# THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

# QUARTERLY ECONOMIC COMMENTARY

*by*
T. J. BAKER and J. DURKAN

SEPTEMBER 1970

4 BURLINGTON ROAD DUBLIN 4

# THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

## COUNCIL 1969-70

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T. J. BAKER and J. DURKAN*

Incorporating: The Confederation of Irish Industries and The Economic and Social Research Institute Joint Quarterly Industrial Survey.

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

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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 Confederation 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

An unusual degree of uncertainty still surrounds the economic prospects for 1970. Due to the bank dispute, much of the information on which judgment should be based is not available. In interpreting the figures which are available for the first half of the year, it is difficult to disentangle the underlying economic trends from the effects of such temporary factors as the cement strike, the U.K. dock strike and the bank dispute. It is also impossible to be dogmatic concerning the effect the bank closure has been having in the past month or so. Thus the course of the economy in the second half of the year cannot be predicted with any great degree of confidence.

It is clear, however, that in the twelve months ending in June, 1970, there was very little real growth in the economy. Industrial production declined on a seasonally corrected basis from the second quarter of 1969 to the first quarter of 1970. Allowing for seasonal factors, industrial employment fell in the first quarter of 1970, while total unemployment has remained at a high level throughout the summer. Apart from a brief flurry in the first quarter of 1970, the volume of consumer expenditure was also either static or falling. On the other hand, prices and money incomes (although not real incomes) have been rising at an extremely rapid rate. What is perhaps most alarming is that, in spite of the stagnation in the volume of production and a good performance by agricultural exports, there has been only a marginal improvement in the trade deficit. Although it is by no means certain, this could possibly indicate that the often feared deterioration in the competitive position of Irish industry really is beginning to be felt both in export markets and, more particularly, from competing imports on the home market.

With regard to the remainder of 1970, it is felt that the balance of probability, assuming an early settlement to the bank dispute, is for a modest recovery in production, while the external trade balance holds its own. Putting this view together with the figures available for the first half of the year gives the forecast for 1970 as a whole presented in Table 2.1. The principal features of this are a growth rate of $2\frac{1}{2}$ per cent, a G.N.P. price rise of $8\frac{1}{2}$ per cent and an external deficit of £57 million.

The problems faced in forecasting the second half of 1970 are of course intensified in preparing any projection for 1971. Table 2.2 projects a possible outcome in National Accounts terms. This is based on the assumptions that the forecast for 1970 is correct, that policies remain broadly unchanged, and that there will be a rise of about 11 per cent in non-agricultural employee incomes. On this basis the projection suggests a possible growth rate of about $3\frac{1}{2}$ per cent, a G.N.P. price increase of around 6 per cent and an external deficit in the region of £85 million. Obviously this projection is subject to a large margin of error, but at present it is difficult to see how a satisfactory growth rate can be achieved in 1971 without incurring severe balance of payment problems.

In the current state of uncertainty there seems little case for immediate official action in the field of demand management. If the projection for 1971 is anywhere near accurate, however, some action will become necessary by the early months of that year. Given the dichotomy of relatively stagnant output combined with excessive increases in prices and money incomes and an unsustainable external deficit, conventional demand management seems unlikely to be able to cope with the situation on its own. There is a very strong case to be made for now undertaking detailed contingency planning for dealing directly with the major problems of prices, incomes and the external balance, allowing demand management to be used to expand the volume of production and investment. Then if it became clear that the economy was in fact following the path suggested by the projection, or a still less desirable path, a comprehensive policy package would be available for immediate implementation.

## SECTION 2: NATIONAL ACCOUNTS FORECASTS

### TABLE 2.1: FORECAST NATIONAL ACCOUNTS 1970

| | 1969 Provisional | Change in 1970 | | 1970 Forecast | Change in 1970 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Price | Volume | |
| | £m | % | £m | £m | % | % | £m |
| **A. Expenditure on Gross National Product** | | | | | | | |
| Personal Consumer Expenditure ... ... | 974 | +10½ | +103 | 1,077 | 8 | 2½ | 23 |
| Public Net Current Expenditure ... ... | 191 | +12½ | + 24 | 215 | 9 | 3 | 6 |
| Gross Domestic Fixed Capital Formation | 320 | +12½ | + 40 | 360 | 8½ | 3½ | 11 |
| Exports of Goods and Services * ... | 582 | +12 | + 69 | 651 | 7 | 4½ | 26 |
| Physical Changes in Stocks: | | | | | | | |
| Agriculture ... ... ... ... | + 6 | — | − 6 | 0 | — | — | − 6 |
| Other ... ... ... ... ... | +16 | — | − 10 | + 6 | — | — | −10 |
| FINAL DEMAND ... ... ... | 2,089 | +10½ | +220 | 2,309 | 8 | 2½ | 50 |
| Imports of Goods and Services * ... | 651 | + 9 | + 57 | 708 | 6½ | 2 | 14 |
| GROSS NATIONAL PRODUCT AT MARKET PRICES ... ... ... | 1,438 | +11½ | +163 | 1,601 | 8½ | 2½ | 36 |
| **B. Gross National Product by Origin** | | | | | | | |
| Agriculture, etc.—Total ... ... ... | 198 | + 3 | + 6 | 204 | | | |
| Non-Agricultural: Wages etc. ... ... | 659 | +12½ | + 84 | 743 | | | |
| Profits etc. ... ... | 225 | + 8 | + 18 | 243 | | | |
| | 884 | +11½ | +102 | 986 | | | |
| Other Income (including adjustment for price of stocks) ... ... ... ... | 43 | + 7 | + 3 | 46 | | | |
| NATIONAL INCOME ... ... ... | 1,125 | +10 | +111 | 1,236 | | | |
| Depreciation ... ... ... ... | 101 | +11 | + 11 | 112 | | | |
| GNP AT FACTOR COST ... ... | 1,226 | +10 | +122 | 1,348 | | | |
| Taxes on Expenditure less Subsidies ... | 212 | +19½ | + 41 | 253 | | | |
| GNP AT CURRENT MARKET PRICES | 1,438 | +11½ | +163 | 1,601 | | | |
| C. BALANCE OF PAYMENTS ... | −69 | — | +12 | −57 | | | |

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

TABLE 2.2: PROJECTED NATIONAL ACCOUNTS 1970

| | 1970 Forecast | Change in 1971 | | 1971 Projection | Change in 1971 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Price | Volume | |
| | £m | % | £m | £m | % | % | £m |
| **A. Expenditure on Gross National Product** | | | | | | | |
| Personal Consumer Expenditure ... ... | 1,077 | + 9 | + 96 | 1,173 | + 6 | + 3 | 33 |
| Public Net Current Expenditure ... ... | 215 | +12 | + 25 | 240 | + 8 | + 3½ | 7 |
| Gross Domestic Fixed Capital Formation | 360 | +15 | + 53 | 413 | + 6½ | 8 | 30 |
| Exports of Goods and Services * ... | 651 | +11½ | + 74 | 725 | + 5 | + 6 | 41 |
| Physical Changes in Stocks: | | | | | | | |
| Agriculture ... ... ... ... | 0 | — | +2 | + 2 | — | — | +2 |
| Other ... ... ... ... ... | + 6 | — | +4 | +10 | — | — | +4 |
| FINAL DEMAND ... ... ... | 2,309 | +11 | +254 | 2,563 | + 5½ | + 5½ | 117 |
| Imports of Goods and Services * ... | 708 | +14½ | +103 | 811 | + 5 | + 9 | 64 |
| GROSS NATIONAL PRODUCT AT MARKET PRICES ... ... ... | 1,601 | +9½ | +151 | 1,752 | + 6 | + 3½ | 53 |
| **B. Gross National Product by Origin** | | | | | | | |
| Agriculture etc.—Total ... ... ... | 204 | + 3 | + 6 | 210 | | | |
| Non-Agricultural: Wages etc. ... ... | 743 | +11 | + 83 | 826 | | | |
| Profits etc. ... ... | 243 | + 9½ | + 23 | 266 | | | |
| Total ... ... ... | 986 | +10½ | +106 | 1,092 | | | |
| Other Income (including adjustment for price of stocks) ... ... ... ... | 46 | + 4½ | + 2 | 48 | | | |
| NATIONAL INCOME ... ... ... | 1,236 | + 9 | +114 | 1,350 | | | |
| Depreciation ... ... ... ... | 112 | +11 | + 12 | 124 | | | |
| GNP AT FACTOR COST ... ... | 1,348 | + 9½ | +126 | 1,474 | | | |
| Taxes on Expenditure less Subsidies ... | 253 | +10 | + 25 | 278 | | | |
| GNP AT CURRENT MARKET PRICES | 1,601 | + 9½ | +151 | 1,752 | | | |
| C. BALANCE OF PAYMENTS ... | —57 | — | —29 | —86 | | | |

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

## SECTION 3: COMMENTARY

### §3.1 *Introduction*

As is normal in the September issue of the Quarterly Economic Commentary, an attempt is made to offer a tentative projection of National Accounts for next year, as well as to review developments in the current year. What is not so normal is the degree of uncertainty still surrounding the forecast for 1970. In most years the availability by September of many data for the first half of the year enables a forecast for the whole year to be presented with a fair measure of confidence. This is not true at present. Because of the bank dispute, many figures for the period since February are not available at all. Other statistics which are available for the second quarter, such as those relating to foreign trade, domestic consumption and unemployment, are distorted by the effects of the bank dispute, the cement strike and the U.K. dock strike. Thus it is difficult, if not impossible, to isolate the trends in the economy which can be expected to continue from short-term fluctuations which are liable to be sharply reversed.

Thus the forecast out-turn for 1970, which serves as a foundation for the projection of 1971, is itself insecurely based on the shifting sands of conjecture. This is not to say that the forecast and projection set out in Tables 2.1* and 2.2 are without value. They show in summary form the logical outcome of the assumptions spelt out in detail in the following pages. What must be remembered is that these assumptions may turn out, with the benefit of hindsight, to be rather further removed from reality than the assumptions made in more normal circumstances.

### §3.2 *The Bank Dispute*

The principal cause of the abnormal degree of uncertainty currently surrounding the prospects for the economy is the bank dispute. The lack of financial statistics due to the closure is an inconvenience to the economic analyst and by itself adds to uncertainty. At the time of writing it is impossible to be certain as to the effects it is having on the economy, or even to be sure that a settlement is imminent.

