THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

QUARTERLY ECONOMIC COMMENTARY

by T. J. BAKER and J. DURKAN

MARCH, 1970

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THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

COUNCIL 1969-70

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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.

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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 dominating factor in assessing the economic situation is clearly the massive increase in money incomes and particularly in industrial earnings. Partly as a result of pay increases, but also in part as a result of associated increases in indirect taxation and of rising import prices, 1969 saw a very large rise in domestic prices, and a serious deterioration in the external deficit. On the other hand it also saw a reasonably high real growth rate and a very high level of investment. An unofficial estimate of National Accounts for 1969 is shown in Table 2.1.

The continuation of the rise in money incomes in 1970 will lead to continuing inflation, manifested in a further rise in prices and the continuation of a large external deficit. Because import prices are expected to rise much more slowly, and because the assumptions made concerning official policy preclude large increases in indirect taxation, the increase in prices is forecast as being slightly less than in 1969. A vigorous expansion in exports, including a recovery in cattle and beef shipments, and a slight slackening in the growth of imports, due to a changed pattern of domestic demand, are expected to prevent the balance of payments deficit from widening much further. Other features of the forecast for 1970, which is set out in Table 2.2, include a strong growth in consumption, a reduced expansion in investment, and a lower rate of stock-building.

The implications of the forecast for 1970 and of the detailed analysis in Section 3 are discussed in § 3.8 and 3.9. There appear to be two separate but interrelated problems. There is the difficult task of short-term demand management in 1970, where it seems that some further moderate action might need to be taken to reduce the external deficit, without, if possible, endangering the level of investment. It is suggested that, if such a policy is felt necessary, fiscal action might be more appropriate than further monetary restrictions, and that an increase in direct taxes has several advantages over a further raising of indirect taxes.

The longer term problem seems more serious. A continuation of the recent rates of pay increases, with the inevitable corollary of rising prices, will certainly be economically damaging, grossly unfair to those on fixed incomes, and will preempt resources for private consumption which could be used to better effect in improving social services. It is thus imperative that after completion of the present round of increases a period of relative stability in money incomes should ensue. Whether this is achieved in a strictly voluntary fashion, or whether some degree of compulsion proves necessary, any incomes policy ultimately depends on public acceptance. It is felt that the creation of a climate where such acceptance will be forthcoming is the most important task facing both Government and sectional leaders in the coming months.

SECTION 2: NATIONAL ACCOUNTS FORECASTS

	1968 Pro-	Chai 19	nge in 969	1969 Esti-	Cł	nange i 1969	n
	vis- ional			mate	Price	Vol	ume
	£m	%	£m	£m	%	%	£m
A. Expenditure or	n Gross	Nation	al Prod	uct	·		
Personal Consumer Expenditure	872	+12	+104	976	7 <u>1</u>	4 1	38
Public Net Current Expenditure	169	+121	+ 21	190	8	4	6
Gross Domestic Fixed Capital Formation	252	+24	+ 60	312	8 1	14	35
Exports of Goods and Services *	531	+10	+ 52	583	4	5 1	30
Physical Changes in Stocks: Agriculture Other	+ 5 +12		+ 5 + 4	+ 10 + 16		_	+5 +4
FINAL DEMAND	1,841	+131	+246	2,087	6	6 <u>1</u>	118
Imports of Goods and Services *	553	+17 1	+ 97	650	5	12	66
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,288	+111	+149	1,437	7	4	52
B. Gross National	Produc	t by Or	igin				
Agriculture, etc.—Total	194	+ 3	+ 6	200			
Non-Agricultural: Wages etc Profits etc	581 203	$+13\frac{1}{2}$ +10 $\frac{1}{2}$	+ 78 + 21	659 224			
	784	$+12\frac{1}{2}$	+ 99	883			
Other Income (including adjustment for price of stocks)	42	1.2		42			

TABLE 2.1: PRELIMINARY NATIONAL ACCOUNTS 1969

	1	L	1	1
Agriculture, etc.—Total	194	+ 3	+ 6	200
Non-Agricultural: Wages etc Profits etc	581 203	$+13\frac{1}{2}$ +10 $\frac{1}{2}$	+ 78 + 21	659 224
	784	$+12\frac{1}{2}$	+ 99	883
Other Income (including adjustment for price of stocks)	42	+ 2	+ 1	43
NATIONAL INCOME Depreciation	1,020 91	+10 <u>1</u> +11	+106 + 10	1,126 101
GNP AT FACTOR COST	1,111	+101	+116	1,227
Taxes on Expenditure less Subsidies	177	$+18\frac{1}{2}$	+ 33	210
GNP AT CURRENT MARKET PRICES	1,288	+111	+149	1,437
C. BALANCE OF PAYMENTS	—22	_	_45	67

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

TABLE 2.2: FORECAST NATIONAL ACCOUNTS 1970

	1969	Char 19	nge in 70	1970 Fore-	Change in 1970		n
	mate			cast	Price	Volu	ıme
	£m	%	£m	£m	%	%	£m
A. Expenditure on	Gross	Nationa	ıl Produ	ıct			
Personal Consumer Expenditure	976	+11	+110	1,086	6	5	51
Public Net Current Expenditure	190	+13	+ 25	215	10	3	6
Gross Domestic Fixed Capital Formation	312	+15	+ 47	359	8	6 1	21
Exports of Goods and Services *	583	+12	+ 71	654	3 1	8 1	51
Physical Changes in Stocks: Agriculture Other	+10 +16		$-\frac{8}{+2}$	$^{+2}_{+18}$			8 +2
FINAL DEMAND	2,087	+12	+247	2,334	5	6	123
Imports of Goods and Services *	650	$+12\frac{1}{2}$	+ 80	730	3	9	59
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,437	+111	+167	1,604	6 1	4 <u>1</u>	64

B. Gross National Product by Origin

Agriculture etc.—Total	200	+ 4	+ 8	208
Non-Agricultural: Wages etc Profits etc	659 224	+15] + 9	+101 + 20	760 244
Total	883	+13 1	+121	1,004
Other Income (including adjustment for price of stocks)	43	+ 2 1	+ 2	45
NATIONAL INCOME Depreciation	1,126 101	$+11\frac{1}{2}$ +11	+131 + 11	1,257 112
GNP AT FACTOR COST	1,227	+111	+142	1,369
Taxes on Expenditure less Subsidies	210	+12	+ 25	225
GNP AT CURRENT MARKET PRICES	1,437	+111	+167	1,604
C. BALANCE OF PAYMENTS	67	-	9	-76

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

SECTION 3: COMMENTARY

§3.1 Recent Trends in the Economy

It is not intended to undertake a full review of economic developments in 1969. Many of these are already sufficiently well known to need no repetition, while the imminent appearance of an official review of 1969 readers the presentation here of a comprehensive survey superfluous.

Nevertheless it is instructive to consider briefly in a general way a few of the trends observed in the past year which underlie the preliminary estimate of National Accounts for 1969 shown in Table 2.1. In addition to this initial recapitulation of trends, the behaviour of certain key variables in 1969 will be discussed in more detail when the prospects for the relevant sectors of the economy in 1970 are reviewed later in this commentary.

The seasonally corrected series presented in Sections 6 and 7 at the end of this publication suggest that while inflation continued throughout 1969, its rate was declining in the second half of the year. For convenience a few of the more important series from Table 6.3 are illustrated in Table 3.1.

		Index 1961=100, seasonally corrected										
Genter		19	68			1969						
Series	I	II	ш	IV	I	II	ш	IV				
Import Excess Consumer Price Index	186.5 130.9	177.5 133.0	214.4 133.3	231.3 135.2	235.6 139.7	277.8 142.1	283.0 144.5	291.7 145.6				
Retail Sales (Value) Money Supply	147.9 171.1	151.3 171.1	153.8 177.7	159.8 179.8	160.8 184.5	171.2 186.3	172.2 186.6	175.8 187.0				
Bills, Loans, Advances Weekly Earnings (Transportable Goods Indust.)	186.2 160.4	192.9 164.3	197.7 168.7	202.4 175.0	214.6 182.4	224.7 185.4	231.9 189.0	232.7 n.a.				

TABLE 3.1: KEY INDICATORS 1968-69

If the import excess and the consumer price index are regarded as the two main indicators of the actual state of inflation, it can be seen that there was a marked slowing down of the rate of increase in the second half of 1969 compared with the first half. Similarly with the two intermediate indicators, retail sales and money supply, the rapid increase between the middle of 1968 and early 1969 had abated considerably from the middle of last year. Of the two series which can be taken as representing causative factors, the level of bills loans and advances within the State was finally stabilised in the closing months of 1969 after a prolonged period of increase. Only the remaining "causative" series, average weekly earnings in transportable goods industries, shows no sign of having eased during the year. Although figures are not yet available for the last quarter of 1969, there is every reason to suppose that its rise continued unchecked. In summary, and taking into account the behaviour of series not included in Table 3.1, it seems that the rate of inflation was slowly being contained in the second half of 1969, with the exception of earnings. The main deterioration compared with 1968, in terms of prices and balance of payments, which can be seen in the unofficial National Accounts estimates in Table 2.1, took place in the first half of the year.

Unfortunately it appears as if it will be difficult to maintain this progress towards restraining the increase in demand to non-inflationary levels in 1970. It is necessary now to turn to the reasons why this should be so.

§3.2 The Economy in 1970. Incomes

Obviously the dominant feature of the economic outlook for 1970 is the very high increase in wage and salary rates which now appears inevitable. Unless there is some dramatic intervention by the Government, which would presumably involve new legislation, it appears that the current round of agreements is likely to lead to an increase in the annual average of industrial wage rates of between 15% and 20%. Non-industrial wages and salaries are also likely to rise steeply, although probably not so fast as in the industrial sector. The behaviour of pay in the state and semi-state sector is more problematical. Whereas it has become clear that the 7% norm proposed by the Taoiseach will have little or no effect on the pay settlements reached in the private sector, it is possible that an attempt may be made to impose it on the public sector. If such an attempt is made it seems fairly certain that it will be strongly opposed by the relevant unions and staff associations. What is far from certain is how far such a dispute would be carried by either side, and what the settlement would be at the end of it. For the purpose of forecasting it is assumed that public sector wages and salaries will rise by about 10% compared with the average for the financial year 1969/70, and that such a settlement will be reached without any actual stoppage of work. It must be emphasised however that this is only an assumption rather than a forecast based on knowledge, and that it is liable to be seriously wrong in either or both of its parts. The remainder of the non-agricultural wages item is made up of pensions, other than state transfer payments, and there is no reason to presuppose any significant increase in these.

It is further assumed, as discussed in a later section of this commentary, that there will be a much slower growth in non-agricultural employment in 1970 than in 1969, the rise in the annual average being only about 2%. On the basis of these assumptions, it seems probable that the aggregate of non agricultural wages, salaries and pensions will rise by about $15\frac{1}{2}\%$ or just over £100 million in 1970. This is very similar to the assumption made in the December issue of the Quarterly Economic Commentary. It is of course a greater rise than in any previous year, and its implications in both the short and longer terms will be discussed in §3.8 and 3.9.

The behaviour of other incomes in 1970 is likely to be much less inflationary. The rise in labour costs can be expected to place severe pressure on profit margins in many sectors of the economy. The normal processes of competition in export markets, the growing competition from imports on the home market as trade barriers are lowered under the Free Trade Agreement, and the operation of price control under the guidelines announced by the Government during the winter, are all factors which will tend to prevent prices being raised sufficiently to offset the rise in wages and salaries. Thus only a modest rise in aggregate corporate profits is in prospect for 1970. It seems fair to assume that income of the self employed, including shopkeepers and the professions, will rise at a rate somewhere between that of wages and salaries on the one hand, and corporate profits on the other. An average increase of 9% or 10% for the National Accounts item, profits etc., in the non-agricultural sector appears to be a reasonable expectation.

There is no reason to expect any dramatic change in income from abroad, which is included under other income in the summary National Accounts tables in Section 2. This leaves agriculture as the remaining form of income to be considered for 1970. In the light of the current U.K. agricultural price review, the best guess is that average agricultural export prices will be slightly higher in 1970 than in 1969. Domestic prices for agricultural products can also be expected to show a small increase, livestock prices rising on the home market in line with the export price and certain other products being allowed a modest price rise by official decision, as in the case of the recent increase for milk for liquid consumption. The prices of inputs to agriculture can also be expected to rise, cancelling out much of the benefit from rising output prices. With the volume of agricultural output impossible to predict with any accuracy, because of the influence of the weather and other random variables, it is assumed that there will be a small volume increase of about 2% or 3% in 1970 compared with 1969. In sum therefore, given average conditions, agricultural net income might increase in 1970 by about 4%, or between £5 and £10 million. However, so far as the impact on demand is concerned, this small increase might be misleading. It is expected that 1970 will see the selling of a considerable proportion of the stocks of cattle accumulated over the past two years. Although this makes no difference to agricultural incomes as calculated for National Accounts purposes, it could have a considerable impact on the disposable cash income of farmers, as some of the capital tied up in cattle stocks becomes available for spending or re-investment.

§3.3 The Economy in 1970. Output and Employment

The prospects for agricultural output have been mentioned in the previous paragraph. With regard to agricultural employment, there is no reason to expect other than a continuation of the normal annual decline.

The performance of industrial output in 1970 is of crucial importance in determining whether inflation and the external deficit can be contained within limits which are at all tolerable. A slow rate of growth, either because of a loss of profitable orders due to the cost increases, or because of a failure of labour productivity to rise, could have most serious consequences. On the other hand a rapid growth, embodying a substantial increase in output per head, could do a great deal to prevent unit labour costs getting too far out of line with those in other countries.

Unfortunately the indicators concerning industrial production in 1969 are particularly hard to interpret. First quarter production figures were seriously affected by the maintenance dispute, while the very good second quarter figures included a large but unquantifiable element of making up for the losses of the first quarter. The index of the volume of production in the third quarter of 1969 is rather puzzling. Seasonally corrected, production in manufacturing industry fell slightly from the abnormally high second quarter result. More seriously it was only 7% higher than in the third quarter of 1968, which is slightly below the assumed capacity growth rate of manufacturing industry. This indifferent result can largely be explained by the behaviour of the chemical industry group, where production is recorded as being 10% below the level of the third quarter of 1968.

Of course the initial figures for the index of production are notoriously liable to substantial subsequent revision, so too much reliance should not be placed on the preliminary results for a single quarter. The production results of the FII/ESRI Quarterly Industrial Survey certainly suggest a greater rise in manufacturing output in the third quarter than is shown by the index of production. Using the conversion factors set out in Section 4 of the Quarterly Economic Commentary of September 1968, the Survey results suggest that the rise in manufacturing production between the third quarters of 1968 and 1969 was around $8\frac{1}{2}$ %, while in the fourth quarter of 1969 the index might be about $7\frac{1}{2}$ above its level a year previously. However, the Survey does indicate that the second half of 1969 saw difficulties in the chemical industries group, with production no higher than in 1968. On the other hand exports of chemicals, according to both the Survey and the trade statistics remained buoyant throughout the period.

Consideration of the employment figures given with the production statistics makes the position more puzzling. The seasonally corrected series of numbers engaged in transportable goods industries shows a substantial and steady rise in the first three quarters of 1969, with employment by the third quarter 12,000 higher than a year previously. Normally such a rise in employment would be associated with a stronger growth in production than has been recorded over the period. Allowance must be made for the fact that employment figures relate to a single week in each quarter, while the production figures refer to the quarter as a whole, which can distort the relationship especially in a quarter such as the first of 1969 when output was disrupted by strikes. Allowance must also be made for the impact on the total figures for the third quarter of the apparent setback of the chemical group, where output per head is shown as falling by 15% between the third quarters of 1968 and 1969, and for the fall in average hours worked in industry between 1968 and 1969. These allowances suggest that too much weight should not be attached to a crude index of output per head in industry as a whole for any particular quarter. Even so, the figures as they stand do indicate either that there has been a severe check in 1969 to the rate of growth of productivity, or that some of the preliminary figures relating to output, are incorrect, and that substantial revisions of the 1969 figures can be expected in the future.

At present there is no way of knowing which of these possible explanations is nearer the truth. On general principles, and in the light of the results of the FII/ESRI Quarterly Survey, the best guess is that there has been some decline in the rate of improvement in output per head, but that this decline is not so great as suggested by the third quarter production statistics, which place the improvement over the preceding 12 months at only 1%.

Thus in looking forward to 1970, there is still considerable uncertainty concerning the course of industrial output and productivity in 1969. There are grounds for hoping that the actual performance was rather better than has been shown by preliminary estimates, but this can be only a supposition at present. With regard to 1970, it seems unlikely that the rapid rise in employment will continue, due both to constraints on the supply of labour and to the disincentive effect of pay increases on employment. Thus it appears that a substantial rise in output over that achieved in the second half of 1969 must depend on a recovery in the growth of productivity. The large volume of industrial investment undertaken in 1969 may assist in such a recovery, but not enough is known of the nature of this investment to make a firm judgement on the likelihood of this.

