THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

QUARTERLY ECONOMIC COMMENTARY

by T. J. BAKER and J. DURKAN

December, 1969

4 BURLINGTON ROAD DUBLIN 4

THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

COUNCIL 1969-70

*G. O'BRIEN, D.LITT., LITT.D., President of the Institute. T. J. BARRINGTON, Director, Institute of Public Administration. *J. P. BEDDY, D.ECON.SC., LL.D. (H.C.) Chairman, The Industrial Credit Co. Ltd. R. D. C. BLACK, PH.D., Professor, Department of Economics, The Queen's University, Belfast. *F. B. CHUBB, M.A., D.PHIL., Professor, Department of Political Science, Trinity College, Dublin. VERY REV. D. CREGAN, C.M., President, St. Patrick's Training College, Drumcondra, Dublin. G. DEAN, M.D., F.R.C.P., Director, Medico-Social Research Board. REV. PETER DEMPSEY, O.F.M.CAP., M.A., PH.D., D.D., Professor, Department of Applied Psychology, University College, Cork. *M. P. FOGARTY, M.A., D.POL.SOC.SC. (Louvain), Director of the Institute. N. J. GIBSON, B.SC. (ECON.), PH.D., Professor, Department of Economics, New University of Ulster, Coleraine. *W. A. HONOHAN, M.A., F.I.A., Secretary, Department of Social Welfare. *REV. JAMES KAVANAGH, M.A., S.T.L., Professor, Department of Social Science, University College, Dublin. IVOR KENNY, M.A., Director, Irish Management Institute. T. P. LINEHAN, B.E., B.SC., Director, Central Statistics Office. P. LYNCH, M.A., Chairman, Medico-Social Research Board. CHARLES MCCARTHY, B.L., Chairman, Human Sciences Committee. *M. D. MCCARTHY, M.A., PH.D., President, University College, Cork. J. J. MCELLIGOTT, M.A., LL.D., G. A. MEAGHER, B.COMM., D.P.A., Chairman, An Foras Forbartha. *J. F. MEENAN, M.A., B.L., Professor of Political Economy, University College, Dublin. C. H. MURRAY, Secretary, Department of Finance. J. C. NAGLE, M.COMM., Secretary, Department of Agriculture. D. NEVIN, Assistant General Secretary, Irish Congress of Trade Unions. RIGHT REV. MONSIGNOR J. NEWMAN, M.A., D.PH., President, St. Patrick's College, Maynooth. L. O BUACHALLA, M.COMM., Professor, Department of Economics, University College, Galway. TADHG O CEARBHAILL, Secretary, Department of Labour. REV. E. F. O'DOHERTY, M.A., B.D., PH.D., Professor, Department of Logic and Psychology, University College, Dublin. D. P. O'MAHONY, M.A., PH.D., B.L., Professor, Department of Economics, University College, Cork. *W. J. L. RYAN, M.A., PH.D., Professor of Political Economy, Trinity College, Dublin. P. G. SHERRY, M.SC., PH.D., Federation of Irish Industries. T. WALSH, D.SC., Director, An Foras Talúntais *T. K. WHITAKER, M.SC. (ECON.), D.ECON.SC.,

Governor, Central Bank of Ireland. •Members of Executive Committee.

QUARTERLY ECONOMIC COMMENTARY

DECEMBER 1969

by

T. J. BAKER and J. DURKAN*

Incorporating: The Federation of Irish Industries and The Economic and Social Research Institute Joint Quarterly Industrial Survey and The Economic and Social Research Institute Statistics of Economic Level and Trend

Copies of this paper may be obtained from The Economic and Social Research Institute, 4 Burlington Rd., Dublin 4, price 15/- per copy, or 50/- per year.

*T. J. Baker is a Senior Research Officer and J. Durkan is a Research Assistant of The Economic and Social Research Institute. The Commentary has been accepted for publication by the Institute. The Authors are responsible for the contents of the paper, including the views expressed therein.

CONTENTS

Secti	ion	Page
1	Summary	1
2	Forecasts of National Accounts	2
3	Commentary	5
4	A Study of Imports, Part 3	14
5	F.I.I.—E.S.R.I. Joint Quarterly Industrial Survey, September 1969	27
6	Seasonally Corrected Quarterly Series (Formerly Statistics of Economic Level and Trend)	44
7	Charts	52

Note: In preparing the first three Sections of this paper, helpful criticism was received from the economic staff of the Institute, but the authors accept responsibility for the contents and conclusions of the paper and for the views expressed.

Section 5, The Joint Quarterly Industrial Survey, is prepared in conjunction with the Federation of Irish Industries, who also supplied the commentary to this Section.

In using the forecasts in Section 2 it should be remembered that economic forecasting is an inexact science, subject to many uncertainties. In particular, projections for periods more than six months distant should not be regarded as more than a broad indication of what might be expected to happen on the specific assumptions set out.

SECTION 1: SUMMARY

The decade just ending has been a uniquely successful period of development in Ireland's economic history. 1969 fits well into this general picture, with rapid increases in total investment and industrial employment. Symbolically, industrial exports seem likely to have overtaken agricultural for the first time. The detailed forecast for National Accounts for 1969 is set out in Table 2.1, and shows little change from the forecast made in September. A growth rate of 4 per cent, a price increase of 7 per cent and a current external deficit of $\pounds 65$ million are the salient points of this forecast.

The exceptionally large pay increases currently being negotiated are likely to make 1970 a difficult year for the economy. Table 2.2 shows a tentative projection of National Accounts for 1970 in the light of a large increase in earnings and on the assumption of unchanged official policies. The principal features of this projection are a growth rate of $4\frac{1}{2}$ per cent, a price rise of $6\frac{1}{2}$ per cent, a further rapid rise in consumption, a slackening in the rate of investment, and a Balance of Payments deficit rising to over £70 million.

As this projection is specifically based on a continuation of present policies it is necessary to set out what these are assumed to be. Basically it has been assumed that the responsible authorities will continue to keep the expansion of private sector credit in general, and consumer credit in particular, on a very tight rein, and that public expenditure in real terms will be allowed to grow much more slowly than in 1969. However, the assumption rules out drastic new initiatives from the authorities such as a deliberate Budget surplus resulting from higher taxation, or an actual cut in public capital expenditure.

It may be decided that the risks involved in allowing the economy to develop along the lines sketched in the projection, with a massive deficit financing a basically consumer boom, are too great to be tolerated, and that an attempt should be made to reduce the external deficit to below, say, $\pounds 40$ million. In that case some severe action would be necessary. Unfortunately such drastic steps tend to inhibit investment, and thus growth in future years. There is not a great deal of room for manouevre in finding a middle course, aimed at a moderate reduction of the deficit without risking a recession in investment, through intensification of present policies. Some possible actions within this context are discussed in §3.13.

From the point of view of future growth, the course of wages after the present "round" is of crucial significance. "Wolf" has been cried too often on the subject of wage increases, but it is beyond question that the exceptional rate of increase of the past eighteen months cannot be sustained any longer. If there is reasonable confidence that the current spate of increases will be followed by a phase of order and moderation, then a good case can be made for standing a temporarily large deficit in 1970 so as to avoid the dislocation implied in strong corrective action. On the other hand continued rapid pay rises would not only force the hand of the authorities, but would in themselves spoil the growth prospects for several years. This is probably the main issue facing the economy in 1970, with or without developments regarding the Common Market. On its resolution depends whether or not the coming decade can improve on the performance of the one just ended.

SECTION 2: NATIONAL ACCOUNTS FORECAST

TABLE 2.1: FORECAST NATIONAL ACCOUNTS 1969

	1968 Bro	Change in 1968 1969 H		1969 Fore-	Cł	nange ir 1969	1				
	vis- ional			Cast	Price	Volu	ime				
	£m	%	£m	£m	%	%	£m				
A. Expenditure on	A. Expenditure on Gross National Product										
Personal Consumer Expenditure	853	+12	+105	958	7 1	4	38				
Public Net Current Expenditure	165	+11	+ 18	183	7 1	3	5				
Gross Domestic Fixed Capital Formation	256	+22	+ 57	313	8	13	34				
Exports of Goods and Services *	531	+10	+ 53	584	4	5 1	30				
Physical Changes in Stocks: Agriculture Other	+ 5 +13	=	+ 5 + 4	+ 10 + 17		11	+5 +4				
FINAL DEMAND	1,823	+13	+242	2,065	6	6 1	116				
Imports of Goods and Services *	553	+171	+ 96	649	5	12	66				
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,270	+111	+146	1,416	7	4	50				
B. Gross National	Produc	t by Or	igin								
Agriculture, etc.—Total	196	+ 4	+ 8	204							
Non-Agricultural: Wages etc Profits etc	572 195	+131 +101	+ 77 + 20	649 215							
	767	+121	+ 97	864							
Other Income (including adjustment for price of stocks)	41	+ 2	+ 1	42		·					
NATIONAL INCOME Depreciation	1,004 91	$+10\frac{1}{2}$ +11	+106 + 10	1,110 101							
GNP AT FACTOR COST	1,095	+101	+116	1,211							
Taxes on Expenditure less Subsidies	175	+17	+ 30	205							

1,270 +11 +146 1,416

43

--65

* Including factor flows. General Assumption: unchanged policies. Detailed Assumptions: see Section 3.

•••

• • •

•••

-22

GNP at Current Market Prices ...

C. Balance of Payments ...

	1969 Fore	Change in 1970		1970 Pro-	Change in 1970					
	Fore- cast		st		Price	Vol	Volume			
	£m	%	£m	£m	%	%	£m			
A. Expenditure on Gross National Product										
Personal Consumer Expenditure	958	+11	+104	1,062	5 <u>1</u>	5	48			
Public Net Current Expenditure	183	+12	+ 22	205	9	2 1	5			
Gross Domestic Fixed Capital Formation	313	+141	+ 46	359	8	6	20			
Exports of Goods and Services *	584	+12	+ 69	653	3 1	8	48			
Physical Changes in Stocks: Agriculture Other	+10 +17	=	-4 +2	+ 6 +19			4 +2			
FINAL DEMAND	2,065	+111	+239	2,304	5	6	119			
Imports of Goods and Services *	649	+11 1	+ 76	725	3	8 1	54			
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,416	+111	+163	1,579	6 1	4 <u>1</u>	65			
B. Gross National	Produc	t by Or	igin							

TABLE 2.2: PROJECTED NATIONAL ACCOUNTS 1970

				,
Agriculture etc.—Total	204	+ 41/2	+ 9	213
Non-Agricultural: Wages etc Profits etc	649 215	+15 1 + 9	+ 99 + 19	748 234
Total	864	+13 1	+118	982
Other Income (including adjustment for price of stocks)	42	+ 7	+ 3	45
NATIONAL INCOME Depreciation	1,110 101	$+11\frac{1}{2}$ +11	+130 + 11	1,240 112
GNP AT FACTOR COST	1,211	+11 1	+141	1,352
Taxes on Expenditure less Subsidies	205	+11	+ 22	227
GNP AT CURRENT MARKET PRICES	1,416	+111	+163	1,579
C. BALANCE OF PAYMENTS	65	-	-7	72

* Including factor flows. General Assumption: unchanged policies. Detailed Assumptions: see section 3.

SECTION 3: COMMENTARY

§3.1 The Economy in 1969. General

The revised forecast of National Accounts for 1969 is presented in Table 2.1. Since the September issue of the Quarterly Economic Commentary, the Estimates of the 1968 Balance of Payments have become available. In order to accommodate these new figures, it has been necessary to make an unofficial revision of the Provisional 1968 National Accounts. This revision explains the alterations in the absolute levels given for many of the items (most notably "other income", which includes income from abroad) compared with the September forecast.

As usual, the latest quarterly economic series are set out in both actual and seasonally corrected form in Sections 6 and 7, and the October results of the Joint Quarterly Industrial Survey in Section 5. These Sections provide much of the foundation on which our forecast for the year is built, although for some series more recent monthly data is also used, as well as non-statistical information from other sources.

Most of the information which has become available since September has tended to confirm the view which we then took of the course of the economy in the remainder of 1969. Accordingly the forecast for 1969 is very little altered since September in terms of changes from the 1968 result Thus a growth rate of 4 per cent is still expected, with a particularly large increase in gross fixed capital formation, while a current external deficit of about £65 million remains likely.

As a corollary of this largely unchanged forecast for 1969, most of the detailed explanation given for our figures in the September Commentary still seems valid. Nevertheless, a brief resume of the salient features of the economy in 1969, with some explanation of the minor changes made in the forecast, appears worthwhile.

§3.2 The Domestic Economy

Both the figures in Section 6 and later statistics on a monthly basis indicate that domestic demand continued to run at a high level in the third quarter of the year. The only important exception to the trend is registrations of new cars, which showed a considerable fall, seasonally adjusted, in the quarter. This, however, can be ascribed to the raising of wholesale tax on cars in July, which had the effect of shifting forward into the second quarter, purchases and registrations of cars which would normally have been made in the third. Thus the downturn is probably temporary, although tighter credit conditions might to some extent hold any recovery in check.

Of the other demand indications, the retail sales index, which of course is itself influenced by car sales, rose slightly on a seasonally corrected basis in the third quarter as compared to the second. Turnover tax receipts also continue to rise. The figures relating to the first 9 months of 1969 are $14\frac{1}{4}$ per cent above their 1968 level with the

third quarter also $14\frac{1}{2}$ per cent above the third quarter of 1968. On balance it seems likely that the increase in consumption in 1969 will be high, although perhaps not quite so great as forecast in September. An increase of £104 million, or between 12 and 12 $\frac{1}{2}$ per cent seems a reasonable estimate, both on the basis of the trend so far this year, and in relation to rises in other factors, such as earnings and credit.

Similarly a very large rise in investment, expected on the basis of the Capital Budget and industrial investment intentions, is confirmed by what figures are available on building, cement sales, capital goods imports, and production in domestic capital goods industries. There seems no reason to revise significantly the September forecast for investment, or for public current expenditure.

