worldwide phenomenon, but the rate of increase of Irish prices rose relative both to the UK and other countries in the Common Market. The available evidence suggests that little if any of this relative worsening of Irish inflation can be explained either by statistical peculiarities of the index numbers or by tax effects.

The rate of price increases has been uneven, with four periods of relatively rapid inflation—1956/58, 1962, 1964/65, and 1968 to the present. In each of these periods except 1962, the Irish price rise was significantly faster than that of the UK. These periods will receive special attention in the rest of this report.

SECTION II

ALTERNATIVE THEORIES OF INFLATION

Introduction

For the past thirty years economists have been arguing over alternative explanations of inflation with widely different policy implications, but many of the major issues are still unresolved.

There are several reasons for this unsatisfactory state of affairs:—

First, some of the data needed for the testing of hypotheses are either non-existent or defective. For example, there is hardly any direct information on the productive capacity of economies as a whole, on union militancy or on expectations and these things have to be represented by "proxies" that are often of doubtful validity. There are plenty of direct observations about individual prices but "the price level" can only be represented by an index number, and index numbers can tell different stories according to the methods of construction and the base year chosen. Even apparently simple statistics like employment, unemployment and vacancies can conceal a lot of pitfalls as will be shown in later sections.

Secondly, all the main variables follow very similar time patterns, which creates complications for statistical analysis.

Thirdly, the relationships involved are very complex. For these last two reasons it is not possible to establish causality just by comparing the movements of a small number of variables through time. A good example is the distinction between "cost push" and "demand pull" inflation discussed on page 31 below. The formal testing of alternative hypotheses requires the construction of integrated models predicting the behaviour of a number of relationships; and the testing of all these predictions against observations.

We are still at a fairly early stage in this process and, although some models have performed much better than others, none has attained such an overwhelming superiority as to give it an exclusive claim to the attention of policy-makers. As in so many other walks of life, decisions have to be made not on a basis of certainty but of probability.

This section, therefore, examines the main hypotheses that have been put forward in the debate that has been going on among economists of many countries. It shows the logical relationship between them, and also says a little about the way in which they have stood up to empirical investigation in countries other than Ireland. This will form the framework for an examination of the Irish data in subsequent sections.

A. EXCESS DEMAND THEORIES

Demand and money

Excess demand theories will be considered in three groups—domestic non-monetary, domestic monetary, and imported—but first it is necessary to say a word about the general relationships between demand for goods and services and money. Demand is only "effective" if it is backed by the ability to pay the market price; any given level of prices can only be maintained if purchasers have the money to pay; and any given inflation rate can only be maintained if it is supported by a "sufficient" expansion of the money supply. These statements would be generally accepted as self-evident, but economists who believe that "money does not matter " would counter them on one or more of the following lines:—

First, it can be argued that monetary systems contain a certain amount of built-in flexibility that enables the supply of money to adapt itself to demand. For example, a "shortage of money" tends to raise interest rates and make bank lending more profitable; hence, unless they are restrained by official rules, banks may be expected to lend more (and so create more money) on any given reserve base.

Secondly, it can be stated as a fact that, in some countries, monetary authorities have reacted passively to inflation by increasing the reserve base and permitting an expansion of the money supply rather than face the high interest rates and possible adverse effects on investment and employment that were expected to follow from credit restriction.

Thirdly, and most important, it has been argued that almost any quantity of money will be "sufficient" to sustain almost any price level because there is virtually no limit to the velocity of circulation. This view was very popular in the UK at the time of the Radcliffe Report.[1] It amounts to saying either that the demand function for money is unstable or that it is very highly interest elastic. If this were true then money would not matter either as a causal influence or a policy variable. Hence, one of the most important developments of the past decade has been the empirical work on the demand for money function in the US, the UK and elsewhere.[2] This has shown beyond reasonable doubt the existence of highly (though not perfectly) stable demand functions for real money balances in terms of real income and interest rates, with relatively low interest elasticities.

These findings are highly significant for the rôle of monetary policy. The fact that demand functions are less than perfectly stable and that there are some complicated time lags, suggests that monetary policy is not a suitable instrument for "fine tuning" but the high degree of stability and low interest elasticity of such functions in the long run implies that a sustained control of the money supply would be an effective way of controlling inflation. If they were so instructed by their governments, monetary authorities could resist the temptation passively to permit an expansion of the credit base; and they could counteract (e.g. by contracting the base or increasing reserve requirements) any tendency for the commercial banks to increase their lending relative to their reserves. Monetary policy has to face problems both in relation to other domestic policies and to international pressures, but it can no longer be dismissed as it could have been if the Radcliffe view of velocity had been confirmed by the evidence.

Domestic non-monetary excess demand

For purposes of analysis and exposition it is convenient to dis-

tinguish between monetary and non-monetary causes of excess demand, though in practice the two are often found together, e.g., when an increase in public expenditure or in private investment is financed by bank lending.

Theories of excess demand arising from causes independent of an increase in the money supply have their modern origins in the "inflationary gap" theories of World War II finance in Britain.[3] The total supply of goods and services at current prices was given by the nation's productive capacity plus the imports that could be financed and transported under war conditions. Total demand was composed of government spending, consumption, the permitted amount of private investment, and exports (given the usual identities of national income accounting, government spending + private investment = saving + government revenue + balance of payments deficit). However, the amount of saving forthcoming voluntarily from the current level and distribution of income was not likely to be such as to make this relationship an equilibrium one. Hence, Keynes estimated the amount of saving expected to be forthcoming and the difference between this and the amount needed to balance the equation was the "gap" that had to be filled either by taxation or by forced saving generated by inflation.

Putting the matter rather more generally, we can say that demand inflation arises whenever (in conditions of full employment) the amount of saving voluntarily forthcoming from the private sector at the existing level and distribution of income (sometimes called "ex ante" saving) falls short of private investment ± government deficit or surplus ± balance of payments surplus or deficit. Given the necessary identity of total saving and investment as defined in the national income accounts, the balance has to be restored by additional saving or additional tax payments generated by inflation.

Excess demand of this type can arise through an autonomous rise in any of the major components of national expenditure. The three sectors generally considered most susceptible are government spending, exports and private investment, but there is no reason in principle why a rise in consumer spending due to a fall in the savings ratio should not play the same rôle.

An increase in demand can work its way through to prices by different routes according to the type of market structure prevailing. Where there are a number of small firms each competing strenuously with the rest, each one takes the ruling market price as given and chooses the output that will equate cost at the margin to price, thus maximising its profit. So long as idle resources are available additional output can be produced with little or no change in price by hiring more factors of production. When this is not possible, rising demand comes up against fixed supply and raises prices; higher prices make employers wish to hire more labour and so create excess demand in the labour market, where competition among employers bids up wages. The sequence is thus: excess demand → prices → wages. Ideally it should be possible to document the sequence, though in practice it is often very difficult. In principle, however, one could identify the rise in expenditure (e.g., from national income accounts); find evidence of goods shortage (e.g., in falling stocks): document the rise in prices; find evidence of excess demand in the labour market (e.g., in a fall in unemployment and/or a rise in vacancies); and finally trace the increase in wages.

In an oligopoly situation where firms fix prices on a cost plus mark-up basis the course of events is very different. Firms set prices on the basis of current costs and react to rising demand by hiring more inputs and so raising output; the resulting pressure on the labour market raises wages and costs; and it is only when firms adjust to higher costs that a rise in prices occurs. The sequence is thus: excess demand → wages → prices. To anyone simply concentrating on this wage price relationship, this would look like a case of "cost push" rather than "demand pull". In principle we should be helped to a correct diagnosis by two things: we should be able to identify the increase in expenditure, and we should be able to detect signs of excess demand in the labour market; in practice as will be shown in subsequent sections, there are considerable difficulties.

Excess demand theories of this type were popular in Britain and in Scandinavia in the early postwar years.[4] In their pure form they have fallen out of favour during the past decade, partly because of the rather higher unemployment levels experienced in this period. The concept of

excess demand both in goods and markets and in labour markets does, however, play an important part in the "Phillips curve" theories discussed in Section C below.

Excess demand and the money supply

The idea that inflation is caused by an excess of money goes back at least to the sixteenth century. The importance of money was generally played down by the neo-Keynesian school that was influential in Britain and the US in the early postwar years. The subsequent revival of monetarist theory owes much to the work of Friedman and Patinkin in the US and to Johnson, Walters and, more recently, Laidler and Parkin in the UK.[5] As already noted, empirical work on the demand for money function has established beyond reasonable doubt that an increase in the money supply is a necessary condition for continuing inflation. By similar reasoning, the existence of a stable demand function for money implies that an autonomous increase in the money supply will cause a rise in prices. If we say that an individual has an excess supply of any good x, we mean that, at current prices, he wishes to give up a part of his stock of x in return for some other good or goods; excess supply of x must imply excess demand for some other good or goods in the system. The same applies to aggregate demand and supply for a community.

Suppose now that, starting from a position in which supply and demand are equal at current prices in all markets including money, the monetary authorities take steps to expand the supply. The pattern of events will differ in some respects according to the way in which the new money comes into circulation but, in any case, some members of the community will find themselves with more money and less of other things than they would wish to hold at the current level of prices. There will be an excess supply of real money balances and excess demand elsewhere in the system.

It is also easy to show that, if all prices could be raised, instantaneously, and without any other effects, in proportion to the increase in the quantity of money, the source of disequilibrium would be removed. Real money balances would be as they were before the change, and so would the relative prices of all other goods and services in terms of one another.

The difficulty lies in describing and tracing the way in which a change in the quantity of money actually works through to prices. If the initial excess demand shows itself in the market for goods, it will presumably have effects similar to those of excess demand arising from other causes which has already been discussed. If, as seems quite likely, a large part of the initial effect is concentrated on financial assets, the rise in their price will reduce interest rates, stimulate borrowing and possibly discourage saving; and so work its way through indirectly to goods markets.

The most logical development of this view originated with Wicksell and figures prominently in the recent work of Friedman.[6] It involves a distinction between real and nominal interest rates and also between rates actually prevailing and the normal or "natural" rate. The nominal rate is simply the sum of money paid annually to the holder of any particular security expressed as a percentage of its market price. The real rate is the nominal rate adjusted for price changes; it is given (approximately) by the nominal rate less the annual percentage rate of inflation. It is, of course, the real rate that represents the net advantage to a lender and the net cost to a borrower.

The natural rate of interest, in real terms, may be regarded as the rate that would, with the given distribution of income in a community, equate total demand to the total value (at current prices) of the output a community is capable of producing at full employment.

The term "full employment" has been widely misunderstood and has caused much confusion. The correct definition is a state of affairs in which the demand for labour is equal to the supply at a wage level that is growing at an average rate equal to the average rate of growth of productivity over time. This would imply that changes could occur in relative wages and relative prices, but that the average price level would be stable.

This kind of balance between supply and demand clearly does not mean zero unemployment. Workers will be changing jobs for a large number of reasons including seasonal influences affecting some trades; the secular expansion of some activities and decline of others; fluctua-

tions in overseas trade; changes in technology; and changes in their own individual tastes and circumstances. There are bound to be intervals, however short, between losing or leaving one job and finding another, and so there is bound to be some unemployment. The percentage of the labour force that would be unemployed for these reasons when supply and demand as a whole were in balance is often called the "natural" rate of unemployment.

This term will be used frequently and it is essential to remember that "natural" does not mean "desirable" or "unchangeable". The natural rate is simply the rate that is consistent with the avoidance of excess demand and the maintenance of price stability in the circumstances in which a country finds itself at any particular time. It will vary from time to time, e.g., with variations in the speed of technological change; and it can be reduced by policy measures, e.g., improved training facilities for skills in strong demand, or better information about job opportunities.

Now suppose that we start from a situation in which we have full employment and stable prices and in which (by definition), the nominal interest rate=the real interest rate=the natural rate. If additional money now comes into circulation the initial effect (before any change in prices) will be a rise in the value of real balances and a fall in both the nominal and real interest rates, both of which will then be below the natural rate. This implies a reduction (compared to the equilibrium level) in both the reward for saving and the cost of borrowing. Hence, more real resources will be demanded for investment and also for consumption, and this excess demand for goods will tend to raise prices. The rise in prices will, initially, not affect nominal rates of interest but will further reduce the real rate relatively to the natural one and further stimulate demand. The return towards equilibrium will only begin when the fall in the value of real balances brought about by rising prices begins to raise nominal interest rates.

One of the great difficulties about testing the monetarist hypothesis is that it relies on the cumulative effects of many small changes in many different markets, which are very difficult to observe. Little empirical evidence has been found of the direct effect of changes in the money supply on the demand for goods. Neo-Keynesian writers

generally believed that both consumption and investment were very insensitive to changes in (nominal) interest rates; more recent empirical work[7] has shown positive results; but the extent of the elasticity both of consumption and investment to interest rates is still a matter of controversy.

The analysis of interest rates in the last few paragraphs gives a further aid to diagnosis. It is impossible to say *"a priori"* what is the natural rate of interest at any place and time but if a community suffers continuing inflation combined with real rates that are low by historical standards, this is a strong indication that the monetary authorities are doing nothing effective to check inflation, even if they are not actually causing it. In these circumstances, closer examination of the timing of monetary and other variables should throw further light on the probable chain of causation.

Imported excess demand

In principle, demand inflation can be imported through three different routes; trade, capital movements and migration. Trade effects occur whenever a change in exchange rates, tariffs, inflation rates in other countries, foreign demand or technology leads to an increase in exports or a reduction in imports. An increase in exports or a decline in imports increases demand relative to supply in the home market and, if supply and demand were previously in balance, excess demand must result. In principle, one should be able to identify the changes in overseas conditions or in tariffs or exchange rates that initiate a disturbance and trace the changes in the balance of payments through which it is transmitted to domestic markets; in practice, again, there are often difficulties since statistics reflect not the effects of a single event but those of many different, and sometimes conflicting events operating together.

The transmission of inflation through trade effects plays a key rôle in some very recent theories that regard inflation as a world problem and hold that, at least within a system of fixed exchange rates, individual countries cannot deviate very much from the world trend.[8] Again, the actual mechanism of transmission is important. An obvious one, in keeping with some of the older textbooks of international trade,

is that inflation in country A raises its prices relatively to those of country B; this in turn causes A exports to fall and imports to rise, giving B a balance-of-payments surplus; this creates excess demand in B and raises B prices. Presumably this process would take time, so it should be possible to observe the sequence—rise in A prices → rise in B payments surplus → rise in B prices. In fact, though there have been large fluctuations in payments balances, very little evidence has been produced of this kind of relative price movement.

An alternative hypothesis is that markets in internationally traded goods are sufficiently perfect for price changes to be transmitted very quickly from one country to another. In that case, inflation in A would raise prices of traded goods in B so quickly that the change would appear simultaneous rather than sequential in the statistics; the rise in the prices of traded goods in B would then exert an upward pressure on non-traded goods prices and on wages. In that case one should be able to detect changes in relative prices of tradeables and non-tradeables, and in the relationship between prices and wages in B. A further complication, discussed in Section C is that both employers and unions may be influenced by expectations formed, at least in part, on the basis of observed happenings abroad.

Capital imports may play a passive rôle as the means of financing a balance-of-payments deficit arising from some other cause. They may also, however, have a direct impact on domestic demand if, for example, they are used to finance expenditure on domestic resources by the government or by firms undertaking private investment.

They may also, of course, have an effect on the domestic money supply by augmenting the credit base and so enabling banks to expand their lending. Central banks and official exchange accounts have tried in various ways to "sterilise" the monetary effects of capital imports; how far such efforts can succeed in a regime of fixed exchange rates is a matter of controversy, but it is doubtful whether they can be effective in the long run.

Finally, we must note a point that has been raised specifically in the case of Ireland, though in principle it could operate elsewhere. If excess

demand in the labour market of one country (Britain) causes emigration of workers from another (Ireland) then excess demand in the labour market of the second country can arise not through a rise in demand but through a reduction in supply. The evidence, in the case of Ireland is discussed in Section VIII.

B. COST-PUSH THEORIES

Assumptions

The excess demand theories discussed above generally assume profit maximising behaviour, and they have their basis in the micro-economic theory that deals with the behaviour rules of profit-maximising economic agents operating in competitive markets. "Cost-push" theories have very different behavioural foundations.

Firms are assumed to be price setters rather than price takers, and in setting prices they are assumed to follow a "full-cost" model. Once prices are set, sales are determined by demand and sales, in turn, determine purchases of factor inputs. When the price of inputs changes by enough to make an adjustment worthwhile a new price is set. The effect is that the price of any good at any time reflects the prime costs of the recent past plus a mark-up calculated (on an estimated figure of capacity utilisation) to cover overheads and provide a "normal" rate of return on capital. Any change in input prices (apart from those that are so small as not to be worth the trouble of making a change) are passed on in full together with the appropriate mark-up. It can easily be shown that such behaviour does not lead, except by accident, to profit maximisation.

Trade unions also are assumed not to maximise the earnings, either individually or as a group, of their members. Their assumed objectives are not always very clearly stated, and they vary from one model to another. Some of the more common assumptions are maintaining money income; maintaining real income; securing a "target" rate of increase in either money or real income; maintaining differentials; and securing what is regarded as a "fair" distribution of the total product of industry between wages and profits.

Two further assumptions are necessary if inflation of this type is to be sustained. First, the process must be general. If a single firm or a single industry group, together with the unions with which it dealt, were to push-up wages and prices in an otherwise competitive system, it would "price itself out of the market." Hence the only way in which such behaviour can be built into a theory of inflation is by assuming that all firms experience and pass on roughly similar rises in costs so that the process does not involve any great change in relative prices. Secondly, it must be assumed that fiscal and monetary policies adapt to rising prices so as to keep enough purchasing power in the system to buy the output that is forthcoming with the economy at or near full employment. These assumptions are not always made explicit, but they must be implicit in all "cost-push" models.

Domestic cost-push theories

The simplest, and perhaps least plausible of these hypotheses is that of increased trade union militancy, associated particularly with the name of Hines.[9] This simply asserts that unions have become more militant; that militancy has taken the form of demands for increasingly large rises in money wages; and that higher wage costs have been passed on in the manner already described. The logical weakness of the theory is that it does not give any convincing reason why unions should suddenly have become more militant in the late 1960s; nor of why the phenomenon should have occurred not only in one country but over virtually the whole non-communist world. Moreover, Hines' econometric work has not stood up very well to subsequent studies by Purdy, Ward and Zis.

Another theory of the same basic type sees cost increases arising from different rates of technological progress in different sections of the economy, combined with a desire to maintain traditional relationships between earnings in different occupations. When technological advance is rapid large wage increases can be absorbed by rapidly rising productivity without raising unit labour costs and prices. Large wage increases in such sectors lead other unions to press similar claims in order to preserve traditional relationships and, with lower

rates of productivity growth, these cannot be absorbed without raising prices. This view of the economy is apparent in the reports of the National Board for Prices and Incomes in the UK and particularly in the Board's insistence on the need for productivity gains to be passed on to the consumer.

Though this argument is superficially plausible, it rests on assumptions of irrational behaviour at several points. The effect of an increase in productivity depends on the demand for the product as well as the supply of factors of production. In some circumstances, an increase in productivity leads to a fall, not a rise, in the demand for labour. Hence, it is not always in the interest of an employer to pay or of a union to demand a rise in wages proportionate to an increase in productivity. Moreover, though an increase in my neighbour's earning power may be very annoying, it does not make my own employer able to afford any more. An attempt by organised labour to maintain traditional differentials in face of changes either in technology or in demand for final products is just as illogical as would be the attempt of a monopolist to maintain a constant (relative) price of his product in face of cost or demand changes.

A third hypothesis of this type is that recently put forward by Johnston and Timbrell.[10] They assumed that unions had as their objective the attainment of a "target" rate of growth of real post-tax income, and they noted a steep rise during the second half of the 1960s in the proportion of the average UK wage packet that was taken by income-tax. They therefore introduced into their model a "catch-up variable" representing the additional pay that would be needed to restore real post-tax earnings. The econometric results were very satisfactory, though there are still some questions about their interpretation.

Logically, the model suffers from the same problem as the others discussed in this section. The fact that I have to pay more taxes is, again, very annoying but it does not change my bargaining power vis-à-vis my employer (though it may change the amount of work I am prepared to do). If a union is in a bargaining position such that it can

raise the real earnings of its members, then it is logical for it to do so regardless of how much or how little they have to pay in tax.

Imported cost inflation

The treatment of rising import costs illustrates vividly both the difference between demand-based and cost-based theories and the very strong hold that the latter now have on public opinion. It is now taken for granted that rises in import prices will be passed on in full, and it is common practice to assume that they will raise the general price level by a percentage equal to the percentage rise in import prices multiplied by the proportion of imports to total spending. Such a procedure assumes not only full passing on but also that the higher relative prices of goods with a high import content will have no effect on demand.

The extreme form of the opposite view would hold that, provided the monetary and fiscal authorities maintain a constant level of aggregate demand, rising import costs cannot raise the *general* price level. This is not to deny that firms whose costs have risen must have some recompense. It is saying that this recompense will be achieved through a complex series of price and wage changes, with some prices rising, some falling; some wages rising by as much as (or even more than) the growth of productivity and others by less; but with rises and falls balanced so as to leave the general price level unchanged. That such an idea now seems so strange is an indication of the hold that cost-push theories have attained over public opinion.

The idea that it is impossible to maintain a stable domestic price level in face of higher import costs seems to rest on two assumptions :— that if producers are stopped, either by market forces or by controls, from passing on higher costs in full, production will be curtailed and unemployment will rise to an unacceptable level; and that there is so much resistance to a fall in prices and money wages that, again, it could only be brought about by an unacceptable level of unemployment. There is very little empirical evidence about either assumption since there have been very few occasions in the past fifty years where any country has pursued a sustained policy of restraining inflation by restricting the growth of aggregate demand.

C. COMBINED DEMAND-COST THEORIES

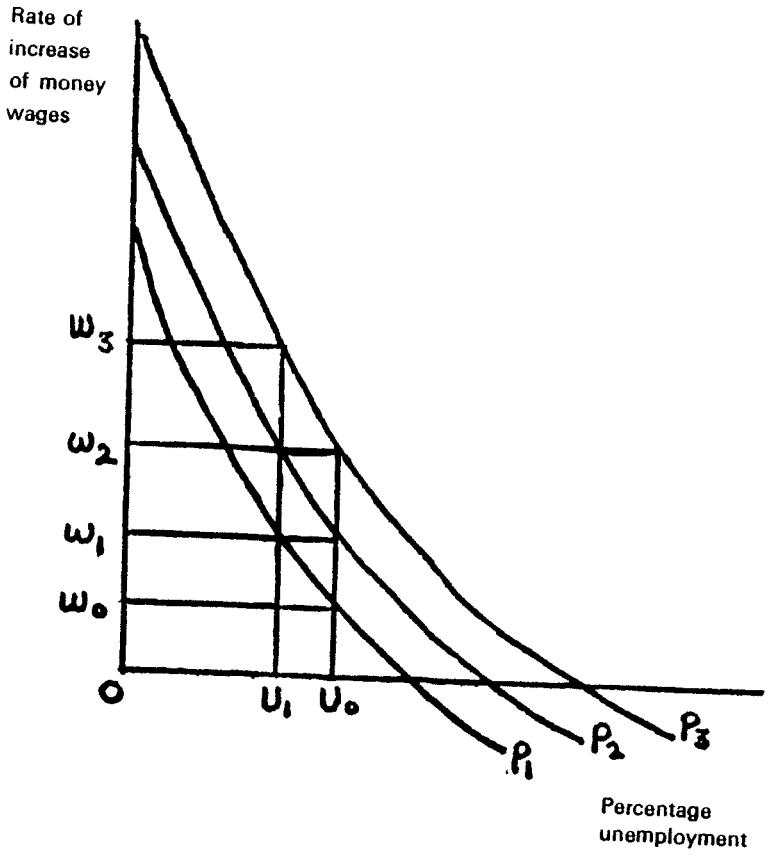
The Phillips curve

The original relationship that Phillips found in UK data going back as far as the 1860s was between unemployment and the rate of change of money wages[11] In the earlier versions of the theory it was assumed that the level of unemployment was a direct measure of aggregate demand in the labour market and an indirect measure of aggregate demand in goods markets. It was further assumed that producers set prices on a cost-plus basis, passing on any increase in wages that was not offset by higher productivity. Hence, for any time and place, there would be a level of unemployment at which money wages rose at the same rate as productivity, and a level of final demand just sufficient to sustain this unemployment rate. So long as demand kept to that level, prices would be stable; if it rose above that level, there would be inflation.

The refinement and testing of this theory occupied much of the work on inflation that was done during the 1960s; recently, however, the simple version of the Phillips curve outlined above has become discredited for two reasons. First, it failed badly to predict the acceleration of inflation in the late '60s and early '70s. Secondly, it has the logical defect of depending on "money illusion", i.e., it assumes that workers and employers cannot distinguish between money wages and real wages. The point, which is very important, can be shown by reference to a simple diagram.[12] (see overleaf)

P_1 is an ordinary Phillips curve and shows that, with U_0 per cent of the labour force unemployed, money wages would rise at W_0 per cent a year. Suppose that we have a closed economy, and that productivity is also growing at W_0 per cent a year; in that case, prices would be stable and the question of money illusion would not arise.

Now suppose that the unemployment rate U_0 is unacceptable politically, and that the government expands demand so as to reduce unemployment to U_1. The original Phillips curve theory predicts that money wages would now rise by W_1 per cent per year; and that prices would rise by W_1-W_0 per cent; and that *this rate of inflation would continue so long as unemployment remained at* U_1.



This reasoning clearly depends on the assumption that employers and unions go on driving the same *money* bargains as they would have done if prices had not been rising. What really matters to both sides is not money values but real values. If everyone expected prices to rise at W_1-W_0 per cent, the curve P_1 would no longer be relevant; instead we should move on to P_2, which is simply P_1 adjusted for inflation at W_1-W_0 per cent. Now unions would want, and employers would be willing to pay increases of W_1 even if unemployment were at U_0. The relevant curve is thus P_2, and to maintain unemployment at U_1 will involve wage increases of W_2, and inflation at W_2-W_0 per cent. Moreover, this is not the end of the matter; once inflation at W_2-W_0 becomes generally expected, we move onto curve P_3, and the inflation rates necessary to keep unemployment down to U_1 becomes W_3-W_0, and so on and on.

This kind of reasoning has been responsible for two fundamental features of much recent work on inflation. First, it is clear that models that do not take account of differences between real and money values cannot be expected to explain or predict inflation. Hence, Phillips curve theory has been modified by bringing in price expectations as an additional variable. The difficulty here is, obviously, how to measure expectations. The solution generally used has been to assume that expectations are based on past experience, with the recent past having the strongest influence; hence a value for the currently expected rise in prices has been calculated as a weighted average of past increases, with the weight diminishing as one moves back into the past. More recently, attempts have been made to derive expectations directly from qualitative data provided by opinion surveys.[13] Both types of model have performed encouragingly well. Models of this kind have come to be known as "expectations augmented" Phillips curve theories.

Secondly, very grave doubt has been thrown on the idea of a "trade-off" between unemployment and inflation implicit in the original Phillips curve. The theoretical reasoning outlined above suggests that this trade-off only exists *so long as inflation is not expected*. If wage bargains take account of expected inflation, and expectations are formed on the basis of what happened in the recent past, the price of keeping demand above (and unemployment below) its equilibrium level is not a constant

rate of inflation but a continually accelerating one. This prediction, for which there is mounting support in empirical work[14] has obvious policy implications.

A further important implication of this work is that, when once inflation has been started by excess demand, it can continue, sustained by expectations, even after the excess demand has been eliminated. In order to halt, or even substantially reduce inflation, it is necessary to pass through a period in which demand is below its equilibrium level, and unemployment above its natural rate, by enough to modify expectations. Unfortunately there is still very little empirical evidence on the amount or duration of unemployment that would be necessary.

The inter-action of domestic and international sectors: The "Nordic" model

The so-called "Nordic" model is very different in spirit from the "expectations augmented" Phillips curve, but it also combines demand and cost effects. It depends on inter-actions between "sheltered" domestic sectors (comprising private sector services, goods for which tariffs or transport costs are an effective bar to trade, and most of the public sector) and "exposed" sectors (comprising exports and home produced goods that are close substitutes for imports).

The model[15] assumes that prices in the "exposed" sectors of small open economies are given by supply and demand conditions in world markets. The fact that they have to take world prices as given causes domestic producers in "exposed" sectors, even if they are few in number, to behave in a manner approximating to the economist's model of perfect competition. With a fixed exchange rate, money wages are given by world prices and domestic productivity. It is further assumed that competitive pressures cause productivity to grow more rapidly in the exposed than in the sheltered sectors; that sheltered sector workers demand and get increase in money wages that maintain their traditional relationships to those in the exposed sectors; and that employers in the sheltered sectors pass on these increases in higher prices. Hence prices in exposed sectors will increase at the world rate and those in

the sheltered sectors at a rather higher rate. Combining the two, the general rate of inflation in a small open economy would be rather above the world average. The model has been tested in Norway, Sweden and Finland, with fairly good results for the first two and less good ones for the third.

The "Nordic" model suffers from several logical weaknesses. First, it is assumed that unions and employers are subject to money illusion. Suppose that productivity rises at X per cent in the exposed sector and only at Y per cent ($Y<X$) in the sheltered sector. On the assumptions of the model (fixed exchange rates and competition in the exposed sector), workers there will get an increase of X per cent in money wages. Workers in the sheltered sector also get increases of X per cent in money wages and the general price level rises at a rate between X and Y depending on the relative importance of the exposed and sheltered sectors. Hence real wages in the exposed sector rise by less than productivity and those in the sheltered sector by more; part of the real gains earned by workers in the exposed sector is transferred to those in the sheltered sector. Now unions in the exposed sector could prevent this transfer if they could push up their money wages in line with expected inflation, so forcing the government either to devalue the currency or to restrict domestic spending in a way that would weaken the bargaining power of the sheltered sector, but they make no attempt to do so.

Secondly, if workers in the sheltered sector really have this superior bargaining power, there is no logical reason why they should aim merely at parity with the exposed sector instead of pressing home their advantage to the full.

Thirdly, even if it is accepted that the model could apply to one or two small open economies, it obviously cannot apply to a whole system for, in the world as a whole, all sectors are "sheltered". Hence, it cannot explain the ultimate cause of worldwide inflation. Finally, the model, like all others that contain a large "cost-push" element, depends on the assumption of adaptive monetary and fiscal policies already noted.

In the Nordic model the faster growth of productivity in exposed sectors provides the driving force which is transmitted via the wage bargaining process, to the sheltered sectors. A rather different version appears in the NIEC report on prices and incomes policies.[16] Here an increase is seen arising in a sheltered sector, either through localised excess demand or particularly militant union action, and this is then transmitted to the exposed sector, where it causes a deterioration in the balance of payments.

D. CONCLUSIONS

Policy conflicts

This summary of inflation theories is by no means exhaustive. There are many minor offshoots of each of the main branches that have been described and some writers have produced "explanations" from the realms of sociology and even necromancy that are far removed from any widely accepted economic theory. At least one has included rising crime, sex and drug permissiveness and less self-discipline in dress, speech and deportment among a long list of influences tending to raise prices.[17] Nevertheless, the theories described above cover the main areas of controversy among serious students of the subject, and it is clear that opposing theories imply radically different policy recommendations.

All the excess demand theories and the expectations augmented Phillips curve imply that the elimination of excess demand and a restriction of the long-run growth of the money supply are necessary and sufficient conditions for the control of inflation, though the process may take some time. Direct action to restrain the growth of money incomes and prices is seen as ineffective in the presence of excess demand and unnecessary in its absence. The straightforward cost-push theories and the Nordic model see a necessary condition as direct restraint on incomes and prices either by some form of voluntary "social contract" or by statutory measures. Supporters of these theories would generally concede that some restraints on demand and on the money supply are necessary, but they would contend that these need not be as severe as they have been, in most countries, in the recent past.

The problem of choice

Since it is impossible to say that any one theory is absolutely right, policy choices must rest on an assessment of probabilities, and this involves judgement on at least three things :— the logical consistency of different theories and the plausibility of the assumptions on which they rest; the empirical evidence available; and the price that must be paid if the wrong explanation is chosen and the wrong policy followed.

As has already been shown, excess demand theories, especially when refined to include expectations, can provide an internally consistent explanation both of the generation of inflationary pressures and their transmission between countries, and the underlying assumptions are generally consistent with rational real income maximising behaviour. By contrast, cost-push theories require strong assumptions about the generality of pressures on costs and about fiscal and monetary policy to make them internally consistent; and they generally depend on non-maximising price and wage fixing decisions. Unfortunately this does not enable us to rule them out entirely. People obviously do behave irrationally at times, though it seems implausible to assume that all of them do so all the time.

The empirical literature is difficult to interpret and far too large to be surveyed in detail. As already noted, the stability and low interest-elasticity of the demand for money function have been established beyond reasonable doubt, with the very important implications described in Section A. Another striking feature is that econometric studies have almost entirely failed to pick up any evidence that past prices and incomes policies have reduced the rate of inflation;[18] this does not, of course, rule out the possibility that future efforts of this kind may be more successful, but it must nevertheless tell against cost-push theories. For the rest, the evidence so far is inconclusive but, in the author's judgement, the balance is strongly in favour of excess-demand theories.

Apart from the apparent but misleading simplicity of such hypotheses, the main reason why politicians and the public cling so hard to cost-based theories is probably the fear of the cost in unemployment, lost

output and slow growth that might result from trying to cure inflation by monetary and fiscal measures. Here, the evidence is slight but several different aspects must be considered.

(i) What is the "natural" level of unemployment? The argument of pages 41-43 above implies that, for any particular economy at any particular time there is only one level of unemployment that is consistent with price stability; this is what Friedman calls the "natural" rate. Earlier work on the Phillips curve suggested that this rate was quite low—perhaps between 2% and 2·5% for the UK. The fact that rising unemployment has been accompanied by rising inflation has cast doubts on this view, but no inference can justifiably be drawn from this evidence because of the influence of expectations. However, really heavy unemployment was a peculiar problem of the inter-war period; in earlier times it seems that a high degree of price stability was consistent with a high level of employment even without the unemployment exchanges and other aids to labour mobility that we now enjoy.

(ii) Must we go through a depression? Even if it is agreed that the natural rate of unemployment is low enough to be acceptable, it can be argued that, to get back to price stability and a natural unemployment rate after a severe inflation involves going through a depression too severe to be tolerable. Again, this fear appears to be largely based on the experience of the inter-war period, when monetary contractions were very violent. All monetarists would agree that violent contractions produce heavy and unnecessary unemployment, but they would argue that such a disaster can be avoided by a gradual and sustained pressure. Even this, however, must be expected to raise unemployment above the "natural" rate for a time until expectations are adjusted. The crucial question is how deep and how long the recession need be; on this there is no worthwhile evidence because no country in modern times has tried to slow down the growth of the money supply to about the sustainable growth rate of real income and then keep it there.

(iii) The trade-off between unemployment and inflation. If the price of keeping unemployment below the natural level were a steady and moderate rate of inflation many people would consider it well worth paying. If, as argued on pages 41-43 above, the "trade-off" involves not a steady but an accelerating rate of inflation, there must come a time when this ceases to be tolerable. Again, it is impossible to be certain but both theoretical reasoning and empirical evidence make it increasingly likely that the alternative to a return to stability is accelerating not constant inflation.

(iv) Inflation and growth. It has been suggested that there is a trade-off not only between inflation and unemployment at any point in time but also between inflation and the long-run growth rate. It is easy to think of ways in which moderate inflation may both help and hinder growth, and some of these are discussed in relation to Ireland in Section X. It is generally accepted that very high rates of inflation are inimical to growth and even lead to a reduction of total output if only because they cause so much time to be wasted through a breakdown of confidence in money. Short of this point, however, it seems likely that long-run growth potential is determined by real, not monetary, forces.

(v) Other side effects. Finally, the decision as to the price one is prepared to pay, or at least risk having to pay, by following deflationary policies, depends partly on the value set on the other side-effects discussed in Section IX.

Faced with the difficulty of choosing between conflicting theories, and the probable unpleasantness of any cure that is likely to be effective, there is a temptation to adopt an eclectic attitude, trying to get the best of both worlds. It can be argued that this cause operated here and that one there; this one at one time and that at another; or even that several operate simultaneously in the same economy. Besides avoiding the need for decision, this approach has the comforting policy implication that we need a variety of remedies and not too much of any one. The hope is that the resulting policy mix will not contain

enough of anything to do much harm; the danger is that it will not contain enough to do any good. Some theories are mutually exclusive but many are not; if we cannot rule out any one on its own we may not be able to rule it out in conjunction with others; this possibility is considered further in relation to Ireland in subsequent sections.

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SECTION III

SOME FEATURES OF THE IRISH ECONOMY

This short section introduces a number of matters that form part of the background to the problem of inflation in Ireland. They are not direct causes of inflation but they are important either because they are sources of pressure on government to pursue expansionist policies or because they render the Irish economy vulnerable to inflationary influences from outside. All of them are well-known and they will be recorded only very briefly.

In income per head, Ireland is still well below the European average, and also below the UK, which is probably the country that is best known and with which Irish citizens are most likely to compare their living standards. The following figures from the Organisation for Economic Co-operation and Development (OECD) show per capita income in US dollars for 1971.

	$
Ireland	1,526
UK	2,422
Austria	2,213
Denmark	3,509
Finland	2,449
Italy	1,875
Netherlands	2,824
Norway	3,349
Spain	1,072
Portugal	763
Average OECD Europe	2,349

Moreover, although the Irish growth rate in the past decade has been substantially better than that of the UK, it has still been rather below the average for Western Europe. There is, thus, a strong

consciousness of the need for rapid growth in order to bring Irish living standards nearer to those of her European neighbours.