In the light of the foregoing discussion, and in the consciousness that it could be seriously wrong, the assumption has been made that industrial production will increase by about 8% between the end of 1969 and the end of 1970. Given the further assumption of no major industry-wide stoppage due to labour disputes, this would lead to an increase of about 9% in the annual average of industrial production. Only a modest rise in industrial employment is anticipated in the course of 1970, leaving the increase in the annual average of industrial employment at about 3%.

On these assumptions average labour productivity in industry would be about 6% higher in 1970 than in 1969. Given the expected rise in industrial earnings, unit labour costs would thus increase by about 11% between the two years. This is a considerably higher rise than is likely in other developed countries, where the average increase is expected to be about 8%. However, this probable disparity is not so great as to impose

an insuperable obstacle in competition on either the home or export markets, especially as the range of individual industries around this average is likely to be substantial.

From the point of view of demand management, a 9% rise in industrial production, coinciding with an increase of about 12% in total money incomes, suggests a considerable inflationary gap which has to be filled either by higher prices or by increased imports. This is particularly so when it is remembered that industrial production is usually the most rapidly expanding sector of the economy in volume terms.

Of the other non-agricultural sectors it is reasonable, in the light of the assumptions made concerning industrial production and the level of final demand, to expect a considerable rise in the "volume" output of distribution, transport and communications. A small increase in constant price terms can perhaps be expected from public administration and defence, and a rather more substantial rise in both output and employment in the "other domestic" sectors. The output of the building and construction industries, while expected to increase in 1970 is assumed to rise much more slowly than in 1969, with little increase in employment. The reasons for this are discussed in §3.4.

Thus for the economy as a whole, production is expected to rise rather faster (mainly because of the effect of the maintenance dispute on the 1969 output), and employment rather more slowly, in 1970 than in 1969, although elements of doubt must surround this forecast.

§3.4 The Economy in 1970. Expenditure

It might be thought at first sight that the greater rate of non-agricultural pay increases in 1970 than in 1969 will lead to a higher increase in consumer expenditure. This is not necessarily true. In the first place the rise in total employment is likely to be lower, as suggested in §3.3. In the second place, as outlined in §3.2, the increase in many forms of income, including profits, is unlikely to be more rapid than in 1969. In the third place average industrial earnings are at a level where, even at unchanged tax-rates, a substantial proportion of any increase is liable to direct taxation, thus making the rise in disposable income lower than the rise in pre-tax earnings. It is quite possible that at present rates about one fifth of the rise in pre-tax non-agricultural earnings will be taken up in direct tax payments. Fourthly, and perhaps most important, the rise in consumption in 1969 was associated with a dramatic increase in consumer credit, which is most unlikely to be repeated in 1970. In the fourth quarter of 1968, personal bank advances stood at \pounds 49.2 million, and hire purchase debt and other instalment credit at \pounds 64.8 million. By the fourth quarter of 1969 the corresponding figures were £59.4 million and £88.0 million, a total rise during the year in consumer credit of £33.4 million or 29%. Of course some of this credit, particularly in the field of hire purchase, must have been industrial or commercial in character, but even so the increase in credit for consumption purposes cannot have been other than very substantial.

By the end of the year, this growth was being brought under control, with personal bank advances falling slightly between August and November. Since then the imposition of quite severe controls on hire purchase transactions is likely to have checked the growth of this element of consumer credit also. There is every reason to expect that within the context of present policies the monetary authorities will continue to restrict the availability of consumer credit throughout 1970, allowing a rise of perhaps 5% between the last quarter of 1969 and the last quarter of 1970 compared with the 29% rise in the previous year.

Thus there are factors to offset the greater rise in average earnings, and it seems reasonable to expect an increase in personal expenditure on consumers goods and services of about the same order as last year in current prices. If the assumption of present policies is interpreted as meaning little increase in rates of indirect taxation, it is likely that the rise in consumer prices will be lower than in 1969, thus implying a slightly larger rise in consumption at constant prices.

The specific assumption embodied in Table 2.2, of an 11% rise in the value and 5% in the volume of personal consumption, falls within the limits indicated by the results of econometric tests. Baker's retail sales model suggests a value rise of between 8% and $10\frac{1}{3}\%$ on the basis of the assumptions outlined concerning earnings and consumer credit, while Leser's consumption function indicates an increase of 13% at current prices.

With regard to public authorities net expenditure on current goods and services it is assumed that current policy dictates that in 1970 the rise in real terms will be kept to as low a level as is possible in the light of existing commitments. Specifically, this is taken to mean a constant price increase of about 3%. The price element in this item is almost exclusively the rate of salaries and wages, and as stated in §3.2 it is assumed that pay increases in the public sector will average about 10% in the financial year 1970/71. Thus the projected current price increase in public current expenditure is rather larger than that realised in 1969.

The most uncertain, and in many ways the most important, category of domestic expenditure in 1970 is gross fixed capital formation. Its importance lies in its immediate impact on the balance of payments and in its long term influence on the rate of economic growth. Its uncertainty lies both in its volatility and in the lack of up-to-date information concerning investment expenditure.

Roughly half of total gross fixed investment is accounted for by the public capital programme. Present policy indicates that there is likely to be a severe restriction on the rate of growth of real public investment in 1970. Whereas the volume increase in 1969 was about 12%, it is reasonable to expect an increase of the order of 5% in 1970. On the assumption that public sector pay increases will be around 10% in 1970, but that the rise in the prices of capital goods will be rather slower than in 1969, this volume increase converts into a current price value increase of about 15%.

The major uncertainty concerns private investment. On the one hand demand at home and for exports is buoyant and should remain so, giving an incentive to invest in greater capacity. On the other hand, profit margins are likely to be squeezed in 1970, both reducing the incentive to invest and restricting the availability of retained profits to finance investment. Tight credit conditions and the stagnant state of the stock market are further impediments to raising capital for investment. The results of the FII/ESRI Quarterly Industrial Survey for December, published in Section 5 of this issue, do little to clarify the outlook. Capacity constraints appear to have eased a little compared with earlier Surveys in 1969, although judged in a longer perspective production remained quite close to capacity limits. The slight easing might well reflect the addition of new capacity resulting from the investment boom of the past 18 months. After the sharp downturn in investment intentions indicated in the October Survey there was a recovery in December, although this failed to quite regain the levels reported in the first half of 1969. It appears in retrospect as if the October figure was something of a freak result, but, taking the two quarters together, the replies could be interpreted as indicating a marked slowing down in the rate of expansion of investment by established industrial companies. To some extent offsetting this however, it is reasonable to assume that the success of the I.D.A. in attracting new industry in 1969 will be reflected in increased investment expenditure from this source in 1970. Private house building can be expected to increase, although it is possible that the new regulations concerning grant policy may slightly check the rate of expansion. Conversely the large inflow of funds to the building societies in 1969 might be an expansionary force.

Another factor which would well restrict the volume of building and construction is the present cement strike, which is already interrupting some building programmes, and any prolongation of which could seriously affect the annual output of the building industry.

Evaluation of these many conflicting tendencies must necessarily be subjective. On balance it seems most probable that, if present policies of demand management are continued, private fixed investment will continue to rise, but not so rapidly as in 1969. An increase of about 8% in volume terms, rather over half the rate in 1969, seems a reasonable forecast. The implied price rise is unlikely to be much lower than in 1969, so a value increase of about 15% seems indicated. Of course a change in official policies could cause the rise in private investment to be considerably below these forecasts.

Putting together these forecasts for the public and private sector, the projected increase in gross fixed capital formation becomes that shown in Table 2.2; an increase of 15% at current, and $6\frac{1}{2}\%$ at constant prices. This implies a considerable moderation from the increase in investment believed to have taken place in 1969.

Stocks are also expected to rise by less in 1970 than in 1969. This is largely due to the impact of tight credit conditions on both livestock and non-agricultural stocks. Even without this factor however, there would be grounds for expecting a reversal in the increase in cattle stocks over the past two years. Naturally any precise forecast of stock movements must be regarded as speculative, but while the figures used in Table 2.2 may prove seriously innacurate, it would be surprising if there were in fact any large increase in stocks.

§3.5 Exports of Goods and Services

Table 3.2 sets out the preliminary pattern of exports for 1969 and a summary forecast for 1970. It can be seen from this table that the pattern of recent years, with industrial exports expanding faster than agricultural, is expected to continue in 1970. Nevertheless a considerably greater increase in agricultural exports is forecast for 1970 than was achieved in 1969. This is primarily due to the expectation that the volume of cattle and beef exports will rise strongly as the build-up of cattle stocks virtually ceases. A slight increase in the volume of other agricultural exports is allowed for, and also a rise of about 2% in average prices of agricultural exports. In point of fact, if weather conditions in the U.K. are favourable, and if access to the E.E.C. for meat opens up to the extent some commentators are hoping, then the forecast increase in agricultural exports may prove over cautious.

		1968 Actual	1969 Provisional	1970 Forecast	Cha	hange	
		 £m	£m	£m	£m	%	
Industrial: to U.K. Other	•••	 93 56	102 74	115 94	+13 +20	+13 +27	
Tot Agricultural Misc. and Re-exports	al 	 149 157 26	176 167 28	209 186 30	+33 + 19 + 2	+19 +11 + 7	
Total Merchandise Invisible*	 	 332 199	371 212	425 229	+54 +17	+16 + 8	
Total	•••	 531	583	654	+71	+12	

TABLE 3.2: EXPORTS OF GOODS AND SERVICES 1968-1970

* Current Account Credit Movements from Balance of Payments, less total merchandise exports from Trade Statistics.

With regard to industrial exports the question arises as to whether the rise in unit labour costs is likely to retard expansion in 1970. Some allowance is made for this possibility by keeping the increase in industrial exports to markets other than the U.K. to a slightly lower percentage growth than seems to have been achieved in 1968 or 1969. In the case of the U.K. it is felt that the expansion of that market in 1970 is likely to be greater than in 1969, and that this will more than offset any fall in the competitiveness of Irish industrial exports. Therefore a moderate improvement in the percentage growth of industrial exports to the U.K. is forecast. Were it not for the doubts concerning Irish costs, the forecast increase would be larger. No specific allowance has been made for sales of second-hand aircraft and ships in 1970, nor for the inverted effect of last summer's interruption to shipments of minerals. These items can be regarded as a form of safety margin within the general estimates, which can thus be regarded as quite conservative.

Invisible exports, which on our definition include factor flows and the adjustment to the trade figures for balance of payments purposes, as well as the more usual items such as tourism and the net exports of the Shannon duty free area, performed rather disappointingly in 1969. It is felt that the setback tourism apparently suffered in 1969, presumably as a result of the troubles in the North, should not be repeated in 1970, so long as the Northern situation remains relatively calm. The lack of buoyancy in the Shannon returns in 1969 was probably the result of abnormal stock-building, and a resumption of growth can be expected in 1970. There is no reason to expect any great change in other invisible items, and consequently a faster growth in invisible exports as a whole is envisaged for 1970. The 8% increase forecast is roughly in line with the long term average growth of invisible exports.

§3.6 Imports of Goods and Services

The foregoing analysis suggests that final demand, including stock changes, might rise in 1970 by about 12% at current prices and by about 6% in volume terms. The crucial question, from the point of view of short term economic management, is what effect this will have on the value of total imports.

Leser's aggregate import function suggests an increase of 14.4% or £93 million in imports of goods and services. The disaggregated approach presented in recent issues of the Quarterly Economic Commentary gives a variety of answers according to which equations are used. The results range from an increase in merchandise imports of about £70 million to one of nearly £100 million. It has not been possible to test the various equations over a long enough period to judge which of them give the best forecasting results, so recourse must be had to commonsense in selecting which figure within this range to adopt as a forecast.

The assumptions underlying the remainder of the National Accounts forecast point to the selection of a figure towards the lower end of the range. It is specifically assumed that stockbuilding will be kept to a minimum by credit restrictions; although the shortage of suitable quarterly series has prevented the testing of stock changes as an explanatory variable in any of the import equations, calculations in other countries have shown that changes in stock-building have a powerful influence on import levels. A second factor to be considered is that most of the equations which deal with imports of capital goods rely heavily on the volume of production index, rather than actual expectations concerning investment, as the main explanatory variable; in 1970 it is expected that actual investment will be lower than would be indicated from consideration of the production index in isolation.

Thus the forecast adopted is for a rise in merchandise imports of about £76 million or 13% in current price terms. This increase is almost the same in absolute terms as that recorded in 1969, if the exceptional increase in imports of aircraft is omitted from

the 1969 total. This seems reasonable, especially taking into account the fact that a similar rate of growth in G.N.P. is expected in each year, and that the composition of this forecast growth is slightly less import intensive in 1970 than in 1969. The rise in import prices should be considerably lower in 1970 than in 1969. In their February Review, the National Institute of Economic and Social Research of London estimated that prices of imports to the UK would actually fall slightly in 1970, and that UK exports (which of course form a high proportion of Irish imports) would increase in price by only 2%. Allowing for the different mix of imports, and also for a little scepticism, it still seems unlikely that Irish import prices will rise by more than 3% in 1970 as compared with 1969. This would be much less than in either of the last two years, and, given that Irish imports tend to be price inelastic, should help to prevent as large a rise in the value of imports as in 1969.

With regard to invisible imports, the cost of servicing the increasing external debt will rise, while the growth in personal incomes coupled with the convenience of the car ferries is likely to lead to a further increase in tourist expenditure overseas. A rise of $\pounds 4$ million or 7% in invisible imports seems a reasonable allowance.

§3.7 General Synthesis

The forecasts for exports and imports given above imply a slight further worsening of the current account balance of payments deficit in 1970. The deficit for the year on this basis would lie in the region of $\pounds75$ million. Naturally, the forecast of the deficit, being arrived at as a residual, is subject to a large margin of error in either direction, even if the errors in either export or import forecasts are themselves quite modest. It should perhaps be stressed that the forecast deficit is regarded as a mid-point estimate, and is equally liable to prove too high as too low.

While not too much reliance can be placed on two months' preliminary trade statistics, it is mildly encouraging to note that the import deficit for January and February 1970 is a little below that for the corresponding period of 1969, which itself was below the average for that year. It appears that in the first two months of 1970 exports were growing slightly faster, and imports slightly slower, than the forecasts discussed in §3.5 and §3.6 would dictate. While it would be rash to rely at this stage on a continuation of these favourable trends, the trade statistics must be watched with care to see whether they do, in fact, continue. If they do, it would be an indication that the measures of monetary policy imposed in recent months are having a greater effect than has been allowed for in this forecast.

With regard to prices it appears inevitable that 1970 will see a further substantial rise in general domestic prices. Pay rises of the order being granted cannot be absorbed from profits, and official price control cannot prevent widespread price increases. Even without any additional stimulus from higher rates of indirect taxation, an annual rise of between $5\frac{1}{2}$ % and 6% in the consumer price index can be anticipated.

Thus the general picture of the economic prospects for 1970, on the basis of present policies, can be summed up as follows. A satisfactory overall growth rate of about $4\frac{1}{2}$ % is probable, with the increase in real consumption rather higher, and in real investment rather lower, than is normally associated with such a growth rate. Inflation, as manifested in rising prices and in the external deficit, will continue, although the rate of deterioration is likely to be less than in 1969. In spite of rising prices, non-agricultural employees will have succeeded in the course of the year in substantially improving their living standards both absolutely and relatively to the remaining sectors of society.

§3.8 Policy Implications. Short Term

Given the *fait accompli* of the rapid increase in money incomes, the short term policy implications basically turn on the questions of whether the outcome forecast here for 1970 is acceptable, and if it is not, of what steps can be taken to alter it. Although these are questions for the responsible authorities to answer, the commentators feel impelled to state their personal opinion that, while the short-term outlook is serious, it is not sufficiently disastrous to warrant any attempt at drastic remedies. Such remedies could have undesirable long term consequences. So long as the external reserves remain at their current high levels there is time to adopt a gradual approach to reducing inflationary pressures. Drastic measures can be retained in reserve to meet any sudden deterioration in either the external reserves or the general economic situation. Even so, there seems a case for moderate fiscal action of a deflationary nature. A small increase in the current budget surplus would counteract some of the effect of increased money incomes, and might avert the need for a further tightening of monetary controls which could have dangerous effects on investment prospects.

If such a policy is adopted, and if, as seems inevitable in spite of the revenue buoyancy to be expected in 1970, it would involve increasing rates of taxation, there are strong grounds for advocating an increase in direct rather than indirect taxes. In the first place, there is evidence to suggest that direct taxes have a greater impact on the level of demand than indirect taxes, and are thus a more effective tool of demand management. In the second place, traditional indirect taxes lead to immediate price increases, and in the context of longer term policy there appears to be an overwhelming case for minimising the increase in prices over the coming year.