Of the factors underlying consumption demand, it seems probable that industrial earnings continued to move up steadily in the third quarter, while, on the evidence of the Joint Industrial Survey, industrial employment also rose further. With regard to credit, the turn-around in total private sector credit since the second quarter has been even greater than was anticipated in the September Commentary. Total domestic credit, excluding government, stood at £460 million in June, but fell to £440 million in September and £445 million in October. Over the same period non-government deposit accounts rose by £14 million, thus further squeezing the surplus of domestic credit, as defined by the Central Bank, so far as the private sector is concerned. On the other hand, consumer credit, defined as personal advances and gross instalment credit, continued to rise rapidly in the third quarter, adding a further 7 per cent to its already high second quarter level. It is possible that a considerable proportion of the increase in hire purchase and other instalment credit represents industrial rather than consumption borrowing, while the increase in personal bank advances might contain elements of borrowing for capital purposes, such as house purchase. However, it is difficult to believe that consumer borrowing as such does not account for a good share of the overall increase. For the purpose of forecasting fourth quarter consumption, it is assumed that there will be very little further rise over the third quarter level of consumer credit.

Turning from the expenditure items of the National Accounts to supply, the Quarterly Industrial Survey for October suggests that, seasonally corrected, industrial production in the third quarter was slightly higher than in the second, and that businessmen expect a further small rise in the final quarter of the year. As can be seen from the charts in Section 7, the index of industrial production was at a very high level in the second quarter, and these indications from the Survey are marginally above our September forecast for the annual increase the index of production in manufacturing industry. An increase for the year of about $7\frac{1}{2}$ per cent now looks possible, an excellent result in view of the production lost in the maintenance dispute. If achieved, this would imply that the capacity growth rate of industry is rather higher than had previously been assumed. However, the upward revision is not sufficiently large to have any impact on the predicted growth rate of the economy as a whole in 1969.

§3.3 External Trade

Comparison between the current and previous forecasts shows that the predicted deficit on the current balance of payments has been slightly reduced to £65 million. However, as the 1968 base has been revised, this unchanged total result conceals some minor, but quite important, changes in composition.

On the export side, trade statistics to the end of November show that total merchandise exports are likely to be slightly lower than we had previously expected. On the other hand, passenger movements to the end of September suggest that tourism and transportation may have been less affected by the disturbances in the North than we feared, and consequently a higher increase in invisible exports is now allowed for.

With regard to the breakdown of merchandise exports, full figures for the first 9 months are not available at the time of preparation, but on the basis of partial figures, the summary forecast of exports shown in Table 3.1 seems to be in line with trends to that time and with reason able expectations for the final quarter.

	1968 1969 Actual Forecast		Cha	ange	
Category	£m	£m	£m	*%	
Industrial: to U.K.	93	102	+ 9	+10	
Other	56	73	+17	+30	
Total	149	175	+26	+17	
Agricultural	157	167	+10	+ 6	
Misc. and Re-exports	26	28	+ 2	+ 8	
Total Merchandise	332	370	+38	+11	
Invisible*	199	214	+15	+ 8	
Total	531	584	+53	+10	

TABLE 3.1: EXPORTS OF GOODS AND SERVICES 1968-1969

*Current account credit movements from balance of payments, less total merchandise exports from trade statistics.

The forecast rise in imports of goods and services in 1969 has been reduced by $\pounds 5$ million compared with the September prediction. This is largely due to the influence of the actual results for the period August to November, which were rather lower than anticipated. However, imports are still expected to remain at a high level in December, and the pattern of the first nine months, in which capital goods and materials for further non-agricultural production each account for about 40 per cent of the total increase in imports, is expected to continue in the final quarter.

In total, the forecast for 1969 is now that merchandise imports will rise from \pounds 495 million to \pounds 588 million, with capital goods accounting for about £37 million of the rise, materials for further production £36 million and consumer goods £21 million. Invisible imports, defined as the difference between merchandise imports as given in the trade statistics and total current items as given in the Balance of Payments Estimates, are forecast to rise from £58 million to £61 million, the increase reflecting high interest rates and increasing external liabilities as a result of the capital inflow.

Because of the paucity of data currently available concerning the nature of the capital inflow, no forecast is made in the Quarterly Economic Commentaries of future levels of the external reserves. However, it is worth noting that, after declining gradually in the first half of the year, external reserves appear to have stabilised in recent months at a seasonally adjusted level of around £270 million.

§3.4 The Economy in 1970. General

In contrast to the forecast for 1969, which has been only mildly amended in the light of additional information since September, the 1970 projection shown in Table 2.2 has been fairly radically revised. This is basically because more recent knowledge suggests that some of the basic assumptions then made are unlikely to prove correct. The three most fundamental of these assumptions concern earnings, private investment and official policy. It is worth examining each of these assumptions, and the reasons for changing it, before assessing the impact of each on the projected National Accounts.

§3.5 Earnings

In the September forecast it was assumed, with what was then felt to be only slight optimism, that the general level of earnings would increase by about 10 per cent between the end of 1969 and the end of 1970. More recent events have shown this optimism to have been misplaced. Many claims have been made and settlements reached giving increases in earnings in particular industries of over 20 per cent in 1970. It would be inappropriate to apply an increase of this order over the whole non-agricultural earnings sector, especially as the National Accounts item include pensions and salaries as well as wages. Allowing that non-industrial wages rise rather less and rather later than most industrial wages, that the increase in salaries might well be lower and later still, although still quite high by historical standards, and that only a small increase need be anticipated in the relevant pension rates, an overall increase in non-agricultural earnings of about 14 per cent now seems a reasonable assumption.

As a corollary to the increased forecast for earnings rates, the projected increase in non-agricultural employment has been reduced, as it seems likely that the large increases in wages will encourage employers in general to economise as far as possible in the numbers employed, while, as we shall discuss later, it is possible that one result of the wage settlements will be that certain sectors of the economy will grow more slowly in 1970 than previously appeared likely. Thus the projected rise in non-agricultural employment has been reduced from the $2\frac{1}{2}$ per cent assumed in September to $1\frac{1}{2}$ per cent.

This makes the total increase in the National Accounts item, non-agricultural wages, salaries and pensions, approximately $15\frac{1}{2}$ per cent or almost £100 million.

§3.6 Private Investment

8

The sharp reduction in the projected level of real private investment compared with September rests on three considerations, two theoretical and one concrete. In the first place, the expected large increase in wages in the manufacturing sector, allied to inability to raise prices sufficiently to fully compensate, due to price controls in the domestic market and normal competitive constraints in export markets, is likely to squeeze profit margins, thus lowering the incentive to invest. More important, this profit squeeze, coinciding with restricted credit availability (see §3.7) and the probability of a rather depressed market for equity finance, is likely to curtail the supply of funds for investment purposes. This shortage of funds may well affect investment over a much wider sector than simply manufacturing industry. The third consideration is the downturn in investment intentions shown in the Joint Industrial Survey reported in Section 5. Taken on its own, too much importance could not be placed on an isolated figure of this nature, but the fact that it coincides with expectations based on theoretical analysis lends it considerable credence.

Of course, it is impossible at this stage to quantify these expectations with any pretence at accuracy. There could be an absolute fall in the level of private investment, as indicated by the Survey, but it seems quite premature to expect such an outcome. The assumption actually made, which seems reasonable although arbitrary, is that the increase in private investment in constant price terms will be about 5 per cent, a rate between one-third and one-half of that likely to be achieved in 1969.

§3.7 Official Policy

As explained in the September issue, the forecasts and projections made in the Quarterly Economic Commentary are based on the assumption of unchanged policies, but this phrase needs careful interpretation. Although no new major initiatives in the field of demand management have been taken since September by either the monetary or fiscal authorities, there does appear to have been some change in mood. This change seems sufficient to justify a reinterpretation of the meaning of unchanged policies.

We assume that there will be very considerable restraint in the creation of credit throughout 1970, and that the growth in real public expenditure, both current and capital, will be kept under tight control. On the other hand, our definition of present policies precludes dramatic action such as cutting back already authorised public capital projects, aiming deliberately for a large surplus on the government current account budget, or imposing either import restrictions or any form of wage freeze. Exhortation regarding pay increases is, of course, regarded as part of present policies.

§3.8 Domestic Expenditure

The assumption made concerning earnings naturally implies a large increase in consumer spending in 1970. On the other hand it is assumed that the growth in credit, and especially consumer credit, will keep low in 1970, after its rapid growth in 1968 and 1969. Thus it seems possible that the increase in consumption, at current prices, will be no greater than in 1969, in spite of the much greater rise in earnings. In constant price terms there should be a larger increase on these assumptions, as the rise in prices in 1969 was abnormally large, due both to delayed devaluation effects and heavy increases in indirect taxes.

On other items of domestic expenditure the earnings assumption will tend to push up the price element of the projected increase considerably. This can be seen in Table 2.2 so far as public current expenditure is concerned. In the case of investment the greater rise in earnings should be offset to some extent by a slower increase in the price of capital goods, so that the overall price increase is projected at about the same rate as in 1969.

With regard to volume increases, the assumptions made in §3.6 and §3.7 suggest a slower rate of growth than in 1969. Specifically it is assumed that public capital formation can be held to a volume increase of about 7 per cent within the context of present policies, while the volume of public current spending will grow by about the same absolute amount as in 1969.

Stock movements are always extremely difficult to project, not least because of the absence of quarterly information. In fact it would be more correct to refer to the stock figures for 1970 given in Table 2.2 as assumptions than forecasts. The assumption in this case is that the expected stringency of credit will lead to a slower build-up of stocks in 1970 than in recent years.

§3.9 Exports

After a relatively modest increase in 1969, it appears reasonable to expect a more rapid growth of merchandise exports in 1970. More cattle should be available for export, particularly if tight credit discourages further stock-building in this sector. With regard to industrial exports, a great deal depends on conditions in the UK. In 1969, despite virtual stagnation in total UK imports, Irish industrial exports to that market seem likely to have increased by about 10 per cent. In view of the recent performance of UK exports, not to mention the electoral factor, some degree of official relaxation in demand management can be anticipated in the course of 1970. If total UK imports rise faster in 1970, so, almost certainly, will Irish industrial exports to the UK. The actual projection made is that industrial exports to the UK will rise by about 15 per cent in 1970. Industrial exports to the rest of the world seem likely to have risen by about 30 per cent in 1969, in spite of the interruption to some mining shipments in the third quarter. A repetition of this 30 per cent increase is projected for 1970.

In making these projections, only a small allowance has been made for the possible adverse effects of higher unit costs in Irish industry resulting from the large wage increases being negotiated. In the past it has proved impossible to detect any short-term relationship between exports and unit costs in Ireland. However, the size of the increase to be expected in 1970 appears likely to be about 10 per cent over industry as a whole, although it may be rather less in the export sectors. Coming on top of a substantial increase in 1969, this may render past observations, based on smaller increases, an unreliable guide. While relying still on experience in taking a buoyant view of export prospects, we must acknowledge that the 1970 wage increases look like being large enough to take the economy onto uncharted ground, where it is possible that unit labour costs could have a sudden and deleterious effect on industrial exports.

A fairly high increase of 7 or 8 per cent is projected for invisible exports in 1970. This presupposes a moderately but not exceptionally successful tourist year, and a steady growth in other invisible earnings, including the net contribution from Shannon. In total, the increase in exports of goods and services is now a little higher than was allowed for in the September projection. More than any other factor this is because of the better prospects for the UK economy.

§3.10 Imports

The above projections for domestic demand and exports add up to an increase in Final Demand of 11¹/₂ per cent at current prices, slightly lower than that forecast for 1969, but still, historically, high. Although in the past imports have generally tended to rise more rapidly than Final Demand when the latter is growing quickly, in 1970 it is reasonable to suppose that the two items will increase at about the same rate.

There are two main reasons for this. The rise in import prices is likely to be noticeably lower in 1970 than in 1969, and the pattern of the projected growth in Final Demand in 1970 is less import intensive than that in 1970, due mainly to the reduced share of investment in total growth. Thus we project an increase of only £10 to £15

million in capital goods imports in 1970, compared with a rise of over £35 million in 1969. The volume of consumer and materials imports may well increase rather more in 1970 than 1969, but the slower rise in prices should be sufficient to offset this, and keep the rise in value terms at about the same rate in the two years.

As in the case of industrial exports, it is possible that the competitive effects of the large wage increases will have some impact, although empirical research has shown no such direct short-term relationship in the past. The projected import figure has been raised slightly, but not much, to allow for this possibility.

§3.11 Gross National Product

Although the import forecast was arrived at through projecting each functional category of import in the light of the expected increase in Final Demand, some check on the result is available from considering the implied increase in Gross National Product, which is left as a residual on this method. The increase of $11\frac{1}{2}$ per cent in current price terms and $4\frac{1}{2}$ per cent in constant prices in fact fits in well with direct expectations from the production approach. The real growth rate is slightly lower than in the September projection, due mainly to the smaller expansion now assumed for the building and construction sector. Industrial production is still projected to rise at its capacity growth rate of about 8 per cent or 9 per cent per annum, and this, coupled with a small rise in the net output of agriculture, and intermediate increases in other sectors is compatible with a $4\frac{1}{2}$ per cent rise in real GNP. The increase in the price element of GNP compared with September is due to the higher earning assumptions made concerning the government and investment sectors.

§3.12 General Synthesis

The change in assumptions since the September Commentary do not materially affect the forecast for 1969. With regard to 1970 the changed assumptions are to a large extent compensatory, so that although the components of Final Demand are considerably changed, the projected increase in GNP and the Balance of Payments remain quite similar.

Leser's consistency model quantifies the relationships between increases in each expenditure component of National Accounts in the light of the overall increase in Final Demand, relative price changes, and the relationships ruling in the previous year. As the model is based on observation of a long post-war period, it can be taken as representing the "normal" pattern of development towards which the economy tends in the long run. It is in no way a prediction model for a particular year, but it is useful in establishing a yardstick against which the actual or projected performance in that year can be judged. A comparison of the forecasts with this model is set out in Table 3.2.

The table suggests that in both years the pattern of expansion is more than usually geared to personal consumption expenditure. In 1969 this more than average rise in consumption is likely to be accommodated by a deterioration of the trade position, with exports rising less, and imports more, than is normally associated with a rise of 13 per cent in Final Demand. In 1970 little further deterioration of the external balance is projected, with both exports and imports rising at their "normal" rate, and the extra growth in consumption is compensated by a relatively low increase in investment.