Although important in human terms, the pure inconvenience caused to most individuals, and actual hardship to some, can be largely ignored from a strictly economic point of view, as not entering into the measurable flow of goods and services through the economy. Rather, attention must be focussed on the impact of the bank closure on the general level of economic activity, on any changes it may have caused in the pattern of activity, and on the possible influence of the present dispute on future decisions affecting the Irish economy.

In the absence of statistical or other facts concerning the effects of the dispute, it is necessary to speculate, in the light of both previous experience and of first principles, to what the effects might have been.

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*The provisional estimates of the 1969 National Accounts which form the first column of Table 2.1 are obtained by adjusting the official provisional National Accounts presented in "Review of 1969 and Outlook for 1970" to allow for the more recently available data on the Balance of Payments and Agricultural Output.

So far as can be gathered, the 1966 closure of the banks had an expansionary effect on the economy. Between the beginning of the closure and the date by which figures once more became available there was an increase in almost all types of bank credit. Consumer spending, industrial production and employment all rose substantially during the period of the stoppage. One cannot be certain how far the bank dispute was solely responsible for these movements, as the figures for the period are also distorted by the U.K. seamen's strike of 1966. Moreover, the bank closure of 1966 came after a period of stagnation in the economy, with considerable idle capacity available for expansion. It also coincided with a wage round, which, although of modest size, was the first general increase in employees' pay for nearly two years. Thus some economic expansion could have been expected at the time in any case, but it does seem overwhelmingly probable that the recovery was speeded and boosted by the unauthorised expansion of credit during the bank closure. On the other hand, examination of monthly and quarterly statistics for 1966 suggests that this expansionary effect might not have been spread evenly over the length of the closure. It appears probable that in the early weeks there was no such effect, and that the entire expansion was concentrated in the period just before and after the settlement of the dispute.

With this experience of 1966 in mind, what might be expected of the present stoppage? Although other factors were also involved, consumption statistics for May, June and July do not suggest any increase in consumer spending based on an unauthorised increase in personal bank credit. Whether this apparent restraint (either voluntary or enforced through the reluctance of many traders to accept personal cheques to the same extent as in 1966) continued as the closure dragged on is open to question.

However, it must be remembered that the majority of consumers are not normally bank customers, and that the direct consumption effect of the bank closures is thus of limited importance. Far more vital is the impact of the dispute on the production and trading of goods and services throughout the economy, and on the level of employment.

On this it is unwise to be dogmatic, but to the authors it appears probable that the effects of the dispute so far have been restrictive. The reluctance of suppliers to incur the risks involved in extending trade credit indefinitely without full settlement, and of prudent firms to extend their own commitments which must ultimately be met from an accumulated income of dubious reliability, seems likely to outweigh the willingness of the reckless firm to expand on the basis of unauthorised bank credit. The fact that unemployment has only partially recovered from the exceptional level it reached during the cement dispute, and remains about 10,000 above its 1969 level, lends some credence to the view that the net effects of the bank dispute have so far been depressive.

This tendency (if in fact it exists) may well be reversed following the announcement of a settlement, as it appears to have been in 1966, as the prospect of a time limit on settlement of debts encourages firms to accept or place orders they may have been reluctant to consider at an earlier stage of the dispute. Thus part of the effect may prove to be self cancelling, having postponed rather than curtailed production. However, the additional length of this dispute compared with 1966, together with the more cautious attitude of traders apparent in its early stages, seems likely to ensure that the net effect of the dispute will on this occasion prove to have been restrictive rather than expansionary.

Quite apart from the short-term responses to the bank dispute which have been discussed so far, there is a possibility of long-term effects which might be felt in future years. The absence of an operational banking system is unlikely to have been regarded by foreign investors as a positive inducement to invest in Ireland. The fact that there have been two such bank closures within four years, coupled with the apparent inability to solve the present dispute within a reasonable period, may already have affected the confidence of such investors. Even in the case of domestic investors, the uncertainties created by the dispute may well have had a disincentive effect on future investment. If it be true that the dispute has affected willingness to invest in Ireland, the effects could include not only a reduction in the growth of fixed capital formation in 1971 compared to what it would otherwise have been, but also an unfavourable shift in capital flows between Ireland and other countries, leading to a substantial fall in the official monetary reserves over and above any technical adjustment to the re-opening of the banks.

A notable feature of the period of the bank closure has been the large increase in the funds flowing into building societies. To some extent these are being used as temporary alternatives to banks, and it can be expected that with the reopening of the banks a large proportion of the funds will be transferred to the banks. However, it seems possible that a considerable sum will be left with the building societies which previously was held in the form of deposit accounts in the banks. If this is so it will presumably restrict the lending ability of the banks while enhancing that of the building societies. This could lead to some shift in the pattern of capital formation in favour of house, and perhaps office, building at the expense of other forms of fixed and working capital formation.

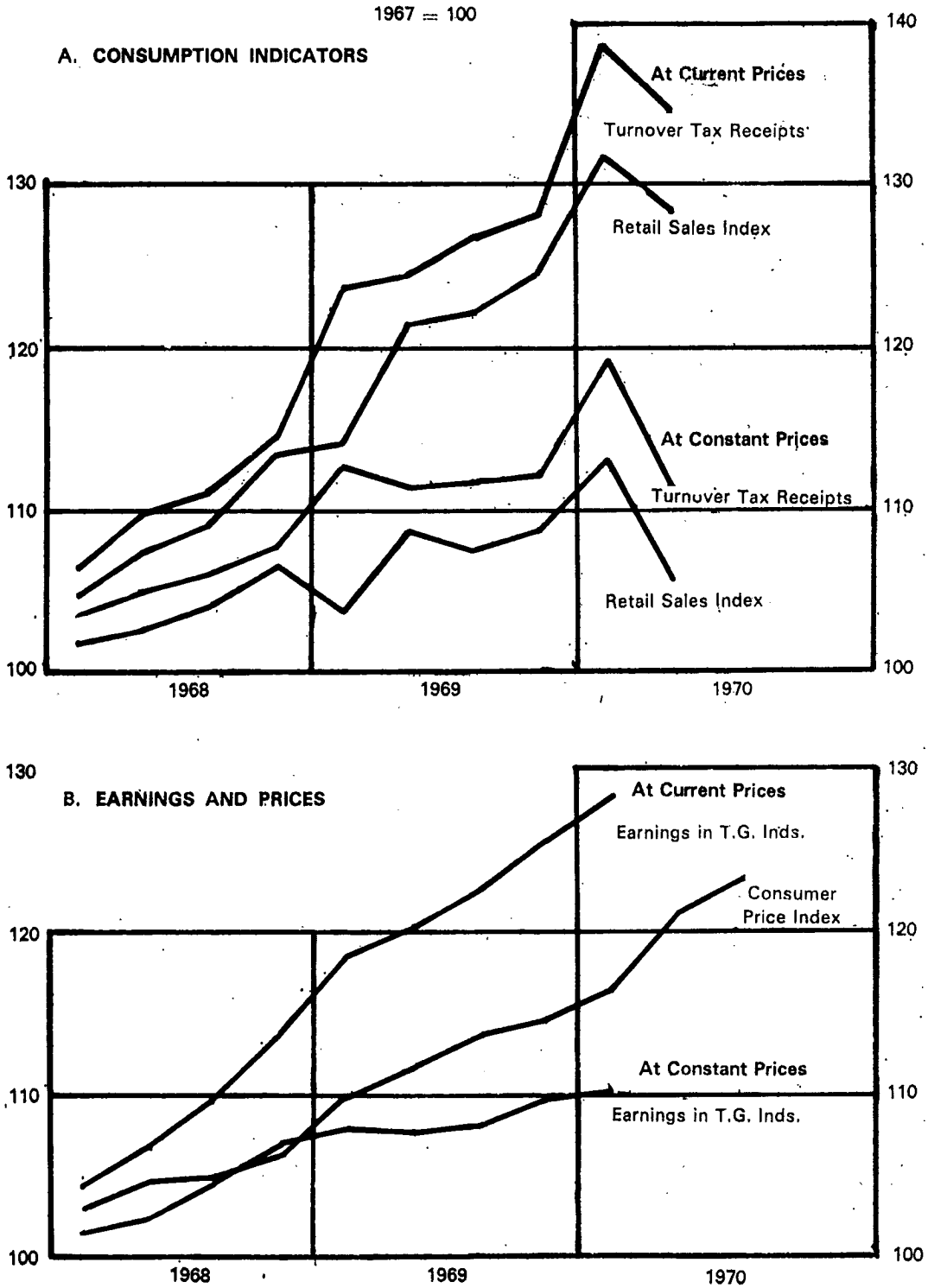
This discussion of possible effects of the dispute has been unavoidably discursive and imprecise. In formulating forecasts for 1970 and 1971 on the other hand, it is necessary to make specific and quantified assumptions regarding the effects. In view of the degree of uncertainty involved, it has been felt preferable to risk understating the effects rather than to risk exaggeration. Consequently the key assumption made is that the dispute will be settled by the time this Commentary appears, although it will take several months before the banking system returns to normal. On this basis, the further assumption is made that although there will prove to have been an increase in personal credit, this will have been offset by slight falls in some other categories of private sector bank credit. Industrial production, employment and imports are each assumed to have been depressed during the period of the closure, to about 2 per cent below the level they would otherwise have reached, although in the quarter following the announcement of a settlement about half of this shortfall will be made good. Fixed investment in 1970 is assumed to have been depressed by about £2 million due to the dispute, with a similar loss for 1971, while a fall in non-agricultural stocks of £3 million in 1970 is assumed not to be repeated in 1971. No allowance is made for any effect on exports, visible or invisible, in either year.

It need hardly be repeated that these assumptions are guesses on which too much reliance cannot be placed, and that even the direction of the assumed effects may prove to have been mistaken.

### §3.3 *The Economy in* 1970. *Domestic Consumption*

The two main indicators of domestic private consumption are the index of retail sales, and turnover tax receipts. Neither is an exact guide to the National Accounts

CHART 3.1. CONSUMPTION EARNINGS AND PRICES, 1968-1970



item of personal consumer expenditure, as each reflects some expenditure by tourists (which is treated as an invisible export rather than as consumption) and neither covers the full range of goods and services which makes up total consumer expenditure. Also, this year, interpretation of turnover tax receipts is complicated by the Budget decision to double the rate of tax. However, when allowance is made for this factor, and when both series are seasonally corrected, they do show quite clearly the course of retail trade in the first half of the year.