§3.9 Policy Implications. Long Term

As argued above, the immediate implications of the excessive rise in money incomes can be regarded as just manageable by a combination of severe, although not drastic, fiscal and monetary measures. The longer term implications are much more damaging.

There is of course the familiar danger that a continuation of labour costs rising more rapidly than in other countries must eventually lead to a wide range of Irish goods becoming uncompetitive on both export and home markets. This in itself could lead to loss of employment, a fall in investment, and general disruption and stagnation in the economy. Equally obvious is the fact that rapidly rising money incomes must lead to substantial price increases, with the associated hardship and injustice to those living on fixed incomes.

Less obvious is the danger that in a situation where short-term demand management constantly dictates a deflationary stance by the fiscal authorities, it is extremely difficult for resources to be allocated to improving the social services. As the Third Programme for Economic and Social Development points out, there should be a high priority for both current expenditure and capital investment to be devoted to the social services in the next few years.

For all these reasons there is an overwhelming need for a lengthy period of stability in employee earnings after the runaway increases of the past two years. If such stability can be achieved voluntarily, so much the better, but failing this, serious consideration must be given to the imposition of some statutory curb on increases in money incomes.

The authors regard it as axiomatic that, at the present stage of Irish economic development, the principal long-term aim of economic policy should be a rapid growth in material living standards. This in turn implies a rapid rise in real incomes, and

particularly in real wages. It is not realistic, nor is it necessarily desirable, to look for this improvement through the mechanism of constant money incomes combined with falling prices. The obvious path to an increase in real incomes is through frequent increases in money incomes, combined with stability, or at most a gentle rise, in price levels.

Too often in the past, increases in money incomes, and particularly in wages, which have been perfectly justifiable in the context of raising living standards, have been castigated by various commentators as being damaging to the economy. The present situation is, however, exceptional. Over the past eighteen months money incomes, and especially wages and salaries, have risen at a rate which has clearly been incompatible with any semblance of price stability.

Since the middle of 1968, industrial earnings have already risen by about 18% in money terms. In real terms, after allowing for the rise in prices, they have risen by at least 8% and a further rise of the same order seems probable by the middle of 1970. In these circumstances it is nonsense to claim that wages are merely following prices. Given the time-lag in price increases working through the economy, it is inevitable that some part of the initial gain in real wages resulting from a pay award is subsequently eroded by rising prices, but equally clearly much of the gain is retained.

In the nature of affairs the gain by industrial and other wage and salary earners has been matched by income increases in the professions, and to a lesser extent by shareholders. The losers would appear to be pensioners, particularly private pensioners, other people on fixed incomes, and, to a lesser degree, farmers.

There is a vital need to convince the public at large that a restriction in the increase of money earnings to a rate which can be matched by the expansion of production would not adversely affect wage and salary earners, and would arrest the rapid impoverishment of the section of the community least able to defend itself against rising prices.

This task of persuading the public to accept a moratorium on large pay claims over the next few years is so important that any short run expedients to deal with the immediate situation should be designed with this in mind. It seems probable that acceptance of some incomes policy would be most likely in a situation where the majority of people feel that existing pay differentials are more or less normal. This consideration would appear to weigh against any attempt to institute a selective form of pay restraint before the current "round" of pay increases is generally regarded as completed. Acceptance is also likely to be dependent on a slackening in the rate of price increases, and this argues strongly against large increases in indirect taxation over the coming months.

In all, the authorities have an unenviable and difficult task in the present circumstances in managing the economy in 1970 and in creating the conditions in which a return to sustainable income increases can be achieved. The even more important task faces the public and its sectional leaders in accepting that the experience of 1969 and 1970 is exceptional, and that it cannot be continued beyond the present year.

SECTION 4: A STUDY OF IMPORTS. PART 4. PRODUCERS CAPITAL GOODS READY FOR USE

by T. J. Baker and J. Durkan

§4.1. Introduction

Previous editions of the Quarterly Economic Commentary have analysed the behaviour of imports of consumption goods and imports of materials for further non-agricultural production. This part of the study presents an analysis of imports of Producers Capital Goods ready for use, on the same lines. This basic similarity of procedure is dictated by the desirability of maintaining a uniform treatment for all categories of imports in what is essentially a study of the method of disaggregation as a useful technique for short-term forecasting. Hence regression analysis is applied to seasonally corrected quarterly data both in absolute terms and in terms of percentage changes.

Previous studies aimed at deriving forecasting or structural equation for investment imports have not been too successful.* The analysis and forecasting of investment behaviour, abound in conceptual difficulties, no less than data difficulties. Early results confirmed our fears and argue against undue expectations. Thus the analysis is based more on absolute levels than in the case of previous categories, and percentage changes are analysed only in the form of three-quarter moving averages, and not in the more rigorous terms of simple percentage changes.

84.2. The dependent variable

A special problem arises with the dependent variable, imports of Producers Capital Goods, in the analysis. Imports in this category represent replacement investment and additions to the stock of capital. Replacement investment includes retirements due to obsolescence and the physical deterioration, evidenced by declining productivity, of the existing stock of capital. Additions to the stock of capital due to capital deepening and/or capital widening lead to an expansion of available capital services. Rarely, if ever, will replacement investment or additions to the stock of capital be homogeneous, even from year to year. Thus the value of imports of Producers Capital Goods contains a volume effect, a technical progress effect and what might be called a cost effect (due to changes in the price of inputs into industries producing Capital Goods other than those dependent on quality changes in such inputs). Ideally a price deflator for Producers Capital Goods should eliminate the latter effect. Unfortunately, the wholesale price index of imported Capital goods, the only deflator available, is not entirely satisfactory. Like other price indices it does not take account of quality changes, which, of course, are of particular importance in the case of producers' capital goods. Hence it must be regarded as biased upwards - a point noted by Geary and Pratschke, and the volume of imports of Producers Capital Goods obtained using the deflator is thus biased downwards. Thus the correct volume of Capital goods imports lies somewhere between the value and volume figures. Since the authors have found no satisfactory method of dealing with the quality problem, the analysis is conducted in terms of both the value and volume of Producers Capital Goods with a predilection for the value figures, as it is value that we wish to forecast. An examination in detail of the components of this category of imports reveals that imports of Ships and Aircraft involve large sporadic movements in the quarterly data. Accordingly, an attempt has been made to eliminate the effects of Ships and Aircraft imports. The Trade Statistics lists Ships and Aircraft and parts together and a fairly arbitrary decision, based in part on a detailed breakdown

* ESRI Paper No. 40.

provided by the C.S.O. for 1968, was made for each quarter's imports of parts. The residuals were taken to represent imports of Ships and Aircraft and were subtracted from quarterly totals of imports of Producers Capital Goods. While this is open to criticism it was felt that leaving Ships and Aircraft in Capital Goods was demanding too much of the error term. Agricultural machinery imports form a small proportion of imports of Producers Capital Goods ready for use. While ideally, in a disaggregated study, these should be abstracted from the total and treated separately it was felt that further disaggregation was unlikely to prove fruitful. Examination of the data does not suggest that any allowance need be made for major dock strikes.

§4.3. The independent variables

Unlike imports of Consumption Goods, which are encompassed in the Index of Weekly Retail Sales, and imports of Raw Materials for further non-agricultural production, which are almost totally for use in manufacturing industry, imports of Producers Capital Goods cannot be directly related to any one series as no quarterly gross capital formation figures are published. This lack of a quarterly investment index with which imports of Producers Capital Goods can be directly related moves the forecasting problem onto a different plane, i.e. onto that of the determinants of investment behaviour, a region notoriously difficult of treatment and evidencing considerable lack of success. Thus throughout this part of our study it is assumed that the expectations on which investment decisions are made are for the most part based on past performance, weighted towards the present. Therefore, reliance is placed on current values and distributed lags in the case of both absolue data, as described in §4.4, and three-quarter moving averages.

That imports in this category include inputs into all sectors of the economy, viz. agriculture, transportable goods industries, building and construction, public utilities etc., further compounds the problem of the selection of the explanatory variables, as no quarterly series encompassing these variables is available. Thus the explanatory variables selected are chosen as proxies — either singly or in concert.

The factors most likely to determine the level of Producers Capital Goods imports are the level of production in transportable goods industries, the degree of capacity utilisation in such industries, the tendency to and extent of capital deepening in industry, the level of profits and the cost and ease of borrowing. In the case of Ireland it is not felt necessary to consider a relative price variable, as nearly all imports of Producers Capital Goods are non-competing imports.

Of the possible explanatory variables suggested above, the volume of production of transportable goods industries is selected firstly as a series representing *total* output, secondly, as a series whose current and lagged values help determine the level of replacement investment, and lastly as a series on whose current and lagged values future aggregate investment decisions are based.

In addition and complementary to the volume of production of transportable goods industries, the level of capacity utilisation in such industries is also relevant. The greater the degree of capacity utilisation the greater — potentially at least — the likelihood of investment and the greater the volume of imports of capital goods. Black, Simpson and Slattery* in a recent paper have constructed a capacity index based on the growth of output, the level of unemployment in transportable goods industries and a post-hoc onlocker approach. A capacity utilisation index was obtained by considering actual production as a percentage of this capacity index. The approach adopted here is slightly different, relying entirely on the volume of production index. It has been assumed that production grows exponentially. A linear trend has been fitted to the log of the volume of production (three-quarter moving average) and deviations from this trend are taken

^{*} ESRI Paper No. 51.

as indicatory of capacity utilisation. An index is derived from these deviations. This index is not to be considered as absolute in any sense — it is rather an index of the ratio of levels of capacity utilisation. The assumption of an exponential growth in production is well borne out by the fit of the linear trend to the log of the volume of production, with an R^2 of .9887. Except for some slight differences in the earlier period our capacity utilisation index agrees fairly well with that of Black, Simpson and Slattery, on a graphical comparison. In a belief that capacity utilisation is a state rather than a process, a further, synthetic, capacity utilisation variable was constructed, by assigning values 1, 0, —1 to periods of high, average, and low capacity utilisation respectively. This has the advantage, first, of eliminating sharp quarterly fluctuations within a definite period of high, average or low utilisation, and secondly of being suitable as a forecasting variable using information on capacity constrains from the F.I.I.-E.S.R.I. quarterly industrial survey.

Over the period under discussion there has been a sustained rise in earning in transportable goods industries. O'Mahony* has suggested that the rate at which entrepreneurs substitute capital for labour is influenced by the relative prices of these factors. Hence a capital deepening index has been constructed as the ratio of the wholesale price index number of transportable Capital (almost totally imported) used in industry to average hourly earnings in industry. Both series show strong upward trends, their ratio a strong downward trend. Even taking into consideration the strictures noted earlier on the validity of the wholesale price index number and its bias, this constructed series suggests a tendency for capital to become relatively cheaper than labour and hence the possibility of the substitution of capital for labour in industry.

There are no available quarterly series for the level or rate of profits, or for the ease, as distinct from the cost, of borrowing money for investment purposes. However, a composite approach to these factors can be made by taking the price index of ordinary stocks and shares as a variable. This index reflects current profits, and the market assessment of future average profits, as well as long term interest rates and the availability of funds for this type of asset. Thus a rise in the index indicates that current profits are rising, or that future profits are expected to rise, or that interest rates are falling, or that there is an increasing volume of funds seeking employment. Any of these factors, or any combination of them, seems likely to encourage industrial investment. Thus it is reasonable to expect a high level of the index or a rapid rate of increase in it to be associated with a high or rising rate of capital formation and thus of capital goods The association can be direct, in that it is easier and cheaper to raise equity imports. capital for investment in a high market, or indirect in that business managers' expectations as to prospects are likely to be influenced by the behaviour of the stock market. A further advantage of this variable is that the index represents firms in all sectors of the economy, and thus has a wider representation than the volume of production index for the transportable goods industries. Inspection reveals no regular seasonal pattern in the index of share prices, and so no seasonal correction is necessary.

The remaining variables tested can be described quite briefly. The ordinary overdraft interest rate of the commercial banks is included as an indicator of the general level of interest rates in the economy. Again, no seasonal correction is necessary. The agricultural price index is included, in case it might influence imports of capital goods for use in agriculture. From a study of early results it became clear that some of the increase in the value figures for 1968 were due to price effects resulting from the devaluation of November 1967. Accordingly, a dummy variable for devaluation has been included in many of the equations dealing with the value of imports.

The above general discussion of possible explanatory variables excludes any direct mention of government inducements to investment. Although such measures as grants

^{*} ESRI Paper No. 24.

and tax relief obviously must have a considerable effect on the level of investment, there do not appear to have been sufficient changes in the inducements offered during the period under review to justify an attempt to construct a variable for this factor. Likewise such public utilities as E.S.B. and C.I.E., which engage in heavy investment programmes are not directly considered in the analysis, for want of a suitable quarterly variable to represent their activities. As explained already, imports of ships and planes, which account for a major part of the capital expenditure of other semi-State bodies, are excluded altogether from the analysis.

§4.4. The Structure of the Equations

In §4.2 it was noted that the problem of forecasting imports of Producers Capital Goods is essentially different from the problem of forecasting other categories of imports. For the latter current behaviour appears to be dominant, for the former current and lagged values of the independent variables, as in part influencing future expectations, are relevant. Ideally the lag structure should be empirically investigated. Considerations of time have militated against this approach. The model selected in most formulations is a simple Koyck distributed lag model of the form:

$$y_t = \beta x_t + \lambda y_{t-1} + u_t$$

The lagged value of the dependent variable deserves careful interpretation. In its initial formulation — that current imports of capital goods are determined by current and past behaviour — the model takes the form:

$$\mathbf{y}_{t} = \beta \mathbf{x}_{t} + \beta_{1} \mathbf{x}_{t-1} + \beta_{2} \mathbf{x}_{t-2} + \dots + \mathbf{u}_{t}$$

Assuming that the coefficients decline geometrically, i.e.

$$\beta_1 = \beta \lambda^i$$
 (i, = .0, 1, 2,); $0 < \lambda < 1$

the above reduces after some algebraic manipulation to:

$$y_{t} = \beta x_{t} + \lambda y_{t-1} + u'_{t}$$

where $u'_t = u_t - \lambda u_{t-1}$.

As our computer programme did not include a Durbin-Watson test the problem of the induced serial correlation inherent in the formulation of u'_t is handled, by considering Geary's sign change test of residual autoregression. The lagged dependent variable in our formulation is then to be considered as a compound variable summarising the influence of past economic activity. It must be recognised that, where more than one explanatory variable and its lagged terms are considered in an equation, the simple distributed lag form implies certain rigidities on the behaviour of the lag structure of all independent variables. In the interest of simplicity no attempt is made to take account of such possible differing lag structures. For regressions on the absolute data this simple model is used almost exclusively.

In dealing with percentage changes, three-quarter moving averages are used throughout. The use of three-quarter moving averages is justified by the necessity of eliminating sharp quarterly fluctuations particularly on the Producers Capital Goods imports side.

Their use in primarily current terms implies a fairly short reaction time for Irish business. On occasion the lagged value of the dependent variable is introduced.

§4.5. Absolute Levels, Value Figures

A multiple regression programme was used to test many specified combinations of the possible explanatory variables introduced in §4.3. A few experimental runs were made excluding the lagged dependent variable but in all such cases the residuals clearly indicated serial correlation, tested using Geary's sign change. The results of the more interesting combinations are given in Table 4.1.

TABLE 4.1: IMPORTS OF PRODUCERS CAPITAL GOODS, LESS SHIPS AND AIRCRAFT, ABSOLUTE VALUE LEVELS, REGRESSION ANALYSIS

A. Variables

Dependent Y =capital goods imports (excluding ships and aircraft) seasonally corrected quarterly. £m. current values (II Q 1958-IV Q 1968).

Independent X_1 =volume of production index, transportable goods industries, seasonally corrected quarterly (1953=100).

- X_2 =capacity utilisation index (see §4.3) X_3 =capital deepening in transportable goods industries.
- X_4 = price index no. of ordinary stocks and shares (1953=100).
- $X_5 = X_{4, t^{-1}}$
- X_6 = agricultural price index no. seasonally corrected quarterly (1953=100). X₇ = ordinary overdraft rate of commercial banks.
- X_8 =dummy variable for capacity utilisation, based on X_2 .
- X_9 = dummy variable for devaluation (1, 2, 3, 4 for the four quarters of 1968 and 5 thereafter).
- $X_{10} = Y_{t-1}$.