	, r	% increase o	n previous ye	ar
	1	969	1	970
	Model	Forecast	Model	Projection
Personal Consumption	9.1	.12	8.1	11
Government Consumption	14.0	11	12.2	12
Gross Fixed Capital Formation	21.4	22	21.7	14 1
Exports of Goods and Services	14.3	10	12.6	12
Final Demand (excl. stocks)	12.9	13	11.8	12
Imports of Goods and Services	12.9	171	11.7	11 1
Gross National Product	11.3	111	10.3	11 1

TABLE 3.2: COMPARISON OF PROJECTIONS WITH CONSISTENCY MODEL

§3.13 Policy Implications

Before considering the policy implications of the projection for 1970 it is worth briefly considering the forecast for 1969 in the context of the decade just ending. With very little doubt the 1960's have been the most successful decade in the recorded economic history of Ireland. The population decline been reversed and living standards raised. Also there has been an impressive transformation from a basically agricultural economy, with industry serving a relatively static, protected local market, towards an internationally competitive industrial economy.

Viewed in this context, the forecast out-turn for 1969 is not too alarming. There is likely to be a record external deficit on current account, implying that living standards as measured by private consumption have become slightly higher than is justified by domestic production, and that the expansion in capital investment both social and industrial has been faster than could be met from Irish resources. On the other hand, there has been a large rise in industrial employment, and industrial exports have continued to grow in spite of difficult conditions in the principal overseas market. Because of the large capital inflow there has been very little fall in the level of external monetary reserves, and these end the year at well above their average level for the decade. The increase in reserves since 1960, at nearly 30 per cent, is greater than the percentage increase in world monetary reserves over the same period. Irish reserves represent about $5\frac{1}{2}$ months normal imports, compared with an average of under 4 months for most advanced countries.

Looking forwards rather than back from the end of 1969, the picture seems less reassuring. The very large pay increases being negotiated in the current "round" pose a difficult problem in short-term demand management, and by their very size must constitute a longer term threat to the competitiveness of Irish industry and the future rate of industrial investment. The projection of National Accounts for 1970 shown in Table 2.2 is an attempt to slow the short-term implications of these pay increases, on the assumption that the authorities will continue to pull hard on the leash rather than take the big stick to the economy.

On this assumption the large external deficit to be expected in 1970 will be associated more with an increase in consumption than with a further expansion of capital investment. In these circumstances, there is the possibility that there will be a failure of capital inflow to cover most of the deficit. Even if the capital inflow continues to run at a high level, it must be recognised that this represents the incurring of liabilities which must be met in the future, and in many cases in the fairly immediate future. The wisdom of

allowing a potential fall in external reserves in order to finance a consumer rather than an investment boom must be considered. At the same time one must not overlook the possibility that the projected slackening in investment will fail to materialise. If a continuation of the 1969 investment boom is superimposed on the expansion of consumption which looks likely in 1970, then the impact on the Balance of Payments could be really dramatic.

Thus the responsible authorities must soon decide whether their own view of the probable outcome of present policies is similar to the projection presented here. If it is, they have the further difficult decision as to whether to tolerate this sort of situation, whether to attempt some minor modification of the outcome, or whether to take severe action to alter the results for 1970. Severe action could take any of several forms. There could be a substantial increase in taxation, unmatched by increased expenditure, with a view to providing a substantial budget surplus. There could be an actual cut, rather than a moderate growth, in public capital expenditure, or a really severe squeeze on private sector credit availability. Import restrictions are another possibility in the field of radical action, but they do not appear to be an appropriate response to a situation of excessive domestic demand. In these circumstances they could be expected either to be ineffective or simply to lead to an accelerated rise in prices. A wages and salary freeze, if it could be implemented, probably would be effective. However, imposing a freeze in the course of an incomplete "round" would involve considerable injustices, and, given the political difficulties involved, such action cannot frequently be repeated. In the light of these considerations, it might be felt preferable to retain this particular course of action for possible use at some future time, perhaps during the transition to membership of E.E.C. Any of the steps just outlined would be outside the assumption of present policies on which the projection is made, and could thus be expected to change the performance of the economy in 1970 significantly. With the exception of import and wage controls, they all run the risk of bringing about too great a cutback in investment, and thus endangering the future growth of the economy,

There is not a great deal of scope for intensifying present restrictive policies with the aim of modifying rather than radically altering the projected outcome for 1970, while avoiding the risk of a recession in productive investment. However there are certain actions which could be regarded as falling under this heading, and which should act specifically on consumption expenditure. For instance, some regulation concerning minimum deposits and maximum repayment periods for hire purchase and instalment credit is one possibility. Another is a modest increase in specifically personal taxation, without a balancing rise in public expenditure. Effective steps to encourage private saving, if such could be devised, could have a similar effect. To stand much chance of modifying the result for 1970, action along any of these lines should be taken as early as possible.

(

Looking further ahead, while decisions taken in the field of short-term demand management obviously have a considerable effect on long-term growth, it is private rather than government decisions which are likely to be more important. The ratio of savings to income is primarily determined by private decisions, although these can be influenced by official action. More immediately, the size of future pay claims is of vital significance. The rate of increase from the middle of 1968 to 1970 cannot be sustained indefinitely. It is possible, as the projection shows, that it can just be tolerated at the moment. Also it is reasonable that those responsible for deciding on the level of claims should be suspicious of talk of disaster following wage increases, when this has not happened in the past, despite similar talk. However, the present round is outside historic experience in its size and speed, and unless it is followed by a period of order and moderation, the continued growth of employment and incomes in the 1970s will undoubtedly be placed in jeopardy.

SECTION 4: A STUDY OF IMPORTS, PART 3. MATERIALS FOR FURTHER NON AGRICULTURAL PRODUCTION

by T. J. Baker and J. Durkan

§4.1. Introduction

Part 1 of this study presented seasonally corrected quarterly totals of merchandise imports, disaggregated according to function, from 1958 to 1968. Part 2 analysed the behaviour of imports of consumption goods ready for use, and set out some forecasting models for this category of import. The current part of this study attempts a similar exercise for the largest import category, materials for further non-agricultural production. As in Part 2, the method is to apply regression analysis to seasonally corrected quarterly data, and to test various combinations of potential explanatory variables.

§4.2 Imports of Materials, Potential Factors

The great majority of imports in this category are materials or semi finished products for further processing by manufacturing industry. Consequently the obvious explanatory factor to consider first is the level of activity in manufacturing industry.

There is little practical difficulty in this, as the index of the volume of production in manufacturing industry is available on a quarterly basis throughout the period considered. Of course this index is weighted according to the value added in Ireland by the various industries concerned, and not by the volume of imports of each industry. Thus if those sections of industry with low imports relative to value added were to follow a different time path of fluctuations and growth from those with high imports and a low value added, no close correspondence between the index of industrial production and the level of materials imports could be expected. It is difficult to know how far this reservation has any practical significance. There are considerable variations between industries in the rate and timing of growth, but this, in itself, does not necessarily greatly affect the balance between output and imports. Also, in spite of these variations, there remains a tendency for most industries to respond more or less together to general economic conditions. On balance it seems reasonable to expect that this consideration will disturb, but not destroy, the anticipated relationship between materials imports and the index of industrial production.

The level of output in manufacturing industry itself is dependent on demand in home and exports markets. Consequently it is of interest to replace the index of production by series representing such demand factors. Thus in one set of equations

the variables of industrial exports, the retail sales index, and consumer goods imports (reflecting the alternative source of supply for domestic consumption) are used in place of the index of production.

Manufacturers' stocks of materials are an important factor influencing imports in any particular quarter, but no quarterly, or even adequate annual, figures are available for movements in manufacturers' stock levels, and consequently no specific variable can be included for this factor. A credit variable, such as total bills, loans and advances within the State, might to some extent reflect movements in stocks, although it would also respond to movements in many other factors, and can be expected to suffer from a considerable degree of collinearity with industrial production. It is however worth including in at least some formulations, particularly as it is a variable which can be influenced by policy decisions. It is also possible that stock levels are influenced by interest rates, and accordingly the ordinary overdraft rate of Commercial Banks has been included in some formulations.

Conceptually there are difficulties concerning the factor of relative prices. Imports of materials for further production cover a wide range of products, some of them with close domestic substitutes and some without. It has sometimes been argued that such imports should be divided into competing and non-competing categories, with the expectation that the former should be relatively price elastic and the latter price inelastic. To the writers however such a division does not appear to meet the difficulty. Few goods have an identical substitute, while none can be regarded as having no substitute at all, however distant. Consequently it is unrealistic to postulate a clear dividing line between two categories. Rather there is a continuous spectrum of substitutability; and any dividing line must be extremely arbitrary. Consequently no attempt is made further to subdivide materials imports for price purposes, and no strong expectations are held as to the likely impact, if any, of this factor on the analysis. The actual variable chosen is a relative price index obtained by dividing the wholesale price index of home produced materials for use in industry by that for imported materials for use in industry, and seasonally correcting the results. As the imported materials price index includes tariffs, this constructed series should take care of the effects of changes in tariffs and import levies over the period studied. In some formulations where the relative price index is not included a dummy variable for tariff changes is used.

Alterations in quota and licensing restrictions must have had a considerable effect on the behaviour of materials imports in recent years. However, the nature of these alterations, particularly in the case of licensing, where the change may be in interpretation rather than in the basic rules, makes it impossible to construct a meaningful quantitative index, or even to approximate to the timing of effective changes by means of dummy variables. An attempt to use a simple dummy variable for quotas in the analysis of consumer imports was not very successful. Accordingly such a dummy is used in only a few of the formulations tested.

As in the case of consumer imports it is necessary to allow for the effect of trade disrupting labour disputes, such as U.K. dock strikes and the seamens strike of 1966. In some equations this is done through the inclusion of dummy variables for these strikes, in others by adjusting the relevant series to remove as far as possible the effects of the strikes. In most of the equations calculated, the principal explanatory variable is the index of production in manufacturing industry. As this is a volume index, it has been felt appropriate to convert the material import figures to a volume basis. This has been done by deflating the published value figures by the unit value index for all imports. While not an ideal deflator, this index based on c.i.f. prices seems better than any available alternative. In those equations where the demand variables, rather than the been done by deflating the published value figures by the unit value index for all imports. are taken as the dependent variables. On further adjustment to the import figures for certain equations is the removal of cereal imports for further production, as these appear to be dependent more on supply conditions of domestic cereals than on industrial demand factors. This point will be discussed further in §4.5.

All series, with the exception of time and dummy variables, are seasonally corrected, and are expressed in appropriate forms for the various formulations (e.g. absolute levels, percentage first differences, moving three quarter average of first differences). In many cases lagged terms of the independent variables are included as well as the current terms while in some formulations leading terms are also included. In most instances only one quarter lags are used, as a priori, longer lags seem unlikely to be helpful, and no attempt is made to introduce any complicated lag structures. With most equations containing a large number of independent variables any attempt to experiment with lag structures would tend to become excessively complex.

§4.3 Volume of Materials Imports, absolute levels

As an introduction to the analysis proper, a very simple test of absolute levels of the volume of materials imports regressed on the index of production in manufacturing industry, time and a composite dummy variable for strikes is made. The results are shown in Table 4.1. As can be seen, the fit by any of the usual tests appears good. However, as explained in the analysis of consumer imports, regressions on absolute levels are not of great benefit for prediction purposes because of problems of collinearity between the main explanatory variable and time, and because the standard error of estimate is so large compared to the first differences which need to be predicted.

§4.4 Volume of Materials Imports, percentage changes

An attempt was made to use these data, together with some of the additional variables discussed in §4.2, in first difference terms. Both straightforward percentage changes with or without lags, and changes adjusted for strikes and three-quarter moving averages of changes were tested. The results are uniformly disappointing and for that reason are not given in detail. The fit, measured by either R or the F-test, is poor, the standard errors of estimate high, and the significance of what a priori should be the main explanatory variable, industrial production, tends to be low. The simple regression between percentage change in materials imports and industrial production, adjusted for strikes and with both series smoothed, gives the result $Y_c = -0.68 + 1.49 X_1$, with an R of .573 and F-value of 18.06 and a standard error of estimate of 2.07. This is not good enough for prediction purposes, and the addition of other variables, while improving the R, does not yield results sufficiently better, to be of any assistance.

§4.5 Cereal Imports

Re-examination of the data suggests one important reason for this disappointing performance. The import category materials for further production in industry includes

TABLE 4.1: VOLUME OF MATERIALS IMPORTS, ABSOLUTE LEVELS, REGRESSION ANALYSIS

A. Variables

Dependent Y =materials imports, constant prices, seasonally corrected quarterly 1958-68, index 1958=100.

Independent X_1 =volume of production index, manuf. industry, seasonally corrected quarterly 1953=100. X_2 =composite dummy for major strikes.

 X_2 =composite duminy for major strikes. X₃=time, 1st Q 1958=1, 4th Q 1968=44.

B. Significance and Fit

Equation No.	Independent Variable	Significant at 1 %	Not Significant at 20%	R	F Value	Standard Error of Estimate
A1 A2 A3 A4	1,2,3 1,2 1,3 1	1,2 1,2 1 1	<u>3</u> <u>3</u>	.985 .985 .977 .977	434 668 437 887	6.53 6.45 7.91 7.85

C. Regression Coefficients

Equation	X1	X2	. X3	Intercept
A_1 A_2	1.091	9.258 9.194	0.085	
A ₃ A ₄	1.310 1.132		0.440	

cereals for milling and compounding. Although these products are of course an input to industrial production, the value added to the input by the processing is relatively small, and the value added is the basis for weighting each industrial sector in the overall index of industrial production. Thus variations in the level of grain milling and feed compounding have little impact on the performance of the index of industrial production, but can have a great influence on the level of inputs, including, in this case, imports. Even more important, imports of these products very largely fill the role of bridging the gap between domestic cereal production, and the input needs of the milling and compounding industries. Thus these imports are highly sensitive to variations in domestic output of cereal crops, whether these are due to changes in the acreage planted or in the yields obtained.