The first quarter showed a very sharp increase in the value of such trade compared with the final quarter of 1969. The second quarter, however, saw a marked reaction, and about half the gain of the first quarter was lost. When allowance is made for rising prices (the consumer price index, although not covering exactly the same goods and services as either the retail sales index or turnover tax, is adequate to give an approximate picture), the position is more striking.

The volume of retail trade, measured by either the deflated retail sales index or deflated turnover tax receipts, was at a record level in the first quarter of the year. However, in the second quarter, according to either measure, it fell to below the average for 1969. Chart 3.1 shows the course of the seasonally corrected consumption indicators, consumer prices, and industrial earnings, from 1968 to 1970.

In assessing the likely level of consumption for 1970 as a whole, it is necessary to explain this sharp fall in the second quarter. Clearly there were some temporary factors tending to depress the level of spending at that time. The possible role of the bank dispute has already been discussed. Both through direct effects in the difficulty of making payments, and through indirect effects in depressing the level of employment and overtime earnings, it may have reduced consumer spending in the second quarter. More important, the cement dispute, with its impact on employment in the building and other industries, was at its height for most of the quarter. The setback to the early season tourist trade must also have affected adversely certain classes of retail sales. The general anticipation of a harsh budget may well have brought some purchases forward from the second to the first quarter, while the actual imposition of a higher turnover tax may have delayed some transactions into the third quarter.

With the exception of the bank dispute, these temporary factors have ceased to operate since the end of June. If between them they account for a considerable proportion of the downturn in the second quarter, as they probably do, then some recovery in the level of sales can be expected in the remainder of the year.

Even apart from these special factors, there has been a levelling off in employment, in line with the levelling off of industrial output, since the second half of 1969. Despite the high rate of increase in basic earnings which is thought to be continuing, the actual rate of increase in aggregate employee income is probably now lower than in 1969. Thus it is reasonable to expect that the underlying rate of growth in consumption at current prices is also tending to slacken slightly. Retail sales about 10% higher in value than in 1969 seems a reasonable expectation for the second half of the year. This implies that total private consumption for 1970 should be about 10½% higher than in 1969 at current prices. Given that retail prices are expected to be about 8% higher on average than last year, the forecast volume increase in personal consumption seems likely to be only 2½% higher than in 1969. Both in volume and value terms this forecast is significantly lower than the previous forecast made in June.

In the case of public authorities net current expenditure, little change has been made to the June forecast. An increase of about 3% at constant, and 12½% at current, prices seems probable.

§3.4 *Investment in* 1970

The possible impact on fixed capital formation of the cement strike was discussed in some detail in the June Commentary. Little information has become available since to confirm or contradict the assumptions then made. The June Quarterly Industrial Survey indicates that the firms answering questions on investment see their capital expenditure in the coming twelve months as being roughly in line with, or slightly above, expenditure in the past year. On the other hand, this is the first Survey for over two years which reports no increase in capital expenditure in the twelve months just ended compared with the previous year. These indications of a levelling off in industrial investment reinforce the expectation, based on the ever growing proportion of firms denying the existence of capacity constraints on output, that a significant margin of spare resources is emerging in industry, thus reducing the incentive to invest. Thus the forecast of a much more modest increase in private investment than in the past two years appears well founded. Compared with the June forecast, the added depressive factor of the continuation of the bank dispute, is assumed to have reduced the increase in current price investment by about one half of a percentage point. Due to the higher base resulting from the revision of the 1969 figures, this means that the absolute increase forecast for 1970, at £40 million at current prices and £11 million at constant prices, remains unchanged.

With regard to investment in stocks, the length of the bank closure and the general levelling off in activity suggest that the cut-back in non-agricultural stock building for 1970 as a whole might be even greater than was forecast in June. Agricultural stocks, on the other hand, now appear to have grown slightly less rapidly in 1969 than had previously been supposed, and the reduction in the rate of growth in 1970 has accordingly been marked down by £2 million.

§3.5 *Exports of Goods and Services in* 1970

The value of Merchandise exports in the first eight months of 1970 are reasonably in accord with the forecast for the year made in June. For the eight month period merchandise exports were 15½% above the 1969 level, when allowance is made for the adjustment to the August 1969 figures for late recording. There seems little reason why a fairly high level of exports should not continue for the remainder of the year, and so the forecast for the year as a whole at current prices is little changed from that made in June.

It now appears that of the increased value of exports in the second half of 1969 and the first quarter of 1970, a greater role was played by prices, and a smaller one by volume, than had been assumed in June. From a short term balance of payments point of view, this does not much matter. In the longer run however, it could just conceivably be an indication that the competitive position of Irish industrial exports is beginning to weaken, and that future growth might be imperilled by high prices. At the same time, the fact that the volume of industrial exports has not been growing as rapidly as had been thought goes some way towards explaining the stagnant performance of the volume of industrial production.

No significant change has been made to the June forecast for invisible exports. Despite the comparative recovery of tourism in late July and August, it would still appear to have been an indifferent tourist season, with insufficient growth in other types of tourism to offset the decline in cross border day-trip receipts. The current forecast for exports of goods and services is shown in Table 3.1.

TABLE 3.1: EXPORTS OF GOODS AND SERVICES 1968–1970

| | 1968 Actual £m | 1969 Actual £m | 1970 Forecast £m | Change £m | Change % |
|---|---|---|---|---|---|
| Industrial: to U.K. ... ... | 93 | 102 | 115 | +13 | +13 |
| Other ... ... | 56 | 74 | 94 | +20 | +27 |
| Total ... | 149 | 176 | 209 | +33 | +19 |
| Agricultural ... ... ... | 157 | 167 | 189 | +22 | +13 |
| Misc. and Re-exports ... ... | 26 | 28 | 33 | + 5 | +18 |
| Total Merchandise ... ... | 332 | 371 | 431 | +60 | +16 |
| Invisible* ... ... ... ... | 199 | 211 | 220 | + 9 | + 4 |
| Total ... ... ... | 531 | 582 | 651 | +69 | +12 |

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

## §3.6 *G.N.P. and Imports in* 1970

The forecasts discussed above for National Accounts expenditure items suggest an increase in Final Demand of 10.5% (£220 million) at current prices, and of 2.4% (£50 million) at constant 1969 prices. This increase in Final Demand must be met jointly by changes in Gross National Product and in imports of goods and services.

The index of industrial production is available only for the first quarter of 1970. Although 6.5% above the level of the strike-affected first quarter of 1969, the seasonally corrected index is 5.3% below the record level reached in the second quarter of 1969. More seriously it is 1.6% below the average for 1969 as a whole. The impact of the cement strike on the output of the glass, clay and cement groups of industries accounts for part of this setback, but study of Table 6.1 in Section 6 reveals that all industry groups except textiles were operating at below their previous best levels in the first quarter.

On the evidence of the Quarterly Industrial Survey published in Section 5, manufacturers appear reasonably optimistic that the value of production in the second quarter was, and in the third quarter will have been, above the level of the corresponding quarters of 1969. However when allowance is made for rising prices, little increase in the volume of production compared with 1969 seems indicated.

Unemployment has remained high throughout the summer. The fall in unemployment following the settlement of the cement strike was unexpectedly modest, and for most of August and September the live register was about 10,000 higher than in the corresponding weeks of 1969, itself a fairly normal year. The bulk of this increase was

concentrated in the building and construction sector, and in the related (for unemployment purposes) category of agriculture, and could be accounted for by the state of the UK building labour market as well as by a slow recovery from the cement strike in Ireland. However, there were also widespread increases compared with 1969 in industrial and service categories on the live register. While such an increase in industrial unemployment does not, of course, imply a high rate of actual redundancies, it does suggest that there is unlikely to have been any substantial rise in industrial employment. The unemployment figures therefore tend to confirm the impression that the volume of industrial production is not likely to have grown at all sharply in the past two quarters, although it may well have recovered a little from the very low level of the first quarter.

In the light of the forecasts made for industrial exports, personal consumption, and imports, it appears reasonable to expect that by the fourth quarter of 1970 industrial production will have recovered to a level above that reached in the second quarter of 1969, giving an annual average for 1970 about 3% above 1969. This is roughly half the improvement assumed in the June forecast.

There appears less reason to revise downwards so severely the June forecasts of aggregate output in other non-agricultural sectors, although the reduction in the industrial forecast must logically affect the forecasts for related sectors such as transport.

With regard to agriculture, there is reason to hope for a slight increase in the volume of production. The cattle breeding herd continues to increase according to the June enumeration, while the increase in crop acreage seems more than sufficient to offset the decline in yields reported as a result of the unfavourable weather conditions in June and late August.

Overall, an increase in the volume of Gross National Product of about 2½%, or between £35 and £40 million, seems the most likely outcome for 1970. Of course the rise in prices compared with 1969 will raise this increase to a much higher figure, perhaps 11½% (£163 million), in current price terms.

If this forecast for G.N.P. is correct, it leaves about £14 million of the projected rise in the volume of final demand to be met by imports. At current prices an increase of £57 million in imports is implied. These figures fit fairly well with the trend of imports so far this year.

In the first 8 months the value of merchandise imports was £35.8 million higher than in the corresponding period of 1969. This represents an increase of 9.3%. Interpretation of these figures is complicated, both by the impact of strikes in both years, and by differences in the timing of aircraft imports. Thus for the first quarter of 1970 imports were 13.4% higher than in the first quarter of 1969, while in the succeeding five months the increase has been only 7%.

Despite these complications, it must be observed that the rate of increase of imports so far this year is a little disquieting. Previous periods of industrial stagnation have had a much sharper effect in checking the growth of imports. It is too early to be certain, but, as in the case of the comparatively sluggish growth in the volume of industrial exports, the import trend could be interpreted as an indication that the competitive strength of Irish industry is beginning to be undermined by cost increases.

Projecting the seasonally corrected trend of imports in the light of expectations concerning industrial production, investment and consumer expenditure, a level for the final four months of 1970 about 8% above the corresponding period of 1969 seems reasonable. This would give merchandise imports for the year of £641 million, an increase of £52 million or 9% over 1969.

Invisible imports, including Irish tourist expenditure abroad, have been increasing fairly rapidly in recent years. The bank dispute may also have led to some extra expenditure on overseas financial services. Thus a substantial rise of some £5 million, or 8%, in invisible imports seems a possible outcome for the year.