B. Significance and Fit

Equation		Variables Si	ignificant a	t	Not Significant	R	F Value	Standard Error of
No.	1%	5%	10%	20%				Estimate
A1 A2 A3 A4 A5 A6 A7 A10 A11 A12 A13	1,10 1 1,10 1,4,10 4,10 4,10 1,3 4 1 1,4,10 1,9,10 4,10	8 8 1,8	4 4 3 3 9		3,5,6,7,8 3,5,6,7 7 8 8 8	.991 .989 .989 .989 .991 .989 .990 .975 .988 .969 .991 .990 .990	235.3 219.1 600.5 848.6 517.6 577.1 446.7 258.3 388.5 623.1 548.8 638.3 622.2	.598 .661 .610 .628 .570 .622 .613 .918 .656 1.016 .554 .592 .600

C. Regression Coefficients

Equa- tion	\mathbf{X}_{1}	X 2	X3	X4	X5	X 6	x ₇	X8	X9	X10	Inter-
						[copt
A1	.039		.026	.012	.002	012	057	116		.482	-4.329
A ₂	.051		017	.017	.010	019	192	329			0.527
A3	.036						<u>.</u>	.204		.735	-2.705
A4	.036									.729	-2.688
A ₅	.032			.011			067			.507	-2.163
A ₆				.017				125		.624	-0.088
A7			051	.016		ĺ		077		.486	5.065
A8	.059		165					.290			12.768
A9	.028		061	.025			1	.254			4.148
A ₁₀	.199										-8.212
A11	.025			.010			·		.217	.572	-1.700
A12	.028								.344	.760	-1.740
A13		4		.011		1			.280	.734	0.186

D. Selected Equations:

A3;

A₁₁;

 $Y_c = -1.740 + .028X_1 + .344X_9 + .760X_{10}$ A₁₂;

It can be seen that variables X_1 , X_4 , X_9 and X_{10} are significant whenever they are included. Each of these variables shows the expected positive sign throughout and their regression coefficients remain reasonably stable, with the single and unimportant exception of X_1 in equation A_{10} where it is used as the sole independent variable. In the three equations where X_9 , the devaluation dummy, is included, it is significant at, at least, the 10 per cent level. This is more surprising than might seem likely, as this variable affects only four quarters out of the total of 43 observations. As it stands, this suggests that devaluation had a marked effect on the price of imported capital goods, although it is also possible that the variable is picking up the effect of some other, unknown, factor.

The index of capacity utilisation, X_2 performs less well than its dummy formulation, X_8 . Hence none of the equations shown in Table 4.1 contains X_2 . X_8 is significant at the 5 per cent level in four of the equations illustrated, but its sign is perverse in one of these. When X_4 is included, X_8 tends to lose its significance and to have the wrong sign, suggesting that the share price index might pick up the existence or absence of spare capacity—perhaps not too surprising a result.

 X_3 , the capital deepening index is significant at the 1 per cent level in one, and at the 10 per cent level in two, of the illustrated equations and shows the proper sign. Where X_{10} is included as an independent variable in the regression, X_3 is significant only when taken in conjunction with X_4 and not with X_1 . This result is difficult to explain in context and the inclusion of this variable seems to add little to the analysis.

Variables X_5 , X_6 , X_7 do not appear significant in any of the equations shown. In the regressions tried, X_6 is nowhere significant: X_5 , where used rather than X_4 , gives a higher standard error of the estimate and a lower R²—certainly not suggesting that a lagged, rather than a current formulation, of the main independent variable in the distributed lag model, is appropriate: X_7 is significant in a few of the equations not illustrated in the table. However in these cases its sign is positive, although theoretical considerations dictate that its "expected" sign should be negative, despite the complication of interest rates rising through the period studied as a result of changing attitudes to inflation.

Of the equations selected in Table 4.1, A_3 , A_{11} and A_{12} seem most likely to be useful for forecasting purposes. The fit obtained for the three equations is satisfactory and the standard error of the estimate is low. Equations A_3 and A_{12} rely mainly on transportable goods industries and variables derived from transportable goods industries. Equation A_{11} introduces expectational factors into the analysis in the form of X_4 .

§4.6 Absolute Levels, Volume Figures

In §4.2 it was noted that various difficulties arise in deciding whether the dependent variable should be treated in value or volume terms. In §4.5 the value of imports of Capital Goods was taken as the dependent variable. This section of the analysis proceeds by means of volume figures, where the volume is obtained by deflating the value figures by the wholesale price index number of imported Capital Goods (1953 = 100). The independent variables are as in §4.5, with X_{11} , the lagged volume dependent, replacing X_{10} , the lagged value dependent in §4.5, and X_{0} , the devaluation dummy, being dropped. Table 4.2 presents some results of the regressions run. By comparison with Table 4.1, the fit, as measured by R^2 is lower in general. The standard error of the estimate is also lower—but the mean value of Y in this case is also lower. Hence not too much can be inferred from the lower s².

The pattern of the results is similar to that of §4.5 with X_1 , X_4 , X_{11} significant in most cases at the 1 per cent or 5 per cent level. The coefficients of these three variables remain reasonably stable, although that of X_{11} varies rather more than its counterpart in §4.5.

TABLE 4.2: IMPORTS OF PRODUCERS CAPITAL GOODS, LESS SHIPS AND AIRCRAFT, ABSOLUTE VOLUME LEVELS, REGRESSION ANALYSIS

A. Variables

Dependent Y=capital goods imports (excluding ships and aircraft) seasonally corrected quarterly fm. at 1953 constant prices (II Q 58-IV Q 68). Independent X₁, X₂, X₃, X₄, X₅, X₆, X₇, X₈ as in table 4.1. X₁₁ = Y_{t-1}.

B. Significance and Fit

Equation		Variables S	ignificant a	at	Not Significant	R	F Value	Standard Error of
No.	1%	5%	10%	20%	- at 20%			Estimate
B1 B2 B3 B4 B5 B6 B7 B8	1,11 1,4 4,11 4,11 1,11 1	11 4,6 7,8 1	6 8 8	1.4 1,3,5 7	3,5,7,8 7 8	.986 .983 .983 .978 .985 .983 .981 .945	147.0 152.6 362.7 208.6 304.7 380.7 524.9 345.6	.504 .529 .523 .594 .495 .511 .532 .893

C. Regression Coefficients

Equation No.	X 1	X2	X3	X4	X5	X ₆	X7	X8	X 11	Intercept
B1 B2 B3 B4 B5 B6 B7 B8	.020 .018 .023 .034 .021 .022 .078		007 045	.011 .014 .020 .008 .012	.004 .008	035 048	086 172 468 183	144 251 .146 274 076	.364 .741 .533 .577 .750	3.531 9.517 -1.265 1.002 0.079 0.535 1.194 4.018

D. Selected Equations:

B₃; $Y_c = -1.265 + .023X_1 + .146X_8 + .741X_{11}$

B₄; $Y_c = -1.002 + .034X_1 + .020X_4 - .468X_7 - .274X_8$

B₅; $Y_c = -.079 + .021X_1 + .008X_4 - .183X_7 + .533X_{11}$

Of the remaining variables, the capacity utilisation variable X_8 behaves worse, and with the exception of B_8 has an incorrect sign. X_7 is rather better than in §4.5, being negative in the equations illustrated and significant at the 5 per cent and 20 per cent level in two of these.

The remaining variables do not, in general appear to be significant. The best equations from this set are B_3 , B_4 and B_5 .

§4.7 Three-quarter moving average of percentage change

While the fit provided by the use of absolute values of the series is good and the standard errors reasonably low, the common rise through time of many of the series, detracts from the meaning of the functional relationships indicated, as there are

inevitably severe problems of multi-collinearity. A more rigorous test of the relationships is required. In this part of our study of imports, for reasons outlined in §4.4, threequarter moving averages of percentage first differences are resorted to, rather than the simple percentage changes used throughout the remainder of our study. Most of the analysis is in current terms, (or with the addition of the lagged dependent variable), which presupposes a fairly short reaction time between the decision to invest, (based on the behaviour of the independent variables considered here) and the actual importation of capital goods. The values of the coefficients of the lagged dependent variables in the regressions on the absolute data, converging as they do rapidly to zero bear this out.

In dealing with percentage changes various alternative forms of the capacity utilisation index were tried— X_5 and X_6 are identical with X_2 and X_8 respectively of §4.5, while X_7 and X_8 are changes in X_5 and X_6 respectively.

Selected results for percentage changes in the value of imports are presented in Table 4.3. Although the fit, measured by R^2 , is not particularly great in any of the equations, in all of those shown the regressions are significant, using the F-test. The results compare fairly well with similar exercises on imports of consumer goods and imports of raw materials using three-quarter moving averages, in terms of R, F, or the standard error of the estimate.

A feature of the regressions run was the significance of the regression coefficients of X_5 and X_6 , which pair performed equally well. X_6 , being computationally easier to deal with, was adopted throughout the table, with the exception of equation C_8 . The variables X_7 and X_8 were rarely significant and hence were dropped from the table.

 X_6 , the capacity utilisation variable is significant throughout at either the 1 per cent or 5 per cent level. Its regression coefficient maintains its expected positive sign and is relatively stable.

 X_1 , the transportable goods variable, is generally significant at the 1 per cent or 5 per cent levels and has the expected sign—its coefficient remaining constant depending on the inclusion or exclusion of X_8 . In equation C_{10} the simple correlation between Y and X_1 , is .429 ($R^2 = .18$), significant at better than the 1 per cent level. The inclusion of X_6 , as in equation C_9 raises the R^2 from .18 to .39. The simple correlation between Y and X_6 is .52 (for Y and X_5 it is .54) again in itself highly significant. The implication of all this is that the current level of capacity utilisation is rather more important for percentage changes in the three-quarter moving average of capital goods imports, than for the absolute level of such imports, with which the capacity utilisation variable is hardly at all correlated, though it is significant in some of the absolute value equations.

 X_2 , the capital deepening variable is disappointing having, in all selected equations, the wrong sign. Not surprisingly X_4 is nowhere significant.

 X_3 , the share price index variable performs rather less well than might have been expected from the absolute data. However it is generally significant at the 5 per cent or 10 per cent level and its coefficient is positive throughout. Taken in conjunction with X_1 , and X_6 it does improve the fit and lower the standard error.

 X_{0} , the devaluation variable is again significant at the 5 per cent level at least in the limited number of equations in which it appears.

 X_{10} , the lagged dependent variable is significant at the 5 per cent level in one, and at the 10 per cent level in three, of the selected equations. Its inclusion, however, makes very little difference to the fit.

It is reassuring that the results shown in Table 4.3 broadly confirm those of Table 4.1. The same factors, industrial production, capacity utilisation, share prices and devaluation tend to be significant in the first difference as in the absolute formulations. In both formulations the signs for all these variables are in the expected positive direction, and the regression coefficients are reasonably stable.

TABLE 4.3: VALUE OF IMPORTS OF PRODUCERS CAPITAL GOODS, LESS SHIPS AND AIRCRAFT, AT CURRENT PRICES, 3 QUARTER MOVING AVERAGES, PER-CENTAGE CHANGES, REGRESSION ANALYSIS

Α. Variables

Dependent Y =value of capital goods imports, less ships and aircraft, s.c. % 1st differences of 3-quarter moving averages (III Q 1958-III Q 1968).

Independent X_1 =volume of production index, s.c. transportable goods industries, % 1st differences of 3-quarter moving averages.

- X_2 =capital deepening effect in transportable goods industries, % 1st differences of 3-quarter moving averages.
- X_3 = price index number of ordinary stocks and shares, % 1st differences of 3-quarter moving averages.

 X_4 =agricultural price index, s.c., % 1st differences of 3-quarter moving averages. X_5 =capacity utilisation index, as X_2 in tables 4.1 and 4.2. X_6 =dummy variable for capacity utilisation, as X_9 in tables 4.1 and 4.2. X_7 =change from quarter to quarter in X_5 .

- X_8 =change from quarter to quarter in X_6 . X_9 =dummy devaluation variable.
- $X_{10} = Y_{t-1}$.

Significance and Fit В.

Equation		Variables S	Significant a	at	Not Significant	R	F Value	Standard Error of Estimate
No.	1%	5%	10%	20%	- at 20 /0			
ບາດດດາງດີດດາງ ດີດດູດດູດດູດ	6 6 1,6 6 1,6 1	1,6 1 1,6 1 1,6 1 3,5	10 3 3,10 3 3,10 3	2,3 2 2	4 2,4 2 10	.690 .668 .690 .667 .673 .676 .657 .632 .626 .429	4.99 5.47 6.17 7.03 7.24 7.37 9.14 7.99 11.93 8.58	2.699 2.734 2.659 2.695 2.677 2.667 2.688 2.765 2.744 3.137
$C_{11} \\ C_{12} \\ C_{13}$	6 6,9 6,9	9 1	1		3	.694 .686 .673	8.13 10.67 9.91	2.605 2.596 2.641

C. Regression Coefficients

Equa-	v	v.	v.	v.	Υ.	Y.	¥.	X	Xa	X10	Intercept
No.	A2	~3	~4	^,	A0	A	148	7.19	2210		
C ₁	.841	.560	.150	.014		1.338				.221	1.209
C ₂	0.85	.450	.194	042		1.798		ļ			1.657
$\overline{C_1}$.837	.556	.152			1.340		1	Į	.220	1.213
Ĉ	816	462	188			1.799		1			1.651
č	1 037	622				1.454			1	.259	1.379
č	876		· 167			1.218				.197	0.537
č	807		107			1 656			ł	-	1.040
C,	1.007		268		582	1.000		1	1	.130	-56.178
28	1 074		,200		.502	1 001					1.282
S	1.0/4					1.501					1 128
C10	1.308					1 670			1 1 2 2 7		1 /08
C_{11}	.399		.110			1.0/0		1	1.25/		1,450
C_{12}	.691					1.792		1.	1.452		1,095
Cin		· ·	.156			1.699		1	1.497		2.384

Selected Equations: D.

C₆;

C₁₁;

 $C_{12};$

A similar exercise has been carried out for the volume of imports of Capital Goods. Selected results are given in Table 4.4. The pattern evident in Table 4.3 is repeated for the volume figures, with X_1 and X_0 predominating. The general level of fit is rather lower and the standard error of the estimate rather higher than in Table 4.3. With the exception of X₂ significant variables have the correct sign attached. From the set D_4 , D_6 and D₇ have been selected for predictive purposes.

TABLE 4.4: VOLUME OF IMPORTS OF PRODUCERS CAPITAL GOODS, LESS SHIPS AND AIRCRAFT, 1953 CONSTANT PRICES, 3-QUARTER MOVING AVERAGES, PERCENTAGE CHANGES, REGRESSION ANALYSIS

Α. Variables

シ

- Dependent Y=value of imports of capital goods (at 1953 prices), less ships and aircraft, Independent
 - % 1st differences of 3-quarter moving averages. X₁, X₂, X₃, X₄, X₅, X₆, X₇, X₈, as in table 4.3. $X_{11} = Y_{t-1}$.

В. Significance and Fit

-		Variables S	lignificant a	ıt	Not Significant	R	F Value	Standard Error of
Equation No.	1%	5%	10%	20%	- at 20 %			
$\begin{array}{c} D_1 \\ D_2 \\ D_3 \\ D_4 \\ D_5 \\ D_6 \\ D_7 \\ D_8 \end{array}$	6 6 1,6 1,6 6 1,6 1	1 1 2 2 1,6 1	2 2,3	3 11 3 3	4,11 4 11	.680 .671 .667 .648 .647 .637 .617 .445	4.718 5.555 7.003 8.671 6.303 8.209 11.352 9.386	2.753 2.742 2.715 2.737 2.777 2.768 2.788 3.131

C. Regression Coefficients

Equation No.	Xi	X2	X3	X4	X5	X6	X7	X8	X 11	Intercept
D_1	.925	.753	.143	163 - 228		1.542			.139	1.210 1.459
D_3	1.124	.852	.170			1.590			.189	1.281
D5 D6	.955	.005	.135 .158			1.303 1.594			.136	0.135 0.426
\mathbf{D}_7^{T} \mathbf{D}_8^{T}	1.145 1.365			i		1.792				0.622 0.476

D. Selected Equations:

§4.8 Forecasting Tests

As in the case of consumers goods imports and imports of non-agricultural raw materials, it is possible to "test" the performance of the equations in forecasting imports of Capital Goods (excluding Ships and Aircraft), in a period not included in the estimation of the parameters of the equations, and comparing the actual outcome with the forecast. For the absolute data the first three quarters of 1969 can be "tested". For the percentage first differences of the three quarter moving averages the fourth quarter of 1968 together with the first two quarters of 1969 can be "tested". For the volume figures the third-quarter actual is preliminary. In this part of our study rather more equations are tested than in the previous two parts. Two points deserve mention for this wider selection. First, the maintenance men's dispute in the first quarter of 1969 seriously affected the transportable goods volume of production index and, while the second quarter of 1969 partly made up for this, there was a considerable loss on the half year—a loss which is unlikely to have affected investment plans of business for these quarters. Secondly, the share price index was falling for most of 1969, partly mirroring movements on other stock exchanges (especially London) and partly reflecting uncertainty concerning prospects for the Irish economy. For the index to fall in a period when most current economic indicators were rising steeply is an unusual occurence and may have some unsettling affect on the forecasting tests. However, this variable is included in only some of the equations tested and comparison between those and equations which exclude it might indicate the extent of any distortion thus caused.