If it can be demonstrated that in fact cereal imports respond to these factors rather than to the general level of industrial activity, it seems justifiable to exclude them from the main analysis of materials imports. A few simple and rather crudely formulated regression equations have been calculated to test whether the expected structural relationships exist. As quarterly figures are meaningless for the production of crops with an annual harvest, the series are constructed on an annual basis.

Domestic production of corn crops on a volume (starch ton) basis, X_1 , is taken from annual data. So also is the alternative domestic supply variable, value of sales of corn crops, X_2 . Annual purchases of animal feed by farmers for the following calendar year are taken as the demand variable X_3 . The dependent variable Y is imports of cereals in the 12 months October to September following the harvest concerned in

 X_1 or X_2 . Ideally of course X_3 should cover the same period, from October to September, as Y, but the three month overlap, which cannot easily be avoided, should not distort the results very much. Similarly it would be better to take cereal imports in volume terms, but no suitable price deflator is available and the caculations involved in converting the quantity trade figures for each cereal to a consistent denominator such as starch tons does not seem worthwhile in what is, after all, a fairly peripheral section of the main exercise.

All combinations of the X's were tested and all gave quite good results, the most satisfactory being that for X_1 and X_3 .

$$Y_c = 27.9 - 0.03 X_1 + 0.25 X_3$$
. $R = .879 F = 20.35$
(T = 4.06) (T = 3.96) S.E.E. = 1.85

While the equation is not really suitable as a precise forecasting model, this result, with both coefficients significant at the 1% level and with the expected signs, seems satisfactorily compatable with our hypothesis concerning cereal imports. Consequently, we proceed to examine the volume of material imports excluding cereals.

§4.6 Volume of Material Imports, excluding cereals

As a first test to see whether the exclusion of cereals improves the relationship between the volume of materials imports and the index of industrial production, with or without other explanatory variables, we take a small selection of equations on the absolute data. The results are shown in Table 4.2, and comparison with Table 4.1 shows that there is in fact some improvement. The simple regression on the index of industrial production has slightly higher R and F-value in B5 than in A4, while the standard error of estimate when divided by the mean of Y is a little lower. Direct comparison is less easy where the other variables are added, as these are not the same in the two sets, but in general it appears that the results in Table 4.2 are marginally better than in Table 4.1.

It is interesting that, in equation B1, the relative price and credit variables have little or no significance, add very little to the fit in comparison with B2, and have the "wrong" signs to their coefficients. Similarly in B3 the addition of these two variables does little to improve the fit obtained with the production index alone as in B5, and the signs remain in the wrong direction. The addition of the dummy variables, and to a lesser extent the lagged term of the production index, as in B2 and B4, do appear to improve the fit. However the main impression to be gained from Table 4.2 is that there is a close structural relationship, as is to be expected, between the volume of materials imports and the volume of industrial production, while there is little or no evidence that other factors, apart from disturbances caused by strikes, have any marked effect on the level of materials imports.

However, the arguments already expressed against relying on absolute data in arriving at a forecasting model remain strong. It is therefore advisable to proceed to a consideration of percentage first differences.

TABLE 4.2: MATERIALS IMPORTS, LESS CEREALS, ABSOLUTE VOLUME LEVELS, REGRESSION ANALYSIS

A. Variables

Dependent Y =materials imports excluding cereals, constant prices, seasonally corrected quarterly 1958-68. £m.

Independent X_1 =volume of production index, manufacturing industry, seasonally corrected quarterly 1958-68, 1953=100.

- $X_2 = \bar{X}_1(t-1)$
- X₃=dummy variable, dock strike 1963, 3rd Q.

 X_4 =dummy variable, seamen's strike 1966, 2nd Q.

- X_5 =dummy variable, dock strikes 1967 3rd, 4th Q.
- X_6 = relative price index, domestic/import, seasonally corrected, 1953 = 100.
- X_9 = bills, loans, advances within the State seasonally corrected.
- X_8 = time 1st Q. 1958 = 1, 4th Q. 1968 = 44.

B. Significance and Fit

Equation	Varia	bles Signific	ant at	Not	ъ	E Valua	Standard
No.	1%	5%	20%	at 20%		I Value	Estimate
B1 B2 B3 B4 B5	$1 \\ 1,3,4 \\ 1 \\ 1,2 \\ 1$	3,4 7 	2,6,8 5 6 	5,7 	.989 .986 .981 .983 .979	189 347 348 571 984	1.47 1.53 1.76 1.68 1.81

C. Regression Coefficients

Equation	X 1	X2	X3	X4	Xs	X ₆	X7	X8	Inter- cept
B 1	0.477	0.094	2.591	1.465	0.603	0.253	-0.016	0.181	7.97
B2	0.276		2.807	2.050	0.899				
B 3	0.380				_	0.223	-0.043		9.25
B 4	0.497	0.226				<u> </u>		l —	
B5	0.278		_			_			-6.07

§4.7 Volume of Material Imports, Excluding Cereals, Percentage Changes

The variables included in the analysis are the same as those used for the absolute data, with the addition of lagged terms for credit and relative prices, an extra disturbance dummy for the abnormal weather and possible effects of reduction in tariffs of the first quarter of 1963, and with the time variable, of course omitted.

The results of the more interesting equations are set out in Table 4.3. Equations C1, C3, and C6 show that the lagged terms, used either alone with the dummies or in conjunction with current terms, have little significance and contribute practically nothing to the fit. Equation C7 shows that on its own industrial production has a highly significant relationship with materials imports, but a rather low R. Equation C5 shows that the dummy variables on their own account for a great deal of the behaviour of materials imports, but comparisons with equation C4 demonstrates that the introduction of X_{1} , the production variable, does improve the fit considerably. Equation C2 suggests that some further improvement is achieved when the current terms of the relative prices

TABLE 4.3: VOLUME OF MATERIALS IMPORTS, EXCLUDING CEREALS, PERCENTAGE CHANGES, REGRESSION ANALYSIS

Α. Variables

Dependent Y = Materials imports excluding cereals, constant prices, seasonally corrected quarterly 1958-68 % 1st differences. Independent X_1 =volume of production index, manufacturing industry, seasonally corrected quarterly 1958-68 % 1st differences (1953=100).

- $X_2 = X_1 + 1$ $X_3 = Bills$, loans advances within State, seasonally corrected quarterly, 1958-68 $X_3 = 2$ his, balas address which state, seasonally corrected quarterly, 1958-68 $X_4 = X_3 + 1$ $X_5 = relative price index, domestic/import, seasonally corrected quarterly 1958-68$
- % 1st difference. $X_6 = X_5 t^{-1}$
- X_7 =dummy variable dock strike 1963, 3rd Q.

 X_8 =dummy variable seamen's strike 1966, 2nd Q. X_9 =dummy variable dock strikes 1967, 3rd, 4th Q. X_{10} =dummy variable abnormal weather 1963, 1st Q.

Significance and Fit R.

Pountion	Varia	ble Signific	ant at	Not	D		Standard	
No.	1%	5%	20%	at 20%	К	r-value	Estimate	
- C1 C2	1,7,8,10 1,7,8,10	5 5	2,9 3,9	3,4,6	.899 .894	13.4 19.9	4.04 3.94	
C3 C4	7,8,10		9	2,4,6,9	.850 .881	13.0 25.8	4.64 4.04	
C6 C7	1	2	3,5	4,6	.645 .543	4.3 4.3 17.2	4.48 6.62 6.82	

C. Regression Coefficients

Equa- tion No.	. X ₁	X2	X3	X4	X5 .	X6	X7	X8 ·	X9 *	X ₁₀	Inter- cept
Cl	1.26	0.34	0.25	0.23	-1.11	0.06	6.53	5.47	2.37	8.47	1.84
C2	1.22	·•	0.37		0.97		5.80	5.85	2.38	9.12	1.13
C3		0.25		0.09		0,10	6.47	7.45	1.39	9.08	2.64
C4	1.16	_	· `				6.29	5.55	1.38	9.65	0.44
C5						—	6.32	7.65	1.60	9.50	2.42
C6	.2.15	-1.09	0.82	0.25	-1.42	0.50		_	_	_	1.77
C7	2.14	<u>`</u>		—	<u> </u>	—	_	—			-1.22

D. Selected Equation

C4. $Yc = 0.44 + 1.16X_1 + 6.29X_7 + 5.55X_8 + 1.38X_9 + 9.65X_{10}$

and credit variables are added, and that these variables are themselves fairly significant. However the signs of their coefficients are the opposite of what would be expected on a priori reasoning. Because of this, and because the improvement they offer in R and in the S.E.E. is very slight, it seems better to omit them from consideration and to select as a possible forecasting model from this set of equations C4 which includes only industrial production and the disturbance dummies.

§4.8 Volume of Materials Imports, Excluding Cereals, Adjusted Changes

As in the case of consumer imports, it has been attempted to deal with the disturbances caused by strikes by adjusting these out of the data so far as is possible. In this case the adjusted figures give rather similar results to the unadjusted, with all variables other than industrial production being either of low significance or possessing signs in the unexpected direction. The simple correlation between materials imports and industrial production is slightly lower than in the unadjusted set of equations, while the regression coefficients for industrial production at around 1.7 are between those obtained with and without the dummies in Table 4.3. In all, there seems little to be gained from the use of simple percentage changes in the adjusted data compared with the unadjusted.

A further line of inquiry is to run the regressions on the period from 1960 to 1968, thus eliminating some quite large unexplained variations in 1958 and 1959. Rather surprisingly, the shorter period produces results slightly less good than the full period.

Accordingly, as in the case of consumer imports, we proceed to smooth the various series by taking percentage changes between three quarter moving averages of the adjusted data. The results of this exercise are shown in Table 4.4.

Because the range of deviations from the mean for each series is much lower than in the case of simple quarter to quarter changes it is not surprising that the value of R is generally lower than in Table 4.3. By the same token, the standard errors of estimate are also lower, both absolutely and in relation to the mean of the dependent variable.

As in the case of earlier sets, the only series which emerges as consistently significant is industrial production, in its current term. However, the addition of the lagged term for credit, and the current term for relative prices as in equation D4, does marginally improve the fit and reduce the standard error of estimate. Although, as in the earlier sets, it is difficult to explain the negative signs of these coefficients when theoretical considerations demand that they should be positive, it seems sensible in this case to select D4 as well as D5 as equations worth testing for their predictive value.

§4.9 Value of Materials Imports

Although the analyses already described yield some quite good results for the volume of materials imports, excluding cereals, which can be predicted separately on an annual basis, it is felt that an alternative approach, based directly on the value figures may give a useful check on these results. In this set of variables, industrial production is omitted, and in its place the retail sales index, representing domestic consumption, and industrial exports, representing relevant external consumption are used. Because domestic consumption can be met either by domestic production as by imports of consumer goods, such imports are also included as a variable, in the ex ante expectation that they should show a negative correlation. No direct price variable is included, but dummies for tariffs, quotas and strike disturbances are tested, as are interest rates and bills loans and advances. Lags of most variables, and leads for some, are also included.

The full list of variables, and the results of some of the more successful equations, are set out in Table 4.5. Equation E1 shows that as in most other sets tested, many of the variables are not significant, and that many, especially X_8 , X_{11} , and X_{13} have signs

TABLE 4.4: VOLUME OF MATERIALS IMPORTS, EXCLUDING CEREALS. MOVING AVERAGE OF CHANGES REGRESSION ANALYSIS

A. Variable

Dependent Y = materials imports, excluding cereals, constant prices adjusted for strikes, season-ally corrected, moving 3 quarter average of % 1st differences 1958-68.

Dependent X_1 =volume of production index, manufacturing industry, seasonally corrected moving 3 quarter average of % 1st differences 1968-68.

 $X_2 = X_1 + 1$ $X_3 = \text{bills loans advances within State, seasonally corrected, moving 3 quarter average}$ of % 1st differences.

 $X_4 = X_3 t^{-1}$

 X_5 = relative price index, domestic/import, seasonally corrected, moving 3 guarter average of % 1st differences. $X_6 = X_5 t^{-1}$

B. Significance and Fit

Equation No.	Varia	ables Signific	ant at	Not	D	F 1	Standard
	1%	5%	20%	at 20%	ĸ	r value	Estimate
$\begin{array}{c} D_1\\ D_2\\ D_3\end{array}$	1 1		2 3,5 2	3,4,5,6 4,6	.740 .698 .253	6.9 11.7 0.8	1.81 1.85 2.50
D4 D5	1 1	4	5		.710 .673	12.5 32.3	1.82 1.86

C. Regression Coefficients

Equation No.	X 1	X 2	• X ₃	X4	X5	X6	Intercept
D_1 D_2 D_2	2.31 1.84	-0.62	0.18 0.39	-0.27	0.37 0.42	-0.39	0.16 0.21
D4 D5	1.87 1.72			0.47		 	0.12 0.85

D. Selected Equations

 $\begin{array}{l} Yc = -0.12 + 1.87 X_1 - 0.47 X_4 - 0.53 X_5 \\ Yc = -0.85 + 1.72 X_1 \end{array}$ D₄ \mathbf{D}_5

which are contrary to commonsense expectations. However, it is reassuring that the two most fundamental variables, X_1 , and X_4 are significant in most of the combinations tested, and that their coefficients are reasonably stable and possess the expected positive signs.

Although the value of R rises to high levels when most of the variables are included, ease of handling, as well as the fact that some of the minor variables are not significant or have apparently perverse signs, suggests that the best equations to select for predictive testing are E4 and E6.

As this value of imports approach is designed mainly as a check on the results obtained from a volume approach, no attempt has been made to extend it to a consideration of strike adjusted or moving average formulations.

TABLE 4.5: VALUE OF MATERIALS IMPORTS, PERCENTAGE CHANGES, **REGRESSION ANALYSIS**

A. Variables

Dependent Y =value of materials imports, seasonally corrected quarterly, % 1st differences 1961-68.

Independent X_1 =value of industrial exports, seasonally corrected quarterly, % 1st differences 1961-68.

 $X_2 = X_1 t^{-1}$ $X_3 = X_{1,t+1}$

 X_4 = index of retail sales, seasonally corrected quarterly, % 1st differences 1961-68.