The need for rapid growth is accentuated by certain features of the Irish population structure. We define the working-age population as that aged fifteen and under sixty-five; the "dependent" population as those under fifteen and over sixty-five and the "dependency ratio" as the percentage of dependents to population of working age. On these definitions, Brendan M. Walsh has produced the following figures :

	Ireland				UK
	1971 actual	Projected[1]			1972 actual
		1976	1981	1986	
Young	54	54 53	57 53	63 54	38·5
Old	19	18 18	18 18	18 17	20·9
Total	73	72 71	75 71	77 71	59·4

At the beginning of the decade, Ireland had a total dependency ratio of 73% compared to under 60% for the UK, the difference being entirely due to the high proportion of children in the Irish population. Over the next fifteen years these children will move into the working-age population and many of them will start families of their own. There will thus be a rapid rise in the labour force, but the dependency ratio will not fall significantly, and is quite likely to be higher in the 1980s than in the 1970s.

Ireland still has a relatively large and low-earning argricultural sector and relatively little manufacturing industry. In 1972, there were 276,000 people recorded as working in agriculture, over 25% of the total labour force, but the industry contributed only 15% of GDP. GDP per head of the working population was only £1,266 in agriculture compared with £2,401 elsewhere. These figures may exag-

gerate the disparity somewhat, but there is no doubt that it is very large. The agricultural labour force has been falling for many years; between 1967 and 1973 the decline averaged nearly 10,000 a year. The exodus is likely to continue and, so long as there remains a disparity in productivity between agriculture and the rest of the economy and provided that jobs are available, it is an important way of raising the average income of the community.

Unemployment rates in Ireland are consistently high by the standards of most other countries; the reasons for this are discussed in Section IV, but the desire to reduce unemployment has, naturally, been an important motive in policy formation.[2]

During most of the period since World War II there has been substantial net emigration. This reached a peak of 14·8 per 1,000 of the population in 1956-61, but fell to only 3·7 per 1,000 in 1966-71, and it is expected that 1971-76 will show a small inward migration. It is often assumed that the alternative to emigration is unemployment. This is certainly an over-simplification but it remains true that a reduction of emigration increases the number of new jobs required to provide for a given natural increase at any given level of unemployment.

A rapid expansion of non-agricultural employment is, therefore, needed to meet an expanding labour force, to provide for those leaving agriculture and to reduce unemployment. A rapid rise in productivity in existing jobs is also needed if the high ratio of dependents is to be cared for and the standard of living of the population as a whole is to improve at an acceptable rate. Both new jobs and rising productivity require investment, and this is the economic logic behind the drive to increase investment, both public and private, that began in the 1960s. It will be argued later that this drive may at times have proceeded too fast, thus contributing to inflation and partly defeating its own aims. This criticism must not, however, be taken to imply a lack of understanding of the need for such a programme or appreciation of its achievements.

Another aspect of the situation outlined above is that, while much of the population has enjoyed quite a high standard of living, there has been considerable poverty among large families, the old and the sick, and persons in low-paid occupations or economically unfavoured

regions. In the short run, at least, the only way of relieving this poverty is by government action in the form of subsidies or social security payments. Between the financial years 1964/5 and 1972/3, subsidies rose by £33·8 million to £97·0 million and "other transfers" (excluding debt interest) from £60·9 million to £211·0 million. The two items together increased from 10% to nearly 14% of GDP. However desirable they may be on social grounds, transfers of this kind may contribute to inflation, and this is discussed further in Section V.

The features of the Irish economy so far considered are relevant to our problem because they create pressures on government to pursue policies which, unless offset in other ways, may have inflationary consequences. There are other features that make Ireland vulnerable to inflationary forces originating abroad, especially in the UK and in world markets for agricultural products.

First, and most obvious, is the very "open" nature of the Irish economy. The measure of "open-ness" used by OECD is the average of the percentages of exports and imports (of goods and services) respectively to gross national product (GNP). By this measure, Ireland ranks fourth among European OECD countries, well behind the Netherlands and Belgium but ahead of Switzerland, Denmark and Austria and well ahead of the larger industrial countries. The figures for some European members of OECD are as follows:—[3]

	1960/62	1968/70
	%	%
Netherlands	50·2	49·2
Belgium	35·5	43·9
Norway	40·0	42·6
Ireland	38·5	40·6
Switzerland	28·3	34·9
Denmark	31·9	30·2
Austria	24·3	28·2
Finland	24·4	26·8
Sweden	24·3	25·1
UK	22·3	23·5
Germany	18·8	21·9
Italy	15·6	19·0
France	12·8	15·6

During the 1950s Irish trade grew roughly in line with output, so that the ratio of imports and exports to GDP remained fairly steady. Ignoring exceptional years, the import ratio was equivalent to about 40% of GDP, measured at current values and the export ratio to about 26%. The deficit on merchandise trade of the order of £65 million to £75 million annually was largely covered by invisible earnings, so that the balance of payments on current account normally showed only a small deficit of a few million pounds. When the pace of economic growth quickened in the 1960s, this stable pattern began to change. By the end of the decade the import ratio had risen to about 48% of GDP; it reached an all-time high of more than 50% in 1973. The export ratio rose likewise, but not sufficiently to prevent an increase in the trade deficit to over £200 million annually. Though invisible receipts rose too, they failed to keep pace so that in recent years the balance of payments on current account has been in deficit by anything from £55 million to £85 million, equivalent to between 3% and 5% of GDP.

Associated with the growth of merchandise trade there were some important changes in its composition and direction. The share of capital and consumer goods in imports has risen at the expense of the share of materials for production; and latterly there has been a striking increase in the proportion of imports competing with the output of Irish industry; currently they exceed 20% of apparent consumption. On the export side, the relative importance of agricultural products has diminished while that of industrial goods has increased: since the mid-1960s, industry has contributed a larger share of exports than has agriculture. The direction of trade has altered too. Though the United Kingdom remains the single most important trading partner and its share in total imports has been steady, it has lost ground to other countries as a supplier of manufactures. Had it not been for the formation of the Anglo-Irish Free Trade Area, the UK share would have diminished still faster. Meanwhile its importance as a market for Irish goods has fallen steadily, while the Continental EEC countries have rapidly increased their share of both exports and imports. Table 3.1 summarises the latest data on the main features of Irish trade.

Finally, there are very close monetary and financial links between Ireland and the UK, and as yet these have only been slightly loosened

TABLE 3.1

Irish trade in 1973

Value of trade: *£ million*	
Imports	1,137
Exports	869
Deficit	268
Imports classified by end use: % *of total (a)*	
Producers' capital goods	16·2
Consumption goods	25·4
Materials for further processing	56·2
Exports by sectors of origin: % *of total (a)*	
Industrial goods	54·6
Agricultural goods	41·7
Direction of trade:	
% *of total imports:*	
UK	50·8
EEC	21·0
Other	28·2
% *of total exports:*	
UK	54·6
EEC	21·3
Other	24·1

(a) 1972. Figures do not add to 100% owing to omission of unclassified goods.
Sources "Review of 1973 and Outlook for 1974"; Irish Statistical Bulletin.

by the development of a money market in Dublin and by the increased authority of the Central Bank. Banks operating in Ireland have to keep their business within the State separate from that outside and, in respect of the former, they must comply with the reserve and other requirements of the Central Bank. These requirements now include a special reserve against inflows through banks, which allows the Bank to influence capital movements that take place through the commercial banking system. However, there are no restrictions either on the transport of notes and coin or on capital movements between the

UK and Ireland. Residents of one country can hold and operate bank accounts in the other and can own and deal in one another's securities without any official knowledge or control. Some of the problems that this poses for monetary policy are discussed in Section VI.

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SECTION IV

EXCESS DEMAND 1: INDICATORS OF EXCESS DEMAND

Introduction

In Section I it was shown that although different index numbers tell somewhat different stories, it is possible to identify four periods of relatively rapid inflation in Ireland since 1953—1956/58, 1962, 1964/65 and, by far the most prolonged and serious, from 1968 to the present. In the first period, Irish consumer prices were rising more slowly than in the UK, in the last two the Irish rise has been the more rapid, and in 1962 there was no significant difference. In order to judge the applicability of excess demand theories to Ireland, we must, therefore, consider the evidence in relation to these four periods, and especially to the last two.

Excess demand cannot be measured directly, and we have to use indicators or proxies. First, therefore, it is necessary to define the concept carefully, and to consider the relationship of proposed indicators to what we want to measure.

Excess demand for any particular good exists when the rate of output that producers are prepared to supply at the current price falls short of the amount that purchasers wish to purchase. The "current price" must be interpreted not simply as the money price but the price of the goods in question relative to those of other goods and of factor inputs. Generalised excess demand for goods arises when the total value of national output at current prices falls short of the total amount that final purchasers (individuals, firms and public authorities) desire to spend.

However, excess demand in product markets is only inflationary when accompanied by excess demand, or at least the absence of excess supply, in factor markets. Hence inflation theory, as shown in Section II, has concentrated on excess demand in factor markets, and particularly in labour markets. This practice will be followed here though there will be some discussion of other capacity constraints later in the section.

Excess demand in the market for labour as a whole arises when the amount that employers wish to hire at the current wage exceeds the amount that employees and potential employees are willing to supply. Again the "current wage" must be interpreted as a real wage not a money wage; as shown in Section II, this is most important. In a growing economy, and when we are considering a period rather than a moment of time, we need to replace "current wage" by "wage rising in line with the average growth of productivity". The relationship between this definition and actual numbers of unemployed people and vacant jobs is far from simple.

At any particular time and for any particular community equilibrium in the labour market (neither excess demand nor excess supply) will be associated with a particular level of unemployment. In the most favourable circumstances, there is likely to be an interval, even if very short, between leaving one job and starting another, and this interval is prolonged by imperfect information about job opportunities, the fact that some jobs are seasonal, the imperfect matching between the skills required for vacant jobs and those possessed by job seekers, and the fact that jobs and those who seek them may be in different places. Some labour economists try to separate these reasons for unemployment into "frictional" and "structural" but the distinction has little logical validity and no relevance to inflation. The total number unemployed for any reason when there is neither excess supply nor excess demand, is Friedman's "natural" level of unemployment, discussed in Section II.

Any level of unemployment below the "natural" one would imply excess demand, and vice versa. Unfortunately, the natural level can vary widely from place to place and time to time, and there is no way

of knowing what it is at any particular place and time, except by inference from the behaviour of wages and prices. If we had an established excess demand theory of inflation supported by independent evidence such inference would be legitimate; as a test of the theory it is clearly not. As things are, we can say on *a priori* grounds that the natural rate is likely to be higher the greater the rate of change in locational patterns, industrial structure and technology, the less developed are employment information services, and the smaller the gap between unemployment benefit and average earnings.

Apart from any defects in recording, figures of actual unemployment can give only very general indications of the likelihood that excess demand is present. A figure that is very low by historical standards may point to such a possibility and vice versa, but that is all.

Statistics of unemployment and vacancies

Non-agricultural unemployment in Ireland (shown in Table 4.1) has always been high, though it has fluctuated roughly in line with other indicators of economic activity. From 1953 to 1959 the lowest rate was 6·8% in 1955 and there were peaks of over 9% in 1953 and 1957. There was a sharp fall to only 5·7% in 1961/62, followed by a rise to 1968. Between 1968 and 1973 the percentage fluctuated narrowly around 7, except for a peak of 8·1 in 1972. There has been a fairly sharp rise in 1974 and the number on the live register in October (73,500) was 11,000 up on the year.

There have been some criticisms of the statistics, both in relation to the recording of unemployed on the "live register" and to the method of calculating the labour force on which the unemployment percentage is calculated.[1] It did not, however, seem possible to modify the series in any way that would help our present purpose, so this matter was not followed up in detail.

There are a number of reasons why the Irish unemployment rate might be expected to be relatively high in conditions of equilibrium. Outside the Dublin area population density is low and the market for most non-agricultural jobs is narrow; this implies that anyone leaving a particular job may have to search for some time before finding another

TABLE 4.1

Some indicators of excess demand for labour

Year	Non-agricultural unemployment %	Vacancies notified 000	"Wage-drift" %(a)	Non-agricultural employment % change from previous year
1953	9·6	42·0	—	—
1954	8·1	46·0	2·6	0·4
1955	6·8	48·7	5·4	−1·0
1956	7·7	38·0	−2·4	−1·3
1957	9·2	38·9	0·4	−3·6
1958	8·6	36·3	3·3	−1·3
1959	8·0	34·5	−0·1	0·2
1960	6·7	37·5	0·7	0·5
1961	5·7	34·0	5·5	1·2
1962	5·7	33·1	−2·5	2·4
1963	6·1	29·8	2·1	2·0
1964	5·7	27·8	−2·0	2·0
1965	5·6	30·4	2·1	1·7
1966	6·1	22·7	8·0	0·5
1967	6·7	21·5	−5·3	1·0
1968	6·7	19·5	6·7	1·8
1969	6·4	18·4	7·1	2·0
1970	7·2	15·6	−2·5	0·3
1971	7·2	15·5	−3·0	1·5
1972	8·1	19·3	5·0	−0·3
1973	7·2	21·1	9·6	1·5

(a) Percentage increase in earnings index less percentage increase in wage index.
Sources: Trends in Employment and Unemployment; "Review of 1973 and Outlook for 1974".

to suit his particular skill and in his particular locality. A similar problem arises in relation to the exodus from agriculture; little is known of how this takes place, but it seems plausible to suppose that many of those concerned first take a non-agricultural job that is likely to be temporary (e.g. on a construction project in their neighbourhood) and go through a period of rather loose attachment to the non-

agricultural labour force before finally settling down. Such a hypothesis receives some support from the finding by Geary and Hughes that nearly a third of the unemployed in what they call the "depressed occupations" lived in households with agricultural land.[3*]

Unemployment is heavily concentrated in certain industries and occupations. Geary and Hughes found (using census data) that 44% of non-agricultural unemployment in 1966 was concentrated in three "depressed occupations", builders' labourers, contractors' labourers and general labourers. When the national average unemployment rate was 6·3%, these three occupations had a rate of 21% and all other sectors only 4%.[3] The live register data are analysed somewhat differently, but show a similar picture. In 1972, when the national average rate (again excluding agriculture) was 8·1% building had a rate of 14·5%, construction 20·6% and "other goods and services" 24·4%. The average for manufacturing was 6·8% with the highest group, "woodworking, furniture and fittings" showing 10·3% and the lowest, "papermaking, stationery, printing, etc." only 4·1%.[4]

There are also considerable and growing regional differences in unemployment rates with the Dublin, Cork and Limerick-Shannon areas having the lowest rates. In December 1972, when the national average was 8%, Dublin had 6·7% and South Munster 7·2%. At the other end of the scale, North Connaught had 12·5% and the part of Ulster that is in the Republic, 14·3%.

There is a two-way relationship between unemployment and migration. Walsh has explained the volume of emigration in terms of unemployment in Ireland and the UK and differences in money wages between the two countries.[5] In this way the Irish unemployment rate affects emigration, but the rate of emigration also affects unemployment. When an economy is at "full employment" in the sense that the growth of output is limited by the availability of labour, it is likely that

* It has been pointed out to me that much of the net reduction in the agricultural labour force comes about through an excess of deaths and retirements over new entrants. However, this does not greatly affect the argument since it implies that many children of agricultural households seek their first job outside agriculture.

emigration would reduce output rather than employment. If on the other hand spare labour is available but plant capacity is short and new job opportunities are limited by investment, emigration would reduce unemployment with no effect on output. If Ireland is somewhere between these two extremes, the reversal of the net outflow of migrants mentioned in Section III will explain in part why unemployment has remained high.

Finally, it should be noted that many unemployed persons can obtain a net of tax income that is a very high proportion of his total earnings in work. In 1973 a married man with four children entitled to unemployment benefit could get over 50% of average industrial earnings; redundancy payments provide, for those entitled to them, another 50% as well as a lump sum. There is a rule limiting total benefit to 90% of earnings but, when allowance is made for travel and other costs associated with work, this could still leave a net financial advantage on the side of unemployment for the period during which full benefits are available. The redundancy payments scheme was introduced in 1968 and in the same year the time limit for unemployment benefit (as distinct from assistance that is paid at a lower rate) was raised from 6 to 12 months. It is interesting to note (with the usual warning against the *post hoc propter hoc* fallacy) that since that time unemployment has been well above the level of the mid-'60s and there has been a marked increase in the proportion of long-term unemployment in the live register.[6]

For all these reasons, the fact that Ireland's unemployment rate is much higher than that of the UK and most Western European countries cannot be taken as strong evidence against the existence of excess demand, especially in the period since 1968.

In some countries statistics of vacancies can be used to supplement those of unemployment. Figures of vacancies notified and filled at local employment offices are published in "The Trend of Employment and Unemployment" and are shown in Table 4.1, but they are of very limited value. There is no obligation on employers to use the service and it is not known what proportion of all vacancies are filled through it; It is believed, however, that only a minority of

employers make use of it and then mainly for the recruitment of unskilled labour. A striking feature of the series is the fall in the number of vacancies notified from an average of 45,800 in the years 1953/55 to only 18,600 in 1971/73. Nevertheless, if allowance is made for the strong downward trend, the series does seem to reflect broad cyclical movements in activity.

Some UK and American studies have attempted to distinguish between "frictional" or "structural" unemployment and that arising from demand deficiency using the relationship between the number of registered unemployed and the number of vacancies outstanding. The quality of the Irish data on vacancies would preclude such an exercise, but this is no loss from our present point of view. Estimates of the amount of "structural" unemployment may be useful in planning educational and training facilities but they have little relevance to the problem of inflation. Excess demand, in the sense in which it is defined here, can occur with different numbers of vacancies as well as unemployed, according to circumstances, and equilibrium in the labour market cannot be defined in terms of equality (or any other relationship) between unemployed and vacancies.

Irish economists appear to differ somewhat in the view they take of the relationship between unemployment and excess demand. Mulvey and Trevithick base their model of wage inflation on excess demand for the services of electricians raising their earnings, and the rise being transmitted to other groups because of the importance of comparability in collective bargaining. They also state, however, that "Excess demand undoubtedly exists, and has persisted for a number of years, for the services of a number of other skilled occupational groups in Ireland, notably mechanical fitters, welders, turners, toolmakers, motor mechanics, etc."[7] Geary and Hughes also stress structural factors making for a relatively high level of unemployment; they conclude that "the problem of unemployment is largely a problem of lack of skills" and give primacy among policy recommendations to more training facilities; though they also admit that this would be likely to increase emigration, "since it is probable that all these additional skilled people cannot be absorbed at home", presumably through lack of demand.[8]

Walsh describes a number of the features of the Irish labour market discussed above but, nevertheless, attaches more importance to demand deficiency, and to macro-economic demand management (presumably expansion) as a cure for unemployment.

Three characteristics of the Irish labour market have been put forward as evidence against the "structural" hypothesis. First, cyclical variations in the general level of unemployment are reflected throughout different occupations and different regions. This has been observed in other countries, too, and it is not inconsistent with the existence of excess demand, as we have defined it, at periods when unemployment is at a cyclical low. Secondly, there is the relatively high "incidence" (i.e. the number losing or leaving jobs in any time period) of unemployment established by Walsh,[9] it can be argued that employers are more likely to meet temporary fluctuations in output by "hiring and firing" when there is excess supply in the labour market; but it can also be argued that workers find it easier to change jobs, and are more likely to do so for trivial reasons, when there is excess demand. Thirdly, it has been pointed out, again by Walsh, that a fall in the general unemployment rate is not accompanied by a rise in the proportion of unskilled workers on the register. Again the argument cuts both ways. If the problem of unemployment is largely one of lack of skills one might expect that skilled workers would be absorbed more rapidly than unskilled at times of rising demand; but one would also expect that (because of the ease with which they could be recruited again when required) the unskilled would be more likely to be laid-off at times of falling demand.

In view of the uncertain relationship between unemployment and excess demand in the Irish economy, it is not surprising that econometric studies of unemployment and wages have been inconclusive. Mulvey and Trevithick found a significant relationship between the growth of earnings and unemployment among electricians and O'Herlihy found that both unemployment and its rate of change were significant for the economy as a whole.[10] Cowling found that the general level of unemployment was significant in explaining changes in aggregate earnings and had more explanatory power than industry unemployment rates in relation to earnings in individual industries.

However, in nine of his seventeen industry groups he was unable to find any statistically significant relationship between unemployment and the rate of change of earnings.[11] The most recent study, by Geary and McCarthy, uses both unemployment and migration (along with a distributed lag of past price changes) as independent variables. They found that, "neither the unemployment nor the migration terms are particularly significant, the latter also having a sign contrary to our expectations".[12]

Wage drift

Besides evidence from statistics of unemployment and vacancies, there are a number of other indicators that have an indirect bearing on the presence or absence of excess demand. One that is often used is "wage drift", the difference between the rate of growth of earnings and wage rates. Wage rates are generally fixed by collective agreements while average earnings reflect not only wage rates but also overtime and short-time; piece rate earnings; bonuses of various kinds; upgrading of jobs and movement from lower paid to higher paid jobs. All these influences are more likely to raise earnings relatively to wage rates in times of strong demand for labour. Wage drift measured by the difference between the rate of increase of the earnings index and that of the wage-rate index is shown in Table 4.1.

There are two difficulties about using this statistic as an indicator of demand pressure in the labour market. First the two index numbers refer to different dates; the wage index is described as measuring wage rates "in the early months of the year", whereas the earnings index applies to October prior to 1968 and September from 1968 onwards.* Secondly the relationship between the two series is influenced by "wage rounds". Over the period as a whole earnings have risen much more than wages but the rise has been more even. As a result there tends to be a big difference immediately before a "round"; wage rates then take a jump and there is a small or even negative difference. The extent to which this effect is caught in the annual figures depends on the timing of a particular "round". For these reasons, the series is of limited usefulness, though the very large "drift" in 1968/69 and 1972/73 is interesting.

* Quarterly earnings figures have been published since September 1969

The rate of increase in employment

Table 4.1 also shows the increase from year to year in non-agricultural employment. Given the natural increase in the non-agricultural labour force, static or declining employment can be taken as ruling out any general excess demand. It is not possible to associate any particular rate of increase of employment with the emergence of excess demand, but the higher the rate of increase, the stronger is that possibility. The period of high inflation in 1956/58 was accompanied by falling employment, but 1962/64, 1969, 1971 and 1973 were all marked by rises much above the average.

Evidence from the industrial survey

Since 1962 the Confederation of Irish Industry and the Economic and Social Research Institute have carried out a quarterly industrial survey. The format was changed at the beginning of 1967 and the answers to the most relevant questions before and after the change are shown in Table 4.2A and 4.2B. In the early years firms were asked whether plant and equipment were "more than adequate", "adequate" or "inadequate"; whether numbers employed were "excessive", "adequate" or "inadequate" and whether skilled labour could be obtained "easily", "sufficientiy" or "with difficulty". Answers are tabulated in Table 4.2A.

Only a small number of firms stated that numbers employed were inadequate, though there was a sharp increase in the second quarter of 1962 and a smaller one towards the end of 1964. A rather larger but still small proportion said that plant and equipment were inadequate and there does not seem to be any systematic relationship between these answers and periods of high inflation. The most striking feature of the table is the very small number of respondents who ever found recruitment of skilled labour easy and the high proportion who said, even in times of comparatively slack trade, that skilled labour was obtainable only "with difficulty".

From the beginning of 1967 respondents were asked, "could more be produced with present resources" and those who answered "no" were asked to give the most important reason why output could not be increased. The answers are shown in Table 4.2B. The increase in

TABLE 4.2A

Some Indicators from the CII/ESRI Survey 1962/67

Percentage of respondents in each category

Year and month	Numbers employed			Plant and equipment			Skilled labour obtainable		
	Excessive	Adequate	In-adequate	More than adequate	Adequate	In-adequate	Easily	Sufficiently	With difficulty
1962:									
January	16	84	0	12	88	0	0	28	72
April	22	61	17	25	71	4	6	54	40
July	23	75	2	17	75	8	0	58	42
October	5	95	0	10	83	2	2	43	55
1963:									
January	10	84	6	24	60	16	1	49	50
April	8	91	1	19	74	7	3	62	35
July	7	91	2	15	84	1	2	60	38
October	3	96	1	21	73	6	1	44	55
1964:									
January	5	93	2	11	85	4	2	60	38
April	4	95	1	11	83	6	1	56	43
July	2	98	0	13	82	5	1	55	44
October	5	89	6	13	84	3	1	43	56
1965:									
January	6	90	4	13	82	3	1	54	45
April	16	81	3	16	87	2	1	45	54
July	10	90	0	17	75	8	0	60	40
October	7	87	6	25	74	1	0	49	51
1966:									
January	6	84	5	17	80	3	0	56	44
April	6	92	2	20	74	6	1	63	36
July	2	94	4	17	77	6	0	61	39
October	2	89	9	17	79	4	2	51	47
1967:									
January	5	88	7	11	84	5	2	50	44

Source: CII/ESRI Joint Quarterly Industrial Surveys.

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TABLE 4.2B

Some Indicators from the CII/ESRI Survey 1967/73

Column 1 shows the percentage of respondents answering "No" to the question, "Could more be produced with present resources". Subsequent columns show the proportion answering "no" giving their main reason in each category.

Date	% Answering "No"	Main reasons given			
		Capacity	Labour	Materials	Other
1967 I	19	42	17	18	23
II	19	43	30	13	14
III	31	26	31	12	31
IV	21	11	—	89	—
1968 I	24	26	27	28	19
II	34	42	27	20	11
III	50	50	33	7	10
IV	51	50	26	20	4
1969 I	49	21	21	10	48
II	48	32	40	20	8
III	56	44	38	9	9
IV	47	26	31	40	3
1970 I	37	44	32	17	7
II	30	41	32	16	11
III	37	45	47	14	4
IV	35	46	25	22	7
1971 I	31	37	32	16	15
II	32	51	26	11	12
III	38	51	30	14	5
IV	20	69	8	13	10
1972 I	24	35	27	19	19
II	31	51	22	15	12
III	38	52	12	12	24
IV	39	54	20	11	15
1973 I	35	48	23	25	4
II	43	55	18	22	5
III	53	46	29	14	11
IV	58	41	18	34	7

Source: CII/ESRI Joint Quarterly Industrial Surveys.

the pressure of demand in the latter part of 1968 and in 1969 comes out very clearly, as does the similar situation in 1972/73. How high a proportion of firms have to be unable to produce more with existing resources before demand as a whole can be considered excessive is a matter of judgement that can only be resolved by considering the series in relation to other indicators. It is clear that plant capacity was almost always the most important single constraint on output. The proportion who listed labour shortage as their main constraint varied rather erratically from zero to over 40%; an interesting feature is that labour shortage appeared to be less important in 1973 than in 1968, though this may be partly due to the very rapid rise in world raw material prices in 1972/73.

Rates of economic growth

An unduly rapid growth of national output can lead to excess demand either for labour or plant capacity, but again we cannot say what is "undue" except by reference to past experience. Table 4.3 shows four measures of the GDP at constant market prices and constant factor cost, derived from expenditure and "sector of origin" estimates, together with index numbers of industrial production for manufacturing and "all goods and services". A serious problem arises with the national income data because of discrepancies in some years between the expenditure and sector of origin estimates; for example 1964 shows a growth rate of only 3·11% by the expenditure method and 5·43% by the sector of origin method, and there are differences almost as big, though not always in the same direction, in several other years.

Once again 1956/58 comes out as a period of low demand by all these indicators. All the indicators then show rapid growth from 1959 to 1962, though the pace was beginning to slacken in 1962. Industrial production and GDP by sector or origin show big increases in 1964, but as already noted, the expenditure estimate of GDP gives a much smaller rise. All the indicators show very rapid growth in 1968; a lower but still high rate for 1969 and a marked slowing down in 1970. In 1971 and 1972, there was a moderate growth in industrial production, and a high rate of growth of GDP by the sector of origin measure, but a much smaller increase in the expenditure estimate of GDP. Finally, all the indicators so far available agree on a very rapid expansion in 1973.

TABLE 4.3

Indicators of Economic Growth

Percentage changes in each series over previous year

	Gross domestic product (constant prices)				Industrial production	
	Expenditure		Sector of origin			
	Market price	Factor cost	Market price	Factor cost	Manufacturing	All goods and services
1954	0·85	..	..	..	2·9	5·0
1955	2·50	..	..	..	3·4	2·7
1956	—1·23	..	..	..	—2·6	—3·5
1957	0·33	..	..	..	—1·1	—4·8
1958	—2·17	..	..	..	3·2	2·9
1959	4·63	4·16	5·88	5·62	8·2	8·8
1960	5·16	6·46	3·85	4·91	8·6	7·0
1961	4·96	4·47	4·70	4·18	8·7	8·5
1962	3·41	4·21	2·92	3·64	6·3	7·1
1963	4·46	4·19	3·38	2·94	5·3	5·9
1964	3·75	3·11	5·76	5·43	7·5	7·6
1965	2·03	2·06	1·21	1·11	4·6	4·1
1966	1·16	1·43	1·20	1·47	3·2	3·2
1967	5·42	5·63	4·87	5·00	7·6	7·9
1968	8·07	8·64	6·56	6·87	10·0	10·5
1969	6·02	5·73	4·73	4·22	7·8	7·1
1970	2·68	2·39	2·56	2·27	3·1	4·9
1971	3·62	3·06	5·30	5·02	4·6	5·7
1972	3·89	2·93	5·19	4·46	4·6	4·6
1973	7·21	..	..	..	10·9	9·6

Source: National Income and Expenditure 1972, Tables A4 and A6, and corresponding tables in previous years; Review of 1973 and Outlook for 1974, Table 5.

Stocks

An expansion rapid enough to cause excess demand in the labour market is likely to be associated with both shortages of plant capacity and a depletion of stocks. Here, again, the CII/ESRI survey should provide some information. Table 4.4 shows the figures relating to stocks. Firms are asked to indicate, for materials and for finished products, whether their stocks are "insufficient", "adequate" or "excessive", and results are published as percentages of all respondents falling in each category. We have calculated the excess of those saying "insufficient" over those saying "excessive". As would be expected, the figures are relatively small but the change from year to year emerges clearly with 1964, 1968 and 1973 as the years when shortage of stocks was most widely felt.

TABLE 4.4

Stocks in Industry

	Materials	Finished products		Materials	Finished products
1960	..	..	1967	− 4	− 5
1961	−13*(a)*	− 4*(a)*	1968	13	3
1962	0	5	1969	3	− 9
1963	5	6	1970	0	1
1964	3	17	1971	− 8	− 9
1965	0	4	1972	10	2
1966	4	9	1973	17	12

Note: Figures show excess of percentage saying "insufficient" over percentage saying "excessive" and refer to averages of four quarters.

(a) 4th quarter only.

Source: CII/ESRI Joint Quarterly Industrial Surveys.

Capacity utilisation

Several attempts have been made to produce numerical indicators of "capacity utilisation". Productive capacity involves both capital and labour, so a capacity utilisation index should take account of both.

Unemployment rates provide a measure, albeit an imperfect one, of the extent to which labour is fully used, but there is no numerical measure of the intensity of capital utilisation. Hence a capacity index must be inferred in some way from one or more of the indicators already described. McMahon and Smyth[13] produce estimates which are reproduced in Table 4.5.

Using the index of industrial production, they made estimates for eleven industry groups and for total manufacturing and total transportable goods industries. For each industry group, estimates are made by three different methods. The first developed by the Wharton Business School, identifies peaks in activity according to a pre-determined formula, assumes that capacity is fully utilised at each peak and then derives capacity utilisation for off-peak periods by interpolation. The second estimate is similar, but modified so as to exclude minor peaks where it is not plausible to assume that full capacity was reached. The third estimate is derived simply by taking deviations from a trend. For the two aggregate estimates there are simple and weighted averages of the eleven industry series. In Table 4.5 we show the weighted average for all transportable goods industries of the "modified Wharton" and deviations from trend estimates.

In interpreting the figures it should be borne in mind that the highest output achieved in any individual industry group is taken as the measure of capacity, so the index for a group can never exceed 100. The aggregate index would only reach 100 if all industry groups were operating at full capacity simultaneously; since this is obviously unlikely, the shortfall from 100 in times of high activity represents the dispersion in time of peaks for different industry groups. We thus have a problem similar to that discussed earlier in relation to the interpretation of unemployment statistics; what is the "equilibrium" level of spare capacity? Since this cannot be known, the absolute value of the index has little significance, though its variations have.

For the period covered (1959 to the first quarter of 1973) the estimates are broadly in line with our other indicators. Activity appears rather higher in 1960/61 and rather lower in 1962 than in some other indicators, but the peaks in 1964 and 1968 stand out clearly.

TABLE 4.5

Estimates of Capacity Utilisation

Year	"Modified Wharton" estimate(a)				Deviation from trend estimate(b)			
	1	2	3	4	1	2	3	4
1959	88·1	92·8	92·8	90·7	97·5	106·0	104·1	100·0
1960	94·6	92·5	90·4	89·6	105·5	103·7	99·5	99·0
1961	95·1	92·6	91·5	91·7	105·9	102·8	100·1	100·3
1962	92·2	92·7	86·8	89·2	100·1	102·2	93·5	96·4
1963	89·7	88·4	88·3	89·7	97·3	97·5	97·6	98·6
1964	92·5	91·6	91·1	89·7	101·8	101·1	102·1	98·9
1965	90·3	88·7	88·6	87·3	99·9	97·8	97·9	96·8
1966	84·2	79·2	86·5	85·2	93·7	88·5	98·5	97·0
1967	84·1	86·5	83·4	85·7	95·3	98·5	95·0	97·9
1968	86·6	89·1	91·7	91·3	98·1	101·2	105·8	105·7
1969	85·4	92·0	90·6	91·3	97·1	103·6	102·8	103·5
1970	83·7	85·6	86·6	88·9	93·9	96·5	96·7	100·1
1971	91·0	86·0	83·3	85·7	103·0	95·2	92·6	96·2
1972	78·8	81·8	81·9	86·9	86·5	89·2	90·7	96·9
1973	88·0				96·8			

(a) Full capacity in all industry groups = 100.

(b) Trend = 100.

Source: See text.

The trade balance

Finally we can turn to international transactions. Excess demand in the domestic economy can affect trade flows not only by causing price inflation, but more directly by stimulating imports of products obtainable from home industry only with long delays and by pre-empting for the home market goods that might otherwise be exported. This effect seems more likely to appear in visible trade than in invisible transactions, so we have shown the visible trade balance in Table 4.6. There is an upward trend in the deficit explained in part by rising prices but it is notable that it fell sharply from 1955 to 1957 and rose only moderately in 1958, 1962 and 1964; there were, however, very sharp deteriorations in 1968/69 and 1973.

Table 4.6

Deficit in Visible Trade

					£ million
1953	70·9*(a)*	1960	73·5	1967	100·2
1954	67·2*(a)*	1961	80·9	1968	152·4
1955	96·8	1962	99·3	1969	209·4
1956	74·7	1963	111·1	1970	210·0
1957	52·8	1964	126·9	1971	216·2
1958	67·7	1965	146·6	1972	190·5
1959	82·0	1966	123·3	1973	269·2
				1974*(b)*	484·6

(a) Taken from Leser—A Study of Imports, where figures are adjusted to same basis as later years.

(b) First eleven months.

Note: Figures from the mid-1960s include Shannon Free Airport Trade.

Source: Statistical Abstract of Ireland; Review of 1973 and Outlook for 1974.

Conclusions

We may now summarise the evidence with regard to our four periods when prices were rising comparatively rapidly. In 1956/58, output was stagnant, non-agricultural employment was falling and so were vacancies notified at local employment offices; wage drift was minimal, and

the trade balance stronger than at any other time in our period. The indicators are unanimous that domestic excess demand can be ruled out.

1962 was the culmination of a period of very rapid expansion that had lasted since 1959. The national income figures and the industrial production index both indicate a slowing down of expansion during the year, though industrial output was still expanding rapidly and the growth of the previous three years must have used up a good deal of the slack in the economy. Non-agricultural employment showed its biggest rise in the whole period and the unemployment rate reached its lowest point. The number of vacancies notified was falling, but at less than its trend rate. Wage drift was negative but, since 1962 was a "wage round" year, this is not surprising. There is no evidence of a shortage of stocks of materials, but some slight indication that stocks of finished products had been reduced below desired levels. The indicators are not unanimous, but they point to a probability that some degree of excess demand was present.

In 1964 the situation is rather clearer. The output indicators point to a rapid rise though, as already noted, this appears more strongly in the "sector of origin" estimates of GDP than in expenditure ones. Again, unemployment was as low as at any time in the period, employment was rising rapidly, and vacancies were falling at less than the trend rate. Again we have a wage round year with negative "drift" though this was smaller than in 1962. The stocks figures give some indication of shortages of materials, and a very strong one in respect of finished products.

The situation in the years 1968/73 is more complicated. The inflation rate remained very high in relation to previous experience throughout the period. The indicators point clearly to very strong pressure of demand in 1968 and 1973, and only slightly less so in 1969. They are also unanimous in showing a marked slackening of growth in 1970. The "sector of origin" estimates of national income show a rise of over 5% in 1971 and nearly 4·5% in 1972, though the expenditure estimates show a rate of only about 3% in both years. The industrial production index suggests that the lower figure may be nearer the truth. Non-agricultural employment rose by 1·5% in 1971 but fell in 1972. Unemployment was higher than at any time since the 1950s, but this may have been influenced by the extension of unemployment benefit and the introduction of redundancy payments in 1968 and by the fall in emigration. The number of vacancies notified remained stationary in 1971 and rose in 1972. Wage drift was negative in 1971, but quite strongly positive in 1972 in spite of a new national wage agreement in July. In 1971 there were indications of over-large stocks both of materials and finished products, but this was reversed in 1972. The trade balance suffered a very small deterioration in 1971 and a larger improvement in 1972.

We cannot be as certain as we could if excess demand were something that could be weighed or counted, but there seems little doubt that it was present in 1968/69 and in 1973/74 and that it was not in 1970. The situation in 1971/72 is doubtful but, if there was no excess demand, it is hard to believe that there was any marked deficiency. This situation is consistent with the excess-demand-expectations model discussed in Section II. This predicts that, when once a high inflation rate had been generated by excess demand, it would be maintained by the influence of expectations on wage bargaining, even if the excess demand were eliminated. Elimination of the inflation would require not merely a return to labour market equilibrium but to a position of excess supply large enough and maintained for long enough to cause a downward revision of expectations. Even if excess demand had been eliminated from the Irish labour market between 1970 and 1972, it is hard to believe that there was enough excess supply to have any significant effect on expectations.