Thus we arrive at an increase of £57 million in imports of goods and services at current prices. As in the case of exports, price rises account for a considerable proportion of this increase in value. The unit value of imports in the first quarter of 1970 was 6% higher than a year previously. In the light of world trends it seems probable that import prices will rise by at least as much in the course of 1970 as they did during 1969. Thus an increase in the annual average price of imports of about 6½% must be allowed for, leaving an annual increase in volume terms of just over 2%, or about £14 million.

### §3.7 *Incomes in* 1970

As discussed above, it appears possible that there may prove to have been a modest increase in the volume of agricultural output in 1970. With regard to the value of this output, the agricultural price index in the first half of the year was on average 4.2% higher than in the first half of 1969, and an annual price increase of 4% is assumed. Prices of inputs to agriculture however are likely to have risen by a considerably larger percentage, and it thus seems fair to predict an increase of about 3%, or £6 million, in the net income arising in agriculture.

With regard to non-agricultural employee remuneration, the basic assumption of previous forecasts, that there would be a large increase in money wage and salary rates, remains valid. However, the general slackness of industrial activity seems liable to narrow the wage-drift gap between hourly rates and weekly earnings, and also to preclude much likelihood of any increase in industrial employment. Indeed when the direct effect of industrial disputes is taken into account, industrial employment in 1970 may even be below the 1969 average. Similarly the prospects of expansion in employment in other non-agricultural sectors cannot be considered high. Due to these considerations the forecast of aggregate non-agricultural employee remuneration has been reduced by £6 million compared with the June forecast. It still remains historically high at over 12½%, and represents a further increase in the proportion of national income attributable to non-agricultural employees.

Little change has been made to the June forecast for other items on the income side of the National Accounts balance. It is felt that employee remuneration will bear

the brunt of the reduction in expenditure compared to the earlier forecast. The only exception is indirect taxation, where the reduction in the forecast level of personal consumption has led logically to a reduction in the forecast level of indirect tax receipts.

### §3.8 *The Economy in* 1971

In view of the extraordinary state of uncertainty concerning the major trends in the economy in 1970, which must be the only factor to have emerged with clarity from this Commentary so far, there seems little point in attempting to analyse in great detail the prospects for 1971. Rather, it is intended to state briefly the major assumptions on which the tentative projection for 1971 given in Table 2.2 is based.

The key assumption concerns earnings. A considerable increase in rates of pay is inevitable from the operation of the later phases of twelfth round pay agreements reached in 1970. Also the increase in the annual average level of earnings in 1971 over 1970 will reflect the steepness of the increase in earnings in the course of 1970. Beyond these automatic elements, it is assumed, perhaps hopefully, that any new agreements reached will be significantly lower in percentage terms than the average twelfth round agreement. Unless the previous relationship between the state of the economy, and more particularly the state of the labour market, and the size of pay increases negotiated has completely broken down, this seems a not unreasonable assumption to make. Specifically, it is assumed that annual aggregate employee remuneration will rise by about 11%. This could reflect some such pattern as an increase of 12% in industrial wage rates, of 9% in average non-agricultural earnings as a whole, and of just under 2% in non-agricultural employment.

As a result of the relative stagnation expected to afflict industrial production throughout 1970, with any expansion likely to be well below the capacity growth rate, a considerable margin of spare capacity can be anticipated at the end of the year. Thus the incentive for private industrial investment in 1971 is likely to be rather weak. As discussed in §3.2, it is possible that the lengthy bank dispute may also have some direct disincentive effect on private investment in 1971. The assumption that present policies continue, and the expectation that the current balance of payments will remain in substantial deficit, together preclude the likelihood of a major rise in public authorities capital expenditure above the level planned for 1970, although the assumption equally rules out any major cut-back. Thus the basic trend in total fixed capital formation assumed for 1971 is quite modest. The actual year to year rise as expressed in table 2.2 appears rather larger, because the 1970 base has been depressed by the effect of the cement strike. Thus a projected rise in the underlying trend of about 5% in volume terms and 11½% by value is transformed into an actual year to year increase of 8% by volume and 15% at current prices.

The third major assumption to be made concerns exports. With regard to industrial exports, there is little indication at present to suggest that the increase in either world trade or U.K. imports will be greatly different from that seen in 1970. Similarly in both years most Irish industries should have adequate resources to deal with any profitable orders received. Although the competitive situation of many Irish exporters may have deteriorated in the twelve months up to the middle of 1970, it seems probable on the basis of trends abroad that if there is any further weakening of this position it is likely to be much slower. Thus a similar or slightly improved performance for industrial exports is assumed, with a value increase of just over 20% (between £40 million and £45 million) in 1971.

The projected increase in the value of agricultural exports in 1970 is unusually high. A more normal increase of around 7% is assumed for 1971. This of course is dependent on the further assumption that the U.K. will not take steps which will adversely affect the value of U.K. imports of agricultural produce from Ireland. Some recovery is assumed for tourist earnings in 1971, although by no means sufficient to make up for the lack of progress in 1969 and 1970. Together with the normal increase in other invisible earnings, this leads to an assumption of a 7% rise in total invisible exports in 1971. Thus the total increase assumed for exports of goods and services is £74 million. At 11½%, this is fractionally below the percentage rise of 12% projected for 1970. It is further assumed that just over half of the projected increase in the value of exports in 1971 will be accounted for by volume, and the remainder by higher prices.

Other assumptions which underly the projection for 1971 are that the rise in import prices will be about 5%, slightly below that likely in 1970 but well above the average for recent years; that there will be no significant increase in rates of indirect taxation; that credit and money supply will be kept on a tight rein throughout the year; that there will be no prolonged labour disputes of major importance in the course of 1971; and that there will be a small rise in both the volume and the prices of agricultural output.

On the basis of the assumptions set out so far, some of the updated econometric models presented in Section 4 of this issue have been applied to 1971. The alternative forms of the consumption function (equations 10.2 and 10.3) indicate an increase in the value of consumption of 9½% and 8½% respectively. A figure of 9% has been chosen for the projection. The import function (equation 11.2) indicates an increase in the value of imports of 15%, but because the projected increase in capital formation includes a substantial recovery element, which is predominantly composed of building and construction activity rather than expenditure on plant and machinery, it has been decided that the import function may slightly exaggerate the likely increase in imports. Accordingly an increase of 14½% has been entered for imports in table 2.2.

The revised consistency models (see §4.7 and §4.8) have been applied to the projections in both current and constant price terms. This involves taking the rates of growth of Final Demand (excluding stocks) which are implied by the projection, and using these rates as the principal predictor variables in the models. The models then indicate what would be the normal expenditure patterns associated with these increases in Final Demand. The results are shown in Table 3.2.

TABLE 3.2: COMPARISON OF PROJECTION WITH CONSISTENCY MODELS, 1971

| | *At Current Prices* | | *At Constant Prices* | |
|---|---|---|---|---|
| | *Projection* | *Model* | *Projection* | *Model* |
| | % | % | % | % |
| Personal Consumption ... ... ... | 9 | 8.8 | 3 | 3.5 |
| Public Net Current Expenditure ... ... | 12 | 13.0 | 3½ | 3.5 |
| Gross Fixed Capital Formation ... ... | 15 | 12.8 | 8 | 6.7 |
| Exports of Goods and Services ... ... | 11½ | 12.1 | 6 | 6.3 |
| Final Demand (excluding Stock Changes) ... | 10.8 | 10.8 | 4.8 | 4.8 |
| Imports of Goods and Services ... ... | 14½ | 16.7 | 9 | 8.5 |
| Gross National Product ... ... | 9½ | 9.7 | 3½ | 4.1 |

On the whole there appears to be a reasonable concordance between the projections and the pattern of expenditure indicated by the models, in both value and volume terms. The divergence in the case of investment is due to the recovery element in the 1971 projection which has been discussed above. Whether the projection or the model results prove to be anywhere near accurate in the event depends of course on the validity of the assumptions discussed above.

### §3.9 *General Synthesis*

From a study of the price indices since the middle of 1969 it would appear that the past twelve months have seen an almost unprecedented rate of inflation in Ireland. On the other hand statistics of the volume of industrial output, employment, and the volume of imports and retail sales indicate equally clearly that this has been a period of almost total stagnation in internal economic growth. What is far from clear, however, is how far special factors, and in particular abnormally protracted labour disputes, are responsible for this apparent stagnation.

The view taken in this commentary, and in the accompanying forecast of National Accounts for 1970, has been that the special factors account for a considerable part of the slowdown in economic activity, especially in the second quarter of 1970. It is felt that there is an underlying tendency for the economy to continue its expansion, albeit at a modest rate. Thus with the ending of the cement strike in June, and, hopefully, the imminent settlement of the bank dispute, some improvement in the volume of investment, consumption and output is anticipated in the later part of the year. The final growth rate of "real" G.N.P. might be about 2½%.

Given the difficulty of separating underlying trends from temporary factors in analysing the recent performance of the economy, it is extremely difficult to make a realistic projection for 1971. On the basis of rather favourable, but not intrinsically unreasonable, assumptions concerning pay rates and export prospects in 1971, the projection set out in Table 2.2 emerges as one possible outcome. The significant features of this projection are an improvement in the growth rate, though still to a rate of below 4%, some moderation in the rate of price increase, though still high by normal standards, and, rather alarmingly, a balance of payments deficit of about £85 million. While relatively minor changes in the assumptions might lead to the projection of a higher growth rate, or to a more modest rate of price increase, it is difficult to postulate any reasonable assumptions within the limits of present policies which could lead to a combination of a satisfactory growth rate with a balance of payments deficit of less than £75 million. 1970 has been characterised by a low rate of internal economic growth and quite favourable export conditions (with the exception of tourism) and yet it seems probable that there will be only a small improvement in the external deficit. If growth resumes in 1971 a further deterioration in the balance of payments seems highly probable.

The general view taken of the current state of the economy and of its prospects next year is clearly more pessimistic than the view taken in the June Commentary. This change of outlook is dictated by the availability of additional information since June. At that time it was felt that an improvement in the Balance of Payments was being achieved without too great a reduction in the growth rate of the economy. Since then the statistics for production and consumption have become available for much of

the period for which only trade statistics were then in hand. These suggest clearly that the growth rate in the first half of 1970 has been much lower than was assumed in June, and that consequently the trade figures can no longer be interpreted in so favourable a light. Similarly the rapid rise in prices, which was adversely commented on in June, becomes still more serious now that it has become apparent that it accompanied, not an economy pressing against the limits of capacity, but an economy in a state of virtual stagnation.