- $X_5 = X_4 t^{-1}$
- $X_6 = X_4 t + 1$

 X_7 =dummy variable for tariff costs

 X_8 =dummy variable for quota relaxations

- X_0 = dummy variable for major strikes X_{10} = ordinary overdraft rate of commercial banks, quarterly average 1961-68.
- X_{11} = bills, loans, advances within State, seasonally corrected quarterly, % 1st differences 1961-68.
- $X_{12} = X_{11 t^{-1}}$

 X_{13} =value of consumer imports, seasonally corrected quarterly, % 1st differences 1961-68.

X14=X13 t-1

В. Significance and Fit

Dennetien	Varia	able Signific	ant at	Not Significant	D	F-value	Standard
No.	1%	5%	20%	at 20%	ĸ	r-value	Estimate
E1	8	1,4	2,10,13	3,5,6,7,9, 11,12,14	.932	5.2	5.12
E2	4.8	1.9	10.11	7.13	.910	10.2	4.74
E3	4.8.9	1	11	7,10	.906	11.8	4.69
E4	9	4	1	<u> </u>	.837	17.1	5.49
E5		13	1.4		.807	13.7	5.93
E6	4	. 1	·	_	.759	15.6	6.39

C. Regression Coefficients

Equa- tion	X 1	X 2	X ₃	X 4	X5	X 6	X ₇	X8	X9	X10	X11	X12	X13	X14	Inter- cept
E1	0.67	0.44	-0.07	2.10	-0.49	0.38	1.42	-14.85	1.62	-2.33	-0.55	-0.91	0.59	0.05	15.11
E2	0.49			2.11			1.31	-11.36	3.24	1.33	0.82				9.35
E3	0.52			2.41	—		2.21	-10.82	3.99		0.85			—	7.60
E4	0.23			1.76					4.12					—	— 0.74
E5	0.32	—		1.42									0.52	—	- 2.11
E6	0.48			2.46	l	—									— 2.92

D. Selected Equations

 $\begin{array}{l} Yc = -0.74 + 0.23 X_1 + 1.76 X_4 + 4.12 X_9 \\ Yc = -2.92 + 0.48 X_1 + 2.46 X_4 \end{array}$ **E**4

E6

§4.10 Forecasting Tests

From the analysis five equations have been selected as appearing to possess reasonable potential for predictive purposes. Each has an acceptable value for R in the context of first difference regression analysis, an F value which is highly significant, and no sign of a critical level of residual autocorrelation. As in the case of the equations selected from the analysis of consumer imports in Part 2 of this study it is possible to submit these equations to the test of "predicting" the now known level of imports in the first two quarters of 1969. As these quarters are outside the period covered by the equations the test is a valid one, although unfortunately both periods suffer from the drawback that they are affected by the maintenance dispute and its aftermath. This depressed the index of industrial production and industrial exports in the first quarter leading automatically to a very high percentage increase in the second quarter as these series recovered from the dispute.

The results of the tests are set out, both in terms of percentage changes and absolute values, in Table 4.6. Partly to minimise the effects of the maintenance dispute the value figures are given where possible for the two periods combined, which is in many ways a fairer test than either quarter on its own. It should be borne in mind that the dependent variable is defined differently between some of the equations, which accounts for the differences in the "actual" columns of the table.

On the whole these results can be regarded as good. Both the moving average "predictions" are very close to the actual outcome, and all the six month "predictions" are reasonably close. With the exception of equation E4, the "predictions" for the individual quarters are not quite so good, but, as explained, the influence of the maintenance dispute must account for much of the residuals.

However, although the results of the tests are encouraging, testing over a longer period is necessary before it can be claimed with confidence that any or all of the selected equations are really useful forecasting tools.

§4.11 Conclusions

As in the previous exercise on consumer imports, this analysis has involved the calculation of a large number of regression equations, of which a few of the more interesting have been presented in the tables. Apart from the dummies for temporary disturbing factors the equations have been based on about 10 different quarterly variables, analysed in different formulations, including lags, and in varying combinations.

So far as aiding an understanding of the structural relationship between materials imports and other economic variables is concerned, the positive achievement of the analysis has been to demonstrate effectively the expected close relationship between these imports and the volume of production in manufacturing industry. Although clearly implicit in the equations based on data in absolute terms, this relationship only emerges in the more rigourous analysis of percentage first differences after various adjustments are made to the original data. First, as a matter of classification, it is necessary to remove from materials inputs those cereal products whose demand depends on the size of the domestic grain harvest rather than on the level of industrial activity. Secondly, as in the case of consumer imports, it is necessary to allow for the disturbing effects of major transport strikes, either by the use of dummy variables or by adjusting the data. With these adjustments made, the relationship with industrial production becomes quite clear, even in first difference terms. Interestingly it appears as if the relationship is almost entirely a current one, with neither leads nor lags showing any significant relationship.

In conjunction with industrial production, neither relative prices nor credit, as measured by bills loans and advances, appear to influence short-term movements in the

TABLE 4.6: FORECASTING TESTS

A. Percentage Changes

-		1s	t Quarter 19	69	2nd Quarter 1969		
Equation No.	Variable	Actual	Predicted	Residual	Actual	Predicted	Residual
		%	%	%	%	%	%
C4	Materials im- ports (exclud- ing cereals) at constant 1958 prices		—5.61	+2.46	+7.94	+15.50	7.56
D4 D5	As above, cen- tred 3-quarter moving aver- age Ditto	+4.74 +4.74	+4.06 +5.30	+0.68 0.56			
E4 E5	Value of Ma- terials Im- ports at cur- rent prices Ditto	+1.80 +1.80	+0.04 2.06	+1.76 +3.86	+10.23 +10.23	+12.66 +17.26	2.43 6.97

B. Absolute Values

Equation No.	Period	Actual £ million	Predicted £ million	Residual £ million
C4	1st Q. 1969 2nd Q. 1969	55.4 59.8	54.0 64.0	+1.4 -4.2
	1st Half 1969	115.2	118.0	2.8
D ä	1st Q. 1969	57.5	57.1	+0.4
D5	1st Q. 1969	57.5	57.8	
E4	1st Q. 1969 2nd Q. 1969	74.3 81.9	72.4 83.7	+1.9 1.8
	1st Half 1969	156.2	156.1	+0.1
E5	1st Q. 1969 2nd Q. 1969	74.3 81.9	70.9 87.1	+3.4 5.2
	1st Half 1969	156.2	158.0	-1.8

volume of materials imports. This could be a mere formulation problem, so that if better series for these factors were available their significance would be shown. On the other hand it could be, particularly in the case of relative prices, that the influence is a more long term one, ultimately affecting the absolute level of materials imports, but with little relevance to quarter-to-quarter movements in them. If this is the case, the type of approach adopted here would be unlikely to show their importance, and a different approach to the problem would be necessary.

Not surprisingly, the analysis suggests that industrial production can be replaced by demand series, such as industrial exports and retail sales, as explanatory variables with a considerable degree of success. Even in this case, where an extra transaction stage is added, the relationship appears to be in current rather than lagged terms. This is an important finding, implying as it does that any increase in demand will almost immediately result in a corresponding increase in materials imports. Of course, this whole problem of lead and lag effects could be treated much more satisfactorily if adequate statistics on stock levels existed.

Thus from the point of understanding structural relationships the exercise can fairly be regarded as useful, in confirming some expected relationships, showing no evidence for the short-term existence of others, and in general implying a response within the current quarter by imports to changes in their explanatory variables.

From a forecasting point of view, most of the equations selected performed satisfactorily in the initial test for the first half of 1969, and have as sufficiently good degree of fit to hold promise for reasonable results over a longer period. However, as was explained, in the case of the consumer import equations which gave less satisfactory results on their initial test, a much longer period of testing is necessary before judgment can be passed on their utility as an addition to the collection of forecasting and consistency tools used in the Quarterly Economic Commentary.

SECTION 5: THE FEDERATION OF IRISH INDUSTRIES AND THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

QUARTERLY INDUSTRIAL SURVEY

SEPTEMBER, 1969

The report contains the results of the June Industrial Survey conducted jointly by the Federation of Irish Industries and the Economic and Social Research Institute. The survey covered the Third Quarter of 1969 compared with the Third Quarter of 1968 with forecasts for trends in the Fourth Quarter of 1969 compared with the corresponding period of 1968. Over 80% of respondents replied to the survey and the results can be taken to represent the current views of a good cross-section of Irish Industry. The results of the survey are available for Dublin only and for areas outside Dublin and while the overall results are only included on this basis in this report respondents wishing to have the two sets of results for their industry may do so on request to the FII.

SECTION INDEX

Table No. Page No.

Introduction	•••	•••	•••	•••	•••		27
Commentary	•••	•••	•••	•••			27
Trends of Replies	•••	•••	•••	•••		5.1	30
All Manufacturing	•••	•••	•••	•••	•••	5.2	31
All Manufacturing-E	Dublin	•••	•••		•••	5.3	32
All Manufacturing-A	reas outs	ide Dubli	n		•••	5.4	33
Food	•••	•••	•••	•••	•••	5.5	34
Drink & Tobacco	•••		•••	•••	•••	5.6	35
Textiles	•••	•••	•••	•••	•••	5.7	36
Clothing & Footwear	•••	•••	•••	•••	•••	5.8	37
Wood & Furniture	•••	•••	•••	•••	•••	5.9	38
Paper & Printing	•••	•••	•••	•••	•••	5.10	39
Chemicals	•••	•••	•••	•••	•••	5.11	40
Glass Clay & Cement	•••	•••	•••	•••	•••	5.12	41
Metals & Engineering	•••	•••			•••	5.13	42
Other Manufacturing		•••	•••	•••	•••	5.14	43

FII/ESRI QUARTERLY INDUSTRIAL SURVEY - September 1969

Overall Results

The results of the September Quarterly Industrial Survey of the Federation of Irish Industries and the Economic and Social Research Institute suggest that the accelerating increase in production and home sales anticipated in the June Survey has taken place. The Survey, comparing the third quarter of 1969 with the third quarter of 1968, suggests a considerable increase in production, home sales and employment. It is interesting that a higher level of exports was reported in the third quarter of 1969 compared with the corresponding period of last year. This increase was not anticipated in the June 1969 Survey. As regards the last quarter of 1969 an increase is expected in both production and home sales. Both are expected to be higher than in the last quarter of 1968 though the number of respondents expecting an increase is not as high as that recorded in the June Quarterly Industrial Survey. Exports and employment are not expected to increase significantly. This tends to indicate a general levelling off in the increase in employment which has been a noticeable factor throughout 1969. In the last quarter of 1969, only two industries expect increases in employment.

In the case of the September 1969 Survey certain differences are apparent in the results when Dublin and the rest of the country are treated separately. Capacity restraints were not experienced by the majority of respondents in the Dublin area while a very large proportion of respondents from areas other than Dublin reported that they could not produce more with existing resources. In the case of future investment expectations, investment in Dublin is expected to remain at the same level next year. In the rest of the country, total investment is expected to be lower.

The Survey indicates that overall investment remained at a high level in the year ending in the third quarter of 1969; the majority of respondents showing an increase over the previous year. What is, however, extremely interesting is that most firms expect a lower level of investment in the coming year compared with that just ended. It is noticeable that in the Dublin area, the majority of firms expect the same level of investment in the year ahead compared with that in the year ending in the third quarter of 1969. There are two possible explanations for this decline in expected investment. There may be a shortage of credit which is forcing firms to reconsider future expansion or alternatively sufficient investment may have already taken place to deal with capacity restraints.

In all cases stocks of finished products and stocks of raw materials were considered adequate.

Sector Results

All industry groups, except Drink & Tobacco and Chemicals, registered higher production in the third quarter of 1969 compared with the corresponding period of 1968. Chemicals indicated production at the same level as in the last quarter of 1968, while Drink and Tobacco considered that production has fallen. The most noticeable increases were in Glass, Clay and Cement, Paper and Printing, Food and "Other Manufacturing."

As in the case of production, all industries except Drink and Tobacco and Chemicals reported an increase in home sales during the quarter. Both of these industries reported home sales to be at the same level as in the third quarter of 1968. The most significant increases were in the case of the Glass, Clay and Cement, Paper and Printing, "Other Manufacturing" and Wood & Furniture industries.

With the exception of Drink & Tobacco and Wood & Furniture, all industry groups reported increased exports during the third quarter of 1969 compared with the corresponding period of last year. Both exceptions indicated that exports were at the same level as in the third quarter of 1968. The industry groups — Paper and Printing, Food, Metals and Engineering, and Chemicals — reported the most significant increase in exports in the third quarter of 1969.

The Food, Textiles, Clothing and Footwear, Glass, Clay and Cement, and Metals and Engineering Industries all recorded an increase in employment in the third quarter of 1969 compared with the third quarter of 1968. No change in employment was reported by the Drink and Tobacco, Wood and Furniture, Paper and Printing, and Chemicals industries. "Other Manufacturing" reported a decrease in employment. In view of the fact that in the June 1969 Survey no industry group reported a decrease in employment in the second quarter of 1969, compared with the corresponding quarter of 1968, the results of the present Survey seem to indicate a slackening off in the upward trend of employment which has existed this year.

At the end of the third quarter of 1969, stocks of finished products were considered to be adequate by all industry groups except Metals and Engineering where stocks were considered to be excessive, and Glass, Clay & Cement where stocks were considered to be inadequate. It is interesting to note that at the end of the second quarter, according to the June 1969 Survey, the Metals and Engineering industry considered that stocks of finished products were insufficient for their needs. At the end of the third quarter of 1969, the Clothing and Footwear, and the Wood and Furniture industries considered that stocks of raw materials were excessive, and all other industries considered that these stocks were adequate. No industry group at the end of the third quarter of 1969 considered stocks of raw materials insufficient for their needs.

The majority of respondents in the Food, Drink and Tobacco, and Chemicals industries felt that their existing capacity was sufficient to enable them to produce more if orders were forthcoming in the quarter. The majority of respondents in the Textiles, Clothing and Footwear, Wood and Furniture, Paper and Printing, Glass, Clay and Cement, Metals and Engineering, and "Other Manufacturing" industries reported that they were working to full capacity. Firms experiencing difficulty in producing more listed insufficient capacity as the main cause of this. In Dublin shortage of skilled and unskilled female labour, and in the country shortages of both male and female skilled labour are listed as other important constraints.