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SECTION V

EXCESS DEMAND 2. DOMESTIC EXPENDITURE

Introduction

The preceding section has shown a probability that inflation in Ireland was aggravated by excess demand in 1962 and 1964, and a very strong probability that this was so in 1968/69 and in 1973. We now consider the sources from which excess demand could have arisen. Since overseas transactions will be considered in Section VIII below, we are concerned here with public expenditure, both current and capital; personal consumption; private fixed capital formation; and stockbuilding. Since public expenditure is the subject of another study commissioned by the National Economic and Social Council, it will be treated very briefly.

The main components of domestic expenditure are shown, at constant prices, in Table 5.1. Personal consumption rose at an average rate of rather more than 4% between 1959 and 1973. There were increases in each year, but they varied in size from 1·4% (in 1959 and 1965) to 8·4% (in 1968). The years of biggest increase were 1964, 1968/69 and 1972/73. Public consumption rose by an average of rather more than 5%, but there is a very marked contrast between 1958/66 and 1967/73. In the first period, the highest increase was only 3·9% and the lowest 0·9%; in the second, the lowest increase was 4·6%, and the highest 11·2%. Fixed capital formation grew at an average rate of more than 9% but, as is to be expected, with much wider fluctuations; increases of over 12% were recorded in six years, but there was a fall of 3% in 1966, and no significant change in 1970. The years of biggest increase were 1961/64, 1968/69 and 1973. Stockbuilding, as in most economies, was very volatile, with particularly

TABLE 5.1

Components of domestic demand at constant (1958) prices

Year	Personal consumption		Public consumption		Gross fixed capital formation		Increase in stocks
	£m	% change	£m	% change	£m	% change	£m
1958	459·1	...	70·5	...	80·0	...	−7·7
1959	465·7	+1·4	71·8	+1·8	83·0	+3·8	+22·9
1960	490·9	+5·4	73·2	+1·9	88·0	+6·2	+10·2
1961	504·9	+2·9	74·7	+2·0	103·1	+17·2	+7·6
1962	522·8	+3·5	77·1	+3·2	117·9	+14·4	+10·7
1963	542·1	+3·7	80·1	+3·9	133·8	+13·5	+10·3
1964	566·9	+4·6	83·1	+3·7	147·9	+10·5	+16·5
1965	574·8	+1·4	85·9	+3·3	162·3	+9·7	+19·4
1966	585·5	+1·9	86·7	+0·9	157·3	−3·1	+6·4
1967	607·7	+3·8	90·7	+4·6	167·9	+6·7	−4·0
1968	658·9	+8·4	95·9	+5·7	189·6	+12·9	+10·9
1969	694·6	+5·4	102·6	+7·0	226·9	+19·7	+23·5
1970	709·4	+2·1	109·0	+6·2	226·9	—	+21·4
1971	724·5	+2·1	121·2	+11·2	244·9	+7·9	+11·0
1972	763·3	+5·3	133·8	+10·4	250·9	+2·4	+20·3
1973*(a)*	811·2	+6·3	143·8	+7·5	283·2	+12·9	+33·1

Note: The 1958 and 1968 price series have been linked.

Source: National Income and Expenditure, 1972, Table A6 and corresponding tables for previous years. 'Review of 1973 and Outlook for 1974".

(a) Preliminary.

big increases in 1959, 1964/65, 1968/70 and 1972/73, while stocks were run down slightly in 1958 and 1967. Changes in the value of cattle on farms are a significant item in Ireland, and one that sometimes moves differently from the trend in industrial stocks.

Public authorities' current expenditure

Table 5.2 shows the growth of current expenditure of public authorities, defined to include the central government and local authorities but not the state-sponsored agencies; expenditure on goods and services and transfer payments are shown separately. Between the financial years 1958/9 and 1972/3 total current expenditure of public authorities rose from £145 million to £771 million. As a proportion of GNP the increase was from 24·2% to 34·5%. The sharpest rises in relation to GNP occurred in the financial years 1961/2; 1963/4-1965/6; and from 1969/70 to 1971/72.

Expenditure on goods and services adds directly to demand and, unless it is accompanied by measures to cause an equal reduction in demand by other sectors, it will be an expansionary force. It is sometimes supposed that the expansionary effects of increased public consumption can be neutralised simply by levying an equivalent amount of extra taxes but, in ordinary circumstances, this is not so. Taxpayers will normally meet their higher tax bills only in part by curtailing spending, and in part by saving less than they would otherwise have done. Hence, if an increase in government spending is to be neutral with regard to aggregate demand in the economy as a whole, it must be accompanied either by a more than equivalent increase in taxation or by other measures to restrain private spending.[1]

Expenditure on goods and services rose, in absolute amount, from £77·1 million to £377·4 million: and as a proportion of GNP from 12·8% to 16·9%. Part, but only part, of the rise can be explained by the fact that the things on which public authorities spend (largely wages and salaries) were rising faster than prices in general. However, from the point of view of inflation, the distinction is of secondary importance, since higher pay packets for government employees enable them to exert larger claims on resources.

TABLE 5.2
Public Authorities Current Expenditure

Financial years	Total		Goods and services		Subsidies, debt interest (and other) transfers	
	£mn	% of GNP*(a)*	£mn	% of GNP*(a)*	£mn	% of GNP*(a)*
1958/59	145·4	24·2	77·1	12·8	68·3	11·4
1959/60	152·3	23·8	80·9	12·7	71·4	11·1
1960/61	164·5	24·3	85·5	12·7	79·0	11·6
1961/62	185·2	25·5	91·6	12·6	93·6	12·9
1962/63	196·2	25·0	99·9	12·8	96·3	12·2
1963/64	214·0	25·5	108·7	13·0	105·3	12·5
1964/65	251·2	26·4	129·4	13·7	121·8	12·7
1965/66	278·0	27·8	139·7	14·0	148·3	13·8
1966/67	303·7	28·9	148·0	14·1	155·7	14·8
1967/68	338·2	29·4	159·4	13·9	178·8	15·5
1968/69	386·0	29·7	179·6	13·8	206·4	15·9
1969/70	457·9	30·7	207·8	13·9	250·1	16·8
1970/71	549·3	33·0	252·9	15·2	296·4	17·8
1971/72	645·8	34·2	304·0	16·1	341·8	18·1
1972/73	770·7	34·5	377·4	16·9	393·3	17·6

(a) Percentage of financial year expenditure to calendar year income.
Source: "The Growth of Public Expenditure", National Economic and Social Council, mimeograph, 1974.

Transfer payments consist mainly of debt interest, subsidies and various kinds of social security benefit. They add to the real income of their recipients either directly by cash payments or, in the case of subsidies, by reducing prices. If these payments were matched by increases in taxation, the net effect on demand would depend on the relative savings, propensities of recipients and taxpayers. It is generally, and plausibly assumed that virtually all of social security payments will be spent; the position with regard to subsidies and debt interest is less clear but on the whole it seems likely that an increase in transfers combining all three items as in Ireland would be expansionary.

Transfer payments rose from £68.3 million in 1958/59 to £393·3 million in 1972/73, and from 11·4% of GNP to 17·6%. Moreover, these

increased payments were not associated with similar increases in taxes on personal income, as can be seen in the following figures.*

£ million

	1958	1967	1972
Debt interest accruing to persons	15·8	41·8	85
Other transfers*(a)*	37·2	107·9	252
	53·0	149·7	337
Taxes on personal income	24·5	85·5	221
Balance	28·5	64·2	116

(a) Transfers include those from the rest of the world.
Source: National Income and Expenditure 1972. Table A8, and corresponding tables for earlier years.

This does not, of course, take account of reductions in purchasing power brought about by taxes on expenditure or of the indirect effects of other taxes, e.g. company taxes and taxes on capital. Nevertheless, it seems that the balance between income taxation and transfers significantly increased consumer's disposable income.

Public and private investment

Public investment is one of the main ways in which the Irish government has sought to generate a high rate of economic growth, and on average it accounts for roughly half of all fixed investment. The relevant figures are shown in Tables 5.3 and 5.4.

The whole public sector programme is co-ordinated in the annual capital budget but less than half of it is undertaken by public authorities, and the rest by the state-sponsored organisations. The largest components of public authorities' investment are local authority housing and the post office, but roads, airports and educational building are also substantial. Among "state bodies" not included as public authorities, the biggest spenders in 1973/74 were the Agricultural Credit Corporation (£40·5 million), the Electricity Supply Board (£33·5 million), the telephone system (£24·0 million), the Industrial Credit Corporation (£13·0 million) and Coras Iompair Eireann (£7·5 million). These five accounted for 84 per cent of expenditure by state

*Income taxes have risen proportionally more than transfer payments, but from a much smaller base. It is absolute differences that are relevant to changes in disposable income.

bodies. It is important to note in interpreting Tables 5.3 and 5.4 that public investment is defined so as to include work in the private sector that is financed by the Agricultural Credit Corporation and the Industrial Credit Company.

Table 5.3 indicates that both public authorities' investment and the total public sector capital programme have been fairly stable as proportions of total physical capital formation, but public investment (like private investment) has risen very sharply as a proportion of GNP. Years in which the proportion rose sharply were 1962/64, 1968/69 and 1973.

TABLE 5.3

Public sector investment

Year *(a)*	Gross physical capital formation			Public sector capital programme		
	Total £ million	Public authorities £ million	(2) as % of (1)	Total £ million	Total as % of (1)	Total as % of GNP
	(1)	(2)	(3)	(4)	(5)	(6)
1958	72·3	17·2	23·8	37·9	52·4	6·3
1959	105·2	17·6	16·7	44·1	41·9	6·9
1960	100·0	18·2	18·2	51·3	51·3	7·6
1961	116·4	22·2	19·1	58·6	50·3	8·0
1962	138·9	25·9	18·6	65·8	47·4	8·4
1963	159·2	30·6	19·2	78·5	49·3	9·4
1964	192·6	38·5	20·0	97·8	50·8	10·3
1965	227·4	43·6	19·2	99·3	43·7	9·9
1966	207·8	42·4	20·4	97·8	46·9	9·3
1967	216·4	48·7	22·5	110·4	51·0	9·6
1968	274·5	54·4	19·8	140·9	51·3	10·8
1969	370·5	67·2	18·1	173·4	46·8	11·6
1970	396·4	71·7	18·1	189·7	47·9	11·4
1971	451·8	81·0	17·9	213·9	47·3	11·3
1972	537·0	99·2	18·5	248·5	46·3	11·1
1973	704·0			319·7	45·4	12·0

(a) Columns 2 and 4 refer to financial years ending 31 March of following calendar year. Percentage comparisons are between the financial year and the most closely corresponding calendar year.

Source: "National Income and Expenditure", Central Statistics Office, and 'Growth of Public Expenditure", NESC.

TABLE 5.4

Gross fixed capital formation public and private

[Constant (1958) market prices]

Year	Total		Public sector		Private sector (Column 1 less 2)	
	£ million at 1958 prices	% change	£ million at 1958 prices	% change	£ million at 1958 prices	% change
	(1)		(2)		(3)	
1958	80·0	...	...	...	...	...
1959	83·0	+3·8	42·6	...	40·4	...
1960	88·0	+6·2	48·6	+14·1	39·4	−2·5
1961	103·1	+17·2	54·0	+11·1	49·1	+24·6
1962	117·9	+14·4	58·8	+8·9	59·1	+20·4
1963	133·8	+13·5	67·8	+15·3	66·0	+11·7
1964	147·9	+10·5	78·9	+16·4	69·0	+4·5
1965	162·3	+9·7	81·0	+2·7	81·3	+17·8
1966	157·3	−3·1	77·8	−4·0	79·5	−2·2
1967	167·9	+6·7	82·3	+5·6	85·6	+7·7
1968	189·6	+12·9	98·8	+20·0	90·8	+6·1
1969	226·9	+19·7	113·7	+15·1	113·2	+24·7
1970	226·9	—	118·0	+3·8	108·9	−3·8
1971	244·9	+7·9	119·0	+0·8	125·9	+15·6
1972	250·9	+2·4	125·1	+5·1	125·8	−0·1
1973	283·2	+12·9	139·3	+11·4	143·9	+14·4

Note: Financial years have been converted to calendar years by taking three quarters of one year and one quarter of the next. The 1958 and 1968 price series have been linked. Both public and private investment have been deflated by the implicit deflator for fixed capital formation as a whole in the national income accounts. The figure for the public sector may include a small amount of stockbuilding, which would lead to an understatement of the private sector component.

Source: "National Income and Expenditure", 1972, Table A6 and corresponding tables for earlier years. NESC, "Growth of Public Expenditure".

Table 5.4 attempts to separate the contributions of the public and private sectors to total fixed capital formation at constant prices, and to show the annual rate of increase of each. As will be seen from the note to the table, there are a number of difficulties that arise in doing this, and the figures should be treated with caution. They probably tend to understate the relative importance of the private sector, but they should give a reasonable indication of the direction of change, and so of which sector contributed most to the growth of demand in any particular year.

It can be seen from Table 5.4 and Chart 5.1 that private investment was rather more volatile than public, but that there was no systematic tendency for one to grow fast when the other grew slowly, or for the rate of increase of one to fall as that of the other rose. If we take 9% as the dividing line between a high and low rate of growth we can group years as follows, the growth rate of the public sector first and of the private sector second:

High-low	1960, 1964, 1968
Low-high	1962 (8·9) 1965, 1971
High-high	1961, 1963, 1969, 1973
Low-low	1966, 1967 1970, 1972

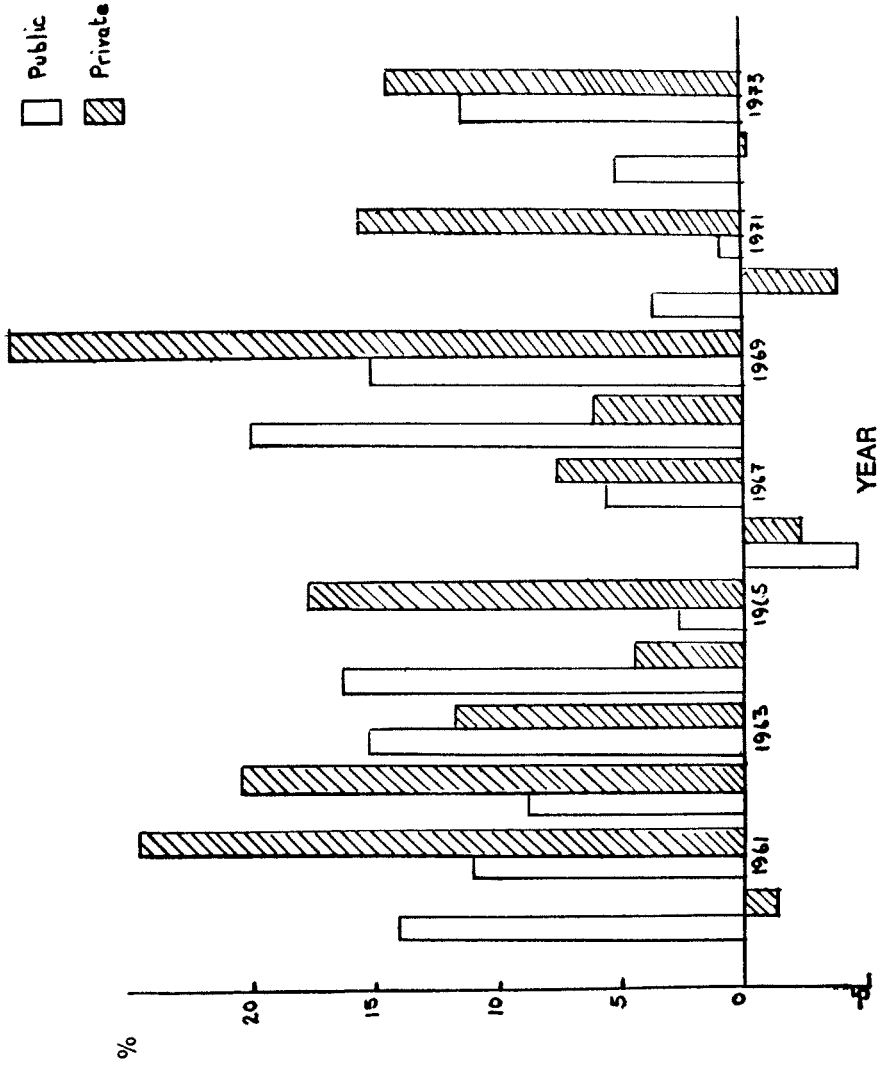
If we take the direction of change of the growth rate the pattern is different but no more systematic. Again putting the public sector first, we have:

Rise-fall	1963, 1964, 1968, 1972
Fall-rise	1961, 1965, 1969, 1971
Rise-rise	1967, 1973
Fall-fall	1962, 1966, 1970

In eight years out of fourteen the growth of both public and private investment was either above or below average at the same time, and In five out of thirteen both growth rates were changing in the same direction. It seems to be a matter of pure chance whether public investment counteracts or aggravates changes in demand arising from changes in private investment.

CHART 5.1

Public sector and private sector investment: annual percentage changes



Turning to our periods of high inflation, 1962 saw a fall in both public and private investment from the high growth rates of the previous year, but private investment was still growing at a rate of over 20%, and the growth in the public sector was only just below average at 8·9%. In 1964 the growth of private investment had fallen sharply from the previous year, but public investment had risen slightly. The private sector growth rate was below average, but this was more than offset by the public sector and total growth was well above average.

The picture was similar in 1968 though all the growth rates were rather higher; in 1969, there was a slight fall in the public sector growth rate but a large rise in that of the private sector, and both were well above average. Finally, in 1973 both rates rose sharply and, again, were well above average.

The composition of investment

It would be desirable to know more about the timing of different kinds of investment, especially in the private sector, but only very limited information is available. Table 5.5 shows the six categories into which fixed capital formation is divided in the national income accounts. The categories have changed significantly in relative importance with housing and "other machinery and equipment" increasing their share substantially at the expense of roads, transport equipment and agricultural machinery. Percentage shares of total fixed capital formation (at current prices) in 1958 and 1972 were:

	1958	1972
Dwellings	14·5	23·0
Roads	5·5	2·1
Other building and construction	33·5	33·1
Transport equipment	17·6	10·7
Agricultural machinery	6·4	4·3
Other machinery and equipment	22·5	26·7

Of the four major categories, dwellings have shown the highest rate of growth over the period as a whole, with major increases in 1962/65, 1967 and 1971/72. Other building and construction expanded very

TABLE 5.5

Gross fixed capital formation at constant prices: annual percentage changes

	Dwellings	Roads	Other building and construction	Transport equipment	Agricultural machinery	Other machinery and equipment
Value in base year 1958	11·6	4·4	26·8	14·1	5·1	18·0
1959	+6·0	+4·5	+9·3	−7·8	−2·0	+4·4
1960	+11·4	+8·7	+1·0	−1·5	−12·0	+19·7
1961	+3·6	+26·0	+10·1	+28·1	+34·1	+23·1
1962	+14·1	−4·8	+20·9	−5·5	−5·1	+20·6
1963	+13·0	+3·3	+15·0	+1·7	+16·1	+19·5
1964	+24·6	+4·8	+12·6	+16·5	+7·7	+5·0
1965	+20·2	−1·5	+10·5	+18·0	−2·9	+10·0
1966	−8·8	−2·2	+0·4	−10·8	+1·1	+0·2
1967	+17·6	−5·7	+3·7	+3·4	—	+7·5
1968	+5·5	−6·1	+11·6	+14·3	+47·8	+17·4
1969	+4·8	−1·3	+5·8	+67·0	+16·5	+29·5
1970	+0·2	−7·9	−1·6	−12·5	−8·4	+11·1
1971	+13·3	−5·7	+5·1	+17·5	−21·1	−1·7
1972	+20·8	−9·1	+1·4	−31·0	+33·9	+7·9

Source: "National Income and Expenditure, 1972", Table A14 and corresponding tables for earlier years.

rapidly in the early '60s with growth rates of over 10% in each of the years 1961/65 and over 20% in 1962; since then growth rates have been much lower, apart from one of 11·6% in 1968. Transport equipment is strongly influenced by purchases of ships and aircraft which, by their nature, are large and occasional. The series thus shows violent fluctuations that are not closely linked with changes in the general level of activity. Other machinery and equipment, composed largely of industrial plant, shows the strongest rise, apart from housing, over the period as a whole, but with strong cyclical fluctuations. There were high growth rates in 1960/63 and in 1968/70, but a surprisingly low one in 1964.

The only category for which it is possible to separate (approximately) the public and private sectors is housing, and this is done in Table 5.6. The initial stimulus to the upsurge in housebuilding came mainly from the public sector, whose share of the total rose from under 20% in the early '60s to one third in 1968. Since 1969, however, the growth of public sector expenditure in real terms has been much slower (with an absolute decline in 1969/70) and the main impetus has come from the private sector.

Investment in stockbuilding, as distinct from stock appreciation, is subject to large fluctuations in most economies and often plays a substantial part in changes in aggregate demand. The final column of Table 5.1 shows this to be true of Ireland. Stock accumulation appears to have played only a modest rôle in the 1962 expansion but a substantial one in 1968/69, and a still bigger one in 1972/73.

TABLE 5.6

Investment in housing (current prices)

	Total £ million	Local authorities *(a)* £ million		Other £ million
1958	11·6			
1959	12·8	3·2	(25·0)*(b)*	9·6
1960	14·6	2·6	(17·8)	12·0
1961	16·1	2·9	(18·0)	13·2
1962	19·0	3·5	(18·4)	15·5
1963	23·4	4·3	(18·4)	19·1
1964	31·5	6·4	(20·3)	25·1
1965	40·5	9·5	(23·4)	31·0
1966	37·5	11·1	(29·6)	26·4
1967	46·2	14·2	(30·7)	32·0
1968	50·1	16·7	(33·3)	33·4
1969	57·2	19·0	(33·2)	38·2
1970	61·7	17·0	(27·6)	44·7
1971	83·6	20·2	(24·2)	63·4
1972	112·0	24·4	(21·8)	87·6

(a) Adjusted to calendar years as in Table 5.4.
(b) Public sector as percentage of total in brackets.
Source: "National Income and Expenditure", Tables A13 and A21, and corresponding tables for earlier years.

Personal consumption

As already noted, personal consumption, in real terms, has shown a strong upward trend over the period as a whole, and the most rapid expansion occurred in years of high inflation. This raises the question of whether consumers played an independent rôle in initiating increases in demand, or whether their increased spending was simply the result of higher incomes generated by increases in investment and in public expenditure. The question can be answered by reference to the ratio of saving to disposable income (i.e. total personal income after tax), generally called the "savings ratio".

It is conceivable, if unlikely, that consumers might decide to spend more out of a given income, either because they became less thrifty or because of the increased provision by the state against the various kinds of "rainy day" for which people are proverbially supposed to save. If this happened, it should show up in a reduction of the savings ratio; though the ratio may also be affected by other things, e.g. changes in taxation and in the availability of consumer credit.

The savings ratio is shown in column 6 of Table 5.7. Two warnings need to be given about its use. First, in Ireland as in most other countries estimates of personal saving are derived as the residual between estimates of total personal income and of total personal expenditure; the savings estimate is, therefore, subject to wider margins of error than most national income statistics. Secondly, the estimate includes stock appreciation and there is no independent estimate of the amount of stock appreciation incurred by persons. However, virtually the whole of agriculture is in the personal sector, and changes in the value of farm stock can be very large. Incidentally this probably explains the otherwise hardly credible jump in the ratio in 1972.

TABLE 5.7

Saving and investment

	Saving			Domestic funds available for investment *(a)* £ million	Overseas dis-investment £ million	Column 1 as % of personal disposable income	Column 4 as % of GNP	Investment as % of GNP
	Persons £ million	Companies £ million	Public authorities £ million					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1958	18	12	7	71	1	3·8	11·8	12·0
1959	40	12	6	96	9	7·9	15·1	16·5
1960	37	22	1	99	1	7·0	14·7	14·8
1961	54	23	—1	117	— 1	9·4	16·2	16·1
1962	56	22	—1	126	13	9·0	16·2	17·7
1963	53	25	4	137	22	8·1	16·4	19·1
1964	78	25	3	162	31	10·5	17·1	20·4
1965	86	29	3	186	42	10·9	18·6	22·8
1966	85	23	16	192	16	10·2	18·2	19·8
1967	90	42	17	231	—15	10·1	20·1	18·8
1968	104	51	19	258	16	10·3	19·9	21·1
1969	120	55	19	301	69	10·4	20·2	24·9
1970	147	46	15	331	65	11·4	19·9	23·8
1971	176	57	17	381	71	12·2	20·1	23·9
1972	275	69	1	481	56	16·0	21·6	24·1
1973 *(b)*		473		618	86	...	23·1	26·3

(a) Column 4 is the sum of columns 1–3 plus depreciation less stock appreciation. It is identically equal to gross physical capital formation less overseas disinvestment.

(b) Provisional.

Source: National Income and Expenditure, 1972, Table A10 and corresponding tables for earlier years. "Review of 1973 and Outlook for 1974".

Even ignoring the freak 1972 figure, the ratio shows a strong upward trend through the period 1958/72. Of the years of high inflation, there was a small fall in the ratio in 1962, a sharp rise in 1964; and a modest rise in 1968/69. The 1973 figure is not yet available. This does not look as if changes in consumer's behaviour played an active rôle in initiating excess demand, but one qualification needs to be made. Stock appreciation is, inevitably, larger in periods of rapidly rising prices. If it were possible to allow for this we should undoubtedly have a larger fall in the ratio for 1962 and a smaller rise in 1964, while the modest rise of 1968/69 could well be turned into a fall.

Saving and investment

There is very little reliable information on the relationship between saving and investment in different sectors, but that which can be gleaned from the national income accounts is shown in Table 5.7. The most striking feature of the table is the very high ratio of personal saving to the total. From 1960 to 1971 this varied between 60% and 73%, while in the exceptional circumstances of 1972 it rose to nearly 80%. Public authorities' saving was never as much as 20% of the total and, for a large part of the period it was trifling or even negative. This figure does not include savings by the state bodies (which appear to be included in the company sector) and is net of depreciation.

Because of the impossibility of obtaining separate figures for the state bodies, and of apportioning depreciation between sectors, it is impossible to give any very reliable picture of the extent to which each sector's investment exceeded its savings. It is clear, however, that both the public sector and private industry have consistently been heavy borrowers from the personal sector and, in most years, from overseas.

It also appears that during years of high inflation, the growth of investment very substantially outran the growth of savings in both the public and the private industrial sectors, though this conclusion might be modified if separate figures for state enterprises were available. The following figures compare the increase over the previous year in public authority saving with that in their own gross fixed capital formation and with the public sector capital programme.

£ million current prices

Year	Increase in		
	Public authorities, saving	Public authorities, capital formation	Public sector capital programme
1962	0	3·7	7·2
1964	—1	7·9	19·3
1968	2	5·7	40·5
1969	0	12·8	32·5

A similar comparison of company saving with private investment (total physical capital formation less the public sector capital programme) is as follows:

£ million current prices

Year	Increase in	
	Company saving	Private investment prices
1962	—1	15·3
1964	0	14·1
1968	9	27·6
1969	4	63·8

As already shown, the years of rapid price increases were also years of rapidly rising investment. They were also years of low, or even negative growth of savings (where figures are available) in both sectors except for companies in 1968. By this test it appears that both sectors must have contributed to the generation of excess demand though it is impossible, on the evidence available, to say which contributed the more.

Public sector borrowing

There are difficult statistical problems in trying to construct a series for the total net borrowing of the public sector, since gross figures have to be adjusted for debt repayment and for intra-sector transactions between the central government, local authorities and state-sponsored bodies. The best estimates we have been able to make are

summarised in Table 5.8. They should be treated with caution, as they involve a combination of series from the national income accounts and from the capital budget, but they should be accurate enough to show the general trend.

Central government borrowing less redemptions rose threefold from £40 million to £120 million between 1966/7 and 1972/3. Local authorities, which had made small net repayments of private sector finance in earlier years, borrowed substantially in 1971/2 and 1972/3, and there has also been a strong upward trend in borrowings by state bodies. As a result, total public sector borrowing rose some three and a half times from £51 million in 1966/7 to £176 million in 1972/3. Budget estimates indicate further big rises to about £225 million in 1973/4 and £340 million in 1974/5. This increase in public sector borrowing has not been accompanied by anything like an equivalent increase in sales of securities to domestic non-bank holders, so that an increasing proportion of borrowing has been met from the banks and from overseas.[3] This is discussed further in the next section.

TABLE 5.8

Estimated net borrowing by the public sector

£ million

Financial year	Central *(a)* government	Local *(b)* authorities	State *(c)* bodies	Total
1966/67	40·6	—0·3	10·8	51·0
1967/68	49·3	—0·1	13·7	62·9
1968/69	71·5	—0·8	18·0	88·7
1969/70	87·7	7·5	32·3	127·5
1970/71	84·5	—0·8	39·1	122·8
1971/72	93·0	7·3	34·3	134·6
1972/73	120·4	10·0	45·6	176·0

Sources: *(a)* "National Income and Expenditure, 1972", Table A15. Item 135, "Borrowing" less item 147 "Redemption of securities".
(b) "National Income and Expenditure, 1972", Table A16, item 165, "other loans received and miscellaneous borrowing".
(c) Budget document, 1974/75, page 83, "External borrowing by state bodies and telephone capital" with corresponding item for earlier years.

Conclusions

There has been a very strong upward trend since the late 1950s in public authorities' current spending on goods and services, in transfer payments, and in capital information, both public and private. All of these have exerted an expansionary influence on demand. There has also been a tendency for the growth of capital formation to run ahead of the domestic savings available to finance it, and this has been associated with a rising current account balance-of-payments deficit and increased borrowing from abroad.

These tendencies have been stronger during our periods of high inflation than at other times. Public consumption rose only modestly in 1962 but strongly in 1964/65, 1968/69 and 1972/73. Public and private fixed investment, together showed big increases in all these periods, while stockbuilding made a modest contribution to the expansion of demand in 1972 and a substantial one in each of the other periods. Personal consumption also showed a strong tendency to rise in years of high inflation, but so did savings; this suggests that the rise in consumption was not due to any independent change in consumers' behaviour but was simply the result of higher incomes generated by rising public consumption and capital formation. Neither public sector current spending nor the capital programme operated to offset, in any systematic way, increases in demand originating in the private sector; on the contrary, the general tendency was for the two to reinforce one another in expanding demand during years of high inflation.

SECTION V: REFERENCES

1. For a full discussion see Louden Ryan, "Fiscal Policy and Demand Management in Ireland 1960–1970" in *Ireland: Some Problems of a Developing Economy*, ed. A. A. Tait and J. A. Bristow.
2. J. H. Doherty and J. P. O'Neill, "Recent Trends in Public Finance". Central Bank of Ireland, *Annual Report*, 1972–3.

SECTION VI

EXCESS DEMAND 3. MONETARY INFLUENCES

The demand for money and the Central Bank

Those who doubt the effectiveness of monetary policy in a small open economy may do so for one or both of two reasons. First it can be argued that the demand for money function is unstable, so that it is impossible to predict the effect of any given change in the money supply, or that it is highly interest elastic so that a large variation in the money stock will be offset by a large change in the velocity of circulation with little effect on interest rates, income or prices. This matter has been discussed in Section II. The evidence for the UK and the USA now leaves little doubt of the existence of a stable demand function of low interest elasticity. Convincing empirical work needs quarterly statistics of money stock, national income, prices and interest rates. Quarterly national income series are not available for Ireland, and there is only limited information about interest rates. It is not surprising, therefore, that the little work of this kind that has been attempted on Ireland has been inconclusive.[1]

The Central Bank appears to be acting on the assumption that it is facing a stable demand function with low interest elasticity since its model of income determination relies crucially on these assumptions, and yet is described by its author as "especially useful in monetary-policy formation".[2]

Secondly, it may be argued that, whatever the form of the demand function, the supply of money is outside the control of the central bank of a small open economy, so that institution is powerless in any case. Thom,[3] following an early article by Mundell,[4] takes the view that

in Ireland it is not the quantity of money but market rates of interest that are exogenous, and that rates of interest in Ireland are determined not by the Central Bank of Ireland, but by market rates in Britain. A change in British rates produces a similar change in Ireland and this leads to changes both in the demand for money and on its supply (through its influence on the desired portfolios of the banks). The money supply is thus regarded as endogenous and since a change in interest rates affects both sides of the equation, it can create either excess demand for money or excess supply; this excess then affects spending decisions and leads to changes in prices or real output or both.

A corollary of this view is that, if the Central Bank tried to change the Irish-money stock, e.g. through open market operations, this would have no effect on interest rates and would simply generate a capital inflow or outflow sufficient to restore the money stock to the level demanded by the public. The more extreme supporters of the monetary theory of the balance of payments would contend that this would happen so quickly that there would be no significant effect either on the domestic price level or on the volume of real output. Hence, they would argue, the central bank is powerless either to initiate or offset changes in its domestic money stock and the changes in the price level that go with it.

Empirical tests of these theories are difficult and require statistics that are not available in Ireland. It seems intuitively obvious that the power of an institution in the situation of the Central Bank of Ireland must be limited. Nevertheless, we know that differences between countries can arise in respect of interest rates, real growth rates, the growth of the money stock and inflation, and that these differences can persist for significant periods of time. Moreover, empirical work in the UK and the USA has shown that considerable time lags in portfolio adjustment exist even in highly sophisticated capital markets. The extreme view of the impotence of central banks does not, therefore, seem plausible.

This is the view of the Central Bank of Ireland. It recognises the limitations within which it works in stating that, given free capital movements and a fixed exchange rate between the Irish pound and

the pound sterling, "It is not possible for interest rates in this country to be significantly lower for any extended period than those obtaining in Britain." Nevertheless, it is stated that, "It has been possible for a margin to exist between interest rates here and in Britain, and in particular for rates here to be moderately lower than those prevailing elsewhere . . ." The same article goes on to say that these lower rates have "generally been appropriate in view of the developmental needs of the economy".[5] This latter statement will be questioned later in the section. It is right, however, for the Bank to frame its policies on the assumption that it has some power, even though a limited one, to influence the Irish money stock and, hence, the rate of inflation.

This seems wise not only because the assumptions involved are intuitively plausible, but also on "safety-first" grounds. If the Bank follows policies that would have been anti-inflationary if it had any power and then it turns out to have no power at least no harm will have been done. If it follows inflationary policies or no policies at all in the belief that it has no power and it then turns out that it has some after all, it will either have generated inflation or at least permitted inflation that it might have checked.

The growth of the money supply

Tables 6.1 and 6.2 show the growth of the money supply according to three definitions. The first column comprises notes and coin held outside the banking system together with current account deposits in Associated Banks; the second column includes time deposits with Associated Banks, and the third also includes deposits with non-associated banks. The last series is available only from 1966, before which the activities of non-associated banks were unimportant.

It will be noted that during all our years of high inflation there was a substantial increase in the money supply on all definitions. However, when we look at the relationship between the money stock and national income (Table 6.2) the picture is rather different. Over the period as a whole neither kind of money kept pace with the combined increase in real output and in prices, so there was a downward trend in all the ratios; this was particularly apparent after 1966 for narrowly defined

TABLE 6.1

The money stock: annual averages

Column 1: Currency plus current accounts with Associated Banks.

Column 2: Column 1 plus deposit accounts with Associated Banks.

Column 3: Column 2 plus accounts with non-associated banks.

Year	1		2		3 *(a)*	
	£ million	% increase	£ million	% increase	£ million	% increase
1953	151·6	—	331·3	—	—	—
1954	160·3	5·7	348·6	5·2	—	—
1955	169·2	5·5	356·8	2·3	—	—
1956	168·0	−0·7	350·1	−1·9	—	—
1957	176·2	4·9	364·2	4·2	—	—
1958	181·7	3·1	380·6	4·5	—	—
1959	183·3	0·9	384·4	1·0	—	—
1960	195·0	6·4	402·5	4·7	—	—
1961	207·6	6·5	426·5	6·0	—	—
1962	223·5	7·7	459·2	7·7	—	—
1963	245·3	9·8	489·4	6·6	—	—
1964	278·3	13·5	528·1	7·9	—	—
1965	292·9	5·2	561·8	6·4	—	—
1966	315·7	7·8	604·4	7·6	648·6	—
1967	329·7	4·4	653·6	8·1	710·5	9·5
1968	356·4	8·1	746·6	14·2	820·8	15·5
1959	383·6	7·6	845·5	13·2	945·3	15·2
1970*(b)*	BD	BD	BD	BD	BD	BD
1971	400·3	4·4	975·2	15·3	1,130·8	19·6
1972	451·3	12·6	1,064·2	9·1	1,248·7	10·4
1973	505·6	12·0	1,234·4	16·0	1,527·8	22·4

(a) Figures for non-associated banks not available prior to 1966.

(b) BD = bank dispute.

Source: Central Bank of Ireland annual reports, and additional information supplied by the Bank.

TABLE 6.2

Money stock as percentage of gross domestic product

Columns correspond to definitions in Table 6.1.

Year	1	2	3
1953	30·6	66·8	—
1954	32·2	70·0	—
1955	32·2	67·9	—
1956	31·7	66·0	—
1957	32·1	66·4	—
1958	32·0	67·0	—
1959	30·2	63·3	—
1960	30·4	62·7	—
1961	30·0	61·7	—
1962	29·9	61·4	—
1963	30·5	60·9	—
1964	30·4	57·7	—
1965	30·1	57·7	—
1966	30·7	58·7	63·0
1967	29·3	58·2	63·2
1968	28·1	58·9	64·8
1969	26·2	57·8	64·6
1970	BD	BD	BD
1971	21·4	52·2	60·5
1972	20·4	48·2	56·6
1973	19·1	46·6	57·7

Source: Table 6.1 and "National Income and Expenditure".

money and after 1969 for the broader definitions. In years of high inflation there was with few exceptions a fall in all the ratios, but in 1962, 1964 and 1968 the movement was small and in the latter year there was actually a rise in the two broad ratios. In these years, therefore, we can say that the money supply was allowed to rise roughly in line with the growth of national income at current prices, so that the monetary authorities exercised no restraining influence.