### §3.10 *Policy Implications*

The fundamental problem of economic management facing the responsible authorities in Ireland is similar to that in many other countries, although the Irish is perhaps an extreme example. It is that prices and incomes are continuing to rise at an excessive rate (on almost any social or economic criterion) despite the fact that the growth in output is well below capacity levels. Either past relationships between spare capacity and income increases have ceased to apply, or else the time-lag between movements in one and responses in the other has lengthened inordinately.

In the Irish case the situation is further complicated by the uncertainty surrounding the precise condition of the economy in the past few months and by the unhealthy level of the external deficit. At present it seems probable that the deficit in 1970 does not impose any need to take remedial action, but it does appear a most unpromising basis for further expansion.

Given the nature of the underlying problem, and also the current uncertainty, it is difficult to argue for any immediate initiatives in the field of orthodox demand management. Indeed, on the assumption that the authorities desire economic growth but also relative stability of prices and an improvement in the current account external deficit, it is difficult to see what form of demand management on its own could assist in one direction without aggravating difficulties in another. Until more is known about the current state of the economy it would appear dangerous to attempt to assign priorities between these conflicting aims.

However, the prognosis given in this commentary for 1971 does not appear to be sufficiently favourable that a policy of inactivity can be seriously recommended for more than a very limited period. It may well be that no action should be taken until it can be seen whether events in the second half of 1970 are likely to belie completely the projection made here. On the other hand there seems to be an extremely strong case for contingency planning to be pursued to an advanced stage, ready to be implemented if the pattern projected here does begin to emerge. While conventional demand management methods would presumably be an element in such contingency planning, it appears most unlikely that they could succeed without other less orthodox measures also being taken. These other measures would aim to deal directly and rapidly with the major problems of rising prices and money incomes, expanding imports, and a relatively sluggish volume of exports. They could take various forms, obvious possibilities including:

> a temporary but complete freeze on price and pay increases, designed primarily to allow time for export growth to alleviate the Balance of Payments problem, but perhaps also serving to break expectations of an uninterrupted spiral of rising prices and incomes;

controls by emergency tariff, quota, import deposit, or other such means on imports of consumer goods, and perhaps on specified competing imports of materials or semi-finished goods;

encouragement of exports by means of subsidies or other incentives over and above the normal long-term inducements;

reduction of overseas Government expenditure.

None of these steps is desirable in itself, and most of them could only be kept for a limited period. However a package containing such measures to restraint prices and the external deficit, while demand management is used to stimulate the volume of production and investment, could well be the least objectionable way of dealing with the problem likely to face the economy in 1971. It certainly seems preferable to using demand management alone to further depress the economy in the interests of reducing the deficit and restraining price rises; while the opposite policy of expanding the economy and ignoring both prices and the deficit does not appear practicable.

The principal result of a policy mixture as outlined here would be to provide time for the growth of exports to alleviate the Balance of Payments problem and for the growth in the volume of production to reduce unit costs. Thereafter, development could be expected to continue under more normal conditions.

It must be repeated that the projection made in this Commentary for 1971 is still too tentative for it to be certain that there is a necessity thus to buy time. There does, however, appear to be sufficient risk of such a need arising that plans to deal with it should now be prepared in detail.

## SECTION 4: THE UPDATING OF CERTAIN ECONOMETRIC MODELS

by T. J. Baker and J. Durkan

### §4.1 *Introduction*

The editors of the *Quarterly Economic Commentary* make use of a variety of econometric models, developed in the past by the Institute, as a guide to forecasting. Such models indicate the implications of different assumptions about the course of the economy, the impact on the economy of extrapolated trends, and the consistency of the forecasts of the National Accounts components made in Section 2.2, both with themselves and with the experience embodied in the models.

Following normal practice in the use of working models, it was decided to re-run the equations using the latest figures, and where possible to attempt an improvement in the models. Updating the models not only keeps them relevant to current conditions, but also serves as a check on the stability over time of the implied relationships.

## LESER'S CONSISTENCY MODEL

### §4.2 *The Original Model*

In *The Irish Economy in* 1964 *and* 1965 (ERI Paper No. 27) C. E. V. Leser presented what has become known as his "consistency" model. This is strictly an empirical model, to be used as a forecasting tool, and does not attempt to analyse fundamental structural relationships. It is a small scale macro-model involving a limited number of equations designed to predict percentage changes in National Accounts items: Personal Expenditure on Consumers Goods and Services (C); Public Net Current Expenditure (G); Gross Domestic Fixed Capital Formation (I); Exports of Goods and Services (X); Imports of Goods and Services (M); and Gross National Product (Y); all in current price terms. The main predictor variable is Final Demand (D) defined as follows:

$$D = C+G+I+X$$
$$= M+Y-B$$

where B is stockbuilding.

The analysis is conducted in terms of year-to-year percentage changes for all variables (except B which appears as a residual once M, Y have been obtained), and c, g, i, x, m, y and d are used to indicate percentage changes in the variables. For stylistic reasons, Leser chose to use the subscript $_p$ to indicate the predicted value of each dependent variable, rather than to include an error term in each equation. His notation has been followed here.

Using current price data from 1948/49 to 1962/63 inclusive the following six prediction equations were estimated and presented by Leser.

$R^2$

(2.1) $c_p = 1.12+0.640d-0.157(c_{-1}-y_{-1})+k$ (4.211) (1.256) — 0.635

(2.2) $g_p = -0.61+1.150d-0.076(g_{-1}-y_{-1})+k$ (3.134) (0.398) — 0.450

(2.3) $i_p = -2.41+1.041d+0.563i_{-1}+k$ (1.355) (3.060) — 0.615

(2.4) $x_p = -0.39+1.139d-0.043(x_{-1}-m_{-1})+k$ (2.848) (0.402) — 0.410

(2.5) $m_p = -3.45+1.808d-0.895(p_y-p_m)$ (3.217) (3.496)
$-0.410(m_{-1}-d_{-1})+k$ (2.278) — 0.759

(2.6) $y_p = 1.33+0.700d+0.374(p_y-p_m)$ (4.046) (5.123)
$-0.356(y_{-1}-d_{-1})+k$ (2.312) — 0.774

The t-values of each coefficient are shown in brackets. It should be noted that in the case of the coefficients of d the t-ratio is not a true test of significance. D is an aggregate containing the components C, G, etc., and so d is a weighted average of the values of c, g, etc.

The model contains several interesting characteristics. As D is defined to be the sum of C, G, I and X,

$$d = \frac{C_{-1}c_p+G_{-1}g_p+I_{-1}i_p+X_{-1}x_p}{C_{-1}+G_{-1}+I_{-1}+X_{-1}}$$

and it is necessary that the calculated values $c_p$, $g_p$, $i_p$, $x_p$ be consistent with a given value of d inserted in the equations. This consistency is maintained by the inclusion of a correction factor k, which is the difference between the value of d calculated as above and the inserted value of d. Thus k is the same for all equations, but varies from year to year.

Each equation also contains a lagged term involving (except in the case of the investment equation) the difference between the percentage changes of variables which on *a priori* grounds might be expected to move roughly in line with each other. The expectation here is that any considerable divergence between two such variables in a year will lead to an adjustment in the opposite direction in the following year. The investment equation does not contain any such "adjustment variable" and the lagged value of i is included to reflect the cyclical nature of investment.

The Import and Gross National Product equations also contain a price variable consisting of the difference between the percentage changes in the implied price indices for Gross National Product ($p_y$) and Imports ($p_m$).

## §4.3 *Updated Consistency Model*

Initially, using data for the period 1948/49–1967/68, providing 20 observations as opposed to 15 in Leser's study, the equations were recalculated. The results are shown below.

$$(3.1) \quad c_p = \underset{(6.770)}{0.87} + \underset{(1.440)}{0.696}d - 0.157(c_{-1} - y_{-1}) + k \qquad R^2 = 0.749$$

$$(3.2) \quad g_p = \underset{(5.645)}{-1.60} + \underset{(0.216)}{1.342}d - 0.035(g_{-1} - y_{-1}) + k \qquad R^2 = 0.652$$

$$(3.3) \quad i_p = \underset{(1.960)}{-2.45} + \underset{(3.351)}{1.023}d + 0.546i_{-1} + k \qquad R^2 = 0.563$$

$$(3.4) \quad x_p = \underset{(4.261)}{-0.16} + \underset{(0.333)}{1.118}d - 0.03(x_{-1} - m_{-1}) + k \qquad R^2 = 0.519$$

$$(3.5) \quad m_p = \underset{(5.364)}{-4.39} + \underset{(4.417)}{1.886}d - 0.855(p_y - p_m) - \underset{(2.648)}{0.409}(m_{-1} - d_{-1}) + k \qquad R^2 = 0.785$$

$$(3.6) \quad y_p = \underset{(6.439)}{1.36} + \underset{(5.897)}{0.714}d + 0.350(p_y - p_m) - \underset{(2.530)}{0.341}(y_{-1} - d_{-1}) + k \qquad R^2 = 0.826$$

With the exception of the investment equation, the fit as measured by $R^2$ is higher taking the longer period of years. The lagged terms in the government expenditure and export equations are again not statistically significant, though the lagged term $(c_{-1} - y_{-1})$ in the consumption equation performs slightly better—being significant at the 10 per cent level.

What is immediately apparent from comparing the updated model with the original is the constancy exhibited by the coefficients over the longer period of years. The equation for g does show some variation both in the coefficient of d (though the new coefficient of 1.342 is not significantly different from that previously estimated of 1.150), and in the coefficient of the lagged term (which itself is not significant). For the rest the differences are slight. A consequence of this is that the associative structure implied by the model has remained relatively constant over time and thus the use of the model in the past (as in several issues of the *Quarterly Economic Commentary*) for checking the consistency of forecasts has not been too misleading.