With the exception of the Drink and Tobacco industry, all industry groups expect production to be higher in the last quarter of 1969 compared with the corresponding period of 1968. The most significant increases are anticipated in the Textiles, Clothing and Footwear, Chemicals and "Other Manufacturing" industries.

Both Chemicals and "Other Manufacturing" industries expect home sales to stay at the same level in the last quarter of 1969 compared with the last quarter of 1968. All other industry groups expect home sales to be at a higher level. Textiles, Glass, Clay and Cement, Food, and Wood and Furniture expect the largest increase in home sales in the last quarter of the year.

Increased exports are expected by Textiles, Clothing and Footwear, Wood and Furniture, Paper and Printing, Chemicals, Glass, Clay and Cement, Metals and Engineering, and "Other Manufacturing" industries. Exports are expected to remain at the same level in the case of Drink and Tobacco and to decline in the last quarter of 1969 compared with the corresponding period of 1968 in the case of Food.

Only two industry groups — Textiles and Clothing and Footwear — expect an increase in employment in the last quarter of 1969 compared with the last quarter of 1968. Food, Drink and Tobacco, Wood and Furniture, Paper and Printing, Metals and Engineering, and "Other Manufacturing" industries expect to maintain employment at the same level. Chemicals and Glass, Clay and Cement, on the other hand, expect a decrease in employment in this last quarter.

As in previous Surveys, the limited number of firms involved make precise conclusions about individual industries' investment unreliable. When the overall position is examined, the Survey results indicate that firms with financial years ending in the third quarter of 1969 reported that investment was higher than in the previous year. In the coming year, however, a decrease in investment is expected compared with the previous year.

FII/ESRI QUARTERLY INDUSTRIAL SURVEY

ALL MANUFACTURING

TREND OF REPLIES

The table set out below is designed to show the trend of replies in this and the four previous surveys. In questions 1, 2, 3, 4, 9, 10, 11, 12 and 13 the difference between the positive and negative replies is taken. Where a positive sign appears before the figure in relation to these questions it indicates that the number of respondents who experienced a rise or expected one in the future quarter was that percentage higher than those who did not nor expected to experience a rise; the opposite applying where a negative sign appears.

For questions 5 and 6 the difference between the percentage of respondents reporting finished goods and raw materials was excessive and insufficient is taken. Here a positive sign before the answer arrived at indicated the number of respondents who considered that raw materials and finished goods were insufficient was that percentage higher than those who did not and a negative sign indicates that they were excessive.

To arrive at the figures given for questions 7 the difference between the percentage of respondents stating that more orders could have been met in the various quarters and those replying in the negative is taken to show the trend of excessive capacity during the surveys.

Question		October 1968	January 1969	April 1969	July 1969	October 1969
 Total Production was Homes Sales were Exports were Labour Force was Finished Stocks were Materials Stocks were Constraints Home Sales will be Exports will be Labour Force will be Investment was Investment will be 	···· ··· ··· ··· ··· ··· ··· ··· ··· ·	+76 +76 +26 +16 +21 1 +81 +37 +22 +25 +51	+75+80+53+15+14+ 4-2+51+49+10+10+52	4191 + 82 +53 +33 +14 +26 +58	-+64 +72 +15 +29 +1 +1 +20 +4 +52 +21 +32 +45 +47	+61 + 66 + 54 + 22 + 5 - 4 - 12 + 44 + 10 + 9 + 44 - 23

TABLE 5.1

N.B.-When a full year's replies to question 8 are available they will be included in the above table.

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEI	Apparent Trend						
Higher	Same	Lower					
75	11	14	Higher				
75	16	9	Higher				
68	18	14	Higher				
39	44	17	Higher				
Excessive	Adequate	Insufficient					
12	71	17	Adequate				
9	86	5	Adequate				
	Yes 44 No 56		No				
Insufficient of Insufficient of Insufficient of Insufficient Female Lab Insufficient Insufficient Any other P	Insufficient Capacity44Insufficient Skilled Male Labour8Insufficient Skilled Female Labour15Insufficient Unskilled Male Labour1Insufficient Unskilled14Insufficient Raw Mats. Supply9Insufficient Cash and/or Credit4Any other Beason5						
Higher	Same	Lower					
58	30	12	Higher				
59	26	15	Higher				
35	40	25	Same				
29	51	20	Same				
Higher	Same	Lower					
66	12	22	Higher				
30	17	53	Lower				

TABLE 5.3: INDUSTRY GROUP - ALL MANUFACTURING - DUBLIN

In 3rd quarter 1969 compared with 3rd quarter 1968

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6: Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

8. Value of Production will be

- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEI	Apparent Trend		
Higher	Same	Lower	
71	6	23	Higher
71	16	13	Higher
77	11	12	Higher
35	45	20	Same
Excessive	Adequate	Insufficient	
14	64	22	Adequate
18	87	5	Adequate
	Yes 55 No 45		Yes
Insufficient Insufficient Insufficient Insufficient Female Lab Insufficient Insufficient Any other r	Insufficient Capacity		
Higher	Same	Lower	
55	33	12	Higher
57	25	18	Higher
26	43	31	Same
27	61	12	Same
Higher	Same	Lower	
67	8	25	Higher
38	10	52	Same

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEIG	Apparent Trend		
Higher	Same	Lower	
79	16	5	Higher
80	16	4	Higher
57	26	17	Higher
44	44	12	Higher
Excessive	Adequate	Insufficient	
11	79	10	Adequate
11	86	3	Adequate
	Yes 30 No 70	0 0	No
Insufficient C Insufficient S Insufficient S Insufficient U Insufficient I Female Labo Insufficient F Insufficient C Any other re	Insufficient Capacity		
Higher	Same	Lower	
60	27	13	Higher
62	27	11	Higher
43	39	18	Higher
31	40	29	Same
Higher	Same	Lower	
63	20	17	Higher
18	29	53	Lower

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

8. Value of Production will be

- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEIG	Apparent Trend		
Higher	Same	Lower	
90	8	Ż	Higher
81	18	1	Higher
75	17	8	Higher
46	47	7	Higher
Excessive	Adequate	Insufficient	
5	80	15	Adequate
. 10	73	17	Adequate
	Yes 65 No 35		Yes
Insufficient C Insufficient S Insufficient S Insufficient U Insufficient I Insufficient C Any other re	Insufficient Raw Material Supply		
Higher	Same	Lower	
58	31	11	Higher
74	22	4	Higher
16	46	38	Lower
24	61	15	Same
Higher	Same	Lower	
71	16	13	Higher
13	· · · · · · · · · · · · · · · · · · ·	87	Lower

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was

Ğ

4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

Wei	Apparent Trend		
Higher	Same	Lower	
8	19	73	Lower
17	73	10	Same
36	11	53	Same
4	96		Same
Excessive	Adequate	Insufficient	
	100		Adequate
	100		Adequate
	Yes 100 No		Yes
Insufficient Insufficient Insufficient Insufficient Insufficient Insufficient Any other m			
Higher	Same	Lower	
22	66	12	Same
22		78	Lower
13	87		Same
4	96		Same
Higher	Same	Lower	
93		7	Higher
94	_	6	Higher

TABLE 5.7: INDUSTRY GROUP --- TEXTILES

In 3rd quarter 1969 compared with 3rd quarter 1968

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEIC	Apparent Trend		
Higher	Same	Lower	
73	27	3	Higher
69	15	16	Higher
54	12	34	Higher
51	47	2	Higher
Excessive	Adequate	Insufficient	·
24	60	16	Adequate
10	87	3	Adequate
	Yes 13 No 87		No
Insufficient C Insufficient S Insufficient C Insufficient U Insufficient C Insufficient C Any other re	Insufficient Capacity		
Higher	Same	Lower	
77	13	10	Higher
78	12	10	Higher
61	36	3	Higher
51	47	2	Higher
Higher	Same	Lower	
51	19	30	Higher
_	25	75	Lower

36:

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEIG	Apparent Trend		
Higher	Same	Lower	
62	31	7	Higher
64	26	10	Higher
47	32	21	Higher
62	25	13	Higher
Excessive	Adequate	Insufficient	
9	68	23	Adequate
31	69		Excessive
	<i>Yes</i> 14 <i>No</i> 86	<u>,</u>	No
Insufficient of Insufficient of Insufficient of Insufficient of Insufficient of Insufficient of Any other r	Capacity Skilled Male L Skilled Female Unskilled Male Jnskilled Fema Raw Mats. Sup Cash and/or C eason	28 abour 7 Labour 36 e Labour — ule Labour 22 oply 3 redit — 4	Insufficient Skilled Female Labour
Higher	Same	Lower	
71	26	3	Higher
49	48	3	Higher
62	27	11	Higher
38	58	4	Higher
Higher	Same	Lower	
54	25	21	Higher
13	59	28	Same

TABLE 5.9: INDUSTRY GROUP --- WOOD AND FURNITURE

- In 3rd quarter 1969 compared with 3rd quarter 1968
 - 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was
- At end September 1969
- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be

10. Value of Exports will be

11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEI	Apparent Trend		
Higher	Same	Lower	2 s.
71	29		Higher
86	11	3	Higher
36	44	20	Same
25	60	15	Same
Excessive	Adequate	Insufficient	
8	89	3	Adequate
21	79		Excessive
	Yes 45 No 55		No
Insufficient (Insufficient (Insufficient (Insufficient (Insufficient (Insufficient (Any other r	Capacity Skilled Male La Skilled Female Unskilled Male Unskilled Fema Raw Mats. Sup Cash and/or Cr eason	36 abour 4 Labour – Labour – ale Labour – ply 21 redit 39	Insufficient Cash and/ or Credit
Higher	Same	Lower	
61	23	16	Higher
71	17	12	Higher
39	44	17	Higher
18	57	25	Same
Higher	Same	Lower	
75	25		Higher
25	50	25	Same

- In 3rd quarter 1969 compared with 3rd quarter 1968
- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was
- At end September 1969
- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

Weic	Apparent Trend			
Higher	Same	Lower		
93	7		Higher	
93	7	Higher		
91	9	_	Higher	
28	50	22	Same	
Excessive	Adequate	Insufficient		
	100		Adequate	
	100			
	<i>Yes</i> 36 <i>No</i> 64		No	
Insufficient C Insufficient S Insufficient T Insufficient T Insufficient I Insufficient C Any other re	Insufficient Capacity			
Higher	Same	Lower		
50	40	10	Higher	
50	40	10	Higher	
71	20	9	Higher	
30	29	41	Same	
Higher	Same	Lower		
66		34	Higher	
100			Higher	

TABLE 5.11: INDUSTRY GROUP -- CHEMICALS

In 3rd quarter 1969 compared with 3rd quarter 1968

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

8. Value of Production will be

- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

WEIG	Apparent Trend			
Higher	Same	Lower		
57	•	43	Same	
57		43	Same	
69	15	16	Higher	
38	28	34	Same	
Excessive	Adequate	Insufficient	· ·	
9	83	8	Adequate	
4	4 96 —			
·	V.a. 99	, ,	· ·	
	No 12		Yes	
Insufficient C Insufficient S Insufficient S Insufficient U Insufficient F Insufficient C Any other re	Capacity Skilled Male L. Skilled Female Unskilled Male Unskilled Fema Raw Mats. Sup Cash and/or Cleason	50 abour – Labour 50 E Labour – ale Labour – oply – redit –	Insufficient Capacity & Insuff icient skilled female labour	
Higher	Same	Lower	•	
66	25	9	Higher	
23	55	22	Same	
44	39	17	Higher	
12	53	35	Lower	
Higher	Same	Lower		
100	<u> </u>	. .	Higher	
· . ·	, , (,	100	Lower	

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

Weic	Apparent Trend		
Higher	Same	Lower	
100	•		Higher
100			Higher
65	20	15	Higher
39	45	16	Higher
Excessive	Adequate	Insufficient	
	45	55	Insufficient
	93	7	Adequate
	$\frac{Yes}{No} = \frac{100}{100}$)	No
Insufficient C Insufficient S Insufficient S Insufficient U Insufficient I Insufficient F Insufficient C Any other re	Capacity Skilled Male L Skilled Female Jnskilled Male Jnskilled Fem Raw Mats. Sup Cash and/or C vason	81 abour 8 Labour 4 e Labour 3 ale Labour 4 oply – redit –	Insufficient Capacity
Higher	Same	Lower	
40	60		Higher
74	26		Higher
67	23	10	Higher
15	50	35	Lower
Higher	Same	Lower	
_		100	Lower
100			Higher

TABLE 5.13: INDUSTRY GROUP - METALS AND ENGINEERING

In 3rd quarter 1969 compared with 3rd quarter 1968

- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was

At end September 1969

- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

8. Value of Production will be

- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was
- 13. Capital investment in coming year compared with last year will be

Wei	Apparent Trend		
Higher	Same	Lower	
71	2 -	27	Higher
77	. 4	·· 19	Higher
73		27	Higher
50	28	22	Higher
Excessive	Adequate	Insufficient	
37	52	11	Excessive
10	90		Adequate
	<i>Yes</i> 34 <i>No</i> 66		No
Insufficient C Insufficient S Insufficient I Insufficient U Insufficient U Insufficient C Any other re	Capacity Skilled Male La Skilled Female Unskilled Male Inskilled Fema Raw Mats. Sup Cash and/or Cr ason	34 abour 11 Labour 14 Labour 2 le Labour 19 pply 1 edit 10 9	Insufficient Capacity
Higher	Same	Lower	
62	23	15	Higher
68	24	8	Higher
71	10	19	Higher
41	30	29	Same
Higher	Same	Lower	-
100		<u> </u>	Higher
100	· · · · · · · · · · · · · · · · · · ·	· · ·	Higher

- In 3rd quarter 1969 compared with 3rd quarter 1968
- 1. Value of Total Production was
- 2. Value of Home Sales was
- 3. Value of Exports was
- 4. Wage Paid Labour Force was
- At end September 1969
- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 3rd quarter 1969

- 7. Could more be produced with present resources
- 7a. Where firms replied No, the causes responsible were

In 4th quarter 1969 compared with 4th quarter 1968

- 8. Value of Production will be
- 9. Value of Home Sales will be
- 10. Value of Exports will be
- 11. Wage Paid Labour Force will be

For firms whose financial year ended during 3rd quarter 1969

- 12. Capital investment in past year compared with previous year was *
- 13. Capital investment in coming year compared with last year will be *

Wei	Apparent Trend		
Higher	Same	Lower	
100			Higher
100	—		Higher
36	50	14	Higher
25	25	50	Lower
Excessive	Adequate	Insufficient	
	75	25	Insufficient
	100		Adequate
	Yes 39 No 61)	No
Insufficient Insufficient Insufficient Insufficient Insufficient Insufficient Any other r	Capacity Skilled Male L Skilled Female Unskilled Male Unskilled Fem Raw Mats. Sup Cash and/or C eason	100 abour – e Labour – ale Labour – oply – redit –	Insufficient Capacity
Higher	Same	Lower	
64		36	Higher
39	25	36	Same
50	50	<u> </u>	Higher
25	61	14	Same
Higher	Same	Lower	

* The number of replies received to these questions is not sufficient to permit an estimate to be made.