The results of the tests are set out in Table 4.5. Part A compares the actual with the predicted for the regressions on absolute data. Part B (i) deals with the percentage changes in the three quarter moving averages, while Part B (ii) considers the absolute values represented by the percentage changes in B (i).

In general the results are encouraging. The final column in part A, comparing the actual with the predicted, deserves mention—the predicted total is not the sum of the predictions for the separate quarters (with the exception of B_4 which does not involve lagged terms), but that obtained using the predicted value Y for any quarter as the lagged value of X_{10} and X_{11} respectively for the next quarter. From the point of view of forecasting a year ahead it is this interactive procedure which must be resorted to. Where the next quarter is required then the immediate past quarter, which is known, can be used. The absolute value figures are fairly close both for the quarters and for the predicted totals. The absolute volume figures are not so good. The three quarter moving averages predictions are, in terms of the absolute values, very close to the actual, both as far as the individual quarters and the total for the period are concerned. The value figures seem to be rather better than volume in predicting the percentage changes.

§4.9 Conclusion

The analysis in this part of our import study has involved the calculation of a large number of regression equations, with a small number of independent variables. As far as the dependent variable is concerned the analysis has not provided any clear-cut answer to the quality problem. In terms of the absolute data the value figures give higher R^2 and lower s² for the equations. The forecasting tests seem to favour the value figures also. However, in dealing with percentage changes the value and volume figures perform equally well on the forecasting of the absolute levels—though the value figures are better in "predicting" the percentage changes; and it is these that are important from a long term point of view.

Considering the regressions on the absolute data and the regressions on the percentage changes in conjunction, it seems fairly clear that imports of Producers Capital Goods less Ships and Aircraft are closely related to the volume of production of transportable goods industries. It further appears, perhaps surprisingly, that this relationship is largely a current one. Similarly it appears that the behaviour of the share price index is an important determinant of capital goods imports, although the precise way in which this operates must remain open to speculation.

Of the variables selected as potentially important, the level of capacity utilisation is dominant as far as percentage changes are concerned. The importance of this variable in

TABLE 4.5: FORECASTING TESTS

A. Regressions on Absolute Data

Equation	Dependent Variable	1st C Actual	2 1969 Predicted	2nd (Actual	Q 1969 Predicted	3rd Q Actual	1969 Predicted	Total Peri Actual	od Covered Predicted
A ₃ A ₁₁ A ₁₂	Value of Imports of Capital Goods less Ships and Aircraft £m. Current Prices	£ 20.2 20.2 20.2 20.2	im. 19.8 20.8 21.0	£ 22.5 22.5 22.5	m. 21.0 21.6 22.1	£1 24.1 24.1 24.1	n. 22.7 22.6 23.6	£ 66.8 66.8 66.8	m. 61.9 64.9 67.5
B ₃	Volume of Imports of Capital Goods less	13.8	13.9	15.3	14.6	(16.0)	15.8	(45.1)	43.9
B ₄ B ₅	Ships and Aircraft £m. at 1953 constant Prices	13.8 13.8	13.7 13.9	15.3 15.3	14.0 14.4	(16.0)	13.3 14.9	(45.1) (45.1)	41.0