## §4.4 *Amending the Model: Lagged Terms*

While the results of updating the model are satisfactory in themselves it was felt that some improvement could be made while preserving the basic structure of the equations. Experiments were therefore carried out on the lagged terms used by Leser. In the consumption equation for instance rather than using $(c_{-1} - y_{-1})$ two new terms were introduced $(c_{-1} - \beta_1 y_{-1})$ and $(c_{-1} - \beta_2 d_{-1})$ where $\beta_1$ is the ratio of the average

percentage change in c and y, and $\beta_2$ is the ratio of the average percentage change in c and d over the period. The lagged term thus involves the difference between the actual percentage change and an "expected" percentage change. Similar terms were introduced for the remaining equations. In the re-estimated equations involving the new variables the results, with the exception of the investment equation, were not markedly different in terms of $R^2$. The results of some of the regressions run are given below.

| | | | $R^2$ |
|---|---|---|---|
| (4.1) | $c_p$ | $= 1.320+0.650d-0.243(c_{-1}-0.85d_{-1})+k$ <br> (5.327) (1.021) | .735 |
| (4.2) | $c_p$ | $= 1.004+0.696d-0.189(c_{-1}-0.86y_{-1})+k$ <br> (6.853) (1.587) | .755 |
| (4.3) | $g_p$ | $= -1.402+1.307d-0.224(g_{-1}-1.10d_{-1})+k$ <br> (5.959) (0.963) | .669 |
| (4.4) | $g_p$ | $= -1.619+1.34d-0.038(g_{-1}-1.11y_{-1})+k$ <br> (5.650) (0.240) | .653 |
| (4.5) | $i_p$ | $= 1.340+1.268d+0.420(i_{-1}-1.55y_{-1})+k$ <br> (2.347) (2.409) | .481 |
| (4.6) | $x_p$ | $= -0.190+1.121d-0.019(x_{-1}-1.02m_{-1})+k$ <br> (4.264) (0.201) | .517 |
| (4.7) | $m_p$ | $= -4.45+1.872d-0.853(p_y-p_m)-0.399(m_{-1}-1.07d_{-1})+k$ <br> (5.264) (4.349) (2.540) | .779 |
| (4.8) | $m_p$ | $= -4.70+1.915d-0.850(p_y-p_m)-0.292(m_{-1}-1.08y_{-1})+k$ <br> (5.298) (4.280) (2.43) | .841 |
| (4.9) | $y_p$ | $= 1.363+0.728d+0.356(p_y-p_m)-0.377(y_{-1}-0.99d_{-1})+k$ <br> (6.957) (6.264) (2.933) | .841 |

The results hardly justify the increased labour involved in recalculating yearly the changes in the predetermined parameters of the lagged terms. The lagged terms of the export and government expenditure equations remain statistically insignificant while that of the consumption equation—in the second equation presented above using $(c_{-1}-\beta_1 y_{-1})$ rather than $(c_{-1}-\beta_2 d_{-1})$—is marginally better. In general the equations agree fairly closely with those calculated previously.

A further attempt to modify the model was made by taking final supply (d+B) rather than final demand (d) as the main independent variable. In this case the correction factor has to be calculated from the predicted values of m and y, rather than from the demand components. The results, calculated for both 20 year and 15 year periods, showed no improvement over those based on final demand, except in the case of imports. As imports are dealt with separately in §4.10 in a model based on final supply, it is felt that the general consistency model is best left based on final demand.

### §4.5 *Amending the Model: Investment Equation*

The revised formulation of the investment equation given in §4.4 performs rather

worse than the original formulation derived by Leser. Even in its original form however the equation is not entirely satisfactory, and appears to require some modification. While investment does seem to display cyclical characteristics over the period, the model as formulated does not pick up turning points. A comparison of actual percentage changes, i, and calculated changes (excluding the adjustment term k which tends to be small), $i_p$, indicates that the equation consistently fails to "predict" both upturns and downturns.

| Year | Actual i % | Predicted $i_p$ % | Year | Actual i % | Predicted $i_p$ % |
|---|---|---|---|---|---|
| 1948/49 | 32.52 | 18.52 | 1958/59 | 3.75 | 0.08 |
| 1949/50 | 19.00 | 22.69 | 1959/60 | 8.07 | 7.49 |
| 1950/51 | 20.16 | 19.24 | 1960/61 | 20.96 | 11.82 |
| 1951/52 | 5.16 | 15.32 | 1961/62 | 18.25 | 16.22 |
| 1952/53 | −0.12 | 7.20 | 1962/63 | 15.74 | 16.40 |
| 1953/54 | 6.02 | −0.68 | 1963/64 | 17.31 | 19.69 |
| 1954/55 | 6.49 | 6.07 | 1964/65 | 13.61 | 13.55 |
| 1955/56 | −0.33 | 1.35 | 1965/66 | −1.21 | 10.77 |
| 1956/57 | −12.45 | 0.01 | 1966/67 | 10.33 | 4.95 |
| 1957/58 | −0.25 | −4.74 | 1967/68 | 16.83 | 16.88 |

In fact the turning points, especially the downturns, in expenditure on fixed capital formation are strongly influenced by official decisions, working directly on the public capital programme and indirectly, through monetary policy, on private investment. Accordingly it seems desirable to include in the investment equation some variable to take account of policy changes. Although it might be possible to construct a direct "policy" series, based on the capital budgets for each year and the credit advice given to the associated banks by the Central Bank, it was felt that such a series would have serious drawbacks. Instead it was decided to attempt to isolate the circumstances in which a policy restrictive to investment expenditure might be expected to operate.

Historically, it appears that policy is strongly affected by the level of the external reserves and by the size of the current account deficit on the balance of payments. Taking the December figures for each year, the percentage changes in the level of external reserves (external assets in the earlier years) were calculated. In the case of the balance of payments, the surplus or deficit in each year was expressed as a percentage of that year's total imports of goods or services. Not surprisingly, attempts to use these series directly in the equations were not successful, as changes in the reserves or the external deficit have a major impact on policy only in certain circumstances. Therefore the series were used to construct a dummy variable which seeks to isolate these years when a policy response might be expected.

Years containing both a decline in reserves of more than 10 per cent and a deficit equivalent to more than 10 per cent of imports were ascribed a value of 2. When the

fall in reserves and the ratio of the deficit to imports were both more than 5 per cent (but not both more than 10 per cent), or when one series was above 10 per cent but the other below 5 per cent, a value of one was given. For other years a zero value was entered. This procedure gives a dummy variable having a value of 2 for 1951 and 1955, a value of 1 for 1948, 1950, 1956 and 1965, and a value of 0 for the remaining years between 1948 and 1968. In order to allow for the inevitable delays in the authorities receiving information and taking decisions, and in policy measures actually affecting the level of investment, the dummy variable Z has been included in the equations only in lagged forms.

Including the dummy variable, lagged by both one and two years, in both the original formulation and the revised formulations investigated in §4.4, the following results are obtained.

$$\begin{array}{lllll} & & & & R^2 \\ (5.1) & i_p = & 3.86 + 0.667d + 0.474i_{-1} - 5.047Z_{-1} - 4.489Z_{-2} + k & & .777 \\ & & \quad (1.629) \quad (3.538) \quad (2.428) \quad (2.102) & & \\ (5.2) & i_p = & 6.124 + 1.012d - 4.872Z_{-1} - 4.217Z_{-2} & & .634 \\ & & \quad (2.020) \quad (1.885) \quad (1.524) & & \\ & & \quad - 0.385(i_{-1} - 1.53d_{-1}) + k & & \\ & & \quad (1.909) & & \\ (5.3) & i_p = & 8.293 + 0.721d - 7.039Z_{-1} - 2.605Z_{-2} & & .679 \\ & & \quad (1.486) \quad (2.709) \quad (0.960) & & \\ & & \quad - 0.495(i_{-1} - 1.55y_{-1}) + k & & \\ & & \quad (1.486) & & \end{array}$$

The fit of the investment equations is considerably improved by the inclusion of the lagged dummy variable. Clearly the formulation 5.1 containing also the simple lagged investment term is better than either of the alternatives. Comparing this with equation 3.3, it can be seen that the coefficient of d has been reduced from 1.023 to 0.667, a result more in keeping with commonsense expectations that investment would tend to be inelastic in the short run with respect to changes in final demand.

The usefulness of this equation for predictive purposes depends of course on the maintenance of the policy reaction to successive deficits in the balance of payments on current account accompanied by falling external assets. Any change in the official view as to what constitutes an "acceptable" level of reserves, with perhaps growth being desired irrespective of the level of reserves for a longer period than that implied in the equation, or even a quicker reaction to apparent trends could undermine the formulation of the equation.

### §4.6 *Amending the Model: Price Changes*

An approach to the problem of differential price changes between the components of d was adopted by introducing a further variable into the equations for c, g, x, and i in current values. This term involves, for each equation, the difference between the percentage change in the implied price index ($p_c$, $p_g$, $p_x$ or $p_i$) of the variable to be estimated, and the percentage change in the implied price index for gross national product. The expectation is that this term will pick up any differences that arise

between these four variables merely on account of price changes—which the original model was unable to handle.

The effect of the introduction of this new variable on each equation can be seen below.

$$(6.1)\quad c_p = \underset{(6.556)}{0.852} + \underset{(1.331)}{0.698}d - \underset{(0.155)}{0.153}(c_{-1}-y_{-1}) + 0.038(p_y-p_c)+k \qquad R^2 = .749$$

$$(6.2)\quad g_p = \underset{(4.589)}{-0.689} + \underset{(0.510)}{1.109}d + \underset{(2.144)}{0.079}(g_{-1}-y_{-1}) - 0.592(p_y-p_g)+k \qquad R^2 = .730$$

$$(6.3)\quad x_p = \underset{(4.113)}{-0.435} + \underset{(0.380)}{1.143}d - \underset{(0.362)}{0.037}(x_{-1}-m_{-1}) + 0.095(p_y-p_x)+k \qquad R^2 = .523$$

$$(6.4)\quad i_p = \underset{(1.564)}{3.876} + \underset{(3.265)}{0.664}d + \underset{(2.165)}{0.468}i_{-1} - \underset{(1.767)}{4.936}Z_{-1} - \underset{(0.147)}{4.709}Z_{-2} + 0.107(p_y-p_i)+k \qquad R^2 = .777$$

Of the four equations the only one altered substantially is the government expenditure equation, whose $R^2$ increases from 0.652 to 0.730. Because of the improvement in fit, and because the price term itself emerges as significant at the 5 per cent level, equation 6.2 seems to be a preferable alternative to equation 3.2.

### §4.7 *Testing the Model*

In the light of the foregoing discussion it appears that the best combination of equations for use as a consistency check in forecasting current price expenditure in National Accounts terms is as follows:

$$(3.1)\quad c_p = 0.87+0.696d-0.157(c_{-1}-y_{-1})+k$$

$$(6.2)\quad g_p = -0.69+1.109d+0.079(g_{-1}-y_{-1})-0.592(p_y-p_g)+k$$

$$(5.1)\quad i_p = 3.86+0.667d+0.474i_{-1}-5.047Z_{-1}-4.489Z_{-2}+k$$

$$(3.4)\quad x_p = -0.16+1.118d-0.03(x_{-1}-m_{-1})+k$$

$$(3.5)\quad m_p = -4.39+1.886d-0.885(p_y-p_m)-0.409(m_{-1}-d_{-1})+k$$

$$(3.6)\quad y_p = 1.36+0.714d+0.350(p_y-p_m)-0.341(y_{-1}-d_{-1})+k$$

As a test of the model the results have been calculated from 1969 and are compared below with the preliminary National Accounts estimates, as given in the June 1970 *Quarterly Economic Commentary*.