SECTION 6: SEASONALLY CORRECTED QUARTERLY SERIES

Introductory Notes

Since 1965 The Economic and Social Research Institute has undertaken the seasonal correction of certain important economic series, and made the results available to those on a restricted circulation list. Henceforth it is intended to publish these seasonally corrected series as an integral part of the *Quarterly Economic Commentary*, and they will be found in the following three tables.

Table 6.1 sets out the actual data to the latest date available. The selected series have been taken from the Central Statistics Office's "Economic Series" and "Quarterly Industrial Inquiry", published in the *Irish Statistical Bulletin*, and from the Central Bank of Ireland's *Quarterly Bulletin*, with the latest figures in each case being available in the form of stencilled supplements. Two of the series are derived from other series in the table, Series 3 from Series 2 and 7 and Series 20 from Series 19 and 12.

Table 6.2 shows the seasonally corrected figures for the 25 out of the 35 series in Table 6.1 which analysis of variance has shown to be subject to significant seasonal fluctuations. The method used for their derivation is set out in "Seasonality in Irish Economic Statistics" by C. E. V. Leser (E.R.I. Paper No. 26). The correction factors for the current year are derived from the data for the preceding five year period. Thus the factors by which the 1969 original data must be divided (the result being multiplied by either 400 or 100) to arrive at the seasonally corrected series are based on the period 1964-1968, and are as follows:

Genter Ne		Qua	urter	
Series INO.	I	I	III	IV
1	97.1	101.5	97.7	103.7
2	95.6	103.4	99.3	101.7
5	117.9	88.2	80.5	113.4
6	111.5	92.5	98.4	97.6
7	99.0	100.0	100.7	100.3
8	125.0	94.3	78.6	102.1
9	116.9	100.1	85.9	97.1
13	102.2	101.4	97.2	99.2
19	98.1	100.6	100.5	100.8
21	91.4	99.4	102.8	106.4
22	115.2	121.1	97.6	66.1
23	131.5	90.2	92.3	86.0
24	111.6	95.7	90.0	102.7
25	102.7	103.9	94.7	98.7
26	96.3	94.3	106.7	102.7
30	99.1	98.2	100.4	102.3
31	100.6	102.0	95.3	102.1
32	99.6	100.0	100.3	100.1
34	103.0	98.3	98.5	100.2
35	101.3	98.2	98.7	101.8

A further 5 series, Nos. 3, 20, 27, 28 and 29, are indirectly corrected through their relationship to other seasonally corrected or seasonality-free series. No regular seasonal pattern is observed in the remaining series, Nos. 4, 19, 11, 12, 14, 15, 16, 17, 18 and 33, and consequently no correction is necessary.

The figures in Table 6.2 make it possible to interpret and compare changes between consecutive quarters, where otherwise comparisons would have to be confined to the corresponding quarter of the previous year or average of years. Whilst it is possible that in isolated cases, where the seasonal pattern is changing, the correction can in itself impart some instability to the trend, in general the corrected series can be used with a fair degree of confidence in drawing inferences as to short-term trends.

Table 6.3 shows all the corrected series, and two of the more important seasonalityfree series, converted to the form of index numbers with 1961=100, and covering a longer period than the other two tables. The purpose is to facilitate comparison between trends in the different series. To the same end much of the information given in Table 6.3 is shown in chart form in the following pages (Section 7). As a common scale is kept throughout the section, it can readily be seen how far the trends of different series have diverged from each other over the past few years.

A few points regarding specific series need to be borne in mind to avoid possibly misleading conclusions being drawn. Due to changes in definition in recent years, both of the series (Nos. 8 and 9) dealing with unemployment need to be treated with great caution. The apparent trend reflects these changes, and should not be interpreted as indicating genuine movements in the level of unemployment.

Due to the bank dispute of 1966, only average figures for the period from April to October of that year are available for Series 23, 24 and 31. These averages have been distributed between the quarters of 1966 according to the average monthly pattern observed in the period 1962-1965 and in 1967. The resulting figures are shown in the tables and used in calculating the seasonal correction factors for 1969. Naturally the figures for the period affected by the dispute must therefore be treated with some reserve, but it is felt that the seasonal corrections based in part on these figures are reliable.

Also due to the same dispute, no figures at all are available during the period for Series 30 and 34. Figures for the period were calculated by intrapolation according to the normal seasonal pattern from the known values on either side of the stoppage. Whilst it is felt justifiable to use these figures for subsequent seasonal correction, it is felt that they are not sufficiently reliable to show separately in the tables.

The UK seamen's strike of 1966 distorted the normal pattern of trade. While the actual figures are shown in the tables, their inclusion in calculation of subsequent seasonal correction factors could be misleading. Accordingly an alternative set of figures was calculated for Series 25 and 26 by distributing the aggregate figures for the last three quarters of 1966 according to the normal quarterly pattern, with the results for imports being further modified to take account of divergences from normal in the seasonal pattern of industrial production and retail sales in the course of 1966. These alternative figures have been used in calculating the seasonal correction factors for 1969, and are also shown as points joined by dotted lines on the appropriate charts.

Series 35 is the Central Bank's new series for external monetary reserves. This series has been carried back to 1963 by the ESRI and only the figures relating to 1967 onwards are directly based on the official Central Bank estimates. However it is felt that any discrepancies are likely to be small, as it is only since 1968 that the new series has diverged significantly from the older series of External Assets. It is intended to publish both Series 34 and 35 for a short period, and then to drop Series 34.

TABLE 6.1: SELECTED

NT	C	TT-14	1967			
Number	Scries	Unit	I	п	III	
1 2 3 4 5	PRODUCTION Manuf, Industry: Production Volume Tr. Goods Industries: Production Volume Tr. Goods Industries: Prod. per Worker New Houses Built Electricity Output	1953=100 1953=100 1953=100 No. Mill. Kw.h.	180.1 183.8 149.3 3,015 1,164	193.0 205.3 164.7 2,817 933	184.4 193.8 154.5 2,640 847	
6 7 8 9 10	MANPOWER Sales of Insurance Stamps No. in Tr. Goods Industries Benefit Claims Current Live Register as Prop. of Insured Net Passengers Outward — Sea and Air (Moving Annual Total)	,000 ,000 ,000 ,000 % ,000	7,511 185.4 40.2 7.7 13.5	13,3 187.7 29.1 6.5 10,2	23 188.9 24.8 6.0 20.5	
11 12 13 14 15 16 17	PRICES Wholesale Consumer Agricultural Import (Unit Value) Export (Unit Value) Terms of Trade Stocks and Shares—Ordinary	$1953 = 100 \\ 1000 = 100 \\ 100$	136.3 150.6 118.8 113.4 114.3 100.8 272.2	138.4 153.2 118.9 113.2 114.2 100.9 284.6	137.0 153.3 114.9 112.6 112.6 99.9 300.4	
18 19	WAGES, EARNINGS Agricultural Minimum Wages Tr. Goods Inds.: av. Weekly Money Earnings av. Weekly Real Earnings	shs. 195 3=100 1953=100	180.5 217.6 144.5	180.5 222.1 145.0	180.5 224.0 146.1	
21 22	Consumption Retail Sales New Cars Registered	1961 = 100 No.	127 10,369	138 12,476	144 9,281	
23 24	GOVERNMENT Revenue Receipts (weekly av.) Exchequer Expenditure (weekly av.)	£'000 £'000	7,149 6,394	5,349 5,714	5,407 6,306	
25 26 27 28 29	EXTERNAL TRADE Import Value Export Value Import Excess Value Import Volume Export Volume	£Mill. £Mill. £Mill. 1953=100 1953=100	100.31 64.37 35.94 190.8 196.7	98.47 67.27 31.20 187.6 205.6	92.91 76.38 16.53 177.9 236.9	
30 31 32 33 34	BANKING, FINANCE Money Supply (Unadjusted) Bank debits—non govt. (daily av.) Bills, Loans, Advances (within State) Investments (within State) External Assets — Bank system and Den Funds	£Mill. £Mill. £Mill. £Mill. £Mill.	339.4 20.21 339.5 49.6 254.4	339.5 22.36 335.1 49.0 262.0	357.5 20.22 346.4 48.3 275.6	
35	External Monetary Reserves	£Mill.	254.1	261.7	275.7	

QUARTERLY ECONOMIC SERIES

		19	68	1	1969			
IV	I	II	III	IV	I	п	III	IV
200.1	192.8	211.8	207.4	225.4	198.6	234.8		
203.4	196.7	225.8	221.2	231.7	204.5	248.8		
162.1 3,063 1,216	159.4 2,897 1,265	178.3 2,777 1,018	172.6 2,891 947	178.6 3,182 1,312	156.9 4,053 1,488	186.2 2,851 1,124	3,112 1,035	
6,567 189.0 32.5 6.6 49.1	7,598 185.8 40.5 7.7 38.2	6,417 190.7 34.6 6.8 22.96	6,653 193.0 30.7 6.0 25.53	6,670 195.4 35.6 6.4 4.51	7,869 196.3 41.9 7.5 16.75	6,485 201.2 32.0 6.2 18.00	28.6 5.6	
139.0 154.3 124.1 113.0 114.4 101.3 320.9	143.6 157.5 132.2 120.5 121.0 100.5 357.6	145.9 160.0 131.1 122.5 122.6 100.1 410.6	145.9 160.3 128.7 125.0 122.5 98.0 449.3	148.2 162.7 132.5 123.2 123.2 100.1 462.6	153.2 168.1 136.2 128.2 124.6 97.2 473.6	156.9 171.0 138.0 128.4 127.7 99.4 463.8	173.8	
180.5	180.5	197.75	195.75	195.75	195.75			
231.6 150.1	230.2 146.2	240.9 150.6	246.5 153.8	255.1 156.8	260.4 154.9	271.4 158.7		
153 7,346	135 13,240	151 14,983	158 11,938	170 10,952	147 13,172	170 16,420	11,190	
5,025 6,670	7,544 7,247	5,691 6,716	6,273 7,463	6,137 7,872	8,349 8,579	7,221 7,619	7,239 8,398	
98.92 75.43 23.49 188.8 230.5	116.32 74.53 41.79 208.3 214.9	125.34 80.12 45.22 220.8 228.2	117.82 87.70 30.12 196.6 249.6	135.65 89.23 46.42 237.7 252.8	134.60 80.23 54.37 226.6 224.5	159.75 91.92 67.83 268.3 251.3	140.07 96.65 43.42	;
372.9 22.19 363.6 47.5	373.1 21.90 379.0 49.2	370.3 22.36 394.0 49.2	390.5 23.69 405.2 62.5	405.7 27.00 414.0 89.1	402.1 26.61 437.6 87.7	402.3 31.21 459.0 86.9	412.0 27.17 475.2 93.2	
291.2 292.0	284.3 292.2	250.1 280.1	239.9 281.0	249.7 292.3	240.4 284.4	224.2 269.1	225.9 268.2	

TABLE 6.2: SELECTED QUARTERLY

Number	Series	Linit	1967			
Rumber	,	Om	I	п	ш	
		<		· · ·		
5 6 22 25 26 27	Electricity output Sales of insurance stamps New cars registered Value of imports Value of exports Import excess	Mill. Kw.h. '000 No. £Mill. £Mill. £Mill.	3,878 26,080 34,592 397.7 265.7 132.0	4,282 28,242 41,866 378.0 289.0 89.0	4,223 28,242 37,087 398.3 285.5 112.8	
7 8 9 23 24 30 31 32 34 35	Employment tr. goods inds. Benefit claims current Live register prop. of insured Weekly revenue receipts Weekly exchequer expenditure Money supply Daily bank debits—non-govt. Bills, Loans, Advances (within State) External assets External monetary reserves	000 000 £000 £Mill. £Mill. £Mill. £Mill. £Mill. £Mill.	186.9 31.1 6.5 5,229 5,599 341.8 19.9 340.9 251.1 250.6	188.3 31.1 6.4 6,141 5,879 343.3 22.1 335.1 266.0 265.4	187.6 32.8 7.1 5,948 6,922 360.7 21.1 345.4 280.7 278.7	
1 2 3 13 19 20 28 29	Prod. Volume-manuf. inds. Prod. Volume-tr. goods inds. Production per worker Agricultural prices Money Earnings-tr. goods inds. Real Earnings-tr. goods inds. Volume of imports Volume of exports	1953=100 "" "" "" "" ""	185.3 192.3 155.0 117.3 221.1 146.8 189.1 203.0	171.5 200.1 160.0 117.4 220.3 143.8 180.0 220.8	188.9 196.2 157.5 117.0 222.7 145.3 190.7 221.4	
21	Retail Sales	1961=100	139.3	138.1	140.9	

 $k_{i,j}$

SERIES CORRECTED FOR SEASONALITY

.