From 1968 to 1973 there was a substantial fall in all three ratios and, as we should expect, this was reflected in a rise in nominal interest rates; unfortunately, however, the inflation rate was also rising, so that higher nominal interest rates did not produce a corresponding rise in real rates. We shall return to this shortly.

Tables 6.3 to 6.6 show changes in the Irish money supply compared to that of other EEC countries. The Irish figures are not strictly comparable with those of Tables 6.1 and 6.2, partly because they refer to the end of the year rather than to yearly averages. There are also a number of differences of definition between countries, so the figures should not be taken as giving more than a very general indication of trends.

Even so, they make it quite clear that the relatively high rates of increase in Irish prices noted in Section I were not associated with a relatively high rate of growth of the money supply. On the narrow definition the rise in the Irish money stock was about the same as that of Belgium and lower than any other EEC country except the UK, while on the broad definition Ireland appears to have the lowest growth rate of all. As a proportion of national income the Irish narrow money stock at the end of the period was lower than that of any other country except the UK, while that of broad money was very near to the average for the EEC excluding Italy.

The fact that both in Ireland and the UK a low rate of growth of the money stock was associated with a high inflation rate might seem to refute monetarist doctrines, but this is not so. The amount of money needed to sustain any given price level depends on the level of real

TABLE 6.3

Money stock in EEC countries: narrow definition

End year. Index numbers 1960 = 100 and (in brackets) percentage change from previous year

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Belgium	107·7 (7·7)	115·5 (7·2)	126·0 (9·1)	134·9 (7·1)	144·6 (7·2)	154·1 (6·6)	159·0 (3·7)	170·8 (7·4)	175·3 (2·6)	189·9 (8·3)	210·5 (10·8)	240·6 (14·3)	260·3 (8·3)
Denmark	110·4 (10·4)	119·2 (8·0)	136·8 (14·8)	151·0 (10·4)	168·4 (11·5)	191·9 (14·0)	209·9 (9·3)	246·2 (17·3)	274·7 (11·5)	269·2 (—2·1)	294·9 (9·5)	371·2 (25·9)	— —
France	115·5 (15·5)	136·4 (18·1)	156·3 (14·6)	169·2 (8·3)	185·1 (9·3)	199·5 (7·8)	200·5 (0·5)	227·9 (12·2)	246·9 (8·3)	246·6 (—0·1)	274·1 (26·5)	316·2 (15·4)	350·0 (10·7)
Germany	144·8 (14·8)	122·3 (6·5)	131·2 (7·3)	136·3 (3·9)	153·4 (12·5)	156·1 (1·8)	171·9 (10·2)	183·1 (6·5)	197·4 (7·8)	216·6 (9·7)	244·3 (12·7)	278·3 (13·9)	278·7 (0·1)
Ireland	108·0 (8·0)	118·8 (10·0)	136·8 (15·1)	148·2 (8·3)	146·8 (—0·9)	155·0 (5·6)	167·9 (8·3)	179·3 (6·8)	190·3 (6·1)	201·9 (6·2)	208·8 (3·4)	242·9 (15·4)	260·1 (7·1)
Italy	116·7 (16·7)	138·1 (18·3)	155·6 (12·7)	166·1 (6·7)	193·1 (16·3)	218·1 (12·9)	251·4 (15·3)	281·1 (11·8)	324·9 (15·6)	414·4 (27·5)	491·7 (18·7)	621·5 (26·4)	721·5 (16·1)
Netherlands	107·7 (7·7)	115·8 (7·5)	126·5 (9·2)	136·6 (8·0)	149·9 (9·7)	160·7 (7·2)	170·7 (6·2)	190·2 (11·4)	205·4 (8·0)	229·6 (11·8)	264·1 (15·0)	310·7 (17·6)	310·2 (—0·2)
UK	100·8 (0·8)	100·7 (—0·1)	106·2 (5·5)	112·5 (5·9)	115·3 (2·5)	119·3 (3·5)	122·1 (2·3)	128·2 (4·9)	127·4 (—0·6)	137·5 (7·8)	153·1 (11·4)	165·6 (8·2)	182·3 (11·0)

Note: Definition of money stock for each country: *Belgium·Lux.*: Reserve money+demand deposits+ monetary liabilities·reserves. *Denmark*: Reserve money outside the banks+demand deposits+P.O. checking deposits. *France*: Reserve money demand deposits+P.O. checking deposits+private sector demand deposits with Treasury— banker's deposits with the Bank of France. *Germany*:Reserve money+demand deposits—currency in deposit money banks —bankers' deposits. *Ireland*: Reserve money outside banks+demand deposits. *Italy*: Reserve money+demand deposits+P.O. checking deposits·reserves. *Netherlands*: Reserve money+demand deposits+P.O. checking deposits— currency in deposit money banks— bankers' deposits. *UK*: Figures are period averages 1960–1971 all current account deposits net of transit items, held with the London Clearing Banks+currency held by the public; from 1972 sterling currency accounts held by the private sector with all banks in the UK— 60% of the value of transit items+currency in circulation with public.

Source: IMF International Financial Statistics, December 1967, March 1974.

TABLE 6.4

Money stock in EEC countries (narrow definition) as percentage of GNP(a)

Year	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	UK
1960	38·5	24·9	32·0	16·0	30·7	37·6	26·5	25·1
1961	39·2	24·9	34·3	16·7	30·9	39·8	26·9	23·6
1962	39·3	23·8	35·3	16·4	31·4	39·4	27·0	22·6
1963	39·8	25·7	36·0	16·5	33·8	38·7	27·0	22·3
1964	38·0	24·8	35·2	16·3	32·3	37·7	24·8	21·8
1965	37·4	24·6	25·9	16·1	29·8	40·7	24·5	20·9
1966	37·2	25·7	35·6	15·1	29·7	41·1	24·1	20·5
1967	35·8	25·5	34·5	16·5	29·6	43·1	23·2	19·9
1968	36·0	27·4	34·3	16·1	27·8	44·6	23·8	19·6
1969	33·3	26·8	31·9	15·5	25·9	46·8	22·7	18·4
1970	32·3	23·7	28·5	15·0	24·7	53·4	22·8	18·2
1971	32·7	23·8	28·8	15·3	22·6	58·7	23·3	18·0
1972	33·5	26·2	30·0	15·9	22·3	67·6	23·8	21·7

(a) Money stock at end of each year as percentage of GNP at current market value for year.
Source: IMF International Financial Statistics.
UK: National Income and Expenditure, 1973.

TABLE 6.5

Money stock in EEC countries: broad definition

End year. Index numbers 1960 = 100 and (in brackets) percentage change from previous year.

	Belgium-Lux.	Denmark	France	Germany	Ireland	Italy	Netherlands	UK*(a)*
1960	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1961	110·1	109·5	116·7	121·5	107·3	116·9	105·7	102·6
	(10·1)	(9·5)	(16·7)	(21·5)	(7·3)	(16·9)	(5·7)	(2·6)
1962	118·2	118·5	138·0	124·9	116·1	138·0	115·8	105·3
	(7·4)	(8·2)	(18·2)	(2·7)	(8·1)	(18·0)	(9·6)	(2·7)
1963	130·2	133·6	156·8	139·9	124·3	155·9	126·6	116·1
	(10·2)	(12·8)	(13·6)	(12·0)	(7·1)	(13·0)	(9·3)	(12·1)
1964	140·0	147·9	171·1	157·8	133·0	168·6	138·6	118·1
	(7·5)	(10·6)	(9·1)	(12·8)	(7·0)	(8·1)	(9·5)	(5·8)
1965	152·5	162·1	188·4	178·6	135·7	195·6	153·2	127·0
	(8·9)	(9·6)	(10·1)	(13·2)	(2·0)	(16·0)	(10·5)	(7·6)
1966	165·5	182·9	206·5	198·2	144·7	223·4	164·6	131·7
	(8·5)	(12·9)	(9·7)	(11·0)	(6·6)	(14·2)	(7·4)	(3·7)
1967	177·8	200·9	246·0	225·5	134·8	254·8	241·8	145·6
	(7·4)	(9·8)	(19·1)	(13·8)	(−6·8)	(14·1)	(46·9)	(10·5)
1968	194·7	229·9	276·5	262·5	154·1	285·2	277·2	157·3
	(9·5)	(14·4)	(12·4)	(16·4)	(14·3)	(11·9)	(14·7)	(8·1)
1969	209·6	253·1	315·8	294·1	169·3	318·9	308·2	161·8
	(7·7)	(10·1)	(14·2)	(12·0)	(9·9)	(11·8)	(11·2)	(2·8)
1970	226·8	261·1	337·6	327·5	184·7	366·5	343·7	177·0
	(8·2)	(3·2)	(6·9)	(11·4)	(9·1)	(14·9)	(11·5)	(9·5)
1971	256·1	285·8	397·6	377·4	199·7	426·5	392·4	200·9
	(12·9)	(9·4)	(17·8)	(15·2)	(8·1)	(16·4)	(14·2)	(13·5)
1972	297·9	341·7	473·0	435·3	223·0	527·4	450·6	257·3
	(16·3)	(19·6)	(19·0)	(15·4)	(11·7)	(23·6)	(14·8)	(28·1)

(a) Full figures are not available before end-1962. Figures for 1960–62 are estimates of M3 and should be regarded as less accurate than the more recent figures. Figures for 1963–69 have been adjusted to take account of 60% of transit items.

Note: Money stock (broad definition) is the sum of money stock (narrow definition) and quasi-money. For notes on narrow definition see Table 6.3. Definition of quasi-money for each country is as follows: *Belgium-Lux.*: Time + foreign currency deposits. *Denmark, Garmany, Ireland, France*; Time deposits + private sector time deposits with the Treasury. Italy: Savings deposits + foreign currency deposits. *Netharlands*: Time and savings deposits + foreign currency deposits + negligible amount of Netherlands Bank foreign currency balances. *UK*: M3 equal to M1 + deposit accounts in sterling with the banks + sterling deposits with discount houses + other currency accounts + public sector deposits.

Source: UK; Bank of England Statistical Abstract 1970, Bank of England Quarterly Bulletin, March 1974. Other countries; IMF International Financial Statistics, December 1967, March 1974.

TABLE 6.6

Money stock in EEC countries (broad definition) as percentage of GNP*(a)*

Year	Belgium	Denmark	France	Germany	Ireland	Italy	Netherlands	UK
1960	45·8	51·3	35·1	36·3	77·9	65·4	37·0	44·1
1961	47·7	50·7	37·9	40·2	77·8	69·2	36·9	42·3
1962	47·9	48·7	39·1	38·0	77·8	68·3	37·7	41·4
1963	49·0	51·6	39·6	40·0	77·8	67·3	37·8	41·2
1964	47·0	50·0	38·9	41·1	73·3	66·5	35·2	40·2
1965	47·0	48·7	40·0	42·5	69·9	71·5	34·9	40·5
1966	47·6	50·3	40·4	43·5	70·3	73·1	34·5	39·7
1967	47·7	50·3	44·5	49·1	60·2	75·8	46·0	41·7
1968	48·9	52·7	45·6	52·5	60·6	78·7	48·5	42·2
1969	47·4	50·7	44·7	52·4	58·4	79·8	47·6	41·1
1970	46·0	47·2	42·8	51·5	57·1	82·1	47·7	41·2
1971	47·4	47·4	45·7	53·6	54·2	88·4	48·4	41·6
1972	43·4	49·6	49·1	56·6	51·9	99·7	48·3	48·1

(a) Money stock at end of each year as percentage of GNP at current market value for year.

Source: UK: Bank of England Statistical Abstract 1970 Bank of England Quarterly Bulletin, March 1974. Other countries: IMF International Financial Statistics, December 1967, March 1974.

output, the organisation of society, including the frequency of income payments and the number of transactions that intervene between the beginning of a productive process and the sale of the final product; and the state of development of financial institutions such as saving banks and building societies, that provide close substitutes for money. Similarly, the rate of growth of the money stock that is necessary to sustain any given rate of inflation depends on the way in which all these other variables are changing.

It would be an impossible task to assess the effect of all these variables directly, but some progress can be made by looking at the movement of interest rates and bank lending.

Interest rates and domestic credit

Since interest rates are subject to frequent change, a comprehensive account would be long and complex; Table 6.7 therefore gives a very summary view by showing a number of rates at the end of each year. Inspection of movements within each year indicates that this gives a reasonably reliable guide to the general trend.

The first two columns show the rediscount rates of the Central Bank of Ireland and the Bank of England. Though the rate of the Central Bank has occasionally been as high as or higher than that of the Bank of England, it has generally been rather lower, as indicated by the Central Bank in the statement quoted at the beginning of this section.

The second two columns show deposit rates of the Associated Banks and the London Clearing Banks. Until about five years ago the London Clearing Banks did not differentiate between deposits of different amounts, and they still do not publish the rates they are prepared to bid for larger amounts; we have, therefore used the Irish rate for sums under £25,000 (under £5,000 for 1973). This rate was well below the London one for the whole period except for 1971. Moreover, during most of the time, it was also below the inflation rate so that anyone holding a deposit with an Irish bank for a year

TABLE 6.7

Central Bank discount rates, bank deposit rates, and Associated Banks, overdraft rates

End of year	Central Bank discount rates		Deposit rates		Associated Banks' ordinary overdraft	
	Ireland	UK	Associated Banks(a)	London clearing banks	Nominal	Real
1953	3·50	3·50	1·25	1·75	5·75	5·65
1954	3·00	3·00	1·00	1·25	5·50	2·90
1955	4·00	4·50	1·50	2·50	6·25	1·95
1956	5·00	5·50	1·50	3·50	6·25	2·15
1957	6·00	7·00	2·50	5·00	7·25	2·75
1958	4·25	4·00	1·00	2·00	5·75	5·75
1959	4·25	4·00	1·00	2·00	5·75	5·35
1960	4·63	5·00	1·50	3·00	6·25	0·55
1961	5·06	6·00	2·00	4·00	6·75	2·55
1962	3·86	4·50	1·25	2·50	6·00	3·50
1963	3·98	4·00	1·00	2·00	5·75	−0·95
1964	6·81	7·00	2·50	5·00	7·25	2·25
1965	5·88	6·00	2·50	4·00	7·25	4·25
1966	6·88	7·00	3·50	5·00	8·00	5·00
1967	7·78	8·00	4·25	6·00	8·50	4·50
1968	7·17	7·00	3·50	5·00	8·00	0·60
1969	8·25	8·00	4·50	6·00	9·50	1·50
1970	7·31	7·00	4·50	5·00	9·50	0·50
1971	4·81	5·00	3·00	2·50	7·25/9·25	−0·85/0·65
1972	8·00	9·00	4·00	4·50	7·50/9·00	−3·90/−2·40
1973	12·75	13·00	8·00	9·50	12·5/14·00	−4·5/−3·0
1974	12·00	11·50	8·00	9·50	11·75/14·00	

Source: UK: Bank of England Quarterly Bulletin. Ireland: Information supplied by Central Bank. Irish deposit rates are for sums of less than £25,000 until 1973 when it is for less than £5,000. Rates for larger sums were higher by between 1·00% and 1·50% up to 1973, when the gap widened considerably.

would find that, even after taking account of the interest received, he had less real purchasing power at the end of the year than at the beginning. This situation was even more acute from 1969 to 1973 than in earlier years.

The two final columns of Table 6.7 show the ordinary overdraft rate of the Associated Banks first in nominal terms and then in real terms. The real rate is calculated by deducting from the overdraft rate of each year the inflation rate of the following year. For example, if a trader had borrowed £1,000 for a year at the end of 1970 to hold stocks that rose in price at the same rate as the consumer price index, he would have paid (assuming the overdraft rate did not change) £95 in interest, but he would have made £90 on his deal so the net cost of the loan would have been only £5 or 0·5%. The cost of borrowing, measured in this way, always, except for 1956/58, fell when the inflation rate rose and, in 1971/72, it was actually negative.

As shown in Section II this fall in the real rate of interest is part of the mechanism by which, according to the monetarist hypothesis, inflation is generated. It is bound to happen unless, during the early stages, monetary restriction is quick enough and drastic enough to cause nominal interest rates to rise at least as fast as the price level. The Irish authorities have clearly not operated this kind of policy and so monetary influences may be held to have contributed to inflation. It should be borne in mind, however, that the Irish authorities have only limited powers to vary nominal rates in Ireland relatively to those of other countries, especially the UK. This is part of the problem of imported inflation that is discussed in Section VIII.

A further question is whether a policy of keeping interest rates in Ireland generally lower than in the UK is appropriate. Rates at the level that has prevailed during most of the past fifteen years offer little encouragement to saving and little discouragement to borrowing, especially since many borrowers can charge interest payments against tax. Ireland has been trying for very good reasons set out in Section III, to bring about a massive expansion of investment in infrastructure, in industrial and commercial buildings and equipment and in housing. It can be argued that an economy in this position needs relatively

high interest rates both to encourage saving and to deter borrowing for less essential purposes. The policy of keeping rates relatively low probably contributed to the generation of excess demand and inflation, and hence its ultimate effect may well have been to hinder rather than help the investment programme.

The low level of real interest rates has contributed to the strong demands on the banks for finance both from the public and the private sectors.

The public sector has failed to generate a demand for its securities from non-bank sources to match the big rise in its borrowing that was described in Section V. Receipts from small savings, shown in Table 6.8, have been particularly disappointing. There was a brief spurt in 1972 but, apart from this, there has been no upward trend at all, and new lodgements in 1973 were actually smaller than in 1967. Increases in non-bank holdings of marketable securities have also been modest and, as a result, credit extended by the banking sector rose almost fourfold between 1966 and 1973.

TABLE 6.8

Net receipts from small savings

£ million

Year	Savings banks	Savings certificates *(a)*	National instalment saving *(b)*	Prize bonds	Total
1965	—0·2	1·2	—	1·9	2·9
1966	–1·9	4·2	—	1·0	3·3
1967	2·7	1·8	—	0·9	5·4
1968	—1·2	0·3	—	0·3	—0·6
1969	6·3	—2·2	—	0·5	4·6
1970	BD	—2·2	0·8	0·3	BD
1971	BD	0·7	5·0	2·1	BD
1972	9·3	0·1	4·6	1·4	15·4
1973	5·8	—3·5	2·5	0·02	4·8

(a) Year ended 31 March following that indicated.
(b) Scheme started, September 1970.
Source: Central Bank of Ireland, *Annual Report*, 1974.

During most of this time there was also a strong demand for credit from the private sector. Total credit extended by the banking system is shown in Table 6.9. Once again there is a sharp contrast between 1956/58 and the other periods of relatively rapid-price increases. In 1956/58, changes in the volume of credit were minimal; in all the later periods they were very substantial.

Conclusions

The power of the Central Bank of Ireland to pursue an independent monetary policy is limited but it is not insignificant and should not be ignored. The Bank cannot be accused of actively causing inflation by generating increases in the money supply. It has, however, used its influence to keep interest rates in Ireland generally a little below those of the UK and this has probably contributed to the generation of excess demand. It has permitted substantial increases in the money stock at times of rapidly rising prices, and it has failed to prevent rising prices from depressing real interest rates and so generating further inflation; in both these respects, however, it has probably been severely constrained by international forces. Finally, it has permitted conditions in which the banks could make large extensions of domestic credit both to the public and private sectors at times when the economy appears to have been suffering from excess demand. Monetary influences have played a passive rather than an active rôle but, as in many other countries, the demands of the public sector and the desire not to impede investment and economic growth have prevented monetary policy from imposing any effective brake on inflation.

TABLE 6.9

Domestic Credit

Year	Government		Non-Government		Total	
	£m	% increase	£m	% increase	£m	% increase
1953	17·6	—	138·5	—	156·1	—
1954	22·9	30·1	152·0	9·7	174·9	12·0
1955	33·9	48·0	168·7	11·0	202·6	15·8
1956	34·5	1·7	169·8	0·6	204·3	0·8
1957	34·0	−1·4	176·5	3·9	210·5	3·0
1958	26·8	−21·2	181·0	2·5	207·8	−1·3
1959	22·4	−16·4	198·9	9·9	221·3	6·5
1960	19·6	−12·5	216·6	8·9	236·2	6·7
1961	25·3	29·1	227·2	4·9	252·5	6·9
1962	29·4	16·2	248·0	9·2	277·4	9·9
1963	38·7	31·6	266·2	7·3	304·9	9·9
1964	40·5	4·9	306·7	15·2	347·3	13·9
1965	82·6	103·4	309·2	0·8	374·3	10·8
1966	114·0	—	379·8	—	493·8	—
1967	127·2	15·8	415·2	9·3	542·4	9·8
1968	155·5	22·2	497·6	19·8	653·1	20·4
1969	199·0	28·0	602·4	12·1	801·4	22·7
1970	BD	BD	BD	BD	BD	BD
1971	283·0	42·2	732·3	12·2	1,015·1	26·6
1972	317·4	21·6	978·7	33·6	1,296·1	27·7
1973	422·2	33·0	1,202·7	22·9	1,624·9	25·4

Source: Central Bank of Ireland Annual Reports. Figures from 1966 include non-associated banks. Government credit includes Central Bank.

SECTION VI: REFERENCES

1. J. Pratschke and T. J. O'Connell, "The Demand for Money in Ireland, 1948–1969, A Preliminary Report", Central Bank of Ireland, 1973.
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3. D. Rodney Thom, "Money, Interest and Economic Activity in Ireland", *Economic and Social Review*, Volume 5, No. 2, January 1974.
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SECTION VII

DOMESTIC COST-PUSH THEORIES

Input-output analysis of prices

Cost-push theories of inflation have come to be very widely accepted in Ireland, as in England, and some students of the problem have used input-output analysis to estimate the precise contribution to price increases of different categories of inputs. The Central Bank's estimates for 1969 to 1973 are shown in Table 7.1. The Bank goes on to comment on the large contribution of import prices in 1973 and expects a return to a more normal pattern in the future, "with employee incomes, the 'profit and other incomes' element and the indirect tax items accounting between them for about two thirds of the rise of consumer prices". It adds the highly significant comment that, "the potential for control of price inflation by appropriate domestic decisions and policies is greatly enhanced".[1]

The Department of Finance has subsequently published an input-output estimate giving slightly different figures for 1973 and estimating an even bigger "contribution" from import prices (59%) in 1974. This is accompanied by the comment "Our inflation has two sources, one imported, the other home-made." The Department of Finance indicates that "the relative importance of both has changed radically over the last few years and higher import prices now account for almost 60% of the price increases we are encountering."[2]

There are many difficulties, both technical and conceptual about using this type of model. At the technical level there is the fact that the latest available input-output table refers to 1968, the sketchy nature of the information available on some input prices, and the difficulties that arise in dealing with productivity changes.[3] There are also at least four much more fundamental criticisms.

First, the model is entirely "cost-push". It assumes that all input prices are determined exogenously and that all are passed on, with an adjustment for productivity changes. Furthermore, it assumes that there is no reaction to changes in relative prices—that producers make no attempt to substitute cheaper for dearer inputs and consumers do not turn from goods that have risen steeply to those that have risen less steeply in price.

TABLE 7.1

Sources of Increase in Consumer Prices

Cost items	Percentage contribution to consumer price increases				
	1969	1970	1971	1972	1973
Import prices	15	22	18	10	44
Employee incomes	36	46	35	41	22
Agricultural incomes	2	2	2	11	9
Profits, professional earnings and other incomes	25	1	15	26	15
Indirect taxes less, subsidies	28	23	15	14	10
Residual item	−6	8	15	−2	—
Total	100	100	100	100	100

Source: Central Bank of Ireland, *Quarterly Bulletin*, 1974. No.1, page 22.

Secondly, profits are treated as an input like any other with the implied assumption that producers have monopoly power and determine the level of their profit in the same way as unions are supposed to determine wages. Section II has indicated some of the difficulties in the way of accepting this view of union behaviour; it is even more difficult to accept it for firms as a whole, even though a few large ones may enjoy considerable monopoly power. The implausibility of this view of profits is also heightened by their highly volatile movement as shown in Table 7.1. We are asked to believe, for example, that profits "caused" 25% of the rise in prices in 1969 and −1% in 1970.

Thirdly, the model takes a very limited view of the rôle of international influences. These influences are assumed to operate only

through import prices and, as already noted, it is assumed that all import prices are fully passed on, and that when import prices rise relatively to domestic prices there is no switching between imports and domestic goods.

Finally, though the model may tell us something about the proximate reasons of price movements for final products and may therefore be useful in short-term forecasting, it can tell us nothing of the fundamental nature of the inflationary process itself since, as already noted, all input prices are taken as exogenous. The rise in final product prices is simply a weighted average of the rises in input prices, and all the input-output analysis does is to determine the weights.

Input-output estimates have been very widely quoted in official sources and elsewhere, without any acknowledgment of these limitations and often with positive statements such as those quoted, imputing causal relationships. We believe that this is fostering a great deal of misunderstanding, and that it should be made quite clear that analysis of this kind can tell us nothing at all about the real causes of inflation.

The rest of this section is, therefore, concerned with the more fundamental problem of choice between the explanations of the nature of the inflationary process discussed in Section II. The Irish evidence will be considered from the point of view of how far it supports the cost-push view of the inflationary process, rather than trying to determine the quantitative contribution of different factors to any particular price rise.

Union militancy

The simplest version of domestic cost-push is that it is caused by trade-union militancy, and that this can be "proxied" by the proportion of the labour-force in unions, by the number of strikes or by the number of working days lost by industrial action. Statistics of union membership, number of disputes and number of days lost are all available for Ireland and are shown in Table 7.2, while Chart 7.1 shows the relationship between the rate of increase of money earnings and:—

(a) the number of disputes and

(b) the number of days lost.

It is clear that there are some features of the record that are consistent with the militancy hypothesis, though the support is by no means complete. Trade unionism has been growing both in numbers and in the proportion of members to the total labour force. Moreover, this growth, like inflation, was going on at an increasing rate during the 1960s. However, much of the growth of unionism was due to an extension into fields not previously covered, notably white-collar workers, rather than to increasing strength in traditional areas. This can be seen in Table 7.3 which shows the number and proportion of union members in different types of activity from 1950 to 1970. In the five

TABLE 7.2

Trade Union Membership, Number of Disputes begun and working days Lost

Year	Union Members '000	Disputes begun	Days lost '000
1953		75	82·0
1954		81	66·7
1955	310·5	96	236·3
1956		67	48·1
1957		45	92·0
1958		51	126·1
1959		58	124·5
1960	318·6	49	80·3
1961		96	377·3
1962		60	104·0
1963		70	233·6
1964		87	545·4
1965	357·1	89	532·4
1966		112	783·6
1967		79	182·6
1968		126	405·7
1969		134	935·9
1970	398·8	134	1,007·7
1971		133	273·8
1972		131	207·0
1973		182	206·7

Source: B. Hillery, *Management*, April 1974 (col. 1.) Irish Statistical Bulletin, March issue (Cols. 2 & 3.)

CHART 7.1

Changes in hourly earnings and (a) disputes begun (b) days lost 1954-1973

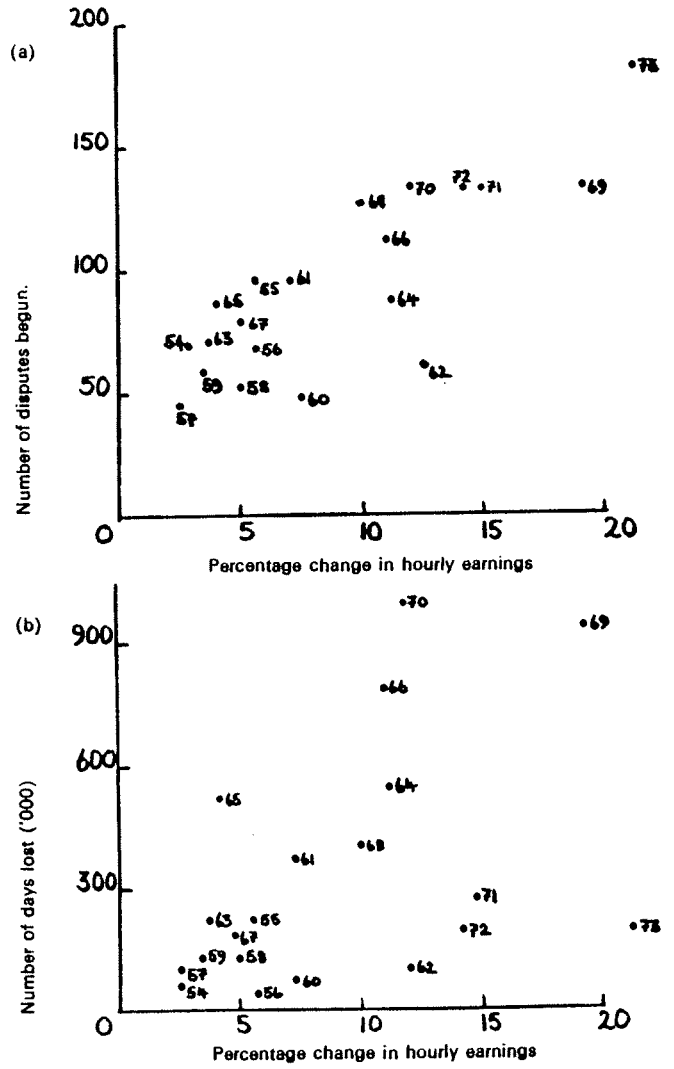


TABLE 7.3

Trade Union Membership by type of Union

(Percentages of total in brackets)

Year	General	White-Collar	Craft	Other	Total
1950	163,038 (57·16)	48,673 (17·06)	26,481 (9·28)	47,061 (16·5)	285,253 (100·0)
1955	179,941 (57·91)	55,054 (17·73)	27,955 (9·0)	47,506 (15·3)	310 456 (100·0)
1960	180,619 (56·7)	61,785 (19·39)	26,273 (8·25)	49,895 (15·66)	318,572 (100·0)
1965	201,065 (56·31)	72,292 (20·24)	30,453 (8·53)	53,287 (14·92)	257,097 (100·0)
1970	217,452 (54·52)	91,127 (22·85)	32,485 (8·15)	57,754 (14·48)	398,818 (100·0)

Source: B. Hillery *Management* April 1974.

years from 1965 to 1970 nearly half the increase in union membership came from white-collar workers whose unions were growing more than three times as fast as those of any other group, yet there is little evidence that these workers played a leading rôle in the upsurge of earnings during the period.

The "scatter diagrams" in Chart 7.1 indicate an association between strike activity and the rate of increase of money earnings, though it is not a very strong one, and the pattern is very different according to whether strike activity is measured by number of strikes or days lost. Moreover the association seems to be less close in the latter part of the period. The number of strikes begun was very similar in each of the years 1968/72, yet the increase in earnings ranged from 10% to 19%. The number of days lost rose sharply from 1967 to 1970 and then fell dramatically; the record increase of 21% in earnings in 1973 was achieved with the smallest number of lost days since 1967.

Although believers in the militancy hypothesis can claim some support, even if it is not very strong, from the evidence, that evidence is equally consistent with other and very different hypotheses. It could be argued, for example, that disputes are a part of the process whereby unions secure increases in pay but that the motive is not a militant

desire to increase earnings but a defensive desire to maintain a given rate of growth of real earnings in face of rising prices. In support of such a view it could be pointed out that years that show a large rise in the number of disputes either coincide with or follow immediately after years in which the rate of growth of real earnings (Table 7.4) was well below average.

"Wage rounds" and national agreements

In looking rather more generally at the cost-push view of wages and prices, we need to say something of the "wage round" process. The wages of any particular group are negotiated by the appropriate union or unions with the employer or employers' organisation. In 1957 (6th round), 1964 (9th round), 1970 (13th round), 1972 (14th round), and 1974 (15th round) there were joint agreements between the representative bodies of unions and employers' organisations setting figures within which these individual negotiations should take place. In 1966 a joint conference failed to reach agreement and the Irish Congress of Trade Unions (ICTU) recommended its members not to seek rises of more than £1·00 a week, a recommendation that was subsequently embodied in "guidelines" published by the Labour Court (10th round). In the rest of the period since 1953 there have been no national agreements, but groups of settlements occurring within a short time have become generally accepted as a "round". As a result it is not always possible to define the duration of a "round" very precisely. The dates shown on Chart 7.2 are derived from the account given in the ICTU's "Trade Union Information".

National agreements are concerned principally with basic wage rates, though recent ones have extended the coverage by laying down guidelines for productivity agreements. Changes in earnings also reflect other factors some of which are governed by individual agreements and some, e.g. the amount of overtime or short-time are determined by market forces. Agreements also cover hours of work and other matters including conditions, holidays and "fringe benefits" which are not reflected in earnings but which affect labour costs. Changes in hours are taken into account in calculating the hourly earnings index of Table 7.4, but there is not enough information about other conditions and benefits to provide an index of total labour costs.

TABLE 7.4

Index Numbers of Wage Rates and Earnings

Year	Hourly wage rates*(a)*		Hourly earnings*(b)*		"Wage-drift" (Col. 4—Col. 2) % points (5)	Real earnings % change
	Index (1)	% Change (2)	Index (3)	% Change (4)		
1953	100·0	—	100·0	—	—	—
1954	100·3	0·3	102·9	2·9	2·6	2·8
1955	100·4	0·1	108·6	5·5	5·4	2·9
1956	108·4	8·0	114·7	5·6	−2·4	1·3
1957	110·8	2·2	117·7	2·6	0·4	1·5
1958	112·7	1·7	123·6	5·0	3·3	0·5
1959	116·6	3·5	127·8	3·4	−0·1	3·4
1960	124·4	6·7	137·2	7·4	0·7	7·0
1961	126·4	1·6	146·9	7·1	5·5	4·4
1962	145·3	15·0	165·3	12·5	−2·5	8·3
1963	147·5	1·5	171·3	3·6	2·1	1·1
1964	166·8	13·1	190·9	11·2	−1·9	4·5
1965	169·9	1·9	198·7	4·1	2·2	−0·9
1966	173·3	2·0	220·6	11·0	9·0	8·0
1967	191·0	10·2	231·4	4·9	−5·3	1·7
1968	197·2	3·2	254·6	10·0	6·8	6·0
1969	221·1	12·1	303·5	19·2	7·1	11·8
1970	252·9	14·4	339·6	11·9	−2·5	3·9
1971	298·2	17·9	390·3	14·9	−3·0	5·9
1972	325·8	9·3	446·0	14·3	5·0	5·7
1973	363·1	11·6	450·4	21·2	9·6	10·8
1974	451·5	24·2	620·8*(c)*			

(a) Refers to early months of years specified.
(b) Refers to figures for October till 1968 and September thereafter.
(c) June.

Source: "Statistics of Wages, Earnings and Hours of Work;" Irish Statistical Bulletin.

Table 7.4 shows index numbers of hourly wage rates and hourly earnings, together with annual percentage changes. Unfortunately these series are available only at annual intervals. The earnings series

relates to a week in September (October till 1968) and has been adjusted to an hourly basis by dividing by an index of hours worked. The wage rates series is described as referring to "the early months" of each year. This difference in timing together with the ambiguities over the duration of wage rounds already noted, makes comparisons difficult.

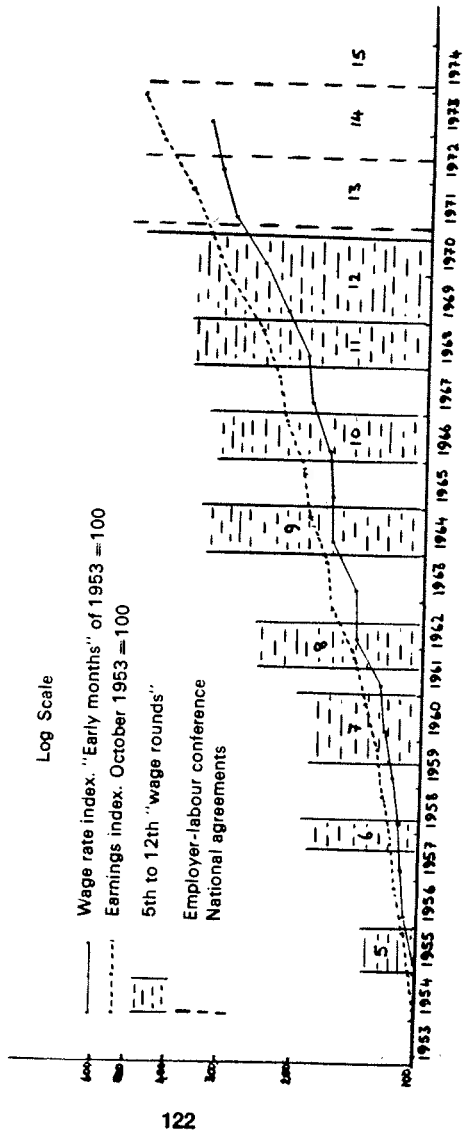
The two index numbers are shown, together with the wage rounds on Chart 7.2; this is drawn with a logarithmic vertical scale so that a constant rate of increase would appear as a straight line. A number of features stand out very clearly. There is a strong upward trend in both series throughout the period, and this becomes markedly steeper after the end of 1967. From 1968 onwards the wage rounds tend to merge into one another instead of being separated by an interval during which there was little change in rates, and wage adjustment becomes more nearly a continuous process. The rise in earnings is on average, considerably greater than that in basic wage rates; this is explained in part but only in very small part, by the fact that the earnings figures refer to a period seven or eight months later than those for wages.

Over the period as a whole, wages rose by 263% and earnings by 440%, but the relationship between the two series varied considerably from year to year. In seven years, wage rates actually rose more than earnings, but these were all either wage round years or years in which the wage rates index was strongly influenced by a wage round falling in the previous year. By contrast, the earnings index is much less strongly influenced by wage rounds.

These observations throw some light on the cost-push relationship. The strong tendency for earnings to rise faster than wages overall favours, for reasons explained in Section III, the excess demand hypothesis. The fact that earnings rise at a relatively even pace while wage rates reflect the bargaining "rounds" also suggests that the particular way in which wage bargaining is organised in Ireland has little effect on actual labour costs. It tends to concentrate changes in wage rates at certain times, but this is largely cancelled out by fluctuating differentials between wage rates and earnings.

CHART 7.2

Hourly Wage Rates and Earnings Indices 1953=100



The final column of Table 7.4 shows the percentage growth in real earnings. Although this fluctuates considerably from year to year there has been a general tendency for it to rise faster than national output. This is another facet of the relatively rapid growth of personal consumption already noted.