B. (i) Regressions on percentage 1st differences of 3-quarter moving averages.

~~~~

| Equation No.                                         | Dependent Variable                                                                                                  | 4th<br>Actual                | Q 1968<br>Predicted       | 1st Q<br>Actual      | ) 1969<br>Predicted       | 2nd<br>Actual               | Q 1969<br>Predicted       |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------|----------------------|---------------------------|-----------------------------|---------------------------|
| C <sub>6</sub><br>C <sub>11</sub><br>C <sub>12</sub> | % changes of 3-quarter moving<br>averages of Imports of Capital Goods<br>less Ships and Aircraft at current prices  | 5.42<br>5.42<br>5.42         | %<br>3.60<br>6.97<br>7.34 | 7.02<br>7.02<br>7.02 | %<br>6.06<br>7.26<br>8.12 | 6.88<br>6.88<br>6.88        | %<br>5.80<br>5.46<br>6.46 |
| D4<br>D6<br>D7                                       | % changes of 3-quarter moving averages<br>of Imports of Capital Goods less Ships<br>and Aircraft at constant prices | 3.85<br>3.85<br>3.85<br>3.85 | 1.97<br>2.09<br>1.58      | 5.68<br>5.68<br>5.68 | 5.19<br>4.51<br>5.28      | Not ava<br>(5.37)<br>(5.37) | ailable<br>4.14<br>4.93   |

## B. (ii) Absolute Values of Results of B (i).

| Equation No.                                         | 4th (                | Q 1968                     | 1st (                     | 2 1969                     | 2nd Q                     | 2 1969                    | Total Peri           | iod Covered                |
|------------------------------------------------------|----------------------|----------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------|----------------------------|
|                                                      | Actual               | Predicted                  | Actual                    | Predicted                  | Actual                    | Predicted                 | Actual               | Predicted                  |
| C <sub>6</sub><br>C <sub>11</sub><br>C <sub>12</sub> | 19.5<br>19.5<br>19.5 | Em<br>19.1<br>19.7<br>19.8 | £<br>20.8<br>20.8<br>20.8 | čm<br>20.6<br>20.9<br>21.0 | £<br>22.3<br>22.3<br>22.3 | m<br>22.0<br>22.0<br>22.2 | 62.6<br>62.6<br>62.6 | Em<br>61.7<br>62.6<br>63.0 |
| D <sub>4</sub>                                       | 13.5                 | 13.2                       | 14.3                      | 14.2                       | Not avail                 | able                      | 27.8                 | 27.4                       |
| D <sub>6</sub>                                       | 13.5                 | 13.3                       | 14.3                      | 14.1                       | (15.0)                    | 14.9                      | (42.8)               | 42.2                       |
| D <sub>7</sub>                                       | 13.5                 | 13.2                       | 14.3                      | 14.2                       | (15.0)                    | 15.0                      | (42.8)               | 42.4                       |

the regressions implies that any deviations from the exponential trend in the growth of transportable goods industries will have a marked effect on the growth of imports of capital goods. The simplicity of the variable makes it useful for forecasting purposes. Further experimentation by defining more different degrees of capacity utilisation than provided for by the -1, 0, +1 formulation may prove worthwhile—though it is suspected that this may be only marginal, at least as far as percentage changes are concerned.

The remaining variables do not appear to be very significant in determining quarter to quarter movements in imports of Producers Capital Goods, at least in the approach adopted in this study. The data, of course, are not perfect, so that a properly constructed capital deepening series might prove significant, using our approach.

The forecasting tests show reasonable consistency between the actual and predicted values over the period of the tests for most of the selected forecasting equations. Within the period tested the absolute data regressions closely approximated the actual, with the value figures performing rather better than the volume. Even the percentage change predictions are in most cases quite close to the actual within the test period, while the smallness of the base makes any difference in absolute terms very slight.

The distributed lag formulation can only be considered a first approximation. Empirical research is required to discover the lag structure, if it exists. Information is required as to the age structure of the capital stock as bunching of replacement investment can cause large imports not readily picked up by the explanatory variables used.

As in the case of the two previous categories of imports, further testing is required for this category before any of the equations can be fully accepted as a working tool for forecasting. However, given the difficulty of the problem, the exercise can be regarded as reasonably successful, both from the point of establishing structural relationships and as giving an encouraging preliminary results in testing for forecasting purposes.

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

#### QUARTERLY INDUSTRIAL SURVEY

#### DECEMBER, 1969

The report contains the results of the December Industrial Survey conducted jointly by the Federation of Irish Industries and the Economic and Social Research Institute. The survey covered the Fourth Quarter of 1969 compared with the Fourth Quarter of 1968 with forecasts for trends in the First Quarter of 1970 compared with the corresponding period of 1969. Over 85% 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.

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#### F.I.I./E.S.R.I. QUARTERLY INDUSTRIAL SURVEY, DECEMBER 1969

#### Overall Results

The results of the December Quarterly Industrial Survey of the Federation of Irish Industries and the Economic & Social Research Institute indicate that production and home sales increased considerably during the last quarter of 1969 compared with the last quarter of 1968. The figures suggest that the rate of increase was slightly lower than in the two previous quarters, but this probably reflects the fact that output and home sales were at a higher level in the fourth quarter of 1968 than earlier in that year. Contrary to the expectations expressed in the September Quarterly Industrial Survey, the majority of firms responding to the December survey indicated that exports had risen considerably. This is the second quarter running in which export expectations have proved to be too low; in both the June and September surveys the majority of firms had said they expected exports to remain at the same level in the coming quarter.

It is noticeable from the December returns that the general levelling off in employment which was forecast in the September survey seems to be taking place. The majority of firms reported that employment was at the same level as in the December quarter of 1968.

As regards the first quarter of 1970, the rapid increase in both production and home sales is expected to continue. Exports are also expected to be higher than in the first quarter of 1969. This shows a more optimistic view of export prospects than has been reported. Employment is, however, expected to remain at much the same level as in the first quarter of 1969. Only two industries expect a substantial increase in employment.

It is interesting to note that for only the second time since July 1968 the majority of firms replying to the survey felt that they could have produced more with their present resources during the last quarter of 1969. In cases where firms thought they could have produced more, capacity restraints are no longer listed as the main reason except in Dublin. Insufficient raw materials are listed as being the most important factor in country areas and in "all manufacturing". The overall result is very largely influenced by insufficient raw materials in the food industry.

The December 1969 survey brings out some interesting results as regards investment. In the overall results the majority of firms whose financial year ended during the last quarter of 1969 reported that investment was at a higher level than it had been in the previous year. In Dublin, however, the level of investment was reported to be only slightly higher than that in the year ending December 1968. In the September survey the majority of firms reported that they expected a decrease in investment in the year ending third quarter of 1970. It was thought at the time that this could indicate a general slowing down of the high level of investment which had been taking place during 1969. It is, however, extremely interesting to note that in the December survey the majority of firms once more expect an increase in investment in the surveys between October 1968 and July 1969. Taken in conjunction with the October figures, this could still indicate some slowing down in the rate of increase of investment.

In most cases stocks of finished products and stocks of raw materials were considered to be adequate. However, in the textile industry stocks of finished products were considered to be excessive while in the Glass, Clay and Cement industry they were considered to be inadequate. Stocks of raw materials were considered to be excessive in the Wood and Furniture industry.

#### Sector Results

All sectors except Chemicals and Metals & Engineering registered higher production in the fourth quarter of 1969 compared with the corresponding period of 1968. Both these industries reported that production was at the same level as in the corresponding period of the previous year. No industry group reported that production had fallen. The most noticeable increase took place in the Drink & Tobacco, Paper & Printing, Glass, Clay & Cement and "Other Manufacturing" industries.

As in the case of production all industries except Chemicals and Metals & Engineering reported an increase in home sales during the quarter. Both of these industries reported that home sales were at the same level as in the previous year. The most noticeable increase took place in the Drink & Tobacco, "Other Manufacturing", Paper & Printing and Wood & Furniture industries.

In the third quarter of 1969, the Food, Drink & Tobacco, Clothing & Footwear, Glass, Clay and Cement, "Other Manufacturing", Paper & Printing and Chemicals industries reported an increase in exports, while the Textiles, Wood & Furniture and Metals & Engineering industries reported that exports were at the same level as in the fourth quarter of 1968. The most significant increases were reported in the "Other Manufacturing", Clothing & Footwear, Glass, Clay & Cement and Paper & Printing industries.

Only three industry groups reported an increase in employment in the fourth quarter of 1969. These were Food, Clothing & Footwear, and Glass, Clay & Cement. The Drink & Tobacco, Textiles, Paper & Printing, Chemicals and Metals & Engineering industries reported that employment was at the same level as in the last quarter of 1968. It was reported that employment had fallen in the Wood & Furniture and "Other Manufacturing" industries.

Only in the case of the Textiles industry were stocks of finished products considered to be excessive. In the Glass, Clay & Cement industry they were insufficient. As regards raw materials, in the Wood & Furniture industry stocks of raw materials were considered to be excessive, while in all other industries they were considered to be sufficient for their needs.

The majority of firms in the Food, Drink & Tobacco, Wood & Furniture, Chemicals, Metals & Engineering and "Other Manufacturing" industries felt that they could have produced more with their existing capacity in the fourth quarter of 1969. The majority of respondents in the Textiles, Clothing & Footwear, Paper & Printing and Glass, Clay & Cement industries felt that they could not produce more with their existing resources. The reasons for inability to expand production if orders were forthcoming are given as follows. In the case of the Food industry, insufficient raw materials was considered to be the most important factor, while in the Textiles, Wood & Furniture, Paper & Printing and Glass, Clay & Cement industries insufficient capacity was listed as the prime factor. Insufficient skilled female labour was, as in the previous surveys, listed as the most important factor in the Clothing & Footwear industry.

With the exception of Metals & Engineering, all industry groups expected production to be higher in the coming quarter. And with the exception of Wood & Furniture, all industry groups expect sales to be higher in the first quarter of 1970 when compared to the first quarter of 1969.

Exports are expected to increase in the Food, Textiles, Clothing & Footwear, Paper & Printing, Chemicals and "Other Manufacturing" industries. In the Drink & Tobacco industry exports are expected to remain at the same level as in the first quarter of 1969, as is the case in the Glass, Clay & Cement and Metals & Engineering industries.

Employment is only expected to be higher in two industries. These are, Clothing & Footwear and Glass, Clay & Cement. The Food, Drink & Tobacco, Textiles, Paper & Printing and Metals & Engineering industries are expected to maintain employment at the same level while the Wood & Furniture, Chemicals and "Other Manufacturing" industries expect employment to drop. These results seem to indicate that the levelling off in employment which has been indicated in the last two surveys is still an important factor.,

#### 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              | <br>    | January<br>1969 | April<br>1969 | July<br>1969 | October<br>1969 | January<br>1970 |
|-----|-----------------------|---------|-----------------|---------------|--------------|-----------------|-----------------|
| 1.  | Total Production was  | <br>    | +75             | 4             | +64          | +61             | +52             |
| 2.  | Homes Sales were      | <br>    | +80             |               | +72          | +66             | +53             |
| 3.  | Exports were          | <br>    | +53             | 19            | +15          | + 54            | +47             |
| 4.  | Labour Force was      | <br>    | +15             | 1             | +29          | +22             | + 5             |
| 5.  | Finished Stocks were  | <br>    | +14             | + 8`          | + 1          | + 5             | - 2             |
| 6.  | Materials Stocks were | <br>    | 4 + 4           | - 3           | +20          | 4               | _ 7             |
| 7.  | Constraints           |         | - 2             | <b>—</b> 2    | ° <b>∔</b> 4 | 12              | + 6             |
| 9.  | Home Sales will be    | <br>    | +51             | +53           | + 52         | +44             | +52             |
| 10. | Exports will be       | <br>    | i -i-49         | +33           | +21          | +10             | +46             |
| 11. | Labour Force will be  | <br>    | +10             | +14           | +32          | <del>,</del> 9  | + 6             |
| 12. | Investment was        | <br>••• | +10             | +26           | +45          | +44             | +36             |
| 13, | Investment will be    | <br>·   | + 52            | + 58          | +47          | 23              | +40             |

TABLE 5.1

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

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

# In 1st quarter 1970 compared with 1st quarter 1969

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- 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

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

| WEI                                                                                                                 | Weighted Replies (%)                                                                                                          |                                                                             |                                        |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------|--|--|--|--|--|--|--|
| Higher                                                                                                              | Same                                                                                                                          | Lower                                                                       |                                        |  |  |  |  |  |  |  |
| 72                                                                                                                  | 8                                                                                                                             | 20                                                                          | Higher                                 |  |  |  |  |  |  |  |
| 69                                                                                                                  | 15                                                                                                                            | 16                                                                          | Higher                                 |  |  |  |  |  |  |  |
| 56                                                                                                                  | 35                                                                                                                            | 9                                                                           | Higher                                 |  |  |  |  |  |  |  |
| 30                                                                                                                  | 45                                                                                                                            | 25                                                                          | Same                                   |  |  |  |  |  |  |  |
| Excessive                                                                                                           | Adequate                                                                                                                      | Insufficient                                                                |                                        |  |  |  |  |  |  |  |
| 12                                                                                                                  | 78                                                                                                                            | 10                                                                          | Adequate                               |  |  |  |  |  |  |  |
| 12                                                                                                                  | 83                                                                                                                            | 5                                                                           | Adequate                               |  |  |  |  |  |  |  |
|                                                                                                                     | <i>Yes</i> 53<br><i>No</i> 47                                                                                                 | l<br>7                                                                      | Yes                                    |  |  |  |  |  |  |  |
| Insufficient (<br>Insufficient )<br>Insufficient (<br>Insufficient )<br>Female Lab<br>Insufficient (<br>Any other R | Capacity<br>Skilled Male L<br>Skilled Female<br>Unskilled Mal-<br>Unskilled<br>our<br>Raw Mats. Su<br>Cash and/or C<br>Leason | 26<br>Labour 12<br>Labour 10<br>e Labour 2<br>7<br>pply 40<br>Credit 1<br>2 | Insufficient<br>Raw<br>Mats.<br>Supply |  |  |  |  |  |  |  |
| Higher                                                                                                              | Same                                                                                                                          | Lower                                                                       |                                        |  |  |  |  |  |  |  |
| 59                                                                                                                  | 32                                                                                                                            | 9                                                                           | Higher                                 |  |  |  |  |  |  |  |
| 61                                                                                                                  | 30                                                                                                                            | 9                                                                           | Higher                                 |  |  |  |  |  |  |  |
| 52                                                                                                                  | 42                                                                                                                            | 6                                                                           | Higher                                 |  |  |  |  |  |  |  |
| 27                                                                                                                  | 52                                                                                                                            | 21                                                                          | Same                                   |  |  |  |  |  |  |  |
| Higher                                                                                                              | Same                                                                                                                          | Lower                                                                       |                                        |  |  |  |  |  |  |  |
| 59                                                                                                                  | 18                                                                                                                            | 23                                                                          | Higher                                 |  |  |  |  |  |  |  |
| 55                                                                                                                  | 30                                                                                                                            | 15                                                                          | Higher                                 |  |  |  |  |  |  |  |

| In  | 4th   | qu | arter | 196 | 9       |      |
|-----|-------|----|-------|-----|---------|------|
| con | npara | ed | with  | 4th | 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 December 1969
- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

#### During 4th quarter 1969

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

# In 1st quarter 1970 compared with 1st quarter 1969

- 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 4th 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                                                                                                                                    | WEIGHTED REPLIES (%)                                                                                                          |                                                                           |                          |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------|--|--|--|--|--|--|--|--|
| Higher                                                                                                                                 | Same                                                                                                                          | Lower                                                                     |                          |  |  |  |  |  |  |  |  |
| 73                                                                                                                                     | 10                                                                                                                            | 17                                                                        | Higher                   |  |  |  |  |  |  |  |  |
| 71                                                                                                                                     | 14                                                                                                                            | 15                                                                        | Higher                   |  |  |  |  |  |  |  |  |
| 42                                                                                                                                     | 48                                                                                                                            | 10                                                                        | Higher                   |  |  |  |  |  |  |  |  |
| 25                                                                                                                                     | 51                                                                                                                            | 24                                                                        | Same                     |  |  |  |  |  |  |  |  |
| Excessive                                                                                                                              | Adequate                                                                                                                      | Insufficient                                                              |                          |  |  |  |  |  |  |  |  |
| 7                                                                                                                                      | 81                                                                                                                            | 12                                                                        | Adequate                 |  |  |  |  |  |  |  |  |
| 9                                                                                                                                      | 86                                                                                                                            | 5                                                                         | Adequate                 |  |  |  |  |  |  |  |  |
|                                                                                                                                        | Yes 61<br>No 39                                                                                                               |                                                                           | Yes                      |  |  |  |  |  |  |  |  |
| Insufficient (<br>Insufficient S<br>Insufficient )<br>Insufficient  <br>Female Lab<br>Insufficient  <br>Insufficient (<br>Any other re | Capacity<br>Skilled Male L<br>Skilled Female<br>Unskilled Male<br>Unskilled<br>Our<br>Raw Mats. Sup<br>Cash and/or C<br>eason | 45<br>abour 14<br>Labour 18<br>2 Labour 5<br>10<br>pply 3<br>redit 1<br>4 | Insufficient<br>Capacity |  |  |  |  |  |  |  |  |
| Higher                                                                                                                                 | Same                                                                                                                          | Lower                                                                     |                          |  |  |  |  |  |  |  |  |
| 66                                                                                                                                     | 26                                                                                                                            | 8                                                                         | Higher                   |  |  |  |  |  |  |  |  |
| 74                                                                                                                                     | 18                                                                                                                            | 8                                                                         | Higher                   |  |  |  |  |  |  |  |  |
| 73                                                                                                                                     | 20                                                                                                                            | 7                                                                         | Higher                   |  |  |  |  |  |  |  |  |
| 26                                                                                                                                     | 53                                                                                                                            | 19                                                                        | Same                     |  |  |  |  |  |  |  |  |
| Higher                                                                                                                                 | Same                                                                                                                          | Lower                                                                     |                          |  |  |  |  |  |  |  |  |
| 43                                                                                                                                     | 24                                                                                                                            | 33                                                                        | Same                     |  |  |  |  |  |  |  |  |
| 51                                                                                                                                     | 37                                                                                                                            | 12                                                                        | Higher                   |  |  |  |  |  |  |  |  |

## TABLE 5.4: INDUSTRY GROUP-ALL MANUFACTURING -AREAS OUTSIDE DUBLIN

- In 4th quarter 1969 compared with 4th 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 December 1969
- 5. Stocks of Finished Products are considered to be
- 6. Stocks of Materials are considered to be

During 4th quarter 1969

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

# In 1st quarter 1970 compared with 1st quarter 1969

- 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 4th 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                                                                                                                                    | WEIGHTED REPLIES (%)                                                                                                        |                                                                             |                                           |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------|--|--|--|--|--|--|--|
| Higher                                                                                                                                 | Same                                                                                                                        | Lower                                                                       |                                           |  |  |  |  |  |  |  |
| 70                                                                                                                                     | 6                                                                                                                           | 24                                                                          | Higher                                    |  |  |  |  |  |  |  |
| 68                                                                                                                                     | 68 16 16                                                                                                                    |                                                                             |                                           |  |  |  |  |  |  |  |
| 68                                                                                                                                     | 24                                                                                                                          | 8                                                                           | Higher                                    |  |  |  |  |  |  |  |
| 35                                                                                                                                     | 38                                                                                                                          | 27                                                                          | Same                                      |  |  |  |  |  |  |  |
| Excessive                                                                                                                              | Adequate                                                                                                                    | Insufficient                                                                |                                           |  |  |  |  |  |  |  |
| 18                                                                                                                                     | 73                                                                                                                          | 9                                                                           | Adequate                                  |  |  |  |  |  |  |  |
| 15                                                                                                                                     | 79                                                                                                                          | 6                                                                           | Adequate                                  |  |  |  |  |  |  |  |
|                                                                                                                                        | Yes 44<br>No 56                                                                                                             | 5                                                                           | No                                        |  |  |  |  |  |  |  |
| Insufficient (<br>Insufficient S<br>Insufficient 1<br>Insufficient 1<br>Female Lab<br>Insufficient 1<br>Insufficient (<br>Any other re | Capacity<br>Skilled Male L<br>Skilled Female<br>Unskilled Mal<br>Unskilled<br>Our<br>Raw Mats. Su<br>Cash and/or C<br>eason | 16<br>abour 11<br>2 Labour 6<br>e Labour 1<br>5<br>pply 59<br>Gredit 1<br>1 | Insufficient<br>Raw<br>Material<br>Supply |  |  |  |  |  |  |  |
| Higher                                                                                                                                 | Same                                                                                                                        | Lower                                                                       |                                           |  |  |  |  |  |  |  |
| 50                                                                                                                                     | 39                                                                                                                          | 11                                                                          | Higher                                    |  |  |  |  |  |  |  |
| 47                                                                                                                                     | 43                                                                                                                          | 10                                                                          | Higher                                    |  |  |  |  |  |  |  |
| 32                                                                                                                                     | 63                                                                                                                          | 5                                                                           | Higher                                    |  |  |  |  |  |  |  |
| 28                                                                                                                                     | 47                                                                                                                          | 25                                                                          | Same                                      |  |  |  |  |  |  |  |
| Higher                                                                                                                                 | Same                                                                                                                        | Lower                                                                       |                                           |  |  |  |  |  |  |  |
| 75                                                                                                                                     | 12                                                                                                                          | 13                                                                          | Higher                                    |  |  |  |  |  |  |  |
| 59                                                                                                                                     | 24                                                                                                                          | 17                                                                          | Higher                                    |  |  |  |  |  |  |  |

#### TABLE 5.5: INDUSTRY GROUP - FOOD

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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

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

| Weighted Replies (%)                                                                                                     |                                           |              | Apparent<br>Trend |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------|-------------------|
| Higher                                                                                                                   | Same                                      | Lower        |                   |
| 74                                                                                                                       | 8                                         | 18           | Higher            |
| 70                                                                                                                       | 16                                        | 14           | Higher            |