		19	68			19	969	
IV	I	II	III	IV	I	II	m	IV
	Equivale	nt Annual	Aggregates	[۱۱ ۱۱	-]		+
4,325 27,334 42,709 389.5 292.9 96.6	4,257 26,848 47,370 458.4 307.3 151.1 Average	4,643 28,236 49,777 482.5 338.7 143.8 Value Duri	4,724 26,990 47,608 502.4 328.7 173.7 ing Quarter	4,635 27,420 64,900 538.3 350.9 187.4	5,050 28,229 45,736 524.2 333.3 190.9	5,095 28,043 54,236 615.0 389.9 225.1	5,143 45,861 591.6 362.3 229.3	
188.2 32.0 6.9 5,905 6,841 363.1 21.9 363.2 285.5 288.8	187.3 31.8 6,5 5,625 6,494 376.4 21.6 380.5 279.3 288.2	191.1 37.3 6.8 6,373 7,025 376.3 21.8 394.0 253.4 284.0	191.7 40.1 7.1 6,833 8,076 390.8 25.1 404.0 243.0 284.1	194.8 34.4 6.6 7,237 7,841 395.4 26.6 413.6 247.7 289.1	198.3 33.5 6.4 6,349 7,687 405.8 26.5 438.5 233.4 280.8	201.2 33.9 6.2 8,006 7,961 409.7 30.6 459.0 228.1 274.0	36.4 6.5 7,843 9,331 410.4 28.5 473.8 229.3 271.7	
·,	Index Nu	mbers 1953	3 = 100			-		
191.7 197.5 158.0 125.1 231.1 149.8 185.8 223.8	198.4 205.1 164.7 129.9 233.5 148.3 205.2 221.5	210.1 220.3 173.0 129.2 239.0 149.4 212.5 241.2	212.5 223.0 175.2 131.9 245.5 153.2 209.6 234.1	215.9 226.3 175.0 133.6 254.6 156.5 235.8 248.3	204.5 213.9 162.4 133.3 265.4 157.9 229.6 233.1	231.3 240.6 180.1 136.1 269.8 157.5 258.2 266.3		
	Index Nu	mbers 1961	= 100		0	· ·		
143.6	147.9	151.3	153.8	159.8	160.8	171.2	-	

TABLE 6.3: SEASONALLY CORRECTED

	Sarias		19	64						
ber	Series	I	п	ш	IV	I	п	ш	IV	I
1	PRODUCTION:			с.	•					
1	Vol.	117.2	120.7	120.3	121.1	123.8	126.6	125.4	127.0	126.0
2	Prod. Vol.	118.9	119.8	121.8	123.0	121.9	122.7	126.7	129.8	126.7
5	Prod. per Head Electricity Output	109.7 125.6	110.1 132.2	111.6 130.3	113.3 136.9	112.3 143.8	112.7 142.9	115.8 147.5	119.1 154.1	115.6 149.9
6	MANPOWER Sales of Insurance Stamps	106.0	109.7	104.5	108.0	100.6	110.1	101.2	110.7	104.5
. 7	No. in Tr. Goods Inds.	108.5	108.9	109.2	108.7	108.7	109.1	109.6	109.1	109.8
8 9	Benefit Claims Live Register/Insured	102.2 98.1	103.0 100.0	106.9 100.2	103.2 105.2	101.4 96.3	100.5 95.9	105.9 97.9	116.5 103.4	111.9 101.9
11	PRICES: Wholesale (not corrected)	107.6	110.9	111.6	112.1	113.9	115.7	114.7	114.4	115.9
12	Consumer (not corrected)	109.6	113.9	115.4	116.6	117.9	119.9	120.4	120.4	120.4
13	Agricultural	106.2	111.5	116.7	117.8	118.6	118.6	116.6	115.7	115.2
19 20	EARNINGS: Tr. Goods Inds.: Money Earnings Real Earnings	124.1 113.1	129.9 113.9	129.5 113.8	128.5 110.1	129.3 109.7	130.7 108.8	132.9 110.3	134.2 111.5	134.6 111.7
21 22	Consumption: Retail Sales New Cars Registered	117.9 127.6	122.5 147.5	127.2 151.6	127.4 156.3	129.7 166.6	131.8 158.6	133.8 155.9	131.8 110.2	130.4 161.2
23	Government: Revenue Receipts	133.3	145.3	144.9	150.7	153.6	170.9	155.6	165.8	164.6
24	Exchequer Expend.	132.2	142.5	157.3	152.5	164.7	165.3	164.3	177.6	169.7
25 26 27 28 29	External Trade: Import Value Export Value Import Excess Import Volume Export Volume	131.2 126.6 141.3 130.2 120.6	135.1 127.4 152.0 133.6 116.3	134.8 121.2 164.9 132.9 110.3	132.1 119.1 160.9 129.8 109.7	140.3 112.9 201.4 137.4 102.6	147.7 115.2 220.1 143.3 104.1	147.2 133.5 177.8 143.0 113.9	135.8 132.5 142.8 131.9 121.2	137.3 131.4 150.3 133.3 120.7
30 31	BANKING, FINANCE: Money Supply Bank Debits	130.2	130.5	136.3	137.6	136.8	141.0	142.9	142.6	145.7
32	Non-Govt. Bills, Loans, Advances	140.2 129.6	135.2 134.5	137.2 138.2	144.3 143.2	143.3 146.9	181.9 155.8	179.9	176.8 155.9	179.9
34 35	External Assets External Monetary	108.6	108.7	112.5	110.3	106.9	100.5	100.2	103.0	107.4
	Keserves	109.4	110.3	112.0	111.3	107.9	102.5	100.0	104.2	104.9

Notes: a Average figures April-October 1966 allocated according to normal seasonal pattern. b Figures unavailable due to bank dispute.

SERIES INDEX NUMBERS 1961 = 100

.

1966			19	67			19	68			1969			
II	111	IV	I	Π	III	IV	Ι	II	ш	IV	I	II	HI	IV
123.8	132.9	132.3	136.3	140.8	138.9	141.0	145.9	154.5	156.3	158.8	150.4	170.1		
124.7	135.6	134.5	139.1	144.8	142.0	142.9	148.4	159.4	161.4	163.7	154.8	174.1		
114.0 158.2	122.2 158.2	121.2 169.1	125.2 163.9	129.2 181.0	127.2 178.9	127.6 182.9	133.0 180.0	139.7 196.3	141.5 199.8	141.4 196.0	131.2 213.5	145.4 215.4	217.5	
101.8	110.5	110.4	103.2	111.7	111.7	108.1	106.2	111.7	106.7	108.4	111.6	110.9		
109.6 121.7 110.4	111.2 117.3 107.9	111.2 125.0 110.1	110.3 118.8 113.5	111.2 118.8 112.9	111.3 125.3 122.7	111.9 122.3 121.0	111.3 121.7 114.5	113.4 142.5 119.2	113.7 153.3 124.5	115.2 131.5 115.7	118.1 128.1 112.2	119.8 129.6 108.7	139.1 114.0	
118.3	117.1	116.8	118.8	120.7	119.4	121.2	125.2	127.2	127.2	129.2	133.6	136.8		
122.7 118.0	124.7 114.9	125.0 114.9	125.2 117.3	127.3 117.4	127.4 117.0	128.3 125.1	130.9 129.9	133.0 129.2	133.3 131.8	135.2 133.6	139.7 133.3	142.1 136.1	144.5	
140.8 114.6	148.7 119.2	150.3 120.2	151.9 121.3	151.4 118.8	153.1 120.1	158.8 1 2 3.8	160.4 122.6	164.3 123.5	168.7 126.7	175.0 129.3	182.4 130.5	185.4 130.4		
130.4 111.4	139.8 163.6	138.7 121.1	139.3 121.1	138.1 146.6	140.9 129.8	143.6 149.5	147.9 165.9	151.3 174.3	153.8 166.7	159.8 227.2	160.8 160.1	171.2 190.0	160.6	
a 180.0	<i>a</i> 184.4	<i>a</i> 198.1	187.2	219.9	212.9	211.4	201.4	778 7	244.6	250 1	227.2	206.6	200.0	
а 169.7	а 177.3	а 209.5	180.1	189.1	222.6	222.0	201.4	225.9	259.7	252.2	247.2	256.1	200.0 300.1	
125.9 121.4 135.9 121.1 108.6	159.3 137.2 208.3 157.5 126.5	150.5 148.5 154.9 145.6 137.6	152.4 147.6 162.9 148.7 132.6	144.8 160.5 109.8 141.5 144.2	152.6 158.6 139.2 149.9 144.6	147.2 162.7 119.2 146.1 146.2	175.6 170.6 186.5 161.3 144.7	184.9 188.1 177.5 167.1 157.5	192.5 182.5 214.4 164.8 152.9	206.3 194.9 231.3 185.4 162.4	200.9 185.1 235.6 173.4 152.3	235.7 216.5 279.9 203.0 174.1	226.7 201.2 283.0	
b a		155.5 a	155.4	156.1	163.9	165.1	171.1	171.1	177.7	179.8	184.5	186.3	186.6	
172.7	174.8	194.1	202.3	224.6	214.5	222.6	219.0	221.5	254.9	270.3	268.8	311.0	289.6	
b b	b b	165.9	166.9 117.3	164.0 124.2	169.1 131.1	177.8 133.4	186.2 130.5	192.9 118.3	197.7 113.4	202.4 115.7	214.6 109.0	224.7 106.5	231.9 107.1	
Ь	Ь	110.8	115.1	121.9	127.9	132.6	132.2	130.4	130.4	132.7	128.9	125.8	124.7	

SECTION 7: CHARTS OF ECONOMIC SERIES, SEASONALLY CORRECTED

Series 1: Manf. Inds. Prod. Vol. 1961 = 100 (log. scale)

250 200 150 1963 1964 1965 1966 1967 1968 1969



Series 3: Tr. Goods Inds. Prod. Per Head 1961 == 100 (log. scale) 250 200 150 100 1963 1964 1965 1966 1967 1968 1969





Series 7: No. in Tr. Goods Inds. $1961 = 100 (\log. scale)$









ł





















Series 32: Bills, Loans, Advances 1961 -- 100 (log. scale)



Series 35: External Monetary Reserves 1961 = 100 (log. scale) 250 200 150 1963 1964 1965 1966 1967 1968 1969

THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

Publ	lication Series:	
1.	The Ownership of Personal Property in Ireland	Edward Nevin
2.	Short Term Economic Forecasting and its Application	<i>in Ireland</i> Alfred Kuehn
3.	The Irish Tariff and The E.E.C.: A Factual Survey	Edward Nevin
4.	Demand Relationships for Ireland	C. E. V. Leser
5.	Local Government Finance in Ireland : A Preliminary	Survey David Walker
6.	Prospects of the Irish Economy in 1962	Alfred Kuehn
7.	The Irish Woollen and Worsted Industry, 1946-59: A Statistical Method	Study in R. C. Geary
8.	The Allocation of Public Funds for Social Development	David Walker
9.	The Irish Price Level : A Comparative Study	Edward Nevin
10.	Inland Transport in Ireland : A Factual Survey	D. J. Reynolds
11.	Public Debt and Economic Development	Edward Nevin
12.	Wages in Ireland, 1946-62	Edward Nevin
13.	Road Transport: The Problems and Prospects in Ire	eland D. J. Reynolds
14.	Imports and Economic Growth in Ireland, 1947-61	C. E. V. Leser
15.	The Irish Economy in 1962 and 1963	C. E. V. Leser
16.	Irish County Incomes in 1960 E. A. Attwood a	and R. C. Geary
17.	The Capital Stock of Irish Industry	Edward Nevin
18.	Local Government Finance and County Incomes	David Walker
19.	Industrial Relations in Ireland : The Background	David O'Mahony
20.	Social Security in Ireland and Western Europe P.	R. Kaim-Caudle
21.	The Irish Economy in 1963 and 1964	C. E. V. Leser
22.	The Cost Structure of Irish Industry, 1950-60	Edward Nevin
23.	A Further Analysis of Irish Household Budget Data,	1951-1952 C. E. V. Leser
24.	Economic Aspects of Industrial Relations	David O'Mahony

25.	Psychological Barriers to Economic Achievement P. Pentony
26.	Seasonality in Irish Economic Statistics C. E. V. Leser
27.	The Irish Economy in 1964 and 1965
28.	Housing in Ireland: Some Economic Aspects P. R. Kaim-Caudle
29.	A Statistical Study of Wages, Prices and Employment in the Irish Manufacturing Sector C. St. J. O'Herlihy
30.	Fuel and Power in Ireland: Part I. Energy Consumption in 1970
31.	Determinants of Wage Inflation in Ireland Keith Cowling
32.	Regional Employment Patterns in the Republic of Ireland
33.	The Irish Economy in 1966 The Staff of the Economic and Social Research Institute
34.	Fuel and Power in Ireland: Part II. Electricity and Turf J. L. Booth
35.	Fuel and Power in Ireland: Part III. International and Temporal Aspects of Energy Consumption J. L. Booth
36.	Institutional Aspects of Commercial and Central Banking in Ireland
37.	Fuel and Power in Ireland: Part IV. Sources and Uses of Energy J. L. Booth
38.	A Study of Imports C. E. V. Leser
39.	The Irish Economy in 1967 The Staff of the Economic and Social Research Institute
40.	Some Aspects of Price Inflation in Ireland R. C. Geary and J. L. Pratschke
41.	A Medium Term Planning Model for Ireland David Simpson
42.	Some Irish Population Problems Reconsidered Brendan M. Walsh
43.	The Irish Brain Drain Richard Lynn
44.	A Method of Estimating the Stock Capital in Northern Ireland Industry; Limitations and Applications C. W. Jefferson
45.	An Input-Output Analysis of the Agricultural Sector of the Irish Economy in 1964 R. O'Connor with M. Breslin
46.	The Implications for Cattle Producers of Seasonal Price Fluctuations R. O'Connor
47.	Transport in the Developing Economy of Ireland John Blackwell
48.	Social Status and Inter-Generational Social Mobility in Dublin Bertram Hutchinson
49.	Personal Incomes by County, 1965 Miceal Ross
50.	Income-Expenditure Relations in Ireland, 1965-1966 John L. Pratschke

PRINTED BY MOUNT SALUS PRESS LTD., DUBLIN