Some further evidence of the effect of the way in which bargaining is organised can be found by comparing the actual movement in the wage rate index with the amounts permitted under national agreements or generally conceded in informal wage rounds. This would vary between men and women and also between workers at different wage levels. Table 7.5 (page 124) shows the comparison for a man with a basic wage of £10 a week (roughly the national average at the time) in 1960.

To calculate the effect of successive wage rounds on the wages of such a man, we took figures for the 8th to 12th rounds (1961 to 1969/70) from "Trade Union Information" (February 1971); where a range was given, the upper limit was used. For the 13th and 14th rounds, figures were taken from Clause 3 of the 1970 and 1972 national agreements with the appropriate cost-of-living adjustments. Besides Clause 3 increases, the National Agreements also allow increases arising from moves towards equal pay for women; for the correction of anomalies; and from the implementation of incentive schemes. However, the first two are not relevant to our calculation, which concerns an adult male worker earning approximately the national average wage. Since the 1970 agreement ended in the middle of 1972 there is no closely comparable index figure, but the position at the end of the 1972 agreement (December 1973) is reasonably comparable with the September earnings index and the wage index for the "early months" of 1974.

It is clear from the table that from 1960 to 1970 basic hourly rates as measured by the index consistently rose by more than the maximum attributed to each wage round in "Trade Union Information". Some excess is not surprising as there are obviously settlements that occur outside the "rounds" but the cumulative amount is substantial; over the decade 1960/70 the index rose by 135%, against a maximum of 98% calculated for the wage rounds; the rise in earnings was, of course, even greater at 148%.

TABLE 7.5
Effect of Wage Round: Calculated and Actual Changes

Year (end year)	Rate £ per week	Wage round	Percentage rise in: Calculated wage: Over previous date	Calculated wage: Over 1960	Wage index(a): Over previous date	Wage index(a): Over 1960
1960	10·00					
1961	11·25	8th round (1961) £1·25 a week	11·25	11·25	15·0	15·0
1964	12·60	9th round (1964) 12%	12·0	26·0	16·9	34·4
1966	13·60	10th round (1966) £1·00	7·9	36·0	12·4	51·1
1968	15·60	11th round (1968) £2·00	14·7	56·0	15·8	74·9
1970	19·85	12th round (1969–70) £4·25	27·2	98·5	34·9	135·9
		13th round (Dec 1970 agreement) £2·00 +4% +75p cost of living				
		14th round (1972 agreement) £2·50 +4% +£1·44 cost of living				
1973	28·45		43·3	184·5	51·4	257·2

(a) Index for early months of following year.
Source: See text.

By the end of 1970, our hypothetical worker would have been earning £19.85, and the effect of the 1970 and 1972 agreements would have raised this to £28·45 (an increase of 43%) by the end of 1973. The wage index rose by 51·4% between the early months of 1971 and 1974, and earnings rose by 59% from September 1970 to September 1973. In view of this evidence it seems possible that the national agreements have had some moderating influence on the rate of increase of basic rates, but it is hard to believe that they have affected earnings.

Another interesting feature of the general relationship between costs and prices is the fact that the years of high inflation, 1962, 1964, 1968/69 and 1973 coincided with years of rapid increase in money earnings. The only exception was the price rise of 1956/58, which appears to have been preceded by a rise in earnings in 1955/56. It is a necessary condition for the cost-push process that cost increases precede price increases in time and, even allowing for the difficulties of timing already mentioned, the evidence must tell against cost-push except in 1955/56.

Leadership theories

The remaining version of domestic cost-push theories that has to be considered is that involving "wage leadership". The hypothesis is that workers in certain industries and occupations that happen to be in a strong bargaining position take the lead in demanding and getting a pay rise, and that others then demand the same percentage increase in order to preserve traditional relationships. As noted in Section II, there are several versions of the theory embodying different assumptions about the origin of the leader's bargaining strength; however, they all rely on the assumption that relative positions are rigidly maintained, so if doubt is cast on this, then doubt is cast on the whole group of leadership theories.

The fact that a particular union is observed to take the lead, in point of time, in a particular wage round says nothing about the validity of any theory; someone has to be first and it would be surprising if that one were not in a relatively strong bargaining position. Neither does it help much to observe that wages rise at roughly the same rate in a

number of different occupations; indeed the competitive version of the excess demand theory outlined in Section II would predict just this outcome. According to this theory wages tend to equal the value of a worker's (marginal) product. Physical productivity grows more rapidly in some occupations than in others, but such changes take place only slowly. Meanwhile, if inflation is increasing the money value of all goods, it will raise the money value of the product of all workers in much the same proportion. If we were looking at a perspective of a few years, we should expect to find only modest changes in the relative earnings of different groups.

If the leadership hypothesis is to gain any support as against the excess demand hypothesis we must observe not merely a high degree of uniformity in settlements but a higher degree than is consistent with observed changes in relative productivity; moreover, the rigidity must apply not only to basic rates but to earnings.

To apply such a test at all rigorously would require statistics on wages and on productivity much more detailed than are available in Ireland, but two very rough and ready observations may be of some interest.

In Table 7.6 we show changes in basic wage rates of forty-five occupational groups in Dublin between 1955 and 1970. The first two columns show the rate for each group as a percentage of the average for all groups in each of the two years. Twenty-four groups moved relatively to the average by more than 5 percentage points; fourteen by more than 10 percentage points; and four by more than 20 percentage points.

TABLE 7.6

Relative Wage Rates for Selected Occupations in Dublin 1955 and 1970,

Occupations	Wage as % of selected group's average		% increase in wages 1955–1970
	1955	1970	
Bakers (ovensmen)	121·9	102·6	90·6
Building trade:			
Bricklayers	118·5	118·0	126·2
Builders labourers	97·9	102·2	136·4
Carpenters, joiners	118·1	118·0	126·2
Masons	118·1	118·0	126·2
Painters	117·0	118·0	128·3
Plasterers	118·1	118·0	126·2
Plumbers	118·1	118·0	126·2
Engineering:			
Engineers' labourers	91·6	96·6	138·6
Engineers, fitters	118·1	114·9	120·4
Electricians	126·2	111·9	100·9
Blacksmiths	116·8	110·1	113·4
Motor mechanics (1st class)	124·9	114·9	108·3
Riveters, boilermakers	118·1	121·0	132·0
Manufacturing:			
Boot and shoe (men under 21 yrs)	100·7	83·1	86·8
Fertilizer (unskilled men)	89·5	109·9	178·3
Hosiery (adult men)	75·3	75·6	127·3
Soap and candle (soap workers, men under 21 yrs)	96·3	106·8	151·1
Woollen (time worker class I)	92·2	81·9	101·2
Drapery trade:			
(Assistant men)			
Wholesale shops	111·0	114·2	133·1
Retail shops	104·5	108·2	143·3
Grocery and Provision trade:			
(Assistant men)			
1st year	25·3	33·9	202·7
7th year	81·2	96·8	169·8
Transport workers:			
Bus drivers:			
singledeck	97·7	89·4	107·3
doubledeck	102·7	92·0	102·7

Table 7.6 continued overleaf

Table 7.6: Relative Wage Rates for Selected Occupations in Dublin, 1955 and 1970 *(Cont'd)*

Occupations	Wage as % of selected group's average		% increase in wages 1955–1970
	1955	1970	
Bus conductors:			
singledeck	90·1	85·7	115·3
doubledeck	98·6	90·0	106·5
Railway porters	82·6	81·1	122·2
Railway guards	91·8	90·8	124·0
Engine drivers:			
1st year	105·6	95·0	103·6
3rd year	115·5	102·3	101·3
Motor lorrydrivers:			
up to 3 tons	90·4	85·7	114·7
up to 6 tons	98·6	89·2	104·9
Printing and publishing:			
Compositors-jobbing office	124·0	116·9	113·5
Compositors-newspaper office	128·8	119·3	109·8
Spirit trade:			
Chargehand	116·3	112·1	118·3
Structural steel trade:			
Pressmen	101·8	101·9	126·6
Road labourers	77·1	105·1	214·1
Cinema workers:			
Cashiers (A)	67·5	62·3	108·9
Usherettes (A)	54·5	54·1	124·9
Druggists, chemists:			
Qualified men	118·9	141·9	170·3
Butchers	120·0	120·0	126·5
Waiters (A)	57·5	74·1	191·7
Pawnbroking trade:			
Apprentices:			
3rd year	40·4	48·1	169·5
4th year	47·3	52·0	149·3

Source: "Statistics of Wages, Earnings and Hours of Work", 1959, 1970.

The third column shows the percentage increase in the earnings of each group from 1955 to 1970. The results can be summarised as follows:

Percentage range	Number of Groups
Under 100	2
100 and under 110	11
110 and under 120	5
120 and under 130	13
130 and under 140	4
140 and under 170	5
Over 170	5
	45

The largest number of groups fell into the range 120-130% but thirteen groups had increases of less than 110% and ten groups had gained 140% or more.

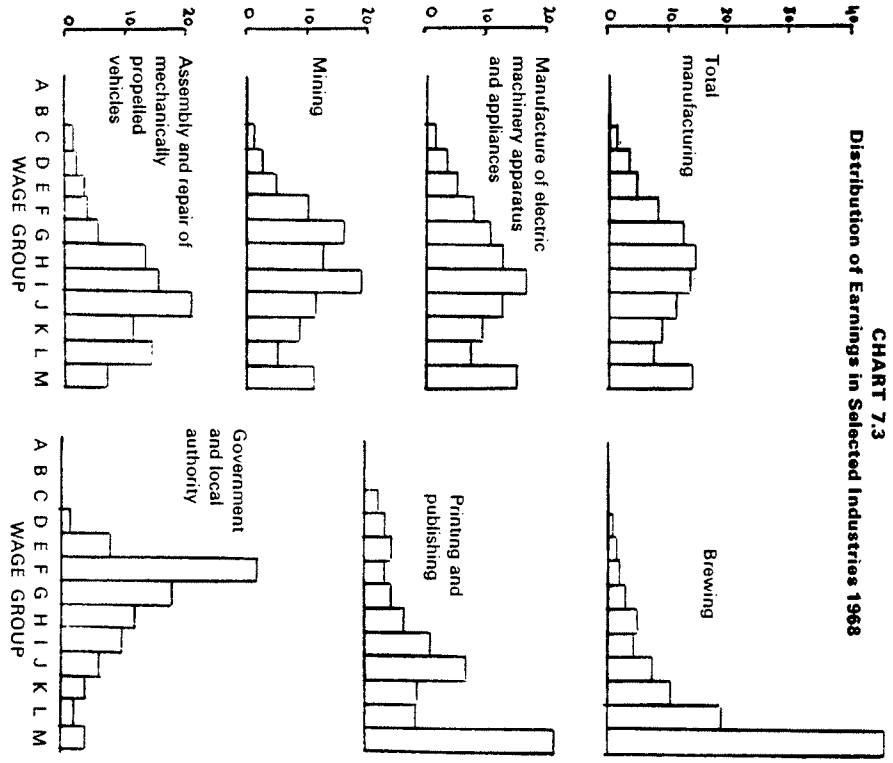
As already noted, basic wage rates tell far from the whole story; earnings may be affected not only by short-time or overtime working, but by a great variety of payments for special conditions and incentive schemes. Figures published in "Statistics of Wages, Earnings and Hours of Work" demonstrate this. In Table 7.7 and Chart 7.3 this is illustrated by reference to total manufacturing, four major manufacturing groups, mining, and government and local authority work. First, it is apparent that there is a very wide dispersion of earnings even in industry groups that employ fairly homogeneous skills and where there are likely to be only modest divergencies in basic wage rates. Secondly, it also stands out from the chart that there are very substantial differences both in the distribution and in the average level of earnings between different industry groups. This evidence certainly does not amount to a rigorous refutation of the leadership hypothesis, but it does suggest that there is a good deal more flexibility in the system than is generally supposed by the advocates of leadership theories.

Table 7.7: Range of Weekly Male Earnings in Selected Industries 1968 (a)

Numbers

Wage groups	A Less than £2	B £2 but less than £4	C £4 but less than £6	D £6 but less than £8	E £8 but less than £10	F £10 but less than £12	G £12 but less than £14	H £14 but less than £16	I £16 but less than £18	J £18 but less than £20	K £20 but less than £22	L £22 but less than £24	M Over £24
Mining, etc.	2	25	29	240	352	858	1,387	1,101	1,567	965	735	452	873
Total manufacturing	153	274	1,133	2,428	3,814	7,326	11,407	13,513	12,649	10,963	8,038	7,192	13,041
of which:													
Assembly and repair of mechanically propelled vehicles	—	7	64	98	144	179	313	771	938	1,202	628	813	404
Printing and publishing	6	9	97	131	203	179	207	311	527	771	450	388	1,500
Manufacture of electric machinery, apparatus and appliances	—	3	37	115	183	312	427	489	648	488	379	308	603
Brewing	—	—	5	22	46	67	94	173	164	244	351	657	1,642
Government and local authority	32	54	95	280	1,714	7,012	3,471	2,867	2,180	1,305	903	495	884

(a) The figures refer to a week in October, and to wage-earners 18 years of age and over.
Source: "Statistics of Wages, Earnings and Hours of Work, 1970."



Conclusions

Though we cannot entirely rule out domestic cost-push explanations of inflation both the logical weaknesses discussed in Section II and the empirical evidence reviewed here suggest that they ought to be viewed with a lot of scepticism and that they certainly do not deserve the very strong hold that they have gained on public opinion.

Input-output analysis of prices can tell us something of the proximate causes of price changes and may be useful in short-term forecasting, but it can say nothing about the respective merits of "excess demand" and "cost-push" theories, since its basic assumption is that costs are exogenously given and are fully passed on. The widespread use of such figures without mention of their limitations is very misleading.

Crude theories of trade union militancy gain little support from the evidence. There is some association between increases in earnings and union membership, number of disputes and number of days lost, but it is not a very strong one, and the evidence is also consistent with other and quite different hypotheses.

The structure of collective bargaining in Ireland has led to changes in basic rates being concentrated in "wage rounds" and so has affected the timing of increases, but this has been largely offset by the fact that "wage drift" is greater during the intervals between rounds. From 1960 to 1970 basic rates rose by considerably more than the maximum attributed to successive wage rounds in "Trade Union Information". It is not possible to assess the effect of the 1970 and 1972 national agreements on basic rates until the index for the early months of 1974 is published, but earnings have risen by a lot more than the permitted increase in basic rates. In view of this evidence it seems unlikely that the system of negotiations has had much effect on labour costs.

Theories involving wage leadership have been widely accepted in Ireland. However, excess demand theories of the type outlined in Section II would also predict a high degree of uniformity in the rate

of increase in earnings between different occupations. If leadership theories are to gain support from this type of evidence, it is necessary to show that uniformity is greater than would be expected from similarities over time in the rate of growth of physical productivity. It is not possible to test rigorously whether this is so, but the evidence shows that there is a good deal of flexibility in wage rates, and still more in earnings, in the Irish economy, and thus casts doubt on the validity of this type of theory.

SECTION VII: REFERENCES

1. Central Bank of Ireland, *Quarterly Bulletin*. Spring 1974. p. 24.
2. *A National Partnership*. November 1974. p. 18.
3. For a discussion of these difficulties see T. O'Connell and M. Casey. "Input-Output Analysis of Prices". Central Bank of Ireland, mimeo 1973.

SECTION VIII

IMPORTED INFLATION

The cost of imports

The most obvious way in which inflation can be imported is by the rising cost of imports, either raw materials or finished goods. However, this does not provide an adequate explanation for two reasons. First, a rise in the price of imports, as shown in Section II, can only produce a rise in the general level of prices if permitted to do so by domestic monetary and fiscal policies, otherwise, the relative rise in import prices would be achieved by a combination of rises and falls that would leave the general level unchanged. Secondly, even if it is assumed that all rises in import prices are fully passed on, and that there are no reductions in domestic prices, this explains only a small part of observed price rises even for an economy as open as Ireland, except in 1973 and 1974. The input-output analysis of the Central Bank of Ireland, quoted in Section VII, shows import prices accounting for only 44% of the total rise in consumer prices in 1973; the Department of Finance has produced an estimate of 59% for 1974. For 1969 to 1972, the proportion varied from 10% to 22%. Clearly, something more than this is needed in order to explain the similarities in the pattern of inflation between countries for which some of the statistics were given in Section I.

The explanation has to be sought in the much more complex effects of trade and capital movements analysed in Section II. This section will look at the evidence concerning the way in which these effects have operated in Ireland, but first two general points must be made.

Recent theories of the international transmission of inflation do not only say that the mechanism is much more subtle and complex than

the mere passing on of import costs, but also that it is of a kind that impairs, if it does not wholly destroy, the power of domestic monetary and fiscal authorities to pursue independent deflationary policies.

If the power of independent action were completely destroyed, the rest of this report would be irrelevant; but such an extreme assumption does not fit the facts. Though Section I showed a strong upward trend in prices for all the countries quoted, it also showed considerable differences in inflation rates even among small and highly open economies. For example, Ireland had a rise in consumer prices of about 110% between 1960 and 1973; Belgium with an even more open economy kept the rise down to 63%, while Denmark, with a rather less open economy, had a rise of 135%. Moreover, the theories mentioned above assume fixed exchange rates, and it is generally agreed that any country that allows its exchange rate to float can greatly enhance its freedom of action.

If countries enjoy some freedom of action we have to distinguish between situations where domestic policies are causing inflation to run ahead of the world average, and those where they are causing it to lag behind. The indicators that we shall examine may be expected to behave differently in the two situations, and so we may hope to infer something as to whether Irish policies have been more or less inflationary than those of other countries.

Trade and the balance of payments

In Section II it was suggested that one possible sequence of events might be: inflation in country A leads to an increase in exports and/or a fall in imports in country B, thus generating additional demand and generating inflation there. If the process took sufficient time, and country A's inflation was a single episode it would be possible to observe the emergence of the surplus, the development of inflation and the disappearance of the surplus in sequence. If one country was consistently pursuing a less inflationary policy than another, the one with the less inflationary policy would be expected to have a continuing tendency to balance-of-payments surplus. The outstanding example of this in recent years is, of course, West Germany.

Table 8.1 shows index numbers of the volume and unit value of Irish imports and exports while Table 8.2 shows the balance of payments. There have been considerable swings in the current balance from year to year, but the trend has been towards a rising deficit, both in absolute amount and as a proportion of national income. In the five years 1953/57, the deficit averaged £10 million a year or about 2·4% of gross domestic product. In 1969/73 it averaged nearly £70 million a year, or 4·2% of GDP. This, in itself, is a strong indication that, over the period as a whole, domestic policies were relatively inflationary, by comparison with those of other countries.

When we turn to the periods of high inflation, we again get a strong contrast between 1956/58 and later years. The Irish government imposed special import levies in 1956, following the large balance-of-payments deficit of 1955, but they appear to have exerted only a minor influence compared to that exerted by demand in the UK. In 1955-57, the UK was undergoing, by the standards of that time, very rapid inflation. The index of final output prices, derived from the national income accounts, showed the following percentage rises:

1955	1956	1957
3·9%	5·4%	3·4%

The Irish balance of payments for a year later (1956/58) moved as follows:

	1956	1957	1958
Goods exports	(1953 = 100)		
unit value	95·9	97·6	100·1
volume	98·1	116·9	114·3
Goods imports	(1953 = 100)		
unit value	106·1	111·9	107·0
volume	93·0	88·7	100·2
Current balance (£m)	−14·4	+9·2	−1·0

TABLE 8.1

Foreign Trade—Volume and Prices

Indexes 1953 = 100

Year	Volume		Unit values		Wholesale price of imports(*a*)
	Exports	Imports	Exports	Imports	
1954	102·6	97·9	98·4	100·7	98·9
1955	95·3	107·6	101·4	104·1	100·9
1956	98·1	93·0	95·9	106·1	108·4
1957	116·9	88·7	97·6	111·9	114·4
1958	114·3	100·2	100·1	107·0	111·5
1959	109·6	109·6	104·0	104·7	109·7
1960	130·2	114·4	102·2	106·6	110·0
1961	155·6	130·9	101·0	107·7	110·8
1962	149·1	137·2	101·9	107·6	112·6
1963	164·9	151·6	103·9	109·4	114·5
1964	176·5	170·7	109·6	110·4	120·4
1965	173·7	177·5	110·9	112·9	122·5
1966	188·9	177·9	112·9	112·9	127·1
1967	220·5	188·6	112·9	112·2	129·9
1968	239·5	220·2	121·1	121·5	136·8
1969	251·2	251·7	128·5	126·4	144·9
1970	271·8	259·8	137·0	135·0	150·2
1971	291·5	273·3	147·5	143·1	157·1
1972	309·2	290·2	167·4	149·7	165·4
1973	338·4	349·0	204·8	169·0	200·8

(a) Including customs duty.

Source: Statistical Abstract of Ireland; Irish Statistical Bulletin; Trade Statistics of Ireland.

TABLE 8.2

Balance of Payments on Current Account

Year	Goods		Other *(a)*		Balance unaccounted for	Balance £m	Balance as % of GDP
	Exports £m	Imports £m	Receipts £m	Payments £m			
1953	109·7	178·1	78·9	27·0	9·5	— 7·0	—1·6
1954	110·1	174·9	81·6	27·8	5·5	— 5·5	—1·4
1955	104·7	202·3	85·9	31·2	7·4	—35·5	—7·9
1956	102·3	176·6	88·2	32·3	4·1	—14·4	—3·1
1957	123·7	176·9	89·0	31·8	5·2	+ 9·2	+2·0
1958	121·8	190·0	92·1	32·1	7·2	— 1·0	—0·2
1959	122·4	204·6	97·4	33·6	9·7	— 8·7	—1·7
1960	144·5	218·1	105·8	37·0	4·0	— 0·8	—0·2
1961	169·8	251·6	115·3	38·9	6·6	+ 1·2	+1·2
1962	164·6	264·8	118·7	43·0	11·1	—13·4	—2·0
1963	186·4	297·6	125·1	48·1	12·1	—22·1	—3·1
1964	212·3	339·9	144·8	56·7	8·1	—31·4	—3·9
1965	211·3	362·6	164·3	57·9	3·0	—41·8	—5·0
1966*(b)*	266·1	390·6	173·8	75·0	9·6	—16·1	—1·8
1967	307·0	407·1	185·9	76·0	5·4	+15·2	+1·5
1968	355·8	509·0	212·8	85·4	9·5	—16·3	—1·5
1969	395·9	605·2	223·8	94·5	10·9	—69·1	—5·5
1970	455·0	668·0	237·0	104·7	15·4	—65·3	—4·7
1971	521·9	739·2	251·2	120·0	15·1	—71·0	—4·5
1972	632·3	824·3	261·8	134·3	8·7	—55·8	—3·0
1973	853·0	1124·0	185·0*(b)*		—	—86·0	—3·8

(a) Including services and international transfers. *(b)* From 1966 on Shannon Free Airport Trade is included with goods instead of with other.

Source: Irish Statistical Bulletin; Review of 1973 and Outlook for 1974; National Income and Expenditure.

The swing in the current balance between 1956 and 1957 was equivalent to 5% of GDP, which is a very large inflationary force. Notwithstanding the effect of the import levies, by far the greater contribution to the improvement came from exports; export volume grew by 19·2%, while import volume fell by only 4·6%. Import prices rose by 5·5%, against a rise of only 1·8% for exports.

It would be difficult to find a more perfect example of the sequence outlined above, but it is hard to detect any similar pattern in later years. The sharp price rise in 1962 followed a small credit balance on current account in 1961, but the swing from 1960/61 amounted to only 0·4% of GNP. Moreover, the very big deterioration in the balance in 1962 coincided with rather than followed the rise in prices, so far as one can tell from annual statistics.

The inflation of 1964/65 followed a substantial growth of exports in 1962/64, but there was an even faster growth of imports, and the current balance had been deteriorating sharply ever since 1961. As would be expected the deterioration continued into 1965.

The 1968/69 case is of special interest because of the November 1967 devaluation. The pound sterling was devalued by 14·3% against the US dollar, from $2·80 to $2·40. The Irish pound went down by the same amount despite the fact that Ireland had a current account surplus of £15 million in 1967, the largest figure recorded in the past twenty years.

The changes in imports, exports and the balance of payments were as follows:

	1968	1969
Exports (% change)		
volume	8·6	4·9
unit value	7·3	6·1
Imports (% change)		
volume	19·9	14·3
unit value	8·3	4·0
Current account balance (change £ million)	—30·5	—53·8

The deterioration in the balance of payments over the two years amounted to £84 million, about 7% of GDP.

Anyone familiar with recent UK experience might have expected that a large part of the deficit could be attributed to a change in the terms of trade, but this does not appear to be so. From 1967 to 1968, import unit values rose by only 1 percentage point more than those of exports; from 1968 to 1969 imports rose by 2 percentage points less than exports, so that over the two years together there was a slight improvement in the terms of trade. The growth of the deficit was due to volume changes. From 1967 to 1968 export volumes rose at well above the 1953/72 average of 6·5%, but for the two years as a whole the growth was only fractionally above average. Import volume, however, grew by 19·9% and 14·3% in the two years, compared to an average over the period as a whole of only just over 6%. There can be no real doubt, that domestic excess demand was sucking in additional imports despite the effect of devaluation.

In 1972 there was an improvement in the balance of payments from a deficit of £71 million to one of £56 million, almost wholly due to the strong rise in world agricultural prices; in volume terms the rise in both imports and exports was very similar and close to the twenty-year average. There was a further deterioration in the current account balance in 1973, in spite of an improvement in the terms of trade. Export unit values rose by 22·3% against 12·9% for imports, but imports went up in volume by 20·2% while exports rose by only 9·4%. The even greater deterioration in 1974 is, of course, mainly due to the oil crisis.

The rise in the inflation rate in 1962, 1968/69 and 1972/73 followed an improvement in the balance of payments, but there is little evidence that this improvement was generated by inflation abroad or that it played any significant part in generating inflation in Ireland. In 1964/65 the rise in the inflation rate followed three years of balance-of-payments deterioration. On this evidence, it seems more likely that internal inflation generated a deterioration in the balance of payments than that foreign inflation generated an improvement.

Trade effects: an alternative hypothesis

However, as noted in Section II, the fact that it is not possible to observe the sequence of overseas inflation—balance-of-payments surplus—domestic inflation, is not conclusive evidence that the impetus towards inflation is not coming from abroad. An alternative hypothesis is that price rises originating abroad work themselves out so quickly that no sequential changes would be observed, especially when only annual data are used.

The implication of this hypothesis is that, if one country was having its inflation rate pushed up by the rest of the world, import and export prices would rise by roughly similar amounts and the rise in both would be greater than that of general index numbers including non-traded goods and services. This is clearly the reverse of what happened in Ireland over the period 1953 to 1973 as a whole. As shown in Section I import prices rose by rather less than export prices but both rose by much less than any of the general price series. The figures for 1972 (1953=100) are:

Import unit values	149·7
Export unit values	167·4
General wholesale prices	191·7
Consumer price index	220·2
GDP deflator	249·1

This does not dispose of the possibility that foreign prices may have played a leading rôle in at least some of the periods of high inflation. We do not need to consider this for 1956/58, and the figures for the remaining years are shown in Table 8.3.

The only year prior to 1973 in which import unit values rose faster than either consumer prices or the GDP deflator was 1968, though they rose faster than the wholesale prices of industrial output in 1968, 1970 and 1971. Similarly, export unit values led the two general series only in 1968, but they rose faster than the wholesale index for industrial output in 1964, 1968, and 1970 to 1972, and faster than consumer prices in 1972. In 1964, 1968 and 1972 this was largely if not wholly due to

TABLE 8.3

Import, export and domestic prices in years of rapid inflation

(Percentage increase over previous year)

Index	1962	1964	1965	1968	1969	1970	1971	1972	1973
Export unit value	0·9	5·5	1·3	7·3	6·1	6·6	7·7	13·5	22·3
Import unit value	—0·1	0·9	2·3	8·3	4·0	6·8	6·0	4·6	12·9
Wholesale prices:									
Agriculture	1·7	6·6	4·1	10·2	2·8	4·6	7·0	21·6	30·7
Output of industry	3·8	4·7	3·4	4·5	7·0	5·3	5·1	7·1	13·9
Consumer prices	4·2	6·7	5·0	4·0	7·4	8·2	9·0	8·6	11·4
GDP deflator	4·6	9·6	4·4	4·4	8·8	9·1	10·2	13·7	12·0

Source: Table 1.2.

increases in agricultural prices, but in 1970 and 1971, the agricultural index rose by less than the export index. The 1973 figures are dominated by the world rise in agricultural products and other primary commodities. Export unit values rose by more than any of the other indexes except the wholesale price of agricultural output. The import index rose by slightly more than consumer prices but slightly less than the wholesale price index of industrial products.

It seems fairly clear that, as one would expect, rises in the world prices of Ireland's main agricultural exports do have a very quick effect in raising Irish prices for these products. These price rises are likely also to produce indirect effects, e.g. through spending by farmers of their higher incomes, of an inflationary nature. Apart from this, there is no evidence that foreign inflation has pulled up Irish prices, either via imports or exports in these years where a high rate of inflation has been accompanied by signs of excess demand. There is, however, some slight evidence of this effect, both on the import and the export sides in 1970-71.

A somewhat different aspect of the matter can be seen in Table 8.4, derived from the wholesale price index (as distinct from the unit value index) of imports. The table shows import prices as a ratio of the wholesale prices of domestic output for three categories of goods, "crude", "simply transformed" and "more elaborately transformed". The first two are strongly influenced by raw material costs, and show considerable fluctuations without any clear trend. "More elaborately transformed" goods have a much larger element of labour costs and so reflect more accurately the extent of domestic inflation in the producing countries. This series shows a very strong tendency for import prices to fall relatively to Irish domestic prices over the period as a whole, and there is a fall in each of the years of high inflation apart from 1971/72.

Pricing behaviour

At the cost of a slight digression, it is interesting to note the pricing behaviour implied in the changes in import and export unit values following the 1967 devaluation. About half of Irish trade was with the UK and so would not be directly affected by the devaluation. There would,

TABLE 8.4

Ratio of wholesale price of imports to domestic wholesale prices

Indexes 1953 = 100

Year	Total	Crude products	Simply transferred products	More elaborately transferred products
1953	100·0	100·0	100·0	100·0
1954	100·6	100·7	101·2	101·6
1955	99·7	92·5	102·0	103·5
1956	107·1	118·9	108·0	102·9
1957	105·8	114·1	108·6	101·3
1958	99·0	105·0	97·4	97·7
1959	97·1	101·9	94·8	97·2
1960	97·8	107·9	98·2	96·0
1961	97·1	108·6	96·1	95·6
1962	95·4	108·4	96·2	92·4
1963	95·8	110·2	99·1	91·3
1964	94·7	104·4	104·5	88·4
1965	92·7	100·7	103·5	86·3
1966	94·4	113·4	101·5	85·1
1967	93·9	119·2	98·7	82·9
1988	93·1	110·8	99·8	82·2
1969	89·8	109·7	103·7	79·2
1970	89·5	104·6	108·6	78·6
1971	89·6	100·9	111·8	79·6
1972	85·3	84·6	107·6	79·7
1973	89·1	80·4	119·3	82·6

Source: Irish Statistical Bulletin.

however, be an indirect effect; the prices charged by British exporters to Ireland would be influenced by those charged in other markets, and these probably rose as a result of devaluation. By similar reasoning, Irish exporters to the UK may have been able to get higher prices because of the higher sterling prices for competing goods from other sources brought about by devaluation.

Percentage changes in the four categories of the import unit value index from year to year were as follows:

	1967/68	1968/69
Food, drink and tobacco	7·4	4·5
Basic materials	6·1	3·3
Mineral fuels and lubricants	11·0	0·4
Other goods	8·4	4·6
All items	8·2	4·0

Over the two years together movements in the main categories were very similar, but oil prices moved much more quickly than others, presumably reflecting the policies of the international companies. Apart from this, the main interest lies in "other goods", about 63% of which came from the UK.

UK export prices rose by 8·4% from 1967 to 1968 and by 3·3% from 1968 to 1969. If UK exports to Ireland rose in price to the same extent as those to other markets this would have implied a rise in the prices of imports from elsewhere of 8·4% in 1967/68 and 5·1% in 1968/69. In 1968 the world price of manufactured exports was unchanged, while primary products and freight charges were falling. In 1969 the world rise in manufactured export prices was 3·3% and there was some recovery in primary product prices. If foreign prices had remained constant, Irish prices would have had to rise by 16·7% to make up for devaluation; it thus appears that rather more than half the devaluation effect was felt in higher import prices and rather less than half in lower prices (in their own currencies) charged by exporters; most of the rise falling in the first year. This conclusion depends on the assumption made about UK export prices. If UK exporters raised their prices less in the Irish market than elsewhere, then the devaluation effect would be bigger.

Percentage increases in export unit values were as follows:

	1967/68	1968/69
Food, drink and tobacco	8·0	3·7
Basic materials	9·5	20·3
Other goods	5·5	6·0
All items	7·3	6·1

Basic materials form a small group in which lead and zinc ores and concentrates are the largest item, and the very big increases reflect world trends in the particular goods concerned as well as devaluation. The scope for increasing agricultural prices was limited by the fact that devaluation did not affect the exchange rate between sterling and the Irish pound or between sterling and the currencies of several of Ireland's competitors in the UK food market. It appears that, as would be expected, Irish agricultural prices followed closely the trend of the UK market.

A surprising feature is the small increase in the prices of "other goods". Wholesale prices of the products of industry rose by 4·5% in 1968 and 7·0% in 1969 so that export prices rose by only one percentage point more than the most closely comparable domestic prices in the first year after devaluation; in the second year they reverted to the normal relationship with export prices rising more slowly. This evidence is only very tentative, but, for what it is worth, it suggests that manufacturers generally charged export prices closely in line with their domestic costs and that the main impact of devaluation was on lower foreign currency prices to overseas buyers.

Capital movements

The relationship between capital movements and inflation is a very complex one that cannot be entirely unravelled within the scope of the present study. They may be a driving force whereby inflation generated in one country is projected into others; or they may be a passive, accommodating influence whereby inflation generated within a country is allowed to create a balance-of-payments deficit. They can also influence domestic expenditure both directly and indirectly.

Direct effects occur when an organisation raises funds abroad for the finance of domestic capital formation. The most obvious example is direct investment from overseas in private sector industry. Borrowing abroad by governments or state-sponsored enterprises is rather less clear; it could be regarded as financing expenditure that would not otherwise take place, and so adding directly to demand; at the other extreme, however, the decision to seek finance abroad rather than at home could (as in the case of some recent borrowing by the UK nationalised industries) arise simply from a desire to secure foreign exchange to meet a deficit in the current account balance of payments arising from other causes.

Indirect effects arise from the acquisition of financial assets that are not direct loans to *spending* organisations of the type described in the last paragraph. For example, the purchase by non-residents of stock exchange securities tends to raise their price, reduce their yield and so stimulate domestic borrowing; lending through the banking system may place additional funds in the hands of banks and enable them to expand domestic credit by more than the increase in the money supply; and a rise in foreign exchange reserves resulting from capital inflows may add to the cash base of the banking system and so lead to an expansion of the money supply.

However, we should not try to draw a hard and fast line between direct and indirect effects. For example, the fact that a government may borrow abroad rather than from its own banking system may enable the banks to lend more to the private sector; while all types of capital movement may affect the foreign currency reserves and hence the cash base of the banking system.

In the mid-1950s, net capital movements into and out of Ireland were erratic, ranging from an inflow of £20·9 million in 1953 to an outflow of £11·8 million in 1955. By 1958, however, capital movements were beginning to show a positive and more stable pattern: in three out of the four years 1958 to 1961 there was an inflow of between £13 million and £16 million, the total for the four years reaching £43·9 million, averaging just over 11% of gross physical capital formation during the period. In 1962, the inflow jumped to £22·9 million,

rising to over £30 million in subsequent years; although there were big year-to-year fluctuations, the totals remained large and positive up to and including 1967. Thus over the six years 1962 to 1967, the total net inflow amounted to £178·7 million, equivalent to 15·6% of gross physical capital formation. 1968 showed a sharp break in the pattern, possibly an aftermath of devaluation, with the net inflow dropping to £8·4 million. But in 1969 there was another jump to £75 million and over the five years 1969 to 1973 the total net inflow amounted to £500·4 million, equivalent to no less than 20·3% of gross physical capital formation in the same years.

Total capital inflows are shown, together with the current account balance and changes in the reserves in Table 8.5. It is apparent that capital inflows have, in general, more than offset the current account deficit, thus leading to an increase in reserves. In only three years from 1957 to 1973 were reserves run down, and in two of these the loss was very modest. The addition to the reserves since the end of 1966 has been over £250 million, and £140 million of this occurred in spite of very big current account deficits, in the two years 1971 and 1972.

The distribution of capital inflows between direct investment, borrowing by the government and the state-sponsored enterprises and the remainder is shown in Table 8.6. The value of net foreign direct investment has been remarkably consistent, but its importance in gross physical capital formation has diminished rapidly and fairly steadily since the mid-1960s with the rise in domestic investment. The one break in the series, the capital outflow of 1969, is an unexplained anomaly which according to the CSO may be inter-related with the exceptionally large inflow through the non-associated banks in that year, included in the "other" column. It has been suggested that funds from the banks were used for direct investment by foreign enterprises in Ireland who took the opportunity to repay some direct borrowing from abroad at the same time. If so, the net foreign direct investment outflow in 1969 was more apparent than real.