| 56                                                                                                                       | 42                                        | 2            | Higher            |
| 48                                                                                                                       | 35                                        | 17           | Higher            |
| Excessive                                                                                                                | Adequate                                  | Insufficient |                   |
| 1                                                                                                                        | 87                                        | 12           | Adequate          |
| 11                                                                                                                       | 72                                        | 17           | Adequate          |
|                                                                                                                          | Yes 63<br>No 37                           | . ·          | Yes               |
| Insufficient (<br>Insufficient S<br>Insufficient S<br>Insufficient U<br>Insufficient J<br>Insufficient (<br>Any other re | Insufficient<br>Raw<br>Material<br>Supply |              |                   |
| Higher                                                                                                                   | Same                                      | Lower        |                   |
| 50                                                                                                                       | 34                                        | 16           | Higher            |
| 48                                                                                                                       | 41                                        | 11           | Higher            |
| 56                                                                                                                       | 44                                        |              | Higher            |
| 24                                                                                                                       | -64                                       | 12           | Same              |
| Higher                                                                                                                   | Same                                      | Lower        |                   |
| 35                                                                                                                       | 28                                        | 37           | Same              |
| 37                                                                                                                       | 47                                        | 16           | Higher            |

#### TABLE 5.6: INDUSTRY GROUP - DRINK AND TOBACCO

In 4th quarter 1969 compared with 4th 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 December 1969

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

#### During 4th quarter 1969

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

# In 1st quarter 1970 compared with 1st quarter 1969

- 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

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

| Weighted Replies (%) |                       |               | Apparent<br>Trend |  |
|----------------------|-----------------------|---------------|-------------------|--|
| Higher               | Same                  | Lower         |                   |  |
| 100                  |                       |               | Higher            |  |
| 100                  |                       |               | Higher            |  |
| 27                   | 73                    |               | Higher            |  |
| 4                    | 85                    | 11            | Same              |  |
| Excessive            | Adequate              | Insufficient  |                   |  |
|                      | 100                   | —             | Adequate          |  |
|                      | 100                   |               | Adequate          |  |
|                      | Yes 100               | )             | Ves               |  |
|                      | Lasufficient Consolts |               |                   |  |
| Insufficient         |                       |               |                   |  |
| Insufficient         | Skilled Female        | e Labour —    |                   |  |
| Insufficient         | _                     |               |                   |  |
| Insufficient         | Unskilled Fen         | nale Labour — |                   |  |
| Insufficient         | Raw Mats. Su          | ipply —       |                   |  |
| Insufficient         | Cash and/or C         | Credit —      |                   |  |
| Any other reason     |                       |               |                   |  |
| Higher               | Same                  | Lower         |                   |  |
| 40                   | 60                    |               | Higher            |  |
| 40                   | 60                    |               | Higher            |  |
| 8                    | 92                    |               | Same              |  |
|                      | 89                    | 11            | Same              |  |
| Higher               | Same                  | Lower         |                   |  |
|                      |                       | 100           | Lower             |  |
| 13                   | 60                    | 27            | Same              |  |

#### TABLE 5.7: INDUSTRY GROUP -- TEXTILES

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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

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

| Weighted Replies (%)                                                                                                     |                          |              | Apparent<br>Trend |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|-------------------|
| Higher                                                                                                                   | Same                     | Lower        |                   |
| 59                                                                                                                       | 21                       | 20           | Higher            |
| 67                                                                                                                       | 8                        | 25           | Higher            |
| 45                                                                                                                       | 21                       | 34           | Same              |
| 34                                                                                                                       | 40                       | 26           | Same              |
| Excessive                                                                                                                | Adequate                 | Insufficient |                   |
| 34                                                                                                                       | 57                       | 9            | Excessive         |
| 11                                                                                                                       | 89                       |              | Adequate          |
|                                                                                                                          | Yes 30<br>No 70          | )            | No                |
| Insufficient C<br>Insufficient S<br>Insufficient I<br>Insufficient U<br>Insufficient I<br>Insufficient G<br>Any other re | Insufficient<br>Capacity |              |                   |
| Higher                                                                                                                   | Same                     | Lower        |                   |
| 73                                                                                                                       | 11                       | 16           | Higher            |
| 63                                                                                                                       | 21                       | 16           | Higher            |
| 58                                                                                                                       | 28                       | 14 .         | Higher            |
| 45                                                                                                                       | 29                       | 26           | Same              |
| Higher                                                                                                                   | Same                     | Lower        |                   |
| 71                                                                                                                       | 39                       | —            | Higher            |
| 59                                                                                                                       | <b>22</b>                | 19           | Higher            |

## TABLE 5.8: INDUSTRY GROUP -- CLOTHING AND FOOTWEAR

In 4th quarter 1969 compared with 4th 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 December 1969

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

#### During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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 4th 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

| Weighted Replies (%)                                                                                                    |                                             |              | Apparent<br>Trend |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------|-------------------|
| Higher                                                                                                                  | Same                                        | Lower        |                   |
| 63                                                                                                                      | 63 28 9                                     |              | Higher            |
| 70                                                                                                                      | 24                                          | 6            | Higher            |
| 85                                                                                                                      | 7                                           | 8            | Higher            |
| 42                                                                                                                      | 42                                          | 16           | Higher            |
| Excessive                                                                                                               | Adequate                                    | Insufficient |                   |
| 19                                                                                                                      | 71                                          | 10           | Adequate          |
| 19                                                                                                                      | 79                                          | 2            | Adequate          |
|                                                                                                                         | Yes 6<br>No 94                              |              | No                |
| Insufficient d<br>Insufficient d<br>Insufficient d<br>Insufficient d<br>Insufficient d<br>Insufficient d<br>Any other r | Insufficient<br>Skilled<br>Female<br>Labour |              |                   |
| Higher                                                                                                                  | Same                                        | Lower        |                   |
| 51                                                                                                                      | 48                                          | 1            | Higher            |
| 56                                                                                                                      | 44                                          |              | Higher            |
| 42                                                                                                                      | 50                                          | 8            | Higher            |
| 42                                                                                                                      | 53                                          | 5            | Higher            |
| Higher                                                                                                                  | Higher Same Lower                           |              |                   |
| 56                                                                                                                      | 24                                          | 20           | Higher            |
| 58                                                                                                                      | 34                                          | 8            | Higher            |

#### TABLE 5.9: INDUSTRY GROUP — WOOD AND FURNITURE

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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 4th 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

| Weighted Replies (%)                                                                                                    |                          |              | Apparent<br>Trend |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|-------------------|
| Higher                                                                                                                  | Same                     | Lower        | ,                 |
| 54                                                                                                                      | 25                       | 21           | Higher            |
| 85                                                                                                                      |                          | . 15         | Higher            |
| 33                                                                                                                      | 47                       | 20           | Same              |
| 3                                                                                                                       | 56                       | 41           | Lower             |
| Excessive                                                                                                               | Adequate                 | Insufficient |                   |
| —                                                                                                                       | 100                      |              | Adequate          |
| 33                                                                                                                      | 67                       |              | Excessive         |
|                                                                                                                         | Yes 68<br>No 32          | 3            | Yes               |
| Insufficient C<br>Insufficient S<br>Insufficient I<br>Insufficient I<br>Insufficient I<br>Insufficient C<br>Any other r | Insufficient<br>Capacity |              |                   |
| Higher                                                                                                                  | Same                     | Lower        |                   |
| 42                                                                                                                      | 38                       | 20           | Higher            |
| 42                                                                                                                      | 12                       | 46           | Same              |
| 87                                                                                                                      | 2                        | 11           | Higher            |
| 3                                                                                                                       | 53                       | 44           | Lower             |
| Higher                                                                                                                  | Same                     | Lower        |                   |
| 80                                                                                                                      |                          | 20           | Higher            |
| 12                                                                                                                      | 40                       | 48           | Lower             |

### TABLE 5.10: INDUSTRY GROUP - PAPER AND PRINTING

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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

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

| Weighted Replies (%)                                                                                                    |                          |              | Apparent<br>Trend |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|-------------------|
| Higher                                                                                                                  | Same                     | Lower        |                   |
| 90                                                                                                                      |                          | 10           | Higher            |
| 86                                                                                                                      | 12                       | 2            | Higher            |
| 76                                                                                                                      | 24                       |              | Higher            |
| 22                                                                                                                      | 64                       | 14           | Same              |
| Excessive                                                                                                               | Adequate                 | Insufficient |                   |
| 13                                                                                                                      | 87                       |              | Adequate          |
| 9                                                                                                                       | 91                       | _            | Adequate          |
|                                                                                                                         | Yes 38<br>No 62          |              | No                |
| Insufficient C<br>Insufficient S<br>Insufficient I<br>Insufficient I<br>Insufficient I<br>Insufficient C<br>Any other r | Insufficient<br>Capacity |              |                   |
| Higher                                                                                                                  | Same                     | Lower        |                   |
| 62                                                                                                                      | 38                       |              | Higher            |
| 62                                                                                                                      | 38                       |              | Higher            |
| 85                                                                                                                      | 15                       |              | Higher            |
| 24 ·                                                                                                                    | 69                       | 7            | Same              |
| Higher                                                                                                                  | Same                     | Lower        |                   |
| 75                                                                                                                      | 25                       | <u> </u>     | Higher            |
| 75                                                                                                                      | 25                       |              | Higher            |

## TABLE 5.11: INDUSTRY GROUP --- CHEMICALS

In 4th quarter 1969 compared with 4th 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 December 1969
  - 5. Stocks of Finished Products are considered to be
  - 6. Stocks of Materials are considered to be

#### During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

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

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

| Weid                                                                                                                          | Apparent<br>Trend   |              |          |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------|
| Higher                                                                                                                        | Same                | Lower        |          |
| 44 -                                                                                                                          | ·                   | 56           | Same     |
| 40                                                                                                                            | 13                  | 47           | Same     |
| 54                                                                                                                            | 46                  | <u></u>      | Higher   |
| . 25                                                                                                                          | 41                  | 34           | Same     |
| Excessive                                                                                                                     | Adequate            | Insufficient |          |
|                                                                                                                               | 96                  | . 4          | Adequate |
| 4                                                                                                                             | 100                 |              | Adequate |
|                                                                                                                               | Yes 5:<br>No 4:     | 5            | Yes      |
| Insufficient of<br>Insufficient of<br>Insufficient of<br>Insufficient of<br>Insufficient of<br>Insufficient of<br>Any other r | Any other<br>Reason |              |          |
| Higher                                                                                                                        | Same                | Lower        |          |
| 90                                                                                                                            | 6                   | . 4          | Higher   |
| 94                                                                                                                            | 6                   |              | Higher   |
| 56                                                                                                                            | 44                  | <u> </u>     | Higher   |
| 14                                                                                                                            | 45                  | 41           | Lower    |
| Higher                                                                                                                        | Same                | Lower        |          |
| 100                                                                                                                           | —                   | <u> </u>     | Higher   |
| 21                                                                                                                            | ` <u> </u>          | 79           | Lower    |

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

In 1st quarter 1970 compared with 1st quarter 1969

- 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

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

| Weighted Replies (%)                                                                                                     |                               |              | Apparent<br>Trend |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|-------------------|
| Higher                                                                                                                   | Same                          | Lower        |                   |
| 100                                                                                                                      |                               |              | Higher            |
| 76                                                                                                                       | 24                            | _            | Higher            |
| 65                                                                                                                       | 35                            |              | Higher            |
| 61                                                                                                                       | 24                            | 15           | Higher            |
| Excessive                                                                                                                | Adequate                      | Insufficient |                   |
|                                                                                                                          | 42                            | 58           | Insufficient      |
|                                                                                                                          | 100                           |              | Adequate          |
|                                                                                                                          | <i>Yes</i> 16<br><i>No</i> 84 | 5            | No                |
| Insufficient C<br>Insufficient S<br>Insufficient S<br>Insufficient I<br>Insufficient I<br>Insufficient C<br>Any other re | Insufficient<br>Capacity      |              |                   |
| Higher                                                                                                                   | Same                          | Lower        |                   |
| 100                                                                                                                      | ·                             |              | Higher            |
| 100                                                                                                                      | _                             | _            | Higher            |
| 43                                                                                                                       | 23                            | 34           | Same              |
| 41                                                                                                                       | 59                            | <u> </u>     | Higher            |
| Higher                                                                                                                   | Same                          | Lower        |                   |
| 81                                                                                                                       |                               | 19           | Higher            |
| 100                                                                                                                      | —                             | ·            | Higher            |

#### TABLE 5.13: INDUSTRY GROUP --- METALS AND ENGINEERING

In 4th quarter 1969 compared with 4th 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 December 1969

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

During 4th quarter 1969

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

## In 1st quarter 1970 compared with 1st quarter 1969

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

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

| Weid                                                                                                                                       | Apparent<br>Trend        |              |          |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|----------|
| Higher                                                                                                                                     | Same                     | Lower        |          |
| 47                                                                                                                                         | 2                        | 51           | Same     |
| 35                                                                                                                                         | 27                       | 38           | Same     |
| 32                                                                                                                                         | 30                       | 38           | Same     |
| 30                                                                                                                                         | 33                       | 37           | Same     |
| Excessive                                                                                                                                  | Adequate                 | Insufficient |          |
| 25                                                                                                                                         | 61                       | 14           | Adequate |
| 19                                                                                                                                         | 72                       | 9            | Adequate |
|                                                                                                                                            | Yes 53<br>No 47          |              | Yes      |
| Insufficient C<br>Insufficient S<br>Insufficient S<br>Insufficient U<br>Insufficient U<br>Insufficient R<br>Insufficient C<br>Any other re | Insufficient<br>Capacity |              |          |
| Higher                                                                                                                                     | Same                     | Lower        |          |
| 34                                                                                                                                         | 46                       | 20           | Same     |
| 52                                                                                                                                         | 30                       | 18           | Higher   |
| 27                                                                                                                                         | 44                       | 29           | Same     |
| 41                                                                                                                                         | 19                       | 40           | Same     |
| Higher                                                                                                                                     | Same                     | Lower        |          |
| 63                                                                                                                                         |                          | 37           | Higher   |
| 54                                                                                                                                         | 35                       | 11           | Higher   |

In 4th quarter 1969 compared with 4th 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 December 1969

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

#### During 4th quarter 1969

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

# In 1st quarter 1970 compared with 1st quarter 1969

- 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 4th 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

| Weighted Replies (%)                                                                                        |                                                                                     |                                       | Apparent<br>Trend |  |  |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|-------------------|--|--|
| Higher                                                                                                      | Same                                                                                | Lower                                 |                   |  |  |
| 100                                                                                                         |                                                                                     | _                                     | Higher            |  |  |
| 100                                                                                                         |                                                                                     |                                       | Higher            |  |  |
| 100                                                                                                         |                                                                                     | _                                     | Higher            |  |  |
|                                                                                                             | 50                                                                                  | 50                                    | Lower             |  |  |
| Excessive                                                                                                   | Adequate                                                                            | Insufficient                          |                   |  |  |
|                                                                                                             | 100                                                                                 | 25                                    | Adequate          |  |  |
|                                                                                                             | 100                                                                                 |                                       | Adequate          |  |  |
| Yes 100<br>No — Yes                                                                                         |                                                                                     |                                       |                   |  |  |
| Insufficient<br>Insufficient<br>Insufficient<br>Insufficient<br>Insufficient<br>Insufficient<br>Any other r | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                                       |                   |  |  |
| Higher                                                                                                      | Same                                                                                | Lower                                 |                   |  |  |
| 100                                                                                                         | <u> </u>                                                                            | · · · · · · · · · · · · · · · · · · · | Higher            |  |  |
| 100                                                                                                         |                                                                                     | -                                     | Higher            |  |  |
| 100                                                                                                         | _                                                                                   | _                                     | Higher            |  |  |
|                                                                                                             | 50                                                                                  | 50                                    | Lower             |  |  |
| Higher                                                                                                      | Same                                                                                | Lower                                 |                   |  |  |
| 71                                                                                                          | 29                                                                                  |                                       | Higher            |  |  |
| 100                                                                                                         | _                                                                                   |                                       | Higher            |  |  |

### 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:

| Series No.  |       | Qu     | arter | , •<br>1 |
|-------------|-------|--------|-------|----------|
| Series INO. | I     | · . II | 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

| Number                                 | Caulan                                                                                                                                                                                                       | . 11.4                                                                                                         | 1967                                                        |                                                             |                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|
| Number                                 | Series                                                                                                                                                                                                       | ' Unit                                                                                                         | I                                                           | II                                                          | III                                                        |