1969

| *Actual* (preliminary estimate) | | *Calculated* | |
|---|---|---|---|
| c | 11.9 | $c_p$ | 9.8 |
| g | 12.4 | $g_p$ | 14.5 |
| i | 23.8 | $i_p$ | 20.3 |
| x | 9.8 | $x_p$ | 14.4 |
| m | 17.5 | $m_p$ | 17.2 |
| y | 11.6 | $y_p$ | 11.9 |
| | | d = 13.0 | |

The results predicted by the model are in reasonably close accordance with the preliminary National Accounts for 1969. The actual consumption increase is rather higher than the calculated, while the actual export figure is a good deal lower than the calculated. This shortfall can be explained in part by the stagnation in cattle and beef exports, and partly, though to a much lesser extent, by the maintenance men's dispute of early 1969.

The model naturally is not very successful at handling the type of factor which causes these divergences. While d implicitly contains these factors the equations do not explicitly isolate and distribute them in any meaningful way. For instance, for the given value of d=13.0 derived on the basis of assumptions regarding x and c, the model "overpredicts" x and "underpredicts" c. The equations distribute d according to the "normal" pattern of the past.

### §4.8 *Constant Price Consistency Model*

Rather than working in current price terms, the equations were re-estimated with the variables expressed in constant 1958 prices (Table A.6 and B.6 in *National Income and Expenditure* 1968). It is hoped that this may eliminate to some extent the effect of different price changes on the various components of the National Accounts. The results are given below. The notation is as in the current price model, except that each term here applies to the percentage change at constant prices.

$$(8.1)\quad c_p = -0.34+0.736d-0.173(c_{-1}-y_{-1})+k \qquad R^2 = .695$$
$$(5.597)\quad (1.145)$$

$$(8.2)\quad g_p = 0.72+0.514d+0.048(g_{-1}-y_{-1})+k \qquad R^2 = .178$$
$$(1.903)\quad (0.206)$$

$$(8.3)\quad i_p = 4.07+0.742d+0.489i_{-1}-5.838Z_{-1}-2.908Z_{-2}+k \qquad R^2 = .724$$
$$(0.993)\quad (3.080)\quad (1.902)\quad (1.109)$$

$$(8.4)\quad x_p = 1.412+0.940d+0.052(x_{-1}-m_{-1})+k \qquad R^2 = .304$$
$$(2.551)\quad (0.453)$$

$$(8.5)\quad m_p = -1.804+2.030d-0.240(m_{-1}-d_{-1})+k \qquad R^2 = .539$$
$$(4.277)\quad (1.142)$$

$$(8.6)\quad y_p = 0.559+0.642d-0.228(y_{-1}-d_{-1})+k \qquad R^2 = .657$$
$$(5.522)\quad (1.239)$$

In terms of goodness of fit the results are lower than using current price terms. The government expenditure equation performs very badly. This is in part explained by the conceptual difficulty, common to all National Accounts items but more particularly so to Government Expenditure, of arriving at a constant price value. The remaining equations seem satisfactory enough given that the data is in constant price terms. Some experiments were carried out on the import equation giving:

$$(8.7)\quad m'_p = 4.655+0.842d-0.139(m_{-1}-d_{-1})-7.395Z_{-1}+k \qquad R^2 = .725$$
$$(1.602)\quad (0.817)\quad (3.297)$$

where Z is the policy proxy dummy described in 4.5. The inclusion of $Z_{-1}$ improves the fit of the equation, but commonsense dictates caution where the coefficient of a rather arbitrary dummy variable is so large in relation to the variation in the dependent variable.

An exercise similar to that carried out for the current value equations has been undertaken comparing the model predictions with the preliminary estimates for 1969.

1970

| *Actual* (preliminary estimate) | | *Calculated* | |
|---|---|---|---|
| c = 4.4 | | $c_p$ = | 3.7 |
| g = 3.6 | | $g_p$ = | 3.5 |
| i = 13.9 | | $i_p$ = | 14.5 |
| x = 5.8 | | $x_p$ = | 6.2 |
| m = 11.9 | | $m_p$ = | 8.2 |
| | | $(m'_p$ = | 8.3) |
| y = 4.0 | | $y_p$ = | 4.2 |
| d = 6.0 | | | |

As in the case of the current price estimates, the predictions in constant price terms agree reasonably well with the preliminary estimates except in this case for imports of goods and services.

## CONSUMPTION AND IMPORT FUNCTIONS

In the *Irish Economy in* 1966 (ERI Paper No. 33) the staff of the Economic Research Institute presented a consumption function and an import function, which can be regarded together as a semi-recursive model or separately as two independent single-equation models.

### §4.9 *The Consumption Function*

Personal Consumer Expenditure is considered as a function of average weekly wage earnings in transportable goods industries, agricultural prices, other final supply (defined below), and a lagged adjustment variable, gross national product less personal expenditure. The period over which the model is estimated is 1948/49–1963/64.

The dependent variable is the year to year percentage change in personal expenditure on consumers goods and services at current prices, c.

The first independent variable (e) is the percentage change in average weekly wage earnings in transportable goods industries. This is obtained from the annual index for 1948–1950, and thereafter by taking the average of the four quarterly figures published in the Quarterly Industrial Inquiry (CSO).

The use of this index as a non-agricultural income variable is justified on the grounds that it moves fairly closely in line with employee remuneration. A comparison of percentage changes in the index with percentage changes in employee remuneration obtained in *National Income and Expenditure* (Table A.2 and B.2) 1968, from 1948/49 to 1967/68, bears out this relationship.

| Year | Non-agricultural employee remuneration | Wages in transportable goods industries | Year | Non-agricultural employee remuneration | Wages in transportable goods industries |
|---|---|---|---|---|---|
| 1948/49 | 7.5 | 4.2 | 1958/59 | 5.3 | 3.7 |
| 1949/50 | 9.2 | 3.6 | 1959/60 | 8.4 | 6.8 |
| 1950/51 | 9.5 | 9.5 | 1960/61 | 10.0 | 5.8 |
| 1951/52 | −4.8 | 5.2 | 1961/62 | 11.2 | 9.9 |
| 1952/53 | 7.9 | 7.5 | 1962/63 | 8.1 | 3.7 |
| 1953/54 | 3.5 | 1.0 | 1963/64 | 16.3 | 12.3 |
| 1954/55 | 4.8 | 5.9 | 1964/65 | 6.5 | 3.0 |
| 1955/56 | 5.0 | 5.7 | 1965/66 | 8.6 | 9.0 |
| 1956/57 | −0.1 | 2.6 | 1966/67 | 7.7 | 7.1 |
| 1957/58 | 3.8 | 5.7 | 1967/68 | 10.4 | 8.6 |

The coefficient of correlation between these two series of percentage changes is .7558 which is reasonably high—but any serious divergence between them is likely to be reflected in the estimates of c.

The second independent variable is the percentage change in the agricultural price index $p_a$ (1953=100), taken as an indicator of agricultural income.

The relationship between agricultural income and the agricultural price index is not quite as strong as in the case of non-agricultural income and the index of average weekly wage earnings.

| Year | Agricultural income | Agricultural price index | Year | Agricultural income | Agricultural price index |
|---|---|---|---|---|---|
| 1948/49 | 7.9 | 0.4 | 1958/59 | 8.8 | −0.1 |
| 1949/50 | −5.4 | 4.4 | 1959/60 | 2.2 | −2.7 |
| 1950/51 | 6.9 | 10.0 | 1960/61 | 4.7 | 0.4 |
| 1951/52 | 16.2 | 3.4 | 1961/62 | 3.2 | 1.7 |
| 1952/53 | 8.4 | 6.8 | 1962/63 | −1.5 | 0.5 |
| 1953/54 | −6.1 | −1.3 | 1963/64 | 16.7 | 10.7 |
| 1954/55 | 9.9 | 4.5 | 1964/65 | 0.8 | 4.1 |
| 1955/56 | −9.3 | −9.3 | 1965/66 | −4.3 | −1.5 |
| 1956/57 | 10.1 | 6.7 | 1966/67 | 7.6 | 2.1 |
| 1957/58 | −8.3 | 2.7 | 1967/68 | 13.1 | 10.2 |

The coefficient of correlation in this case is 0.6397. Other variables are percentage changes in other final supply $s_o$, where $S_o=G+I+X+B$, which "allows for autonomous changes in exports, investment and possibly government expenditure to exert an influence on gross national product and thus simultaneously on personal consumption"; and finally, as in the consistency model, a lagged term $(y_{-1}-c_{-1})$ is introduced as an adjustment variable.

The regression equation presented is:

$$(9.1) \quad c = 0.699+0.6685e+0.2367p_a+0.1505(y_{-1}-c_{-1}) \qquad R^2 .805$$
$$(4.421) \quad (2.618) \quad (1.356)$$

As $s_o$ was not significant it was dropped from the analysis.

Taking the period 1948/49–1967/68 the regressions were re-run giving the following two equations:

$$(9.2) \quad c = 0.844+0.5666e+0.2068p_a+0.0849s_o+0.1747(y_{-1}-c_{-1}) \qquad R^2 .802$$
$$(4.225) \quad (2.032) \quad (1.033) \quad (1.641)$$

and

$$(9.3) \quad c = 1.109+0.6041e+0.2750p_a+0.1548(y_{-1}-c_{-1}) \qquad .788$$
$$(4.699) \quad (3.545) \quad (1.476)$$

The coefficient of $s_o$ is again not significant and dropping it from the equation makes little difference to the fit. However, given the nature of the model as a whole, maintaining $s_o$ seems to be sensible in itself. The accordance between the re-estimated equation and the original is satisfactory. Experiments were carried out including numbers employed in transportable goods industries as an additional variable. These failed to improve the fit of the equation, possibly because of a high degree of collinearity between changes in earnings and employment. Alternative functions based on National Accounts income categories were calculated, but were less successful than the consumption functions shown.