It is probable that the figures in the table understate the contribution of direct foreign investment to capital formation for three reasons. Being net figures, they include any reverse flows of direct Irish invest-

TABLE 8.5

Reserves and capital flows

Year	Current account deficit Actual £ million	Financed by: Change in reserves £ million	Financed by: Capital flow £ million	Capital flow as % gross physical capital formation
1953	−7·0	+13·9	+20·9	...
1954	55·5	+4·2	+9·7	...
1955	−35·5	−47·3	−11·8	...
1956	−14·4	--14·7	−0·3	...
1957	+9·2	+6·9	−2·3	...
1958	−1·0	+15·9	+16·9	23·4
1959	−8·7	+4·4	+13·1	12·4
1960	−0·8	−0·3	−0·5	0·5
1961	+1·2	+14·6	+13·4	11·5
1962	−13·4	+9·5	+22·9	16·5
1963	−22·1	+2·9	+25·0	15·7
1964	−31·4	+5·2	+36·6	19·0
1965	−41·8	−17·2	+24·6	10·8
1966	−16·1	+22·4	+38·5	18·5
1967	+15·2	+46·3	+31·1	14·3
1968	−16·3	−7·9	+8·4	3·1
1969	−69·1	+5·9	+75·0	20·2
1970	−65·3	+2·4	+67·7 *(a)*	17·1
1971	−71·0	+90·8	+161·8 *(a)*	35·8
1972	−55·8	−51·1	+106·9 *(a)*	19·9
1973	−86·0	+3·0	+89·0	12·6

(a) Including allocation of SDRs amounting to £5·6 million in 1970, and £5·4 million in both 1971 and 1972.

Source: "Review of 1973 and Outlook for 1974"; Irish Statistical Bulletin; "National Income and Expenditure".

ment abroad. It seems unlikely, however, that on this account the gross foreign inflow would be much higher than the net. A possibly more important source of understatement in recent years is the omission of profits retained in the country by foreign firms. (The CSO follows the convention of ignoring retained profits in the balance of payments rather

TABLE 8.6

Net capital inflows and gross physical capital formation

Year	Private direct investment		Long-term government borrowing		Borrowing by state-sponsored companies		Other
	£ million	As % physical capital formation	£ million	As % physical capital formation	£ million	As % physical capital formation	£ million
1961	+8·6	7·4	+4·0(*a*)	3·4	—2·3	—2·0	+3·1
1962	+14·2	10·2	+2·0(*a*)	1·4	+0·6	0·4	+5·9
1963	+12·3	7·8	+4·7(*a*)	3·0	—	—	+7·9
1964	+19·1	9·9	—1·1(*a*)	—0·6	+9·5	4·9	+9·1
1965	+15·3	6·7	+3·0	1·3	+2·2	1·0	+4·1
1966	+4·1	2·0	+18·4	8·9	+0·5	0·2	+15·6
1967	+12·6	5·8	+2·5	1·2	+2·7	1·2	+13·3
1968	+15·2	6·5	+2·5	0·9	+0·7	0·3	—10·0
1969	—12·4	—3·3	+12·7	3·4	+31·3	8·4	+43·4
1970	+13·5	3·4	+12·5	3·2	+19·6	4·9	+22·1
1971	+11·6	2·6	+14·2	3·1	+17·5	3·9	+48·5
1972	+9·4	1·8	+20·1	3·7	+2·3	0·4	+75·1

(*a*) Including net short-term borrowing.

Source: Irish Statistical Bulletin; National Income and Expenditure; Dermot McAleese, "Capital Inflow and Direct Foreign Investment in Ireland, 1952–1970"; ESRI; Central Statistics Office.

than the alternative convention of treating retained profits as a debit on current account and an element in direct investment flows on the capital account.) Finally, capital imported by the banking sector could find its way into direct investment, though probably only on a small scale. Thus the percentage contribution of foreign investment to physical capital formation shown in the table must be regarded as a minimum estimate.

In a paper on "Capital Inflow and Direct Foreign Investment in Ireland 1952 to 1970", McAleese attempted to estimate directly the gross total of private foreign direct investment for the years 1960 to 1970.[1] He concluded that it could have been as much as £160 million, or more, against a net flow of £116 million. In other words, the true inflow of private foreign capital into Irish enterprises may have been nearly 40% greater than the figure indicated in the balance of payments estimate.

Even so, direct investment has never been large as a component in domestic demand, and its relative size has been falling sharply. Its major significance for the Irish economy is in relation to industrial development, the spread of technology and exports, but these are matters that have no direct bearing on inflation.

Until 1969, the government's long-term foreign borrowing was small save for the large DM loan of 1966. Since then it has borrowed heavily and at a rising rate; the figure for 1972, the latest available from balance-of-payments sources, was more than twice that for net private direct investment in the same year, though admittedly the latter was below the normal level for recent years. There was also very heavy borrowing by state-sponsored companies in each of the three years 1968/71, though this has subsequently declined, while that of the central government has increased still farther. The overseas debt of the central government rose by £41 million during the financial year 1973/74, while the Capital Budget shows total overseas borrowing of £44·2 million in that year. A curious feature was the heavy public sector borrowing, amounting to over £54 million in 1971 and 1972, at a time when private capital inflows were well above the current account deficit.

There remains the problem of whether capital movements have been an active cause of inflation or merely a permissive factor allowing domestic inflation to generate a balance-of-payments deficit without a loss of foreign currency reserves. No complete answer is possible, but there are three "straws in the wind".

First, three of our periods of rapid inflation, 1962, 1964/66 and 1969, were marked by strong and rising capital inflows. In the first two, there was a strong rise in direct overseas investment which played a larger part in total capital formation then than subsequently. There was heavy public sector borrowing from abroad in 1964, 1969 and 1972/73 though as already noted, it is doubtful how far this should be regarded as creating a net addition to domestic demand.

Secondly, capital has flowed into Ireland although as noted in Section VII interest rates there have tended to be rather lower than in the UK. Capital flows may be influenced by other factors, e.g. exchange rate, expectations and tax differences, besides interest rates; but when a country requires foreign capital to offset the effects on the balance of payments of domestic inflation, this may be expected to show in relatively high rates.

Thirdly, capital inflows that more than offset current deficits and lead to large accumulations of reserves may be expected to have an active rôle in generating inflation through their effect on the money supply. The most notable example of this is, of course, 1971/72.

A more detailed study of the relationship between capital movements and inflation, including an examination of the mechanism linking them to changes in the money supply, is needed. Meanwhile, our tentative conclusion is that capital inflows were largely offsetting the effects of domestic inflation but that they made some active contribution, and that this was strongest in 1962, 1964/65 and 1971/72.

Emigration

Reference was made in Section II to the possibility that inflation might be transmitted through a country with a high level of demand

(Britain) attracting migrants from another (Ireland). This hypothesis had some plausibility in Ireland in the 1950s and early '60s, but since that time there has been a steady decline in the emigration rate accompanied by higher rates of inflation. In the one recent econometric model in which an emigration variable has been used it performed very poorly, as might be expected.[2] It does not, therefore, seem plausible to suppose that emigration can have had a significant effect on the Irish inflation rate in recent years, and we have not given detailed study to the hypothesis.

Policy alternatives

The conclusions of this section have so far been largely negative in that we have failed to uncover any strong evidence that inflation abroad gave any active stimulus to inflation in Ireland. This confirms the view taken in earlier sections that a combination of periods of excess demand with inflationary expectations was sufficient to keep inflation in Ireland at or rather above the world average. If this were so we should not expect to see signs of strong pressure from the rest of the world, but this does not mean that international influences are unimportant.

If inflation in the rest of the world had been markedly less than it has been, Ireland would have been subjected to strong downward pressures. Imports would have been cheaper and domestic industries would have been under stronger pressure to keep down costs in order to compete with imports in the home market. Exports would have had to face competition from cheaper goods in foreign markets, so that export industries would have been under a similar compulsion to keep down costs. If these pressures had not been sufficient there would have been a further deterioration in the balance of payments and the government would have been forced into more stringent fiscal and monetary policies. The prevailing world rate of inflation can, therefore, be regarded as a necessary condition for the Irish rate being as it has been.

Similarly, it must not be supposed that the avoidance of domestic excess demand would necessarily have given Ireland a greatly reduced rate of inflation. Both theoretical analysis and the experience of other

small countries suggest that Ireland could, if its government had so chosen, have had an inflation rate rather below the West European average instead of rather above it. But the lower the Irish inflation rate had been in relation to that of the rest of the world, the stronger would the pressure discussed in this section have become. Both relatively dear imports and relatively cheap exports would have tended to draw up Irish prices; the balance of payments would have been more often in surplus, and higher interest rates would have given further encouragement to capital inflows, leading to a further accumulation of reserves, and an upward pressure on the domestic money supply. All these forces would have exerted a cumulative impact to prevent the Irish inflation rate falling far below that of its neighbours. In the end, the difference in the inflation rate would probably have been only moderate and the most obvious effect would have been on the balance of payments.

The abandonment of the exchange link with sterling and the adoption of a "floating" Irish pound would have given greater scope for the Irish inflation rate to vary relative to that of other countries, but at the cost of considerable disturbance to the existing structure of trade and payments.

Conclusions

The direct passing on of higher import costs is only a small part of the international transmission of inflation, and it is necessary to look at the broader effects of international trade and capital movements. The rise in prices in 1956/58 appears to be a classic example of the way in which inflation can be transmitted through changes in the balance of payments. In later periods, however, there is little evidence that inflation abroad generated balance-of-payments surpluses in Ireland; on the contrary, it seems that domestic inflation in Ireland generated payments deficits.

An alternative hypothesis is that trade affects prices directly and so quickly that changes are observed simultaneously rather than in sequence. Comparison of domestic prices with the prices of imports and exports shows that Irish agricultural prices are strongly influenced by world markets for the main products; there is also some evidence

that both import and export prices were rising faster than those of domestic industrial output in 1971 and 1972. Apart from this, there is no evidence that high foreign prices were pushing Irish prices upward, either through their effects on imports or on exports; in fact both import and export prices were rising less fast than domestic ones.

It is very difficult to determine how far capital movements played an active rôle and how far they merely permitted domestic forces to work themselves out without imposing pressure on foreign currency reserves. There is some evidence that direct foreign investment may have made an active contribution in 1962 and 1964, and that the very large inflow of miscellaneous capital, accompanied by a big increase in reserves, had an active influence in 1971/72. It is not plausible to suppose that emigration has played any significant part in generating inflation during recent years.

The fact that foreign influences are not easily observed does not mean that Irish inflation was independent of that of the rest of the world but only that, during most of the period, Ireland was pursuing policies very similar to those of many other countries and that these policies were keeping the Irish inflation rate similar to or rather above the world average. However, if the world inflation rate had been lower, the Irish rate could not have been as it was and, at least so long as it maintains a fixed exchange rate with sterling, the avoidance of domestic excess demand in Ireland would produce only a moderate lowering of the Irish inflation rate. The more the Irish inflation rate fell below that of other countries, the stronger would be the upward pressure of international forces; in the end, the main effect would probably be more on the balance of payments than on the price level.

SECTION VIII: REFERENCES

1. Dermot McAleese, "Capital Inflow and Direct Foreign Investment in Ireland, 1952 to 1970", ESRI, 1972.
2. P. T. Geary and Colm McCarthy, "A Model of Wage and Price Inflation", 1974, mimeograph.

SECTION IX

EFFECTS OF INFLATION

Introduction

This section will discuss first a number of effects of inflation that fall primarily on the domestic economy; and then the effects on foreign trade and payments, especially the international competitiveness of Irish industry. First, however, two general points should be noted.

It is important to distinguish between the general increase in the price level which is associated with inflation and the changes in relative prices that are associated with changes in the supply of or the demand for particular commodities. In the recent past we have suffered two major changes in relative prices; the growing pressure of population on agricultural resources, combined with some poor harvests, has raised world food prices; and changed political circumstances have enabled the oil-producing countries to create a monopoly and raise the selling price of oil. Two changes as big as this occurring at nearly the same time would have produced widespread repercussion and would have had disturbing effects on many economic activities even without inflation. They will work out differently in an inflationary context, but they are not themselves inflationary.

Secondly, the disruptive effects of inflation continuing over a long period depend very much on its pace. For example, if inflation continued for the rest of this century at 3%, the 1974 pound would be worth 46p in 2,000 A.D.; with inflation at 8% it would be worth less than 14p, and with inflation at 15%, only 2·6p. The Irish economy like that of many other countries now has an inflation rate which if long continued, will imply changes of a different order of magnitude from those implied in the inflation rates of the 1950s and early 1960s.

Moreover, the rate of inflation has been accelerating rapidly in Ireland and in many other countries over the past fifteen years. In the three years 1959/61 Irish consumer prices rose by only 1% a year; in 1965/7, they rose by an average of 3·7%; and the average for 1972/4 will probably be over 13%. As noted in Section II, this acceleration is in line with the prediction of theories incorporating the combined effect of excess demand and expectations. If this kind of trend were continued we should reach, well before the end of the century, the kind of hyper-inflation that devastated the economies of Germany and other European countries in the 1920s.

A. DOMESTIC EFFECTS

The distribution of income

The effect of inflation on income distribution is often misunderstood because of vague statements like, "Inflation hurts most those who are in a weak bargaining position". In a society still largely competitive those who are in a strong bargaining position will become relatively better off and those in a weak bargaining position will become relatively worse off, whether or not there is inflation. Those who are hurt by inflation are those who are prevented from adjusting their incomes quickly either by long-term contracts, government restrictions, or the conventions of the markets in which they operate. Bargaining strength may be relevant if it affects the length of the adjustment lag, but that is all. There are three circumstances in which adjustment lags are currently causing major distortions and hardship, and which are discussed briefly in the following paragraphs.

First, the return to savings. In Sections II and VI we discussed the relationship between nominal and real rates of interest, and saw that monetary expansion might delay the adjustment of nominal rates to take account of rising prices. Even without undue monetary expansion, however, it takes time for people to adapt their expectations and to adjust their portfolios accordingly. Hence, in a period of *accelerating* inflation nominal rates tend to lag behind the real rates and real rates remain very low or even negative. The following figures show the behaviour of some important Irish interest rates in 1973.

	Rates per cent	
	Beginning	End
PO Savings Bank	5	7
Associated Banks deposits (under £5,000)	5½	8
Building society share accounts	5½	8
Government securities (redemption yield)		
Short-term	8·7	12·6
Long-term	9·8	12·3

The rise in consumer prices from December 1972 to December 1973 was 12·6% so that anyone acquiring any of these assets at the beginning of the year and holding it to the end would have found that the interest he received would have fallen a long way short of the decline in the real value of his capital.

In the past, this shortfall has tended to be greatest for the type of asset (e.g. savings bank and building society deposits) most commonly held by small savers, but this has not always been so in more recent times if one takes account (as one should) of the fall in the market value of stock exchange securities. Whether or not there is discrimination against small savers, there is a disincentive to saving in general. It is well known that inflation provides a disincentive to the holding of money; if there are other assets that offer adequate compensation for inflation, the disincentive effect may be confined to money; if there are not, then it extends to saving. This will be discussed further in relation to security markets below.

A second serious cause of hardship is in relation to mortgages for house purchase. Here the problem is the way in which the conventions of the mortgage market constrain adjustment to inflation. The lender

who is getting 8% on a share account with a building society when inflation is running at 12·5% is doing very badly even allowing for favourable tax treatment. The borrower who is paying 10% or 11% to acquire property that is appreciating at 12·5% or more is doing very well in one way though he may find life very hard in another. The whole paradox lies in timing.

The normal building society contract provides for a uniform money payment throughout the period. Even without inflation this is probably a sub-optimal arrangement in that most people, at the age when they buy houses, expect their real income to increase over the period of the contract, and so would prefer to pay less at the beginning and more at the end. With inflation at high rates, this distortion is greatly magnified. For example, with inflation at 12% and a growth of real income of 4% a year, a person now earning £2,000 a year would earn £7,600 in ten years' time, and £33,500 in twenty years' time, not counting any increases due to promotion. Yet if he took out a twenty-year mortgage under the present system his money payment in year one would be just the same as in year twenty. Any payment that is adequate to compensate a lender for high rates of inflation is bound to be very onerous to a borrower at the beginning of his contract though, if inflation continued, it would become very light by the end. If the rate of inflation cannot be drastically reduced it will clearly be necessary to adapt the pattern of mortgage payments to it.[1]

The third big group to be hit by inflation are those dependent on investment income or social security payments or a combination of the two. Insofar as they live on investment income, they have suffered from the low real return to saving already discussed, while as recipients of social security, they have suffered from pressures to keep down government expenditure. An automatic index link that would keep social security payments in line with the consumer price index would be of obvious benefit to the recipients, but finance would have to be found by the government. This is a matter to which we have been specifically asked to refer and it is discussed in the following paragraphs.

Inflation and the budget

It is generally assumed that governments gain from inflation in three ways:

i. Higher prices require more notes and coin in circulation and this provides, in effect, an interest-free loan for government;

ii. inflation reduces the real value of both capital and interest on past borrowing; and

iii. it increases the yield of taxes levied at any given rate.[2]

Nevertheless doubts have been expressed as to whether revenue in Ireland will grow as fast as national income in conditions of inflation, and particular reference was made to a paragraph in the NIEC report on Incomes and Prices Policy in which this point was raised.[3]

First, it should be noted that, even if the total yield of the tax system at given rates rises less fast than the rise in money income due to inflation, the government could still adjust rates to make up the difference, while leaving taxpayers no worse off in real terms. However, this may be politically unpopular and it is obviously more convenient for governments if the increased yield accrues automatically.

In principle it is possible to divide taxes into four categories according to the way in which the yield at given rates may be expected to respond to inflation.

i. Those whose yield rises more than in proportion to the rise in money income. The main case is personal income tax. Whenever a system has an exemption limit fixed in money terms and is progressive (i.e. has higher rates on higher incomes) inflation will bring into the tax range some people who were previously exempt, and will raise others from lower to higher tax bands. Corporation tax may also behave in a similar way but this is more doubtful. The way in which

depreciation and stock appreciation are treated (see page 164 below) tends to cause taxable profits to rise faster than income, but this may be offset by the effect of price controls or by deflationary monetary and fiscal policy which reduce profit margins.

ii. Those which rise roughly in proportion to money income. This category would include all *ad valorem* taxes on expenditure, e.g. VAT and customs duties assessed on value rather than quantity. The proportionality will not be exact, since prices will not all rise at exactly the same rate, and there will be some shifts from one good to another, but these effects will be of secondary importance, and will largely cancel one another out.

iii. Those which rise roughly in proportion to real income rather than money income. These will be *specific* customs and excise duties, i.e. those based on a unit of quantity rather than on value. Again the relationship will not be precise, as different goods have different "income elasticities".

iv. Those that grow less than either money or real income unless either the basis of assessment or the rate is changed. The outstanding example is local authority rates. Rateable values are assessed only at fairly long intervals and between assessments the yield of any given rate poundage on existing property remains constant. The only source of growth is from new property coming under assessment for the first time and from changes in use involving a new assessment. Since the stock of buildings is large in relation to annual net additions revenue for the country as a whole (though not necessarily for all local authorities) is likely to grow less fast than real income.

Table 9.1 analyses revenue for 1972/1973.

TABLE 9.1

Government revenue and changes in income

Sources of revenue classified according to the way in which their yield at constant rates varies with income.

Category and source	Contribution to revenue 1972/73			
	£ million		%	
(a) Rising faster than money income				
Income tax and surtax		173·7		26·4
(b) Rising in line with money income				
Estate duty	13·2		2·0	
Turnover tax	42·8		6·5	
Wholesale tax	26·2		4·0	
Ad valorem customs and excise duties	32·0		4·9	
	31·4		4·8	
		145·6		22·2
(c) Rising in line with real income				
Specific customs and excise duties	188·4		28·6	
Vehicle tax	20·0		3·0	
Post office	40·8		6·2	
		249·2		37·8
(d) Doubtful				
Corporation profits tax	21·2		3·2	
Stamps	10·9		1·7	
Miscellaneous	58·4		8·9	
		90·5		13·7
Total		659·0		100·1

Source: Finance Accounts, 1972/73.

Income tax and surtax, the one tax that is certain to rise more rapidly than money income, accounted for only 26·4% of revenue. Profits tax, which probably rises faster than money income, though it has been classed as doubtful, accounted for only 3·2%. A series of

ad valorem duties that are likely to rise roughly in line with money income accounted for 22·2% of revenue, but duties, whose yield is likely to move roughly in line with real income (unless rates are changed) and so do not contain any built-in allowance for inflation, accounted for 37·8%. By contrast, in the UK in 1972/73 income tax and surtax accounted for nearly 40%, and corporation tax for a further 9% of revenue. There can be no doubt that the Irish tax structure is considerably less buoyant in conditions of inflation than that of the UK but as already pointed out, the need to raise rates at which specific duties are levied when prices rise is a matter of political inconvenience rather than economic hardship.

A further problem can arise because of time-lags between the time when the amount of any particular tax liability is determined and the time at which the money reaches the Exchequer. If this lag has an average length of L months, tax liabilities will, in general, be determined by prices and/or incomes at period T, while the revenue will have to be used to meet expenditure at prices of T+L. If the rate of inflation was constant a longer lag would imply that higher tax rates would be necessary to finance any given level of expenditure; but once an appropriate set of rates had been established for any given lag, there would be no further need for change on this account. If, however, the rate of inflation were accelerating, the existence of a constant lag would require increasing tax rates, other things being equal.

We do not have detailed information on the length of lags in Ireland, but the tax for which they may be expected to be longest—corporation profits tax—forms a relatively small part (only 3·2%) of revenue.

For some purposes, it may not be enough that revenue should simply keep pace with inflation. For example, the purchasing power of social security payments could be maintained by increasing this type of expenditure in line with the consumer price index, but recipients would then become relatively worse off as the real incomes of other members of society increased. If they are to preserve their relative position payments must take account both of rising real incomes and of inflation,

i.e. expenditure must rise in line with average *per capita* money income, not in line with prices.

Perhaps the most serious problem for the Irish exchequer, however, is the fact that prices of goods and services bought by the public sector appear to be rising much faster than the general rate of inflation. From 1967 to 1972 the rise was 65·4% against only 44% for consumer prices. Attention was drawn in Section I to the need for further investigation of this matter, but it clearly involves a change in relative prices as well as an inflation effect. In this respect the government is in the same position as any of its citizens; if the things that it buys become relatively more expensive, it must either consume a smaller quantity or spend a larger proportion of the national income.

Accounting practices and the profitability of investment

It is often assumed that inflation raises company profits, and this is generally true of recorded profits determined under existing accounting conventions. However, the true return to the owners of a business is what is left after replacing stocks that have been used up, making good depreciation on fixed assets and paying taxes. This is both the return which determines whether investment is worthwhile and the cash flow that is available to finance expansion. Unfortunately, this return can be very vulnerable to inflation for two reasons.

First, stocks are normally dealt with on the "first in first out" (FIFO) rule. If, for example, a woollen manufacturer had stocks of raw wool bought last year, it would be assumed that those (rather than any more recent purchases) were used in this year's output and they would be entered at last year's prices, regardless of the fact that they have to be replaced at current prices. Hence, materials and work-in-progress and stocks of finished goods are all counted at less than their replacement cost. The difference, which appears in the National Income Accounts as "stock appreciation", is the amount by which true profit is over-stated.

Though the Irish national income accounts give a total figure for stock appreciation, it is not possible to apportion this between sectors. The following figures from the UK show how serious the distortion can be at a time of rapidly accelerating inflation.

£ million

	1973				1974
	I	II	III	IV	I
Gross trading profits	2,045	2,171	2,190	2,226	2,655
Stock appreciation	366	547	702	773	1,538
Adjusted profits	1,679	1,624	1,488	1,453	1,117

Between the first quarter of 1973 and the first quarter of 1974 recorded profits rose by 30%, but after allowing for stock appreciation there was a fall of 33%. This is not the end of the story, as tax has to be paid on profit before adjustment, so that (with a 50% tax) stock appreciation added nearly £600 million to companies' tax liabilities between these two quarters.

Secondly, depreciation is usually calculated on historic cost rather than replacement cost. The principle involved is the same as that underlying stock appreciation; the difference lies in the fact that fixed capital is not used up in a single operation, and so depreciation can be spread over a long time. There is endless variety in the possible outcomes, depending on the length of life of the capital concerned, the age structure of a company's assets and the method of depreciation used. However, the general principle is clear; depreciation based on historic cost will not, in an age of inflation, provide a cash flow sufficient to replace worn out or obsolete equipment, and the shortfall will be greater the higher the rate of inflation.

To illustrate this principle, consider a very simple and artificial model. Suppose a firm uses ten identical machines, each with a life of ten years, and that they are evenly distributed over their life span. At some pre-inflation point of time a machine cost £1,000 and depreciation is on a "straight line" basis. The depreciation funds accruing in each year are used to replace the oldest machine at the beginning of the following year. The relevant figures are shown in Table 9.2. In a world of constant prices, our company would

TABLE 9.2

Example illustrating the effect of inflation on replacement cost and depreciation

	Depreciation on machine purchase in year										Total	Replacement cost in year 11	Shortfall	
	1	2	3	4	5	6	7	8	9	10			£	% of replacement cost
(a) Constant price	100	100	100	100	100	100	100	100	100	100	1,000	1,000	—	—
(b) Inflation at 3%	100	103	106	109	113	116	119	123	127	130	1,146	1,344	198	14·7
(c) Inflation at 12%	100	112	125	140	157	176	197	221	248	277	1,753	3,106	1,353	43·6

Note: In each case, the machine is assumed to cost £1,000 at the beginning of year one. For other assumptions see text

set aside during year 10 £100 in respect of machines bought from the beginning of year 1 to the beginning of year 10, and the resulting £1,000 would just suffice to replace the year 1 machine at the beginning of year 11. Now suppose that inflation takes place at 3% over the ten years. The company will set aside 10% of the historic cost of each machine so that year 10 depreciation will be £100 on the year 1 machine, £103 on the year 2 machine, and so on up to £130 on the year 10 machine; the total of this series is £1,146 but by the beginning of year 11 it will cost £1,344 to replace the year 1 machine. There will thus be a shortfall of £198, or 14·7% of replacement cost. The same calculation for a 12% inflation rate shows a shortfall of £1,353 or nearly 44 per cent of replacement cost.

Once again an effect that is of minor importance with inflation at 2% or 3% a year assumes a different order of magnitude with inflation rates in double figures. Once again, the effect is aggravated by taxation. since tax has to be paid on profits less depreciation at historic cost, and the shortfall has to be met out of post-tax profits if firms are not to allow their capital equipment to run down.

In principle, the tax effect could be largely eliminated by allowing stocks to be treated on the last in first out (LIFO) rather than the FIFO principle; and by adjusting depreciation allowances each year to make up the difference between past accumulation and replacement costs. However, this would not necessarily suffice to maintain either the real value of shareholders' funds or their relative position in society.

The latter would require that post-tax profits, after allowing for stock appreciation and for depreciation at replacement cost, rise at the same rate as money national income. It seems very unlikely that this has happened in the recent past or that it would have happened even if tax liabilities had been adjusted as indicated above. A more detailed study is needed of the actual position in Ireland, and of its effect both on companies' cash flow and on the incentive to invest.

A further effect of inflation, and one which is advantageous to some companies, is that it reduces the real value of interest and capital charges on debt. However, the benefits accrue arbitrarily to those companies that happen to have the largest debt, and the benefit to borrowers is at the expense of lenders. A fairer system is to enable companies to maintain the real value both of their earnings and their payments; this is one of the main objectives of "indexation" discussed on pp. 189-192 below.

Stock markets and saving

Consider first the influence of inflation on the market for fixed interest securities. Reference has been made several times to the distinction between nominal and real rates of interest, and to the fact that market forces tend, after a time lag, to adjust market rates so as to maintain a "normal" or "natural" real rate. Over long periods of time the real rate has been very stable; the history of the UK national debt goes back well over 250 years and the yield on long-term government securities adjusted for price changes has generally been in the range of 3% to 4%.

If inflation proceeded at a constant rate, there is a strong presumption that yields on fixed interest securities would be adjusted before very long. The real incentive to hold such securities would then be undiminished by inflation but the process of adjustment would damage those who had acquired them in the past. Their income would remain fixed in money terms and would fall in real terms each year at the current inflation rate. The counterpart of this, in present value terms, is, of course, a once and for all drop in capital values. We do not have enough information about the distribution of personal wealth in Ireland to say anything useful about the way in which this damage would fall on different sections of the community, but it is certain that it would be arbitrary.

When inflation is proceeding at an accelerating rate, the problem is more serious. As already noted, the time lags involved in adjustment are likely to leave the nominal rate lagging behind the inflation rate, giving low or even negative real rates. Such a situation is likely to

produce a reluctance to hold fixed interest securities, and to create difficulties for the government in meeting its borrowing needs. That the Irish government has faced such difficulties in recent years has been shown in Section VI.

During the 1950s and much of the 1960s, it was generally believed that equities offered a good hedge against inflation. The thinking behind this belief was that inflation raised profits and that this rise was likely to be enough to raise shareholders' earnings roughly in line with inflation, even allowing for stock appreciation, depreciation and higher tax liabilities. This has failed to happen over the past few years largely because of the effects of accelerating inflation discussed in the last sub-section. The result has been reflected in falling share prices though the fall has been less severe in Ireland than in the UK.

Insofar as equities fail to provide a satisfactory hedge against inflation, then their holders suffer the same kind of damage as do holders of fixed interest securities. There is, however, a more general and potentially more serious result. Money, by its nature, cannot offer protection for its holders against inflation; if neither fixed interest securities nor equities do so, then inflation must reduce the incentive to hold all financial assets. This could cause a decline in the total amount of saving forthcoming at any given level of real income. It may also divert saving from financial assets, and hence from the public sector and private industry, who use the capital market, into various kinds of real asset. The most obvious real asset available to private savers is house property but others are durable consumer goods, jewellery, works of art, and insofar as they are legally available, overseas assets.

So far there is no sign that the savings ratio in Ireland has been impaired by inflation but this is something that would only be expected after high rates of inflation had persisted for some time. There are some signs of the diversion of saving from financial assets to real ones, notably in the boom in the property market. Moreover, as shown in Section VII, total domestic saving has failed to keep pace with capital formation, so that there has been an increasing reliance on borrowing from overseas.

B. EXTERNAL EFFECTS

The way in which inflation affects the external transactions of an economy depends, of course, not upon the actual rate of inflation, but on the relationship between the domestic rate and that of the country's major trading partners. If prices rise more rapidly in country A than elsewhere, then A will import more from the rest of the world as their goods become relatively cheaper than domestic products. At the same time A is likely to export less because rising domestic demand is diverting goods from foreign buyers to the domestic market, and because the rise in prices is making exports uncompetitive. We should, therefore, expect the ratio of imports to GDP to rise and that of exports to fall, imports to grow faster and exports more slowly and export prices to move out of line with those in competing countries in periods of high inflation. If world markets were sufficiently perfect to keep the prices of traded goods at the same level, regardless of origin, then the whole effect would fall on import and export volumes and on the balance of payments.

As always, however, there are problems in disentangling the effects of inflation from those of other influences working in the same direction. For example, in a country at Ireland's stage of economic development the ratio of imports to output is almost bound to rise, since so many of the capital goods and materials required for industrial growth must be imported. Higher real incomes lead to higher imports. Tariff reductions also normally entail a rise in the import ratio, and have certainly done so in Ireland. Finally, throughout the Western world there has, during the postwar period, been a strong tendency for the import ratio to rise as a result of various unquantifiable influences such as the growth of multinational enterprises and changes in consumer preferences. Thus the import ratio may rise very sharply for reasons wholly unconnected with inflation. Similarly, in a country where a limited range of agricultural products provide a major part of exports, the export ratio may fall because of a fall in output due to weather conditions. Finally, in Ireland, both ratios may move erratically because of developments in the British economy because Ireland is so heavily dependent on the UK as supplier and customer.

It is not surprising, therefore, that Table 9.3 which shows the ratio

of exports, imports and the trade deficit to GDP, does not show the expected pattern of changes in the ratio in or immediately following periods of inflation. The export ratio fell and the import ratio rose simultaneously in four years—1955, 1958, 1965 and 1969. Inflation may have been influencing them in the three latter years but on the other hand there is no discernible effect in 1962/63, nor in the early 1970s. The overriding impression is that both ratios were tending to rise strongly throughout and that at the same time the deficit on trade though rising strongly in absolute amount was becoming a smaller proportion of GDP, which does not square with the hypothesis that inflation has made Irish trade less competitive.

TABLE 9.3

Ratio of foreign trade to GDP

Year	Total exports		Imports		Deficit	
	£ million	% of GDP	£ million	% of GDP	£ million	% of GDP
1953	114·5	26·5	185·4	42·9	70·9	16·4
1954	115·8	26·6	183·0	42·0	67·2	15·4
1955	110·9	24·3	207·7	45·4	96·8	21·2
1956	108·1	23·7	182·8	40·0	74·7	16·3
1957	131·3	27·9	184·2	39·2	52·8	11·3
1958	131·3	27·0	199·0	40·9	67·7	13·9
1959	130·6	25·1	212·6	40·8	82·0	15·7
1960	152·7	27·3	226·2	40·5	73·5	13·1
1961	180·5	29·8	261·4	43·1	80·9	13·3
1962	174·4	26·5	273·7	41·6	99·3	15·1
1963	196·5	28·0	307·7	43·8	111·1	15·8
1964	233·9	29·5	360·8	45·4	126·9	16·0
1965	241·2	28·6	387·8	45·9	146·6	17·4
1966	273·4	31·0	396·7	45·0	123·3	14·0
1967	314·5	32·5	414·7	42·8	100·2	10·4
1968	363·7	33·4	516·1	47·3	152·4	14·0
1969	404·2	32·4	613·6	49·1	209·4	16·8
1970	466·7	33·6	676·7	48·6	210·0	15·1
1971	538·7	34·0	754·9	47·6	216·2	13·6
1972	647·5	34·5	838·1	44·7	190·5	10·2
1973	868·7	38·6	1,137·2	50·6	268·5	11·9

Note: Figures from the mid-1960s include Shannon Free Airport trade.

Source: "National Income and Expenditure"; Leser, "A Study of Imports"; Statistical Abstract of Ireland; "Review of 1973 and Outlook for 1974".

A more detailed examination of recent years gives the same impression. There are two methods that have been widely used to measure a country's performance in trade—changes in its share of imports into major markets, and changes in the net trading position in goods which are both domestically produced and imported. (Direct price comparisons between countries are invalidated by differences in the coverage and construction of indexes of export prices.) The first method is not very suitable in Irish circumstances, since the only market where it has a significant share in imports, and where changes in share can be taken as indicating competitiveness is the UK.

In Table 9.4 therefore we show for three major export categories, accounting for almost 80% of exports, the proportion of exports going to the British market and the Irish share in corresponding British imports. If the proportion of exports to the UK has remained constant or fallen, while the Irish share in UK imports has risen or remained constant, then one may say that Irish goods have been competitive in the UK market, while any rise in the share of exports going to other markets indicates increasing competitiveness there. By these criteria, exports of "other agricultural products" to the UK are clearly competitive, since a more or less constant proportion of exports has been associated with a rise in import share approaching twice the initial level in 1963 for major products.

Similarly, if the highly erratic trade in diamonds is left out of account, exports of non-food manufactures have shown themselves competitive both in the UK and elsewhere, with a constant or rising share in UK imports set against a falling share of Irish exports to the market. (UK imports, incidentally, group imports from Shannon with other Irish goods so that coverage differs from the Irish export figures which exclude Shannon.) The slight decline indicated in the UK import share since 1971 cannot be regarded as significant. Unfortunately, the UK authorities have since 1970 ceased to distinguish the origin of UK diamond imports so that the series excluding diamonds had to be estimated; and the estimates may not be reliable.

TABLE 9.4

Market shares of major groups of exports

Year	Cattle and beef			Other agricultural products			Manufactures *(e)*		
	Value of exports £ million	% of exports to UK	% share in UK imports	Value of exports £ million	% of exports to UK	% share in UK imports *(b)*	Value of exports £ million	% of exports to UK	% share in UK imports *(c)*
1963	59·3	76·6	33·0	55·4	78·5	5·7	41·4	71·5	2·47
1964	69·6	76·9	39·4	56·2	78·1	5·8	54·3	69·4	2·37
1965	61·8	75·2	38·0	58·6	80·4	6·5	57·5	65·4	2·28
1966	64·7	79·6	43·0	60·3	76·8	6·7	67·5	64·0	2·40
1967	85·7	83·5	63·4	60·7	79·4	6·6	78·5	66·5	2·53
1968	86·1	86·1	59·6	71·2	75·0	7·3	107·0	64·3	2·42
1969	86·1	81·1	47·8	80·5	72·4	7·3	123·2	61·9	2·54
1970	96·6	81·2	55·6	89·0	71·5	7·9	151·2	63·0	2·71 *(e)*
1971	119·4	81·9	58·4	110·0	75·7	9·7	163·6	63·1	3·09 *(e)*
1972	134·0	68·5	45·0	132·7	76·9	10·3	244·3	58·5	3·00 *(e)*
1973 *(d)*	161·3	56·5	33·4	...	...	9·9	379·6	56·1	2·77 *(e)*

(e) SITC sections 5 to 8 only. *(b)* Import share refers only to meat other than beef, bacon and ham, dried milk, butter and cheese. *(c)* Excluding diamonds. Figures in brackets include diamonds. *(d)* Irish export data not comparable with figures for previous years. *(e)* Partly estimated.

Source: Quarterly Economic Commentary, ESRI, March 1974; Trade Statistics of Ireland, December 1973; Annual Statement of Trade of the United Kingdom, 1963 to 1972 inclusive; Overseas Trade Statistics UK 1973.

The cattle and beef figures are less clear cut for the period as a whole. Up to and including 1971, the Irish share in UK imports rose more rapidly than the proportion of Irish exports going to the UK, so that exports were clearly competitive. In the last two years, it is possible that some of the diversion of supplies from the UK to other destinations may indicate a slight loss in competitiveness, since the Irish share in UK imports has fallen more rapidly than the UK share in Irish exports. But the evidence is too slight to give any strong support to this interpretation. Moreover, had Irish exports not been competitive elsewhere, it would not have been possible to switch export markets so rapidly.

In sum, export data for major groups of exports do not indicate that inflation has made Irish exports less competitive during the decade 1963 to 1973.

A more relevant measure of Irish competitiveness is the behaviour of the net export ratio measured in terms of imports competing with the products of Irish transportable goods industries. It has been a matter of some concern to Irish economists that the ratio of such imports to apparent home consumption has been rising almost uninterruptedly since 1960 and particularly since 1967. Given the influences on the import ratio discussed at the beginning of this section, such a rise was inevitable. What is of crucial importance is whether the goods thus displaced from the home market have been exported, not whether in fact net exports have risen. If so, then the rise in competing imports will not have caused the output of Irish industry to be lower than would otherwise have been the case.