| 1<br>2<br>3<br>4<br>5                  | PRODUCTION<br>Manuf. Industry: Production Volume<br>Tr. Goods Industries: Production<br>Volume<br>Tr. Goods Industries: Prod. per<br>Worker<br>New Houses Built<br>Electricity Output                        | 1953 = 100<br>1953 = 100<br>1953 = 100<br>No.<br>Mill. Kw.h.                                                   | 180.1<br>183.8<br>149.3<br>3,015<br>1,164                   | 193.0<br>205.3<br>164.7<br>2,817<br>933                     | 184.4<br>193.8<br>154.5<br>2,640<br>847                    |
| 6<br>7<br>8<br>9<br>10                 | MANPOWER<br>Sales of Insurance Stamps<br>No. in Tr. Goods Industries<br>Benefit Claims Current<br>Live Register as Prop. of Insured<br>Net Passengers Outward — Sea and<br>Air (Moving Annual Total)         | '000<br>'000<br>'000<br>%<br>%<br>'000                                                                         | 7,511<br>185.4<br>40.2<br>7.7<br>13.5                       | 13,3<br>187.7<br>29.1<br>6.5<br>10.2                        | 23<br>188.9<br>24.8<br>6.0<br>20.5                         |
| 11<br>12<br>13<br>14<br>15<br>16<br>17 | PRICES<br>Wholesale<br>Consumer<br>Agricultural<br>Import (Unit Value)<br>Export (Unit Value)<br>Terms of Trade<br>Stocks and Shares—Ordinary                                                                | $1953 = 100 \\ 1953 = 100 \\ 1953 = 100 \\ 1953 = 100 \\ 1953 = 100 \\ 1953 = 100 \\ 1953 = 100 \\ 1953 = 100$ | 136.3<br>150.6<br>118.8<br>113.4<br>114.3<br>100.8<br>272.2 | 138.4<br>153.2<br>118.9<br>113.2<br>114.2<br>100.9<br>284.6 | 137.0<br>153.3<br>114.9<br>112.6<br>112.6<br>99.9<br>300.4 |
| 18<br>19                               | WAGES, EARNINGS<br>Agricultural Minimum Wages<br>Tr. Goods Inds.: av. Weekly Money<br>Earnings<br>av. Wcekly Real Earnings                                                                                   | shs.<br><b>195</b> 3=100<br>1953=100                                                                           | 180.5<br>217.6<br>144.5                                     | 180.5<br>222.1<br>145.0                                     | 180.5<br>224.0<br>146.1                                    |
| 21<br>22                               | CONSUMPTION<br>Retail Sales<br>New Cars Registered                                                                                                                                                           | 1961=100<br>No.                                                                                                | 127 ·<br>10,369                                             | 138<br>12,476                                               | 144<br>9 <b>,2</b> 81                                      |
| 23<br>24                               | GOVERNMENT<br>Revenue Receipts (weekly av.)<br>Exchequer Expenditure (weekly av.)                                                                                                                            | £'000<br>£'000                                                                                                 | 7,149<br>6,394                                              | 5,349<br>5,714                                              | 5,407<br>6,306                                             |
| 25<br>26<br>27<br>28<br>29             | EXTERNAL TRADE<br>Import Value<br>Export Value<br>Import Excess Value<br>Import Volume<br>Export Volume                                                                                                      | £Mill.<br>£Mill.<br>£Mill.<br>1953=100<br>1953=100                                                             | 100.31<br>64.37<br>35.94<br>190.8<br>196.7                  | 98.47<br>67.27<br>31.20<br>187.6<br>205.6                   | 92.91<br>76.38<br>16.53<br>177.9<br>236.9                  |
| 30<br>31<br>32<br>33<br>34             | BANKING, FINANCE<br>Money Supply (Unadjusted)<br>Bank debits—non govt. (daily av.)<br>Bills, Loans, Advances (within State)<br>Investments (within State)<br>External Assets — Bank system and<br>Deo. Funds | £Mill.<br>£Mill.<br>£Mill.<br>£Mill.<br>£Mill.                                                                 | 339.4<br>20.21<br>339.5<br>49.6<br>254.4                    | 339.5<br>22.36<br>335.1<br>49.0<br>262.0                    | 357.5<br>20.22<br>346.4<br>48.3<br>275.6                   |
| 35                                     | External Monetary Reserves                                                                                                                                                                                   | £Mill.                                                                                                         | 254.1                                                       | 261.7                                                       | 275.7                                                      |

## QUARTERLY ECONOMIC SERIES

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|                                                    |                                                    | 19                                                 | 68                                                |                                                    |                                                   | 19                                                | 69                                                |                                           |
|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------------------|----------------------------------------------------|---------------------------------------------------|---------------------------------------------------|---------------------------------------------------|-------------------------------------------|
| IV                                                 | I                                                  | и                                                  | III                                               | IV                                                 | I                                                 | II                                                | III                                               | IV                                        |
| 200.1                                              | 192.8                                              | 211.8                                              | 207.4                                             | 225.4                                              | 198.6                                             | 234.5                                             | 221.8                                             |                                           |
| 203.4                                              | 196.7                                              | 225.8                                              | 221.2                                             | 231.7                                              | 204.5                                             | 248.5                                             | 237.9                                             |                                           |
| 162.1<br>3,063<br>1,216                            | 159.4<br>2,897<br>1,265                            | 178.3<br>2,777<br>1,018                            | 172.6<br>2,891<br>947                             | 178.6<br>3,182<br>1,312                            | 156.9<br>4,053<br>1,488                           | 186.0<br>2,851<br>1,124                           | 174.7<br>3,112<br>1,035                           | 3,998<br>1,477                            |
| 6,567<br>189.0<br>32.5<br>6.6                      | 7,598<br>185.8<br>40.5<br>7.7                      | 6,417<br>190.7<br>34.6<br>6.8                      | 6,653<br>193.0<br>30.7<br>6.0                     | 6,670<br>195.4<br>35.6<br>6.4                      | 7,869<br>196.3<br>41.9<br>7.5                     | 6,485<br>201.2<br>32.0<br>6.2                     | 7,015<br>205.1<br>28.6<br><b>5.6</b>              | 34.3<br>6.3                               |
| 49.1                                               | 38.2                                               | 22.96                                              | 25.53                                             | 4.51                                               | · 16.75                                           | 18.00                                             | 11.92                                             | 10.92                                     |
| 139.0<br>154:3<br>124.1<br>113.0<br>114.4<br>101.3 | 143.6<br>157.5<br>132.2<br>120.5<br>121.0<br>100.5 | 145.9<br>160.0<br>131.1<br>122.5<br>122.6<br>100.1 | 145.9<br>160.3<br>128.7<br>125.0<br>122.5<br>98.0 | 148.2<br>162.7<br>132.5<br>123.2<br>123.2<br>100.1 | 153.2<br>168.1<br>136.2<br>128.2<br>124.6<br>97.2 | 156.9<br>171.0<br>138.0<br>128.4<br>127.7<br>99.4 | 157.1<br>173.8<br>132.9<br>131.1<br>130.7<br>99.7 | 158.3<br>175.1<br>135.2                   |
| 320.9                                              | 357.6                                              | 410.6                                              | 449.3                                             | 462.6                                              | 473.6                                             | 463.8                                             | 429.2                                             | 409.4                                     |
| 180.5                                              | 180.5                                              | 195.75                                             | 195.75                                            | 200.75                                             | 200.75                                            | 231.25                                            | 231.25                                            | 231.25                                    |
| 231.6<br>150.1                                     | 230.2<br>146.2                                     | 240.9<br>150.6                                     | 246.5<br>153.8                                    | 255.1<br>156.8                                     | 260.4<br>154.9                                    | 271.4<br>158.7                                    | 276.4<br>159.0                                    |                                           |
| 153<br>7,346                                       | 135<br>13,240                                      | 151<br>14,983                                      | 158<br>11,938                                     | 170<br>10,952                                      | 147<br>13,172                                     | 170-<br>16,420                                    | 177<br>11,190                                     | 187<br>9 <b>,53</b> 1                     |
| 5,025<br>6,670                                     | 7,544<br>7,247                                     | 5,691<br>6,716                                     | 6,273<br>7,463                                    | 6,137<br>7,872                                     | 8,349<br>8,579                                    | 7,221<br>7,619                                    | 7,239<br>8,398                                    | 7,643<br>9,581                            |
| 98.92<br>75.43<br>23.49<br>188.8<br>230.5          | 116.32<br>74.53<br>41.79<br>208.3<br>214.9         | 125.34<br>80.12<br>45.22<br>220.8<br>228.2         | 117.82<br>87.70<br>30.12<br>196.6<br>249.6        | 135.65<br>89.23<br>46.42<br>237.7<br>252.8         | 134.60<br>80.23<br>54.37<br>226.6<br>224.5        | 159.75<br>91.92<br>67.83<br>268.3<br>251.3        | 140.07<br>96.65<br>43.42<br>230.6<br>258.1        | 155.45<br>101.07<br>54.37                 |
| 372.9<br>22.19<br>363.6<br>47.5                    | 373.1<br>21.90<br>379.0<br>49.2                    | 370.3<br>22.36<br>394.0<br>49.2                    | 390.5<br>23.69<br>405.2<br>62.5                   | 405.7<br>27.00<br>414.0<br>89.1                    | 402.1<br>26.61<br>437.6<br>87.7                   | 402.3<br>31.21<br>459.0<br>86.9                   | 412.0<br>27.17<br>475.2<br>93.2                   | 420.9<br>3 <b>0</b> .16<br>475.9<br>108.5 |
| 291.2<br>292.0                                     | 284.3<br>292.2                                     | 250.1<br>280.1                                     | 239.9<br>281.0                                    | 249.7<br>292.3                                     | 240.4<br>284.4                                    | 224.2<br>269.1                                    | 225.9<br>268.2                                    | 248.2<br>281.6                            |

## TABLE 6.2: SELECTED QUARTERLY

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

## SERIES CORRECTED FOR SEASONALITY

|                                                                                    |                                                                                    | 19                                                                                 | 68                                                                                 |                                                                                    |                                                                                    | 19                                                                                 | 69                                                                                 |                                                                           |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| IV                                                                                 | I                                                                                  | п                                                                                  | III                                                                                | IV                                                                                 | I                                                                                  | п                                                                                  | III                                                                                | IV                                                                        |
|                                                                                    | Equivale                                                                           | nt Annual                                                                          | Aggregates                                                                         | [                                                                                  | 1                                                                                  | 1                                                                                  | ·[                                                                                 | ·]                                                                        |
| 4,325<br>27,334<br>42,709<br>389.5<br>292.9<br>96.6                                | 4,257<br>26,848<br>47,370<br>458.4<br>307.3<br>151.1                               | 4,643<br>28,236<br>49,777<br>482.5<br>338.7<br>143.8<br>Value Dur                  | 4,724<br>26,990<br>47,608<br>502.4<br>328.7<br>173.7                               | 4,635<br>27,420<br>64,900<br>538.3<br>350.9<br>187.4                               | 5,050<br>28,229<br>45,736<br>524.2<br>333.3<br>190.9                               | 5,095<br>28,043<br>54,236<br>615.0<br>389.9<br>225.1                               | 5,143<br>28,516<br>45,861<br>591.6<br>362.3<br>229.3                               | 5,210<br>57,676<br>630.0<br>393.7<br>236.3                                |
|                                                                                    | Average                                                                            |                                                                                    |                                                                                    |                                                                                    | I                                                                                  |                                                                                    | ·····                                                                              | ·{                                                                        |
| 188.2<br>32.0<br>6.9<br>5,905<br>6,841<br>363.1<br>21.9<br>363.2<br>285.5<br>288.8 | 187.3<br>31.8<br>6.5<br>5,625<br>6,494<br>376.4<br>21.6<br>380.5<br>279.3<br>288.2 | 191.1<br>37.3<br>6.8<br>6,373<br>7,025<br>376.3<br>21.8<br>394.0<br>253.4<br>284.0 | 191.7<br>40.1<br>7.1<br>6,833<br>8,076<br>390.8<br>25.1<br>404.0<br>243.0<br>284.1 | 194.8<br>34.4<br>6.6<br>7,237<br>7,841<br>395.4<br>26.6<br>413.6<br>247.7<br>289.1 | 198.3<br>33.5<br>6.4<br>6,349<br>7,687<br>405.8<br>26.5<br>438.5<br>233.4<br>280.8 | 201.2<br>33.9<br>6.2<br>8,006<br>7,961<br>409.7<br>30.6<br>459.0<br>228.1<br>274.0 | 203.7<br>36.4<br>6.5<br>7,843<br>9,331<br>410.4<br>28.5<br>473.8<br>229.3<br>271.7 | 33.6<br>6.5<br>8 887<br>9 329<br>411.4<br>29.5<br>475.4<br>247.7<br>276.6 |
|                                                                                    |                                                                                    |                                                                                    | ) = 100<br>                                                                        |                                                                                    | II <del></del>                                                                     | ·                                                                                  | ·[                                                                                 | ·                                                                         |
| 191.7<br>197.5<br>158.0<br>125.1<br>231.1<br>149.8<br>185.8<br>223.8               | 198.4<br>205.1<br>164.7<br>129.9<br>233.5<br>148.3<br>205.2<br>221.5               | 210.1<br>220.3<br>173.0<br>129.2<br>239.0<br>149.4<br>212.5<br>241.2               | 212.5<br>223.0<br>175.2<br>131.9<br>245.5<br>153.2<br>209.6<br>234.1               | 215.9<br>226.3<br>175.0<br>133.6<br>254.6<br>156.5<br>235.8<br>248.3               | 204.5<br>213.9<br>162.4<br>133.3<br>265.4<br>157.9<br>229.6<br>233.1               | 231.0<br>240.3<br>180.1<br>136.1<br>269.8<br>157.5<br>258.2<br>266.3               | 227.0<br>239.6<br>177.1<br>136.7<br>275.0<br>158.2<br>243.5<br>241.9               | 136.3                                                                     |
|                                                                                    | Index Nu                                                                           | mbers 1961                                                                         | = 100                                                                              |                                                                                    |                                                                                    |                                                                                    |                                                                                    |                                                                           |
| 143.6                                                                              | 147.9                                                                              | 151.3                                                                              | 153.8                                                                              | 159.8                                                                              | 160.8                                                                              | 171.2                                                                              | 172.2                                                                              | 175.8                                                                     |

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## TABLE 6.3: SEASONALLY CORRECTED

|                            | Contes                                                                                             |                                           | . 19                                      | 64                                        |                                           | a second                                  | 19                                        | 65                                        |                                           |                                           |
|----------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| ber                        | Series                                                                                             | I                                         | п                                         | ш                                         | 1V                                        | Ĩ                                         | п                                         | III                                       | IV                                        | I                                         |
|                            | PRODUCTION:                                                                                        |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| 1                          | Vol.                                                                                               | 117.2                                     | 120.7                                     | 120.3                                     | 121.1                                     | 123.8                                     | 126.6                                     | 125.4                                     | 127.0                                     | 126.0                                     |
| .2                         | Tr. Goods Inds.<br>Prod. Vol.                                                                      | 118.9                                     | 119.8                                     | 121.8                                     | 123.0                                     | 121.9                                     | 122.7                                     | 126.7                                     | 129.8                                     | 126.7                                     |
| 3                          | Tr. Goods Inds.<br>Prod. per Head                                                                  | 109.7                                     | 110.1                                     | 111.6                                     | 113.3                                     | 112.3                                     | 112.7                                     | 115.8                                     | 119.1                                     | 115.6                                     |
| 5                          | Electricity Output                                                                                 | 125.6                                     | 132.2                                     | 130.3                                     | 136.9                                     | 143.8                                     | 142.9                                     | 147.5                                     | 154.1                                     | 149.9                                     |
| 6                          | MANPOWER<br>Sales of Insurance<br>Stamps                                                           | 106.0                                     | 109.7                                     | 104.5                                     | 108.0                                     | 100.6                                     | 110.1                                     | 101.2                                     | 110.7                                     | 104.5                                     |
| 7                          | No. in Tr. Goods                                                                                   | 108 5                                     | 108.9                                     | 109.2                                     | 108.7                                     | 108.7                                     | 109.1                                     | 109.6                                     | 109:1                                     | 109.8                                     |
| 8                          | Benefit Claims                                                                                     | 102.2                                     | 103.0                                     | 106.9                                     | 103.2                                     | 101.4                                     | 100.5                                     | 105.9                                     | 116.5                                     | 111.9                                     |
|                            |                                                                                                    | 90.1                                      | 100.0                                     | 100.2                                     | 105.2                                     | 90.5                                      | 95.9                                      | 91.9                                      | 105.4                                     |                                           |
| 11                         | PRICES:<br>Wholesale<br>(not corrected)                                                            | 107.6                                     | 110.9                                     | 111.6                                     | 112.1                                     | 113.9                                     | 115.7                                     | 114.7                                     | 114.4                                     | 115.9                                     |
| 12                         | (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<br>20                   | EARNINGS:<br>Tr. Goods Inds.:<br>Money Earnings<br>Real Earnings                                   | 124.1                                     | 129.9                                     | 129.5                                     | 128.5<br>110 1                            | 129.3<br>109.7                            | 130.7                                     | 132.9<br>110.3                            | 134.2<br>111.5                            | 134.6                                     |
|                            | Consumption:<br>Retail Sales                                                                       | 117.9                                     | 122.5                                     | 127.2                                     | 127.4                                     | 129.7                                     | 131.8                                     | 133.8                                     | 131.8                                     | 130.4                                     |
|                            | New Cars Registered                                                                                | 127.6                                     | 147.5                                     | 151.6                                     | 156.3                                     | 166.6                                     | 158.6                                     | 155.9                                     | 110.2                                     | 161,2                                     |
| 23                         | GOVERNMENT:<br>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<br>26<br>27<br>28<br>29 | EXTERNAL TRADE:<br>Import Value<br>Export Value<br>Import Excess<br>Import Volume<br>Export Volume | 131.2<br>126.6<br>141.3<br>130.2<br>120.6 | 135.1<br>127.4<br>152.0<br>133.6<br>116.3 | 134.8<br>121.2<br>164.9<br>132.9<br>110.3 | 132.1<br>119.1<br>160.9<br>129.8<br>109.7 | 140.3<br>112.9<br>201.4<br>137.4<br>102.6 | 147.7<br>115.2<br>220.1<br>143.3<br>104.1 | 147.2<br>133.5<br>177.8<br>143.0<br>113.9 | 135.8<br>132.5<br>142.8<br>131.9<br>121.2 | 137.3<br>131.4<br>150.3<br>133.3<br>120.7 |
| 30<br>31                   | BANKING, FINANCE:<br>Money Supply<br>Bank Debits—                                                  | 130.2                                     | 130.5                                     | 136.3                                     | 137.6                                     | 136.8                                     | 141.0                                     | 142.9                                     | 142.6                                     | 145.7                                     |
| 37                         | · Non-Govt.<br>Bills Loaps                                                                         | 140.2                                     | 135.2                                     | 137.2                                     | 144.3                                     | 143.3                                     | 181.9                                     | 179.9                                     | 176.8                                     | 179.9                                     |
| 24                         | Advances<br>External Assats                                                                        | 129.6                                     | 134.5                                     | 138.2                                     | 143.2                                     | 146.9                                     | 155.8                                     | 155.6                                     | 155.9                                     | 157.4                                     |
| 35                         | External Monetary                                                                                  | 100.0                                     | 110.7                                     | 112.5                                     | 110,3                                     | 107.0                                     | 100.5                                     | 100.2                                     | 104.0                                     | 104.0                                     |
|                            | Reserves                                                                                           | 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                                      |                                           |                                           | 196                                       | 57                                        |                                           |                                           | 19                                        | 68                                        |                                           |                                           | 19                                        | 69                                        |                         |
|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------|
| II                                        | III                                       | IV                                        | I                                         | п                                         | III                                       | IV                                        | I                                         | п                                         | ш                                         | IV                                        | I                                         | II                                        | III                                       | 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                                     | 169.9                                     | 166.9                                     |                         |
| 124.7                                     | 135.6                                     | 134.5                                     | 139.1                                     | 144.8                                     | 142.0                                     | 142.9                                     | 148.4                                     | 159.4                                     | 161.4                                     | 163.7                                     | 154.8                                     | 173.9                                     | 173.4                                     |                         |
| 114.0<br>158.2                            | 122.2<br>158.2                            | 121.2<br>169.1                            | 125.2<br>163.9                            | 129.2<br>181.0                            | 127.2<br>178.9                            | 127.6<br>182.9                            | 133.0<br>180.0                            | 139.7<br>196.3                            | 141.5<br>199.8                            | 141.4<br>196.0                            | 131.2<br>213.5                            | 145.4<br>215.4                            | 143.1<br>217.5                            | 220.3                   |
|                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                         |
| 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                                     | 112.8                                     |                         |
| 109.6<br>121.7<br>110.4                   | 111.2<br>117.3<br>107.9                   | 111.2<br>125.0<br>110.1                   | 110.3<br>118.8<br>113.5                   | 111.2<br>118.8<br>112.9                   | 111.3<br>125.3<br>122.7                   | 111.9<br>122.3<br>121.0                   | 111.3<br>121.7<br>114.5                   | 113.4<br>142.5<br>119.2                   | 113.7<br>153.3<br>124.5                   | 115.2<br>131.5<br>115.7                   | 118.1<br>128.1<br>112.2                   | 119.8<br>129.6<br>108.7                   | 121.3<br>139.1<br>114.0                   | 128.4<br>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                                     | 137.0                                     | 138.0                   |
| 122.7<br>118.0                            | 124.7<br>114.9                            | 125.0<br>114.9                            | 125.2<br>117.3                            | 127.3<br>117.4                            | 127.4<br>117.0                            | 128.3<br>125.1                            | 130.9<br>129.9                            | 133.0<br>129.2                            | 133.3<br>131.8                            | 135.2<br>133.6                            | 139.7<br>133.3                            | 142.1<br>136.1                            | 144.5<br>136.7                            | 145.6<br>136.3          |
|                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                         |
| 140.8<br>114.6                            | 148.7<br>119.2                            | 150.3<br>120.2                            | 151.9<br>121.3                            | 151.4<br>118.8                            | 153.1<br>120.1                            | 158.8<br>123.8                            | 160.4<br>122.6                            | 164.3<br>123.5                            | 168.7<br>126.7                            | 175.0<br>129.3                            | 182.4<br>130.5                            | 185.4<br>130.4                            | 189.0<br>130.7                            |                         |
| 130.4<br>111.4                            | 139.8<br>163.6                            | 138.7<br>121.1                            | 139.3<br>121.1                            | 138.1<br>146.6                            | 140.9<br>129.8                            | 143.6<br>149.5                            | 147.9<br>165.9                            | 151.3<br>174.3                            | 153.8<br>166.7                            | 159.8<br>227.2                            | 160.8<br>160.1                            | 171.2<br>190.0                            | 172.2<br>160.6                            | 175.8<br>202.0          |
| a<br>180.0                                | a<br>184.4                                | <i>a</i><br>198.1                         | 187.2                                     | 219.9                                     | 212.9                                     | 211.4                                     | 201.4                                     | 228.2                                     | 244.6                                     | 259.1                                     | 227.3                                     | 286.6                                     | 280.8                                     | 318.2                   |
| a<br>169.7                                | a<br>177.3                                | a<br>209.5                                | 180.1                                     | 189.1                                     | 222.6                                     | 222.0                                     | 208.9                                     | 225.9                                     | 259.7                                     | 252.2                                     | 247.2                                     | 256.1                                     | 300.1                                     | 300.1                   |
| 125.9<br>121.4<br>135.9<br>121.1<br>108.6 | 159.3<br>137.2<br>208.3<br>157.5<br>126.5 | 150.5<br>148.5<br>154.9<br>145.6<br>137.6 | 152.4<br>147.6<br>162.9<br>148.7<br>132.6 | 144.8<br>160.5<br>109.8<br>141.5<br>144.2 | 152.6<br>158.6<br>139.2<br>149.9<br>144.6 | 147.2<br>162.7<br>119.2<br>146.1<br>146.2 | 175.6<br>170.6<br>186.5<br>161.3<br>144.7 | 184.9<br>188.1<br>177.5<br>167.1<br>157.5 | 192.5<br>182.5<br>214.4<br>164.8<br>152.9 | 206.3<br>194.9<br>231.3<br>185.4<br>162.4 | 200.9<br>185.1<br>235.6<br>173.4<br>152.3 | 235.7<br>216.5<br>277.8<br>203.0<br>174.1 | 226.7<br>201.2<br>283.0<br>191.4<br>158.0 | 241.1<br>218.7<br>291.7 |
| b<br>a                                    | b<br>a                                    | 155.5<br>a                                | 155.4                                     | 156.1                                     | 163.9                                     | 165.1                                     | 171.1                                     | 171.1                                     | 177.7                                     | 179.8                                     | 184.5                                     | 186.3                                     | 186.6                                     | 187.0                   |
| 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                                     | 299.7                   |
| b<br>b                                    | b<br>b                                    | 165.9<br>112.1                            | 166.9<br>117.3                            | $  164.0 \\ 124.2$                        | 169.1<br>131.1                            | 177.8<br>133.4                            | 186.2<br>130.5                            | 192.9  <br>  118.3                        | 197.7                                     | 202.4                                     | 214.6<br>109.0                            | 224.7                                     | 231.9<br>107.1                            | 232.7                   |
| b                                         | b                                         | 110.8                                     | 115.1                                     | 121.9                                     | 127.9                                     | 132.6                                     | 132.2                                     | 130.4                                     | 130.4                                     | 132.7                                     | 128.9                                     | 125.8                                     | 124.7                                     | 127.0                   |

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