Table 9.5 shows that in fact net exports of competing goods have increased both in absolute terms, from £31·2 million in 1960 to £236·4 million in 1973 and as a proportion of gross output; at 13·4% of 1973 output they were nearly double the 1960 proportion. Thus broadly speaking, Irish transportable goods industries are competitive in international trade, and on the evidence both of the absolute and propor-

TABLE 9.5

Competing imports and net exports of transportable goods

Year	Food manufacturing			Non-food manufacturing			Mining and turf			Total transportable goods		
	Competing imports as % home consumption	Net exports:		Competing imports as % home consumption	Net exports:		Competing imports as % home consumption	Net exports:		Competing imports as % home consumption	Net exports:	
		Value £ million	As % gross output		Value £ million	As % gross output		Value £ million	As % gross output		Value £ million	As % gross output
1960	2·1	42·4	26·3	18·2	12·6	4·6	5·8	1·4	15·4	13·3	31·2	7·0
1961	2·4	52·4	29·2	18·2	17·5	5·8	3·2	1·5	13·6	13·5	36·4	7·4
1962	2·8	53·0	28·3	17·5	17·4	5·3	2·9	0·9	7·3	13·2	36·5	6·9
1963	3·3	57·9	29·1	18·3	18·3	5·1	7·8	0·1	0·8	14·0	39·5	6·9
1964	3·4	58·5	27·3	19·4	19·3	4·8	7·6	0·3	2·1	14·9	38·9	6·2
1965	3·9	64·7	28·2	18·5	16·6	3·9	40·7	7·7	56·2	15·5	40·4	6·0
1966	3·9	72·8	29·5	19·1	14·5	3·2	39·6	4·0	21·3	15·8	54·3	7·6
1967	3·5	100·5	35·2	19·0	0·6	0·1	32·2	2·3	9·7	16·5	97·6	12·0
1968	4·0	106·8	33·7	20·9	7·8	1·4	30·2	1·8	6·6	17·0	89·8	10·8
1969	4·9	117·8	34·0	22·6	16·8	2·5	33·1	10·2	26·4	18·6	111·2	10·6
1970	5·2	128·8	33·9	23·7	12·6	1·7	34·2	10·6	25·1	19·5	126·8	11·0
1971	5·1	140·9	32·8	24·9	5·1	0·6	29·0	7·4	16·7	20·0	143·2	11·2
1972(e)	5·6	167·0	33·6	26·7	11·5	1·2	27·3	11·5	21·9	21·3	190·0	12·9
1973(e)	5·8	204·7	34·3	31·3	12·6	1·1	26·9	19·1	30·2	23·7	236·4	13·4

(e) Estimated in source.
Source: "Review of 1973 and Outlook for 1974".

tionate figures have performed particularly well since 1966; the rise on the import side of the account has been more than matched by the rise on the export side. Furthermore, in gross terms exports of "competing goods" are now a higher proportion of total exports than in 1960.

The picture by broad sectors of industry—food manufacturing, non-food manufacturing and mining—is less satisfactory. Out of the total increase of £205·2 million from 1960 to 1973, the food manufacturing industries provided £162·3 million. The proportion of competing imports to home consumption in this sector is very small, but has risen steadily; the ratio of net exports to output was tending to rise in the first half of the 1960s, jumped in 1967 and has since then remained at a slightly lower level. Since 1967, the rise in gross output has been rather more than twice as large as in the previous six years, so the higher net export ratio is related to a more rapidly rising value of production; but this latter reflects a lower rate of increase in the volume of production and a very much faster rate of increase in prices. Thus price movements have been the prime cause of the big rise in the total net exports of Irish food manufacturing since devaluation.

The net exports of the mining industry actually fell in the early 1960s as the rate of growth in consumption rose faster than output. Latterly, however, the position has improved to a remarkable degree and the net export ratio is almost as high as in food manufacturing. Here the improvement is mainly attributable to the steep rise in the volume of production, though price movements have also helped. The development of Irish mining has clearly paid off in terms of the country's international trading position.

It is in manufacturing industry proper that the position is weakest for it is here that the rise in competing imports relative to home consumption has been greatest; and here that the contribution to net exports is smallest in absolute terms and has risen least in relation to gross output. Up to 1967, the import ratio was fairly stable, the value of net imports had begun to fall and in 1967 itself dropped so sharply that trade was almost in balance, while the net import ratio was steadily diminishing. Following devaluation the situation deteriorated again and it was not until 1972 that non-food manufacturing industries in Ireland achieved a small export surplus.

Figures disaggregated by industry, shown in Table 9.6, suggest that it is rather the character of some of the industries concerned than any influences affecting all manufacturing industries which explains this disappointing performance. Very broadly, old-established industries have done badly, newer industries have done well. All sectors distinguished in the table, bar clay and structural cement, show a higher ratio of imports to home consumption in 1973 than in 1960. In terms of net exports, however, four groups can be distinguished. Heading the list are three sectors that have steadily raised the value of net exports and the ratio to output—chemicals, metals, and the miscellaneous "other" group. In absolute terms, these three converted net imports of £7·9 million in 1960 to net exports of £46·7 million in 1973—a swing of £54·6 million. Two other sectors—drink and tobacco and clay and cement—raised the value of net exports from £6·7 million to £18·7 million though they did less well on the export ratio. Textiles, clothing and footwear, and wood and furniture maintained or improved the ratio of net exports (or net imports as the case may be) to 1967 but thereafter the position deteriorated rapidly, so that from 1960 to 1973 net imports rose by £20·1 million. Finally, the paper and printing industry showed a steady deterioration in its competitive position throughout the period, with net imports rising from £3·7 million in 1960 to £25·2 million in 1973. Had these last two groups done no more than maintain their 1960 net balance, Irish manufacturing industry as a whole could have raised its net exports by £66 million in thirteen years—some £17 million to 1967 and the balance from 1967 to 1973.

In all this there is no discernible influence from domestic inflation. The one factor that appears to have influenced all non-food manufacturing industries was the 1967 devaluation. Otherwise net export performance has been a function of the behaviour of the industry itself.

There is little that can usefully be said about Ireland's other major export industry, tourism, in this context. Until 1968 the growth of earnings was erratic but does not seem to have been influenced by inflation. Any damage done by rising Irish prices would be expected to show up in the years immediately following periods of rapid inflation but, as may be seen from Table 9.7, 1959 and 1963 were both years of high growth in earnings, while 1967 was a better year than 1966, though the latter

TABLE 9.6

Competing imports and net exports in non-food manufacturing industries

		Competing imports as % home consumption	Net exports: Value £ million	Net exports: As % gross output
Drink and tobacco	1960	2·8	6·4	10·9
	1967	3·3	7·3	8·3
	1973	5·3	12·0	7·4
Textiles	1960	26·9	−7·8	−19·9
	1987	28·9	−7·0	−10·7
	1973	45·8	−17·7	−13·7
Clothing and footwear	1960	4·7	3·4	13·7
	1967	10·3	5·4	13·7
	1973	28·9	4·9	6·5
Wood and furniture	1960	31·5	−3·3	−36·3
	1967	30·8	−5·1	−29·0
	1973	37·0	−14·8	−37·5
Paper and printing	1960	26·9	−3·7	−15·0
	1967	30·4	−9·9	−25·2
	1973	35·3	−25·2	−28·6
Chemicals	1960	30·8	−6·7	−37·2
	1967	25·6	−4·3	−9·8
	1973	40·8	11·9	12·0
Structural clay and cement	1960	13·0	0·3	2·9
	1987	11·1	3·0	11·7
	1973	11·3	6·7	9·0
Metals and engineering	1960	17·9	−3·9	−6·8
	1987	18·3	−0·4	−0·3
	1973	30·1	5·9	1·9
Other manufacturing	1960	19·6	2·7	8·9
	1967	18·0	10·4	16·7
	1973	37·6	28·9	22·1

Source: As Table 9.5.

was probably distorted by the UK seamens' strike. Since 1968 it is impossible to disentangle the effect, if any, of inflation from the influence of political developments in Northern Ireland that have seriously damaged the development of Irish tourism.

TABLE 9.7

Balance-of-payments receipts from tourism

Year	Value £ million	Annual % change	Year	Value £ million	Annual % change
1953	28·4	—	1963	49·8	+9·2
1954	29·5	+3·9	1964	58·8	+18·0
1955	30·9	+4·7	1965	67·7	+15·1
1956	33·4	+8·1	1966	65·1	−3·8
1957	32·4	−3·0	1967	68·9	+5·8
1958	34·6	+6·8	1968	75·7	+9·9
1959	37·8	+9·2	1969	78·1	+3·1
1960	39·7	+5·0	1970	74·3	−4·9
1961	43·5	+9·6	1971	79·0	+6·3
1962	45·6	+4·8	1972	70·4	−10·9

Source: Irish Statistical Bulletin.

It should, however, be remembered that both trade and tourism might have shown direct effects from inflation had other countries, notably the UK, been inflating less rapidly. In that case the rise in exports, for example, would almost certainly have been less; and on the same argument it would have been greater had Irish inflation been slower.

SECTION IX: REFERENCES

1 A number of suggestions have been made as to how this might be done. One of the most interesting is Michael Parkin and Malcolm Gray 'Housing Finance—A Realistic Solution", in *The Banker*, June 1974.

2. Milton Friedman, *Monetary Correction*, Institute of Economic Affairs, Occasional Paper No. 41, 1974.

3. NIEC, *Report on Incomes and Prices Policy* (No. 27), paragraph 36.

SECTION X

SOME POLICY OPTIONS

Inflation, unemployment and growth

The previous section has shown that inflation has some very damaging side effects both domestically and internationally. Ireland has been shielded from the main effect of the latter by the fact that other countries have had inflation rates only a little lower than its own, but there can be no such protection against the domestic effects and these are becoming increasingly harmful as inflation accelerates. There can be no doubt of the urgency of bringing inflation under control and this section therefore discusses four major policy issues; the possible cost in higher unemployment and slower growth; the exchange rate; "indexation"; and the respective rôle of prices and incomes policies, and of fiscal and monetary measures.

As shown earlier in this report, neither theoretical analysis nor empirical evidence can tell us anything like all we want to know about the "trade-off" between inflation, unemployment and growth. Four things are, however, amply demonstrated by experience and generally accepted :

i. In the short run, expansionary monetary and fiscal policies that generate inflation can also generate high growth rates, especially when they start from a point where there is some slack in the economy.

ii. Also in the short run, restrictive policies designed to reduce inflation (the "stop" in "stop-go") slow down growth and raise unemployment.

iii. Monetary and fiscal restraints applied with extreme violence can produce disastrous recession.

iv. Even in the absence of a severe recession the cure of inflation by monetary and fiscal control of demand involves going through a period in which unemployment would be higher and growth slower than they could have been if the need to control inflation had not existed.

It is also to be expected that very high rates of inflation will reduce the growth of real output by diverting energies from productive work to coping with the problems raised by inflation. The extreme form of this effect is the breakdown of confidence in money and the reversion to a largely barter economy that comes with "hyper-inflation". The real problem is what happens in between, and here it is necessary to distinguish between "static" and "dynamic" effects, between unemployment at a point in time and economic growth through time.

The first two columns of Table 10.1 show the percentage rise in consumer prices for OECD countries between 1960 and 1972, and the average percentage of the labour force that was unemployed. The figures are illustrated in a "scatter diagram" in Chart 10.1. There are a number of countries for which OECD does not publish unemployment percentages, and even where figures are published, comparisons can be only very rough and ready because of differences in definitions and methods of compilation. There is only a very weak tendency for countries with above-average unemployment to have a lower than average inflation rate or vice versa. The average (median) unemployment rate for the sixteen countries for which both prices and unemployment are available is 1·75% and the average price rise over the whole period, 69·35%. By this measure, four countries, Australia, Austria, Greece and Germany, had a lower than average unemployment rate and a lower than average price rise while three, Finland, Ireland and the UK, were above average on both counts. Half of the sixteen countries had unemployment rates in the narrow range of 1·3 to 2·0%, and their price rises varied from 43% to 111%. This is what would be expected from the "excess demand" theories outlined in Section II. The prediction of these is that a country's inflation rate depends not on

its actual rate of unemployment but on the relationship between its actual rate and its natural rate. Since natural rates are likely to differ widely from country to country we should not expect to observe any close relationship between actual rates and inflation.

Over a longer run there are a number of ways in which economic growth may be reduced by inflation, some of which appear now

TABLE 10.1

Percentage rise in consumer prices and GNP and average rate of unemployment in OECD countries

	Consumer prices 1960/72	Unemployment % average*(a)* 1960/72	Real GDP 1960/72
Canada	40·6	5·3	86·1
USA	41·3	4·8	63·8
Japan	94·0	1·3	231·8
Australia	43·2	1·6*(b)*	75·1
Austria	58·3	1·7	79·8
Belguim	52·5	2·2	72·2
Denmark	107·0	—	76·3
Finland	87·0	2·0	81·8
France	69·2	1·6	95·9
Germany	48·5	0·8	70·6
Greece	32·2	—	151·7
Iceland	258·6	—	77·8
Ireland	91·7	5·2	61·6
Italy	67·9	3·3	80·6
Netherlands	80·4	1·3	84·6
Norway	77·3	1·0	78·3
Portugal	92·4	—	110·1
Spain	111·2	1·6	132·1
Sweden	69·5	1·9*(c)*	57·5
Switzerland	57·8	—	67·9
Turkey	129·2	—	86·3
UK	78·2	1·8	36·6

(a) Average of annual figures of unemployment as per cent of labour force.
(b) 1964/1972.
(c) 1962/1972.
Source: OECD Historical Statistics 1971; OECD Labour Force Statistics 1960/71 and 1961/72; OECD Main Economic Indicators November 1973 and August 1974.

CHART 10.1

Percentage increase in prices and average percentage rate of unemployment 1960/1972

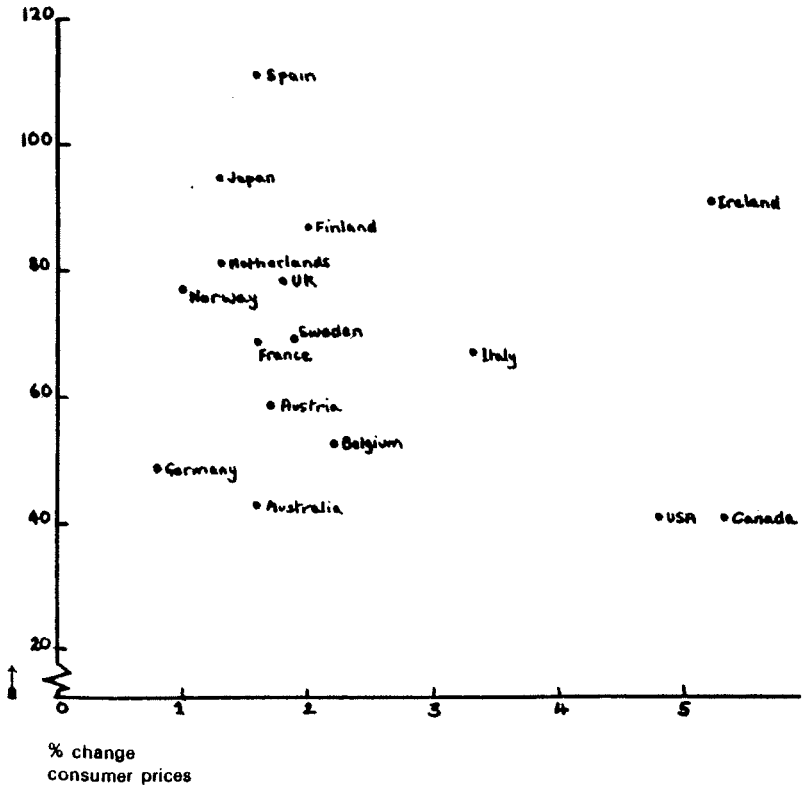
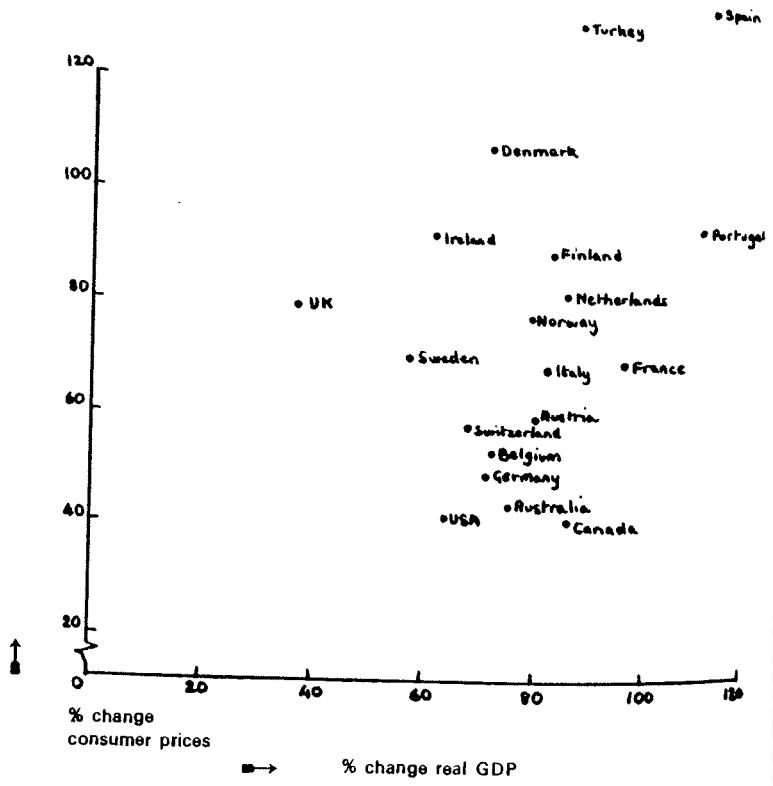


CHART 10.2

Percentage increases in consumer prices and real GDP 1962/1972



to be operating in Ireland. For example, it was argued in the last section that inflation has reduced the incentive both to save and to invest; that it has tended to divert savings from investment in productive industry to other areas where they do not make a direct contribution to growth; and that, though exports have remained competitive, they are less so than they could otherwise have been, and this must have inhibited the growth of export-oriented industry.

The third column of Table 10.1 shows the growth of real GDP for twenty-two OECD countries and Chart 10.2 shows these plotted against the rise in the consumer price index. Again there is no close relationship between the two. The USA and Germany both had lower than average growth (the median is 79%) and low inflation rates, but Canada had the lowest inflation rate of all combined with well above average growth, while the UK had the lowest growth of all combined with a well above average inflation rate. Twelve of the twenty-two countries showed growth in the range of 70% to 87%, and the rise in their price indexes varied from 43% to 254%. They are, in order of growth, as follows:

	% increase in	
	GDP	Prices
Germany	70·6	48·5
Belgium	72·2	52·5
Australia	75·1	43·2
Denmark	76·3	107·0
Iceland	77·8	253·8
Norway	78·3	77·3
Austria	79·8	58·3
Italy	80·6	67·9
Finland	81·8	87·0
Netherlands	84·6	80·4
Canada	86·1	40·6
Turkey	86·3	129·2

It may also be noted in passing that, as we should expect from the two relationships already discussed, there seems also to be only a very weak connection between unemployment rates and growth.

It is not certain that relationships that hold in a period of general world inflation would also hold in a world of constant prices, but nevertheless the evidence quoted indicates that there are considerable differences between countries in the level of unemployment that would be compatible with stable prices. In arguing that inflation is generated by excess demand we are saying that, at least at some times, the actual rate of unemployment has been below the natural rate. This, in turn, implies that a regime of stable prices would probably require, on average, a higher level of unemployment, other things being equal, than has prevailed in the past. However, the relationships between unemployment, inflation and growth suggest that neither the checking of inflation itself nor any increase in unemployment that might go with it need cause any long-run damage to growth. Moreover, the fact that some countries have succeeded in reconciling low unemployment with relatively iow inflation rates suggests that there is scope for reducing the "natural" unemployment rate by appropriate policies for increasing labour mobility. This is an important matter for Ireland and one on which further work is needed.

The exchange rate

As has been stated several times already, a small open economy with a fixed exchange rate has only limited scope for choosing a domestic inflation rate different from its neighbours. This has not been a constraint on Ireland in the recent past because domestic policies have generated an inflation rate rather higher than that of the UK and the other major countries with which Ireland trades. If the Irish authorities were to fight Inflation more vigorously and successfully than other countries, they could bring the rate of increase of domestic prices below Instead of above that of the UK, but before they got very far below, they would run up against the forces described in Section VI. Would it then be worth allowing the Irish pound to float upwards against sterling and other currencies in order to keep the inflation rate falling?

It is important to note that, in this context, the Irish pound could only appreciate in value against other currencies; a depreciation would imply Irish domestic policies that were more, not less, inflationary than those of other countries.

Such a change would have different effects on the agricultural and industrial sectors as a large part of Ireland's trade in agricultural products (72% in 1972) is subject to the Monetary Compensation Arrangement of EEC which has the effect of insulating prices received by domestic producers from exchange rate fluctuations.

The "monetary compensation amounts" (MCA) are payable on most agricultural products other than horticultural products and sheep meat. In 1972 Ireland exported about £190 million worth of these products, while imports amounted to only £40 million.[1] When a currency is depreciated by more than a prescribed amount in relation to its Common Market "reference rates" (as the irish pound is) a charge varying with the amount of depreciation is levied on exports and a subsidy paid on imports. Since the Irish pound and the pound sterling share the same reference rate and the same depreciation, no payments arise on UK-Irish trade, though Irish produce in the UK has to compete with UK imports from elsewhere which receive subsidies. Irish exports of goods covered by MCA to other countries have to pay the levy, while imports receive a grant. Irish farmers thus lost part of the additional income that would otherwise come to them from devaluation, though they have to pay the higher prices that a fall in the value of the Irish pound brings for imports of fertilisers and machinery.

Arrangements have recently been made for a reduction in the "reference rate" of the Irish pound in relation to the EEC unit of account without changing Its value for any other purpose (the so-called "green pound") but these are not within the present terms of reference. We are concerned with an all-round rise in the value of the Irish pound against sterling, other currencies and the unit of account.

For products covered by MCA, this would reduce the amount of the import grant and the export levy leaving producers largely unaffected.

Producers would gain by lower prices for imported fertilisers and machinery but they would lose in respect of income from products not subject to MCA.

If manufacturing industry pursued the pricing policies that it appears to have done in the past, the rise in the exchange rate would make

Irish exports more expensive in overseas markets with possible adverse effects in export volume, the growth of export industries and employment. Such effects would not, however, entail a net deterioration in Ireland's competitive position but merely a partial offset to the (relatively) lower domestic costs brought about by the better control of inflation. This would, of course, apply both to industry and agriculture. Finally, it should be noted that consumers as a whole would benefit from lower import prices; and that this might help to reduce inflationary expectations and so facilitate a further reduction in the inflation rate.

None of these effects of revaluation would be a heavy price to pay for a reduction in the inflation rate. More serious and much more difficult to predict, are the effects that might follow from a breaking of parity with sterling on the very close trading and financial ties between Ireland and the UK.

All transactions between the two countries would involve a foreign exchange calculation, if not an actual exchange of one currency against another, and the actual manpower cost of this would not be negligible. Some traders might still be willing to accept sterling notes and coin at a discount, but it is likely that they would soon cease to circulate; this would not necessarily cause any direct damage to Ireland, but it could well have some effect on the tourist trade. A new element of uncertainty would be introduced into both trading and financial transactions, though its effects could be mitigated by the development of a forward exchange market. Finally, access to the UK market without an exchange risk is a significant part of the attractiveness of Ireland to overseas industrialists from other countries as well as the UK, so that the breaking of the exchange link could have adverse effects on new industrial development.

If the UK were to maintain an inflation rate well above that of Ireland, it would probably be worth breaking the exchange link rather than suffering the domestic evils of a high rate of imported inflation, but this is not so at present. To make a strong case for a change it would be necessary for the Irish authorities to demonstrate their will and ability to control inflation by reducing their rate significantly below that of the UK and to have evidence that further progress was being prevented by

pressures originating overseas. Meanwhile, however, it would be desirable to have further studies to assess the effects more precisely and to consider how any adverse consequences might be minimised.

Indexation

The domestic ills arising from inflation that were discussed in the last section arise because legal and contractual obligations fixed in money are not adjusted to take account of changes in the value of money. Proposals for making such adjustments can be traced back at least to the 18th century and the recent rise in inflation rates has led to a revival of interest and to the coming of the ugly but convenient word "indexation". The most comprehensive system of adjustments so far adopted is in Brazil but some, e.g. cost-of-living bonuses in wage agreements, have been used in many countries including Ireland.

The main features of the proposals can be summarised as follows :[3]

Public sector

I. Pensions and other social security benefits should be linked to the cost-of-living index.

II. The exemption limit for personal income tax should be fixed not as a sum of money alone, but as a sum of money multiplied by the percentage change in a price index since the base period. A similar adjustment should be made for other figures at present fixed in money, e.g. the amounts of allowances for dependants and the points of change from lower to higher tax rates.

Iii. For capital gains taxes the purchase price of an asset should be adjusted for changes in the index between the dates of purchase and sale.

Iv. Depreciation allowances should also be adjusted, as indicated in Section IX, so that allowances deductible for tax

purposes would be sufficient to cover the replacement cost of fixed assets, and stocks should be valued at replacement cost at the time of use. (Broadly equivalent to the FIFO principle discussed in Section IX.)

v. Both interest payments and redemption values for all government securities except for very short-dated bonds or bills should be adjusted for changes in the index.

vi. Finally, long-term contracts and wage agreements in the public sector should contain similar provisions.

There are problems over the choice of an index and whether to use a single index for all purposes. If this is to be done, the consumer price index would be the most appropriate. However, since all the main index numbers move in the same direction, the use of any of them would remove a large part of the anomalies caused by changes in the value of money. It would, of course, be an essential part of the scheme that adjustments could be made downwards as well as upwards.

The private sector

The private sector could introduce provisions for adjustment to changes in the value of money if there was a general desire to do so, and few if any changes in the law would be needed. Among the things that should be encouraged are:

I. Fixed charge securities issued by companies should have both interest payments and redemption values index-linked.

II. Long-term contracts should include adjustment clauses.

III. Both deposits with and loans by savings banks, building societies and other financial institutions should be index-linked, except for very short-term transactions.

iv. Wage agreements should contain cost-of-living clauses.

These proposals go a lot further than any country, even Brazil, has yet done. Their aim is, of course, to take out the redistributive effects of inflation wherever possible. There are two major reasons for desiring this. First, it enables everyone to strike bargains in real terms, without having to worry about changes in the value of the money in which those bargains are expressed. Secondly, it enables distributional issues to be separated and treated on their merits. The redistribution brought about by inflation is, as has already been shown, highly arbitrary; some of it may be in directions that society as a whole would welcome; some is certainly not, and it is very difficult to sort out the one kind from the other. If society desires certain kinds of redistribution it is far better that they should come about as a result of deliberate decisions rather that as a side effect of inflation.

A number of objections have been raised to such policies some of them more well-founded than others. First, it has been argued that the payment of inflation adjustments would involve both the government and the private sector in heavy expense, but this seems to be based on a confusion between real and money payments. If the value of money falls, there is no real hardship involved in paying (and no real benefit in receiving) a correspondingly larger sum of money. Moreover, workers would be prepared to accept lower basic pay increases, and lenders lower interest rates if they knew that their real value would be guaranteed against inflation. The only real cost would be the work of recalculating payments from time to time and, though this would not be negligible, it would be small.

A point of rather more substance is that the proposed changes in government finance would reduce the apparent gain to the Exchequer from inflation, both by reducing the rise in revenue and increasing the rise in expenditure brought about by inflation. It would thus increase the probability that governments would have to raise tax rates in order to continue meeting a given volume of real commitments. However, if prices and incomes generally rise by X%, the government can take X% more in taxes without making the private sector any worse off. The raising of rates may be politically inconvenient, but it is better than the arbitrariness that, as shown in the last section, is involved in applying existing tax rules in a period of rapid inflation.

It has also been argued that indexation would lead to an acceleration of inflation, but this again is to mistake the symptom for the cause and to ignore the fact that people will be prepared to accept lower initial payments if they know that their real value is safeguarded. Indeed it is more likely that, by enabling bargains to be struck in real terms and so taking price expectations out of the bargaining process, indexation would directly help to reduce the rate of inflation.

Apart from this possibility, there are two main advantages from indexation; first, it would greatly reduce the distortions discussed in Section IX, in personal taxation, business finance, house purchase and capital markets and so make it easier to live with inflation. Secondly, it would greatly reduce the risk that monetary and fiscal policies designed to reduce inflation would precipitate a depression.

Depressions have followed periods of inflation in the past largely because firms are bound by commitments entered into in the expectation that prices would go on rising. Wage and salary bargains have been made on this assumption, and fixed charge capital has been raised at the high interest rates that go with inflation. When prices rise more slowly than expected (and still more when they actually fall) the real burden of these commitments becomes heavier than was expected; firms are forced to cut back unprofitable output and lay off employees; and in extreme cases they find that earnings will not cover outgoings on fixed charge capital, and so end up in bankruptcy. Indexation would operate downwards as well as upwards and so the inflation rate could come down without causing real burdens to exceed expectations.

A detailed discussion of indexation would be beyond the scope of this report, but one final point must be made. In itself, indexation cannot be a cure for inflation; it can reduce the cost of applying other cures and so might make them politically acceptable when they would not otherwise be so, but the real cure must be sought in the policies discussed in the next section.

There are, of course, problems including those of administrative costs and the choice of an appropriate index but the advantages of in-

dexation seem very substantial. It would be desirable that the Irish government should give urgent consideration to adopting indexation itself and to encouraging its use in the private sector.

Prices and incomes policies vs. monetary and fiscal measures

A detailed study of counter-inflation policies is outside our terms of reference, but we have been asked to give a broad indication of how we see the policy implications of our findings.

The main conclusion of Sections II to VI of this report was that the balance of probabilities is strongly in favour of a combination of excess demand and expectations as the generating forces behind domestic inflation in Ireland during the past fifteen years. Cost-push theories, despite their strong hold on public opinion, get only weak support from the evidence. The implication of this is that appropriate fiscal and monetary policies are necessary, and probably sufficient conditions for the control of inflation, though they would be helped, and the possibility of their producing harmful side effects would be much reduced, by indexation.

This invites the question, what are "appropriate monetary and fiscal policies"? In an ideal world, the answer would be policies that will keep the level of effective demand just sufficient to hold the actual level of unemployment equal to the natural one. This would still leave room for argument about the merits of particular policy instruments but, in the far from ideal world in which we live, we have to face two even more fundamental difficulties. First, we do not know what the natural rate of unemployment is and, secondly, the existence of inflationary expectations requires that demand should be kept somewhat below, and unemployment somewhat above, equilibrium levels until expectations have been modified.

The choice of policies must, therefore, be guided not only by their merits in an ideal world but by our judgement of their effectiveness in helping us to get from where we are towards the ideal. Our views on this are stated in a few rather bald propositions since to give them their full theoretical support would take a lengthy volume.

First, a monetary rule is likely to be more effective, as the primary instrument of counter-inflation policy than as a fiscal one. The objective should be to establish a trend rate of growth of the money stock at a rate approximately equal to the potential rate of growth of real output (say 4% or 5% a year) and to keep fluctuations around the trend to a minimum. Since experience has shown that violent changes in the rate of growth of the money stock are always disastrous, the movement towards the target growth rate should be gradual, but it should be announced beforehand and strictly adhered to. A period of five years might be appropriate so that, for example, a current rate of growth of 20% would be reduced by 3 percentage points a year.

The adoption of such a monetary rule would, itself, impose constraints on fiscal policy, since public spending would have to be confined to an amount that could be financed consistently with the permitted increase in the money stock. This implies that total domestic borrowing, public and private, would have to be no more than the permissible increase in the money stock plus the amount that savers were prepared to lend, by the purchase of securities of various kinds, other than through the banking system.

This could at times be a severe constraint but it would still leave a great many options open to the government. Within a given total expenditure it would still have unfettered choice between different programmes. It could spend more if it were prepared to tax more. It could borrow more either by the sale of securities to the non-bank public or from the banks if it were prepared to compete with its citizens for a larger share of a given total, accepting any rise in interest rates that might result. It could borrow from overseas if it were prepared to saddle future generations with the burden of debt (note that while the servicing of internal debt is only a transfer, the servicing of overseas debt is a net drain on the real resources of a community). Finally, and again within the constraints of the over-all total, the government could operate contra-cyclical policies, borrowing more when the private sector was borrowing less, and vice versa.

The evidence concerning the long-run stability of the demand for money in many countries with very different economic characteristics

leaves little doubt that any country that consistently followed this kind of policy would achieve a high degree of long-run price stability. The evidence on short-run variations in demand and on adjustment lags leaves little doubt that there would also be a lot of minor fluctuations both in output and prices. To some extent, the government could, as already noted, take offsetting action, but the policy advocated here would deprive it of some of the weapons in current use. Government would have to deny itself both direct increases in the money stock (e.g. by central bank open market operations) at more than the permissible rate, and fiscal policies that involved borrowing in excess of the limits outlined above. Whether or not this would involve an increase in the amplitude of short-term fluctuations is very doubtful. Because of the time lags involved, monetary policy is a very crude instrument for "fine tuning" and, in Britain at least, attempts to use it in this way have probably done more harm than good.

If Ireland were to behave in this way while other countries did not, it would find its inflation rate falling below those of its neighbours, and would experience the symptoms of imported inflation described in Section VIII. This is not to say that Ireland could not or should not continue to reduce its own inflation rate by adhering to its chosen domestic policies and allowing the Irish pound to appreciate. This is particularly important if other countries continue with policies that involve a continuing acceleration in their inflation rates. If Britain, for example, gets into a period of hyper-inflation, there is no reason why Ireland, just because its economy is small and open, should follow blindly over the precipice.

Finally a word should be said about timing. It would obviously be wrong to adopt new policies that would depress demand at a time when it was not excessive and when inflation was being sustained not by an unemployment rate below the natural one, but by expectations. It seems fairly clear that the Irish economy was passing through such a period in 1970, and it is probably entering one now. However, such periods do not, in past experience, last for long. One of the advantages of a monetary rule is that it "bites" harder when both income and output are rising. If output were stagnant or falling, the pressure from a slowing down of the rate of growth of the money stock by around 3 per cent a year would be very mild.

If excess demand is the cause of inflation, prices and incomes policies are neither sufficient nor necessary conditions for its cure, as they would be if the fundamental cause of inflation were "cost-push", but this does not mean that they have no useful rôle to play.

The recent Annual Report of the Central Bank of Ireland stated that, "Price control, as is obvious, can prevent only 'unjustified' price increases: those justified by increased cost of imports or of home products and services it can do nothing about."[3] An extreme monetarist would argue that if the total spending power of the community (in money terms) is restricted by appropriate monetary and fiscal policies, only "justified" price increases could be charged, so that price control is unnecessary; if, on the other hand, total spending power is not restricted, price control will be ineffective.

This would be true in a perfectly competitive world but the real world is not perfectly competitive and bodies such as the National Prices Commission have a useful rôle as a spur to efficiency and a watchdog for the public interest in a large number of areas, including the activities of state-sponsored companies, where competitive forces are not fully operative.

The rôle of incomes policies and "social contracts" is more doubtful. First, there is the purely practical problem of whether they can be made to work in a democratic society. The evidence considered in Section VII suggests that they have not been effective in Ireland in the past, and this is consistent with the experience of the UK and other countries.

Even if a "social contract" could be made to work, there is the question of what would be its rôle. One possibility is that it might reduce the expected rate of inflation and hence cause money wage increases to be smaller than they would otherwise have been. This, in turn, would enable the rise in prices to be slowed down by monetary and fiscal policy with less risk of making production unprofitable and increasing unemployment. However, this is essentially the function of indexation, which would probably do the job much more efficiently.

A second possibility is that a "social contract" might cause a leftward shift in the "Phillips curve", thus reducing the "natural" rate of unem-

ployment at which money wages would rise no faster than productivity, and price stability could be maintained. However, this does not seem plausible when we remember that the natural level of unemployment is that at which supply and demand are equal, and that both supply and demand depend on real wages. The level of unemployment at which supply and demand balance depends on such influences as the speed of structural change; the degree of labour mobility, and the extent of information about job opportunities, and these are not within the scope of incomes policies.

The usefulness of incomes policies and social contracts therefore appears very doubtful, but this is not to say that further experiment should be ruled out; this report has never claimed to establish certainties, but only to indicate where the balance of probability lies. However strong the probability that the source of inflation lies in excess demand, there is always the possibility that the "cost-push" hypothesis may be right and if that turned out to be so, incomes policies would have a much more positive rôle. Moreover, if they are pursued in association with the elimination of excess demand and with indexation, they are unlikely to do harm, and might possibly do some good. The real probability of harm arises if governments continue to regard incomes policies as substitutes for monetary and fiscal measures.

We must emphasise, however, that we are very far from attaching equal importance to the two types of policy. We believe that the balance of probability is very strongly on the side of the excess demand explanation and hence that the risk of harm from neglecting counter-inflationary monetary and fiscal policies is very much greater than that from neglecting prices and incomes policies. This is a view that still encounters great resistance from politicians, administrators and the general public, as well as from some economists. It involves a radical re-appraisal of thinking that has been current for a generation, but policies based on that thinking have failed not only to stop inflation but to prevent it from accelerating. It involves new policies attended by new risks; in the nature of things we cannot know the magnitude of these risks but there is some reason to believe that they have been exaggerated by misleading comparisons with the 1920's and 1930's. Against these unknown risks must be balanced the risk of continuing

with present policies. If inflation goes on accelerating it must inevitably lead sooner or later to a total breakdown of the monetary system. Experience of this kind of hyper-inflation has shown that it brings very heavy unemployment; the virtual cessation of organised economic activity; and social tensions so great that they are likely to break the kind of democratic system that Western Europe enjoys. A few years ago this would have seemed crazy scaremongering; now it is being taken very seriously indeed by a growing number of economists.

SECTION X: REFERENCES

1. *The Case for the Green Pound,* Irish Farmers' Association, 1974, mimeograph.
2. A concise summary and a good bibliography are to be found in Milton Friedman, *Monetary Correction,* Institute of Economic Affairs, 1974.
3. Central Bank of Ireland, *Annual Report,* 1973/74, page 7.

SECTION XI

SUMMARY AND CONCLUSIONS

This section gives a brief summary of our conclusions and recommendations. Inevitably, it omits the detailed analysis and many of the qualifications contained in the main body of the text. References to the sections and sub-sections in which these will be found are given in brackets.

Inflation has been a problem in the whole of the western world ever since the Second World War and Ireland has shared both in the general upward trend of prices and in its acceleration since 1968. A disturbing feature is that, over the period 1960/73, Ireland has had a distinctly higher inflation rate than the UK which, in turn, has had a higher rate than any other EEC country except Denmark; this tendency for Ireland to have a higher rate than other members of the Community has been particularly marked since 1968.

Inflationary pressures have been strongest in 1956/58, 1962, 1964/65 and 1968/73, and these years have received special attention.

The pace of inflation has also been different for different categories of goods. In particular, the prices of both imports and exports have risen much less than the average; retail prices have risen more than wholesale prices; and the prices of goods and services purchased by the public sector have risen most of all. This last feature may be partly explained by the high labour content of public expenditure on goods and services; but the size of the price rise shown in the National Income Accounts is disturbing and requires further investigation. (Section I.)

There is still a great deal of controversy among economists as to the cause of inflation, so our problem was approached by summarising the main theoretical hypotheses; indicating the type of evidence that would tend to support and to refute them; and then looking at that evidence in relation to Ireland. There are some difficult logical problems; some of the concepts involved cannot be measured directly; and statistical sources are often defective. It is not possible therefore, either in Ireland or elsewhere, to say that one hypothesis is right and all others can be ruled out; but it is possible to establish where the balance of probability lies.

Though there are many variations in detail, the great division of opinion is between those who believe that the generating force behind inflation is excess demand for goods and services arising from monetary and fiscal influences; and those who believe that it is the upward pressure on wages exerted by trade unions.

The most sophisticated and plausible of the excess demand theories relies on the combined effect of excess demand and expectations in labour markets. Both employers and employees are assumed to be interested in real wages (i.e. money wages adjusted for changes in the value of money) rather than in money wages. The higher are real wages, the more services employees will offer and the less employers will want to buy. Hence, there will be a real wage that will just balance supply and demand. Corresponding to this balance there will be a level of unemployment, depending on such things as the rapidity of structural change, the ease of movement from job to job and place to place, the availability of training and the extent of information about job opportunities. This rate of unemployment has been described as the "natural" rate for any community at any time, and it would allow real wages to rise through time at a rate equal to the growth of productivity, while the price level remained stable.

It is important to realise that the use of the term "natural" does not imply that the natural rate is something that is desirable or that cannot be changed, given time. It is simply the unemployment rate that is consistent with avoiding excess demand in the particular circumstances of an economy at a particular time. It can be reduced, over

a period of time by, for example, training facilities to provide skills of the kind most needed in rapidly expanding activities; measures to increase the geographical mobility of labour, e.g. by ensuring a good supply of rented housing; and by the spread of information about job opportunities.

If, starting from a position of balance between supply and demand, demand for final products were to increase owing to monetary or fiscal policies, employers would seek to meet this demand by hiring more labour, so that the demand for labour would exceed supply at the ruling real wage rate. Money wage rates would go up but the excess demand for goods would also raise prices, so that the rise in real wages that was expected both by employers and employees when they made their bargain, would not materialise. In subsequent bargaining, both sides would expect a rise in prices and allow for it, so that the increase in money wages would equal the increase in real wages for which the two sides were prepared to settle plus the expected rate of inflation. This rise in money wages would increase unit labour costs and lead to further price rises. In this way excess demand combined with expectations can generate a continuing inflationary process.

Two very important things would follow from this hypothesis if it were correct. First, the expectations effect can cause inflation to continue after a period of excess demand has passed. In order to cure inflation it would be necessary to pass through a period of sub-normal demand with unemployment above the natural rate, until expectations were revised. Secondly, there would not be a "trade-off" between a higher rate of inflation and a lower rate of unemployment for policy-makers to choose. The price of keeping unemployment below its natural rate would not be just inflation, but continually accelerating inflation. (Section II. C. 1.)

This is what appears to have been happening; since the end of the 1950s the rate of increase of consumer prices has trebled about every six years. For 1959/61 it averaged 1% a year; for 1965/7, 3·7%; and the average for 1972/4 is likely to be over 13%. If this trend is extrapolated it gives increases of over 40% a year by the end of the decade

and over 100% a year by the mid-1980s. At this rate an economy would be perilously near the point of breakdown into hyper-inflation. As knowledge of inflationary forces grows it seems increasingly likely that this is the prospect that Ireland, along with many other countries, will have to face unless effective action is taken.

Cost-push theories are superficially much simpler and easier to understand, and, perhaps for this reason, they have secured a strong hold on public opinion; but they have a number of logical weaknesses. If unions have in fact secured an increase in monopoly power, one would expect the real incomes of their members to rise relative to the rest of the community, but changes in relative incomes can and do take place without inflation. To make monopoly power into a theory of inflation one has to assume that both unions and employers behave in ways that are not rational, in the sense of maximising their own incomes. However, it is not safe to assume that human beings always behave rationally and the only way of testing "cost-push" hypotheses is to confront them with the evidence. (Section II. B.)

It is not possible to say *a priori* what is the natural level of unemployment in any place and time or to measure excess demand directly, and we can only rely on indirect indicators. One of the problems encountered was that some important indicators including national income accounts, wage rates and earnings are available only once a year; statistics of wage rates do not refer to a single date but to "early months of the year"; and figures of vacancies are very suspect. It is not sensible for a small community to spend too much money and manpower on gathering figures, but improvements to these very important indicators would be desirable.

It is sometimes argued that the relatively high unemployment rate experienced by Ireland is strong evidence against the existence of excess demand. However, there are several features of the Irish economy that make for a relatively high natural rate. These include the high rate of exodus of workers from agriculture; the large number of unskilled workers among the unemployed; the sparse population and limited job opportunities in many areas outside Dublin; and the high

proportion of their normal earnings that many workers can draw for up to twelve months from a combination of social security and redundancy payments. (Section IV. 2.)

When allowance is made for these things the evidence of the unemployment rate does not seem by any means conclusive and a number of other indicators were considered including: the rate of growth of national income; industrial production and employment; the relationship between wages and earnings; evidence on capacity utilisation and on stocks of materials and final products provided by the CII/ESRI quarterly industrial surveys; and the trade balance. (Section IV. 3—9.)

These indicators do not always tell precisely the same story, but there is enough unanimity among them to establish certain conclusions with a very high degree of probability. There is no reason at all to believe that excess demand existed during the period of rapid inflation of 1956/58. There is very strong evidence for its existence in 1962, 1964/65, 1968/69 and 1973. There was probably no excess demand in 1970 and there is not much evidence of it in 1971/72, but neither is there evidence of the kind of deficiency that might have forced a revision of expectations generated in 1968/69. The continuation of high rates of inflation during these years is thus quite consistent with the version of the excess demand hypothesis outlined above. (Section IV. 10.)

The next step was to look for the sources of increasing, and possibly excessive, demand, and we did not have far to seek. There has been a very strong upward trend in public expenditure both on goods and services and transfer payments, and in capital formation both public and private. (Section V. 2 and 3.) The growth of public expenditure has accelerated sharply since the mid-1960s and, with an increasing borrowing requirement and a disappointing inflow of funds from personal saving, increasing amounts were borrowed from the banking system and from overseas. (Section V. 6 and 7.) The periods for which our indicators suggest the presence of excess demand were generally marked by increases both in public expenditure and in private investment. There has been no systematic tendency for fluctuations in public

expenditure to offset those in private investment; on the contrary the two seem generally to have reinforced one another during periods of high inflation. (Section V. 3.)

There has also been a strong upward trend in consumer spending, but the behaviour of the savings ratio indicates that consumer spending was not an independent cause of an expansion of demand, but a consequence of higher incomes generated by expansion in other sectors. (Section V. 5.)

The main cause of excess demand, when it has existed, has been the rise in public spending and the way in which it has been financed, though private investment in plant and machinery and in housing have both made a contribution.

Monetary policy has generally played a permissive rôle. The monetary authorities have not made aggressive attempts to expand the money supply, and its rate of growth has been relatively low compared to most other EEC countries. The actions of the Central Bank of Ireland have been constrained both by the closeness of financial ties with the UK and by the financial needs of government, but it does not appear to have made very determined efforts to pursue anti-inflationary policies. Interest rates have deliberately been kept rather below those of the UK and, when allowance is made for inflation, real rates have generally been very low and sometimes negative. Moreover, in periods of rapid inflation the banking system has been able to extend large amounts of credit both to the public and the private sector, and there has been a rapid expansion of the money supply. (Section V. 1.)

Turning to the cost-push hypothesis, there is no doubt that union membership has increased but this appears to have been largely due to the extension of union activity into new areas, including white-collar workers. There is some association between the size of wage increases and both the number of disputes and the number of man-days lost, but it is not very strong. (Section VII. 2.) The influence of the concentration of bargaining into successive "wage rounds" has affected the timing of movements in basic wage rates, but this has been largely offset by the fact that the difference between basic rates

and actual earnings (wage drift) has widened in the intervals between rounds, so that the time path of earnings has been much smoother than that of rates. Since it is mainly wage rates that are the subject of collective bargaining, this fact tells against the union militancy hypothesis. (Section VII. 3.)

"Wage leadership" which is sometimes said to be an important feature of Irish wage negotiations could only become a cause of cost inflation if there was a lot of rigidity in relative wages so that the movements of the leader were quickly and generally followed. In order to test whether this is so the pattern of earnings in different occupations and also changes in relative wage rates were examined. The sample studied was, necessarily, small and further work would be useful, but it suggests that there is considerable variety in earnings patterns between different industries and that substantial changes in relative wage rates have occurred. (Section VII. 4.)

Finally, we looked at the relationship between wage rates as shown by the official index and those agreed in successive wage rounds. The evidence is imperfect and, since the 1974 wage index was not available, it was not possible to measure the effectiveness of the 1970 and 1972 national agreements. In general, however, it appears that increases in wage rates recorded by the index were bigger than those attributed, by the trade union movement itself, to successive wage rounds, while increases in earnings were bigger still. Again this suggests that the real driving power causing increases in labour costs was market forces other than union militancy, and that the unions were going along with market forces rather than acting as independent engines of inflation. (Section VII. 3.)

We next considered how far inflation in Ireland can be attributed to domestic influences and how far it has been imported. Input-output analysis of the kind conducted by the Central Bank of Ireland shows that the direct contribution to inflation made by the rising costs of imports is generally small. However, this is by no means the whole story. A country that has a lower inflation rate than its neighbours may develop a balance-of-payments surplus, which would add to domestic demand and might give rise to further inflation. Alternatively a rise in

foreign prices may directly affect the prices of domestic goods that compete with foreign goods either in home or export markets. (Section VIII. 2.)

There is no evidence that Ireland imported inflation through a balance-of-payments surplus, except in 1956/58. Neither is there evidence of direct price effects; if inflation was being imported in this way we should expect to find the prices of both imports and exports rising faster than the general price level; in fact, the opposite is the case and both import and export price index numbers show much smaller rises than the more general series. The fact that there is so little evidence of inflation having been imported does not, of course, mean that Ireland's inflation rate is independent of that of the rest of the world; but merely that Irish domestic policies were generating price rises at a rate rather faster than those of its neighbours. A small country operating a fixed exchange rate must be subject to very strong external influences; and had domestic policies been less inflationary there is no doubt that evidence of imported Inflation would have been stronger. (Section VIII. 2 and 3.)

A further possibility is that imports of capital may contribute to inflation, either directly by adding to demand or indirectly by adding to the money supply. There is some evidence of both these effects but we were not able to look at this very complex matter in detail and it is an important area where further work is recommended. (Section VIII. 5.)

In considering the effects of inflation, domestic effects and effects on international trade and tourism were distinguished. There is some evidence that Individual Industries have suffered from overseas competition, but not of a general decline In competitiveness. The ratio of both exports and imports to GDP shows a marked rise, but exports appear to have remained competitive. There has been a substantial rise in the share of imports in the home market for goods both produced at home and Imported, but this has been more than matched by the growth of exports by the same group of industries, so that the net export position of the group as a whole has Improved. Two qualifications need to be made; first it is not surprising that we should find little evidence of a loss of competitiveness since Inflation rates elsewhere have been only

a little below those of Ireland; and secondly the performance of competitive industries would probably have been better both in home and export market if the Irish inflation rate had been lower. (Section IX. B.)

Ireland has been largely sheltered from the external consequences of its own inflation by the inflation of others, but no such shelter is possible from the domestic consequences, and these are very serious.

We were specially asked for views on the ellect of inflation on government revenue. There are big differences between different taxes in the way in which their yield at given rates is affected by inflation. It seems likely that the structure of the Irish tax system makes the total revenue from given tax rates less buoyant in relation to inflation than that of some other countries. This means that the government may find itself having to raise tax rates in circumstances where it would not have needed to do so if the tax structure had been different. While this may be politically inconvenient it is not a major economic or social evil of Inflation; if prices and money incomes rise generally by X%, the goveernment can take X% more in tax without making the private sector any worse off, and the way in which this is done is a secondary matter. (Section IX. A. 2.)

The real evils of inflation are its arbitrary effect on the distribution of income; the difficulties that it creates for business finance; the discouragement of saving; and the incentive to those who do save to put their money to socially less desirable uses. All these effects increase in severity more than in proportion to the rate of inflation; if prices continue to rise at the pace of 1972/74 it is no exaggeration to say that they would within a few years become so serious as to threaten the very fabric of a democratic economic system. (Section IX. A. 1, 3 and 4.)

The damage done by these side effects of inflation could be greatly reduced by linking the amount of money payments due both between government and the private sector and under private contracts to a price index number. "Indexation" would not only make it easier to llve with inflation but would also greatly reduce the risk that effective anti-inflationary pollcies would generate a depression. We would strongly

recommend that the Irish authorities give urgent consideration to adopting indexation itself, and to encouraging its use in the private sector (Section X. 3.)

However, indexation cannot cure inflation. The nature of the ultimate cure depends upon the diagnosis. Those who believe that inflation is caused by union militancy believe, quite logically, that the remedy lies in prices and incomes policies. This report has argued that the balance of probability is heavily against this hypothesis and in favour of the one that explains inflation by a combination of excess demand and expectations. The only logical conclusion from this is that any policies likely to succeed must involve elimination of excess demand and the modification of expectations. (Section X. 4.)

The details of these policies are not within our terms of reference, but our general views are sketched in Section X. 4. We believe that the primary measure should be a monetary rule that would be announced beforehand and would ensure that the rate of growth of the money stock would be gradually reduced (over a period of about five years) to about 4% or 5% a year, and then held there with the least possible deviation. This would involve a reduction of government borrowing from the banking system and a limitation of total public expenditure to a level that could be financed either by taxation or by borrowing that could be done without raising the money stock at more than the permissible rate. In some circumstances the expansion of public spending would imply competition for funds with the private sector which would be likely to raise interest rates. Nevertheless there would still be many options open to government including that of adopting contra-cyclical policies by raising its own borrowing when that of the private sector declined. (Section X. 4.)

In circumstances where bargains are dominated by expectations, the breaking of an inflationary sequence is likely to involve a period of relatively low growth and relatively high unemployment, and too little is known about the length or severity of this transition period. There is reason to believe that the risk has been exaggerated by misleading comparisons with the 1920's and 1930's. Nevertheless it is a risk that no one wants to take and if it could be avoided by tolerating continued

inflation at a given rate (even if the rate were quite high) there would be much to be said for doing so. Unfortunately there is now very strong evidence that the price is not continuing inflation but continually accelerating inflation, and that would be even more destructive than a period of stagnation or recession. (Sections II. C. 1, IX introduction and X. 4.)

Expectations could, however, be largely taken out of the bargaining process by a general adoption of index-linking, and this would both reduce the likelihood of having to endure a long recession while expectations became slowly adjusted, and the possibility that recession might turn into severe depression. (Section X. 3.)

The elimination of excess demand would require, other things being equal, an unemployment rate higher than that which has prevailed at some times in the past; but the "natural" rate of unemployment, at which demand and supply in the labour market are equal, can be influenced by appropriate policies including improvements in training facilities for skilled jobs, better information about job opportunities and regional policies. It is by such policies, not by the generation of excess demand, that the unemployment rate can be reduced in the long run.

Whatever domestic policies the Irish government were to pursue, it could not expect to maintain an inflation rate much lower than that of other European countries, and especially the UK, so long as there is a fixed exchange rate with sterling. If the Irish pound were allowed to float, and if Ireland were more successful in fighting inflation than other countries, the pound would tend to appreciate against other currencies. This would not be harmful and would have some beneficial effects, but the breaking of the link with sterling would impose additional costs and create additional uncertainties in transactions between the two countries. There seems to be no case for doing this unless the Irish inflation rate falls below that of the UK and there is evidence that a further fall is being impeded by external pressures. In case such a situation should arise, however, it would be desirable that the technical problems of a floating Irish pound should be thoroughly explored. (Section VIII. 7.)

If an excess demand/expectations explanation of inflation is accepted, it follows that prices and incomes policies cannot be expected to

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play a major rôle. Some degree of supervision over prices is desirable to protect the public interest in areas, including the activities of state and semi-state bodies, that are sheltered from competition. The usefulness of incomes policies and "social contracts" is much more doubtful. They cannot influence the natural rate of unemployment, and any effect they may achieve through expectations could probably be better done by indexation. It can be argued that continued experiment with such policies is worth while in case the cost-push hypothesis turned out to be right, even if the chance of this is regarded as remote. Such policies can do no harm if pursued along with appropriate monetary and fiscal policies, but they are likely to do grave harm if they continue to be regarded as substitutes for such policies.

APPENDIX: CONSUMER PRICE INDEX NUMBERS IN IRELAND AND THE UK

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Introduction

In this section three numerical checks on the Consumer Price Index are undertaken in an attempt to answer the following:

—Is the faster rise in the Irish Consumer Price Index than the UK equivalent, in the period 1968/1973, due to differences in weighting patterns between the two countries?

—How does the level of indirect taxes on consumer prices compare between Ireland and the UK?

—What precisely is the indirect tax content of the Irish Consumer Price Index in 1973 compared with 1968?

(i) The effect on the Irish Consumer Price Index of applying UK group weights to the Irish group indexes.

The Irish Consumer Price Index is calculated using 1968 Expenditure weights which in turn were determined almost entirely on the results of the Household Budget Inquiry conducted by the Central Statistics Office during 1965/66. In the United Kingdom, on the other hand, new weights are calculated annually so that the 1973 Retail Price Index, for example,

employed weights based on the Family Expenditure Surveys during the three years ending in the preceding June. The table below gives the group weights used in the two countries in calculating the published 1973 Consumer Price Indexes.

Group	Irish weights	UK weights	Irish minus UK weights
All items	100	100	—
Food		24·8	
Meals bought and consumed outside the home	32·4	4·6	+7·6
Alcoholic drink	8·7	7·3	+1·4
Tobacco	7·0	4·9	+2·1
Housing	6·9	12·6	−5·7
Fuel and light	5·5	5·8	−0·3
Durable household goods	4·0	5·8	−1·8
Clothing and footwear	8·8	8·9	−0·1
Transport and vehicles	10·2	13·5	−3·3
Miscellaneous goods	4·9	6·5	−1·6
Services	11·6	5·3	+6·3

Notably, Food and Services have higher weightings in Ireland, and their prices rose 10% more than in the UK over the period 1968/1973. One might therefore suggest that if UK weights had been used in the compilation of the Irish "All Items" index, the results for the two countries would be somewhat closer.

To test this we applied the 1973 UK weights to the Irish group prices for 1973, and carried out the same procedure for 1972. We also applied the UK 1968 weights. In order for the operation to be theoretically valid, the UK weights 1973 and 1972 which are expressed at current prices had to be recalculated to November 1968 prices, that is to the base period of the Irish Indexes.

We are effectively converting a base-weighted index to an end-weighted index, namely to a Paasche Index. If the 1973 weights for the UK are expressed at prices of the Irish base period (Nov. 1968) and are

then multiplied by the Irish group indexes we obtain a Paasche Index.[1] There is one assumption which this method implies: UK 1968 prices have to be used for revaluing the weights, so we are assuming that relative prices of goods in Ireland and the UK in 1968 were identical. We have no means of checking that this is the case.

The last three columns of the following table give the weights in our calculations:

Group	U.K. weights as published at current (January) prices			U.K. weights adjusted to Nov. 1968 prices	
	1973	1972	1968	1973	1972
All Items	100	100	100	100	100
Food	24·8	25·1	26·3	23·0	23·8
Meals bought and consumed outside the home	4·6	4·6	4·1	4·2	4·3
Alcoholic Drink	7·3	6·6	6·3	7·7	6·8
Tobacco	4·9	5·3	6·6	5·9	6·0
Housing	12·6	12·1	12·1	11·9	12·2
Fuel and Light	5·8	6·0	6·2	6·1	6·2
Durable Household Goods	5·8	5·8	5·9	6·2	6·0
Clothing and Footwear	8·9	8·9	8·9	9·4	9·4
Transport and Vehicles	13·5	13·9	12·0	13·8	13·9
Miscellaneous goods	6·5	6·5	6·0	6·6	6·3
Services	5·3	5·2	5·6	5·2	5·1

1. The 1973 UK weights for each group g as they stand can be written:

$$\frac{P_{73}Q_{73}}{\Sigma_g P_{73}Q_{73}} \times 100$$

Express these at 1968 prices and scale down to 100 gives for each group:

$$\frac{P_{73}Q_{73}}{\Sigma_g P_{73}Q_{73}} \times 100 \times \frac{P_{68}}{P_{73}} \Big/ \Sigma_g \left\{ \frac{P_{68}Q_{73}}{\Sigma_g P_{73}Q_{73}} \right\}$$

$$\text{gives } \frac{P_{68}Q_{73}}{\Sigma_g P_{68}Q_{73}} \times 100$$

Using these weights to multiply the Irish group indexes (denoted, $\frac{P^1_{73}}{P^1_{68}}$) and summing, gives

$$\Sigma_g \left(\frac{P_{68}Q_{73}}{\Sigma_g P_{68}Q_{73}} \times 100 \times \frac{P^1_{73}}{P^1_{68}} \right) = \frac{\Sigma_g P_{73}Q_{73}}{\Sigma_g P_{68}Q_{73}}$$ i.e. a Paasche index

The results of applying these weights show that the Irish price indexes are barely affected, at most there is a difference of 1 index unit. The results for 1972 are above and for 1973 are below the published index. Obviously, the application of 1968 group weights[1] makes even less impression. Detailed results are as follows:

Irish Consumer Price Index with different weighting patterns applied

Year and quarter	Index as published	Index using current UK group weights	Index using 1968 UK group weights
1968 Nov.	100	100	100
1972 February	131·5	132·3	132·1
May	133·5	134·2	134·0
August	137·2	137·9	137·9
November	139·2	140·2	140·0
1973 February	144·7	144·3	145·1
May	149·1	148·4	149·4
August	152·6	151·8	152·0
November	156·8	156·2	156·9

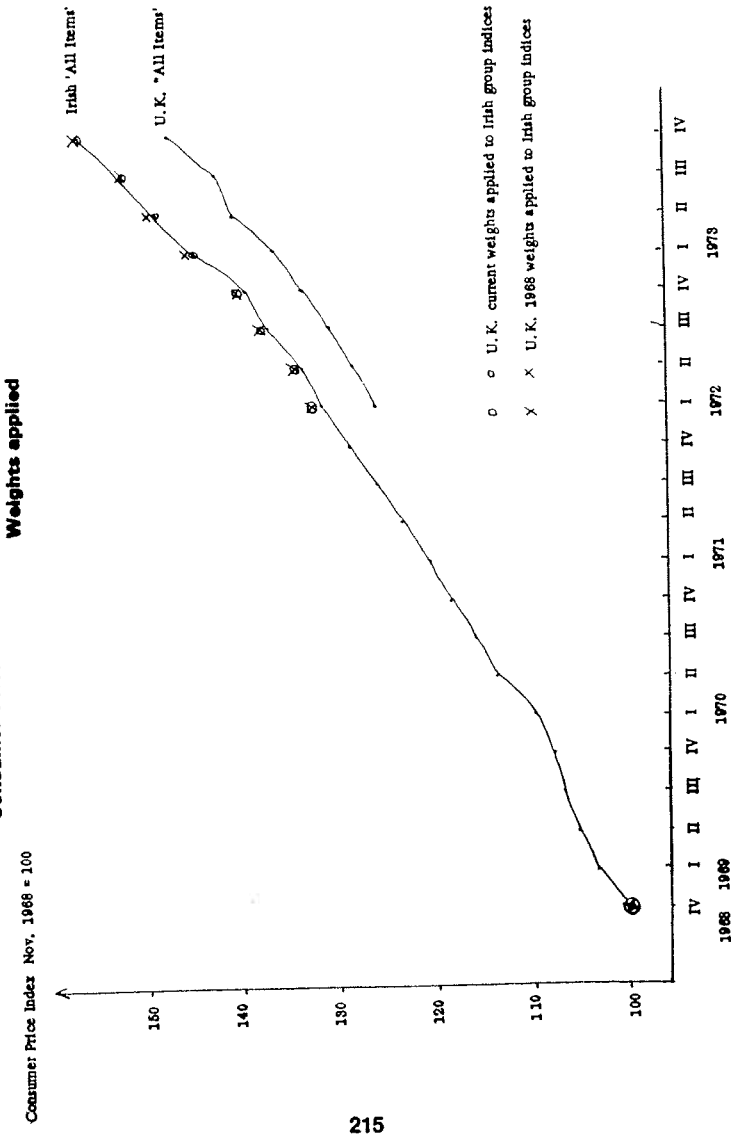
The graph below shows how the indexes for the two countries are not brought significantly closer together.

We can therefore conclude that over the period from 1968 to 1973, the divergence between the price indices in Ireland and the UK is not caused by the different weighting patterns in the two countries.[2] On this basis the Irish price index as presently calculated is a very stable statistic.

1. Strictly speaking the UK 1968 weights which are at January 1968 prices should have been adjusted to November 1968 prices. However the data available to us does not enable us to work to a sufficient number of decimal places for this to have any effect.

2. However, CSO state that applying U.K. individual *item* weights may have more effect.

Consumer Price Indexes for UK and Ireland as Published and with UK Weights applied



(ii) **The proportion of Irish and UK consumer prices that can be accounted for by indirect taxes.**

There is no published information relating to the indirect tax content of consumer prices in Ireland that is comparable with data for the UK. Estimates for Ireland have been made by Baker and Neary[1] who state that:

> "In February 1958 indirect taxes accounted for 8·5% of the consumer price index, and in November 1968 indirect taxes accounted for 12·7% of the consumer price index, an increase of almost 50% in less than 11 years."

As far as we are aware, no similar estimates have been made for the UK. However, a fairly close substitute might be the UK figures for "Taxes on Expenditure and subsidies allocated to consumers' expenditure".[2] This is an annual series which is not produced in Ireland and which would be difficult to construct. The difficulty would lie in trying to identify what part of the revenue from an expenditure tax related to consumer expenditure as opposed to capital, public authorities or business expenditure. The UK figures give 14·5% and 17·2% respectively, an increase of under 19% over the same 1958/1968 period. This, however, applies to taxes *less* subsidies. Not subtracting subsidies, in order to conform with the figures for Ireland yields 16·9% and 19·7% respectively, a rise of under 17% over the period 1958/1968. While this indicates a slower rise in the UK, we must be aware that these calculations do not measure the same thing. The Irish calculations refer to a fixed basket of goods. The UK figures refer to total consumer expenditure. So the difference in the rise of taxes between the two countries could result from a UK trend towards consuming a relatively larger quantity of low taxed goods, e.g. food, fuel, and relatively less high taxed goods, e.g. Drink, Tobacco, Cars. The weights for the UK retail Price Index do not bear this out very strongly. In any case they refer to expenditure while it is quantities bought which are relevant here. However, neither do the indexes of volume of retail sales nor figures for consumer expenditure at constant prices provide any supporting evi-

1. T. J. Baker and P. Neary "Study of Consumer Prices", Quarterly Economic Commentary, March 1971, ESRI.

2. HMSO National Income and Expenditure.

dence of the existence of such a trend. So we are unable to explain away the sizeable difference between the UK and Irish figures for the rise in the content.

An alternative approach is to use published figures that are close to what we require and are comparable between the two countries, namely, the revenue from total taxes on expenditure, and then to examine these as a proportion of personal expenditure.[1] Results for 1953 to 1972 are given in the table overleaf. Whether one takes total taxes on expenditure, total taxes on expenditure less subsidies or a combination of Customs, Excise, Rates, Motor Vehicle Duties, Turnover Tax and Value Added Tax, the rise in the proportion is generally more pronounced in the case of Ireland. Notably, if for Ireland we take the last combination of taxes excluding customs, we find these revenues double as a proportion of personal expenditure over the 1953-1972 period. These indicators, however, can only be tentative as we have no estimates of how the proportion of these taxes paid by businesses, etc., varied over the period. We cannot tell if these taxes were ultimately paid for by the consumer.[2]

The evidence from these revenue figures is not very strong. However, at least it is consistent with the stronger evidence from the results of Baker & Neary and from the UK figures for taxes allocated to consumers' expenditure. We can only conclude that it is likely that the proportion of consumer prices, that can be accounted for by indirect taxes, has risen faster in Ireland than in the UK during the 1958-1968 period.

(iii) **The indirect tax content of the Consumer Price Index in November 1973 compared with November 1968.**

The method employed was to apply the relevant tax rate to every item in the detailed list of November 1968 expenditure weights used in

[1]Unfortunately even these figures are not truly comparable as the Irish figures for the revenue are based on the financial year, for personal expenditure on the calendar year. UK figures for both series are based on the calendar year. This will give an upward bias to the Irish figures for tax as a proportion of personal expenditure.

[2]Though Baker and Neary found evidence of Turnover Tax Changes being 100% passed on to the consumer.

Tax revenues as a percentage of consumers' expenditure

	UK			IRELAND		
	Total Taxes on expenditure	Total Taxes on expenditure less subsidies	Customs and Excise +Rates + Motor Vehicle Duties	Total Taxes on expenditure	Total Taxes on expenditure less subsidies	Customs and Excise +TOT + VAT + Rates + Motor Vehicle Duties
1953	20·8	17·6	20·1	20·2	16·7	19·3
1954	20·5	17·0	19·7	20·1	16·2	19·2
1955	20·1	17·4	19·3	19·4	15·5	18·5
1956	20·6	17·9	19·9	21·2	17·2	20·3
1957	20·4	17·6	19·7	21·6	18·0	20·6
1958	19·9	17·3	19·2	21·4	18·1	20·0
1959	19·8	17·4	19·1	22·2	18·6	20·9
1960	20·1	17·4	19·4	21·2	16·9	20·1
1961	20·3	17·0	19·7	21·9	16·3	20·9
1962	20·5	17·3	19·9	20·9	16·0	19·9
1963	20·0	17·2	19·5	21·6	16·9	20·6
1964	20·6	18·2	20·1	23·0	18·0	22·0
1965	21·7	19·2	21·4	23·8	18·3	22·9
1966	22·4	20·0	21·7	25·5	19·7	24·3[2]
1967	23·6	20·4	21·6	26·3	19·6	24·4
1968	24·9	21·6	22·6	26·1	19·5	24·0
1969	26·9	23·9	23·7	27·6	20·7	24·6
1970	26·9	24·2	23·6	28·6	21·5	25·5
1971	25·3	22·7	22·7	29·4	22·4	26·0
1972	23·6	20·7	21·7	29·8	23·1	26·8

[1]Irish Tax Revenue figures are based on the financial year, remaining figures on calendar years.

[2]Wholesale tax introduced in 1966, adds on up to 2·4 percentage points, not included here.

the construction of the Consumer Price Index. For the ad valorem taxes this simply involved applying the rates to the relevant weights: in 1968 Turnover Tax was at 2·5% of the retail price. Wholesale Tax was at 5% of the wholesale price (which is in the range 4·4% to 3·5% of the retail price for a retail margin in the range of 10% to 30%). We used a rate of 4% and assumed wholesale tax to be 60% passed on.[1] Otherwise we assumed 100% passing on of indirect taxes. In November 1973 Value Added Tax rates were 6·75%, 19·5% and 36·75% of the pre-tax retail price of goods and services amounting to 56% of expenditure covered by the index. In the case of Excise Duties, we obtained rates per unit and retail prices per unit[2] for each item to which Excise Duties are applicable, for both dates. This enabled a rate per retail price to be calculated which could then be applied for both dates to the expenditure weights.

These calculations gave the amount of indirect taxes paid by consumers per £100 spent in 1968 and 1973 assuming an identical *expenditure* pattern in the two years, e.g. assuming expenditure on Alcoholic Drink to be 8·7% of total expenditure in both years. Applying the group price rises to the group weights gives the amounts (totalling £156·8, this is the All Items Index for November 1973) that would have to be spent in November 1973 to obtain the same quantities of goods. Multiplying these amounts by the 1973 tax rates gives the taxes paid (per £156·8 spent) in obtaining this same quantity of goods in 1973 as in 1968.

The results are shown in the table overleaf expressed as taxes paid per £100 spent. Omitted from the exercise are estimates of the rise in rates on housing and motor car taxation. These items would be difficult to obtain and their expenditure weights are fortunately small, being 3·4897% for rates, combined with rent and 0·5767% for car tax.

The first and third columns of the table in fact show the tax content of the Consumer Price Index. As such the third column rather than the

1 Following Baker and Neary, p. 26.

2 From data kindly made available by the office of Revenue Commissioners and Central Statistics Office, Prices Section, respectively.

second is the more readily grasped measure for 1973 as it gives the percentage tax content on the same basket of goods as bought in 1968. Zero price elasticity of demand is assumed if the same quantity of goods is bought. The second column assumes the same expenditure pattern as 1968 which is more akin to a constant non-zero price elasticity of demand. The true picture of consumer behaviour probably lies somewhere in between the two.

Looking now at some of the taxes in detail: it may be surprising to find a decrease in the Excise Duty content. This is caused by a decrease in the proportion of the retail price accounted for by duty. Coupling this with the slower price rise of dutiable goods compared with the price rise of goods on which there is no duty, gives a smaller proportion of total expenditure on dutiable items. These two factors cause the percentage excise duty content to fall from 10·6% in November 1968 to 8·1% in 1973. Turnover Tax and Wholesale Tax combined accounted for 2·5% in November 1968. These were replaced by Value Added Tax which accounted for 4·8% in November 1973.

Breakdown of the amount of consumer expenditure that goes to indirect taxes in 1968 and 1973 (based on the consumer price index weights).

TAX	Out of £100 spent in		
	November 1968	November 1973	
		Assuming 1968 expenditure pattern	Assuming 1968[1] quantity pattern
Turnover Tax	2·1	—	—
Wholesale Tax[2]	0·3	—	—
Value Added Tax		4·8	4·8
Excise Duty	10·6	9·7	8·1
Total	12·9	14·5	12·9
Increase on 1968	—	12%	0%

1. This column gives the tax content of the Consumer Price Index. Price changes had to be incorporated in the calculations; these were used at the group level and not at the individual item level.

2. Assumes 60% of Wholesale Tax is passed on, following Baker and Neary.

These results show a rather small rise of between 0% and 12% in the tax content of consumer spending over the five-year period. This is in contrast with the nearly 50% rise over the period February 1958 to November 1968 estimated by Baker and Neary.[1] It may also appear on first inspection to be at variance with National Accounts which show combined Turnover Tax, Wholesale Tax, Excise Tax, and later, Value Added Tax rising from 11·03% to 14·1% of personal expenditure over the period 1968/1972, a rise of nearly 29%. However, apart from their upward bias mentioned above and the fact that they do not measure the same thing, they also do not take account of the changes in Value Added Tax structure which came into effect on 3rd September 1973 and which, in particular, exempted food. There may be another reason that the National Accounts figures give a larger rise: the introduction of Value Added Tax was supposed to yield about the same amount of revenue as Turnover and Wholesale Taxes combined. In the outcome, in the last complete financial year of Turnover and Wholesale Taxes their yield was £80 million. The following year, during nearly half of which VAT was in operation, the revenue from Turnover, Wholesale and Value Added Taxes was £101 million, a rise of about 25%. About a 5% increase was expected; the remaining increase is explained by the Revenue Comissioners as being largely due to the curtailment of tax evasion. A new element is thus introduced to our examination, and the tax content in November 1968 given in the table should now be described as what *should* have been paid in taxes, which may be an overstatement of what was actually paid. The total could possibly be reduced by a few decimal points, having the effect of raising the 1973 increase over 1968.

As a final check on our results we can compare them with figures[2] given by the Central Bank for what they term the contribution of indirect taxes less subsidies to the increase in Consumer Prices for the period 1968/1973. Using our figures, it emerges that the percentage of the price rise that is an increase in taxes paid is between 17·3% and

1. Their tax content of 12·7% for November 1968 compares favourably with our 12·9% considering that their figure is based on the 1953 expenditure weights.

2. Central Bank of Ireland, Quarterly Bulletin, 1, 1974, p. 24, Table 2.

12·9%[1], assuming same expenditure and quantity patterns respectively. The Central Bank figures expressed over the 1968/1973 period give 16·5%, which falls within our range and would indicate that our results are probably consistent with theirs, though obtained in a different way.

One can reasonably conclude that the rise in the tax content of the Consumer Price Index over 1968/1973, if not negligible, has certainly been at a lower rate than over the period 1958 to 1968. Having no information on the extent of tax evasion our best estimate of the indirect tax content of £100 spent in November 1973 is between £12·9 and £14·5, a rise of between 0% and 10% on November 1968.

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1. This is $\frac{\triangle \text{Taxes Paid}}{\triangle \text{Price}}$ for the period 1968–1973.
An ad valorem tax on retail prices of X%, even if constant at this rate, will "contribute" X% to a rise in retail prices.