### §4.10 *The Import Function*

The year to year percentage change in imports of goods and services (m) is considered as a function of the year to year percentage change in total final supply ($s_t$) where $S_t=C+I+G+X+B$, an adjustment variable consisting of the difference between percentage changes in y and m lagged one year $(y_{-1}-m_{-1})$, and a dummy variable v for the period 1954/55 to 1957/58. The period of the regression was 1953/54 to 1963/64—the earlier years being dropped due to the "violent fluctuations to which imports were subject in the early post-war years." There were thus 11 observations for the regression equation calculated, and shown below.

$$(10.1) \quad m = -1.551+1.3785s_t+0.1833(y_{-1}-m_{-1})+4.127v_t \qquad R^2 .943$$
$$(7.945) \quad (1.577) \quad (3.419)$$

Using the period 1953/54 to 1967/68, i.e. 15 observations, the equation becomes:

$$(10.2) \quad m = -3.258+1.6078s_t+0.2045(y_{-1}-m_{-1})+3.4034v_t \qquad R^2 .929$$
$$(10.064) \quad (1.652) \quad (2.568)$$

In the import function total final supply $s_t$ is clearly crucial; $R^2$ using $s_t$ alone is 0.86. Taking the shorter period and using total final supply rather than final demand gives better results in terms of $R^2$ than obtained in the consistency model (equation 3.5), but the improvement is at the expense of an explanation of the earlier period's movements. However the use of $s_t$ which includes B rather than d which excludes it, along with a comparison between the equations, seems to imply that the state of stocks is highly relevant for imports. As a check on this the equation of the consistency model for imports has been recalculated using the years 1953/54 to 1967/68. The equation is:

$$(10.3) \quad m = \underset{}{-3.532} + \underset{(4.765)}{1.749}d - \underset{(0.415)}{0.360}(m_{-1}-d_{-1}) - \underset{(0.748)}{0.298}(p_y-p_m) \qquad R^2=.695$$

and using d as the sole independent variable the $R^2$ is .678. This result does seem to agree with the hypothesis that changes in the level of stocks are important when considering the level of imports.

### 4.11 *Testing the Consumption and Import Functions*

Taking the consumption function and the import function together we have a model which enables us to test the implications of alternative assumptions regarding the course of the economy. For the consumption function (equation 9.2) the impact of different levels of earnings, agricultural prices, exports, Government expenditure and investment (the latter three appearing as components of other final supply) on consumer expenditure can be assessed. In the semi-recursive form of the model, this calculated value for consumption together with the assumed value for $s_o$ used in the consumption function, gives a value for $s_t$ which forms the current independent variable for the import function (equation 10.2).

If the equations are regarded as independent of each other, then a value of $s_t$ based on any set of assumptions, and not necessarily compatible with the calculated value of c, can be used for the import function.

Tests have been carried out for 1969 compared with the preliminary National Accounts estimates, giving the following results.

| | 1969 | |
|---|---|---|
| *Actual* (preliminary estimate) | *Calculated* | |
| | *Recursive* | *Independent* |
| c = 11.9 | 9.7 | 9.7 |
| m = 17.5 | 14.6 | 15.5 |

## RECURSIVE MODEL

### §4.12 *Leser's Recursive Model*

In Appendix I of the *Irish Economy in* 1967 (ESRI Paper No. 39) C. E. V. Leser introduced a simple recursive model of the Irish economy. The notation used is as in previous models with Yd (personal disposable income), Ba (value of physical changes

in agricultural stocks), Bn (=B−Ba), Z (a dummy variable=1 for 1954/55 and 1957/58; =2 for 1955/56; and=0 elsewhere) and Z′ (=Z+$Z_{-1}$); brought in as additional variables. The analysis is carried out in first differences as opposed to the percentage changes of the previous models, and the period of cover is 1953/54 to 1964/65. The equations presented by Leser are given below.

(12.1) $$\triangle M = 1.200+0.8238\triangle I+0.5574(\triangle X+\triangle Ba)+11.416Z$$
$R^2 = 0.948$
$S = 5.30$

(12.2) $$\triangle Y-\triangle G = 1.623+0.5491\triangle I+0.9214(\triangle X+\triangle Ba)+1.7976\,e$$
$R^2 = 0.944$
$S = 7.09$

(12.3) $$\triangle Yd = -3.980+0.9762(\triangle Y-\triangle G)$$
$R^2 = 0.935$
$S = 6.91$

(12.4) $$\triangle C = -32.520+0.6469\triangle Yd+508.81\left(\frac{Yd-C}{Yd}\right)_{-1}+4.325Z'$$
$R^2 = 0.937$
$S = 5.84$

This model has already been tested by Geary (*Economic and Social Review*, Vol. 1, No. 1) for the years 1947–1953 and gives rather disappointing results. It also behaved rather poorly when tested as a predictor for 1967 and 1968. However, the earlier years were excluded from the data used to derive the forecasting equation —presumably on account of the violent changes evident in the earlier period.

The equations have been re-estimated using data to 1968 and the results are as follows.

(12.5) $$\triangle M = -4.187+0.5731\triangle I+0.9639(\triangle X+\triangle Ba)+2.7317Z$$
$R^2 = .849$
$S = 13.0$

(12.6) $$\triangle Y-\triangle G = 9.977+0.8110\triangle I+0.7141(\triangle X+\triangle Ba)+0.9726e$$
$R^2 = .9295$
$S = 9.0$

(12.7) $$\triangle Yd = -4.196+0.9484(\triangle Y-\triangle G)$$
$R^2 = .9171$
$S = 8.9$

(12.8) $$\triangle C = -22.5377+0.5873\ Yd+394.98\left(\frac{Yd-C}{Yd}\right)_{-1}+5.341Z'$$
$R^2 = .9252$
$S = 7.038$

As can be seen from the re-run equations there has been some considerable shift in the coefficients of the first two equations as a result of the addition of three years observations. Geary has noted that "the data, at the $\triangle$ level, fluctuate from year to year in quite fantastic degree" and this in part accounts for the very great change in the coefficients. The evidence of the re-run equations appears to contradict Leser's conclusion: "The first two equations show that fixed investment has a larger effect upon imports than have exports, whilst the opposite applies to domestic production."

The equations have been re-estimated using data from 1958/59 to 1967/68. While this only provides 10 observations in all the period seems more homogeneous and the equations thus estimated may provide more useful forecasting tools. The shorter period also eliminates the use of the dummy variables for the import function and the consumption function.

$$(12.9) \qquad \Delta M = \underset{}{-9.302} + \underset{(0.862)}{0.362}\Delta I + \underset{(4.985)}{1.175}(\Delta X + \Delta Ba)$$

$R^2 = .902$
$S = 10.5$

$$(12.10) \qquad \Delta Y - \Delta G = \underset{}{16.187} + \underset{(2.175)}{0.934}\Delta I + \underset{(1.866)}{0.516}(\Delta X + \Delta Ba) + \underset{(1.370)}{0.937}e$$

$R^2 = .883$
$S = 10.4$

$$(12.11) \qquad \Delta Yd = \underset{}{-10.169} + \underset{(7.892)}{1.033}(\Delta Y - \Delta G)$$

$R^2 = .886$
$S = 9.8$

$$(12.12) \qquad \Delta C = \underset{}{-28.116} + \underset{(12.258)}{0.633}\ \Delta Yd + \underset{(6.152)}{425.397}\left(\frac{Yd-C}{Yd}\right)_{-1}$$

$R^2 = .971$
$S = 4.1$

The results of taking the shorter period are mixed. The coefficient of the investment term in the import equation has become insignificant—yet on commonsense grounds this term should be included as imports of producers capital goods makes up a not inconsiderable proportion of gross domestic fixed capital formation.

Once more the alteration of the period over which the equations have been calculated has led to a considerable change in many of the coefficients.

In view of this apparent instability of the coefficients, the poor forecasting (and rear-casting) results of the original model, and the difficulty of using the model for current forecasting purposes (due to the fact that some of the necessary data are not available until the publication of the full National Accounts for a year) it seems that this model is best regarded as an interesting experimental exercise, rather than as an actual forecasting tool.

## RETAIL SALES MODEL

### §4.13 *Baker's "Retail Sales" Model*

Finally, the retail sales model of T. J. Baker appearing as Appendix II of "The Irish Economy in 1967" is considered. This, in contrast with the earlier models is a quarterly partial model, seeking to explain changes in retail sales in terms of demand factors: average weekly wage earnings in transportable goods industries; the agricultural price index; and consumer credit. The variables used are:

C: Index of Retail Sales

E: Index of Weekly wage earnings in transportable goods industries 1953=100

P: Agricultural Price Index 1953=100

H: Hire Purchase debt outstanding plus personal and professional bank advances (£m)

Z: Dummy variable for the introduction of turnover and wholesale taxes.

C,E,P are seasonally corrected quarterly data. No seasonal correction was necessary for H. The whole analysis was conducted in terms of % changes. The model was based on data from the second quarter of 1961 to the fourth quarter of 1966, providing 23 observations on the variables.

The following equations were presented.

$$(13.1) \quad c = \underset{}{-0.26} + \underset{(1.752)}{0.184e} + \underset{(2.206)}{0.225e_{-1}} + \underset{(0.836)}{0.117p_{-1}} + \underset{(3.647)}{0.434h} + \underset{(4.428)}{2.40Z} \qquad R^2 = .808$$

and

$$(13.2) \quad c = \underset{}{-0.29} + \underset{(3.229)}{0.419e_{-\frac{1}{2}}} + \underset{(4.608)}{0.470h} + \underset{(5.551)}{2.62Z} \qquad R^2 = .796$$

where $e_{-\frac{1}{2}}$ is obtained by considering the percentage change in the two-quarter moving total of E.

The model has been updated by the addition of data up to the end of 1969, increasing the number of observations from 23 to 35. Updating this model is made difficult by the fact that the series personal and professional bank advances has been discontinued since the end of 1967. Instead, recourse was had to the sum of two series: professional, scientific and miscellaneous services; and personal advances. While this sum does not measure the same thing it was felt that percentage changes will get over most of this difficulty—except of course at the point where the break occurs. Similarly, the changes in definition of hire purchase debt and instalment credit outstanding at the beginning of 1967 is not thought to have seriously affected the quarter to quarter percentage changes.

Since the average weekly wage earnings figure for the first quarter of 1969 does not reflect the effect of maintenance men's dispute on total earnings and hence by inference on retail sales, a dummy variable Z′ has been used for the first and second quarters of 1969. Regressions were calculated for various combinations of the variables with the best result as follows.

$$(13.3) \quad C = \underset{}{-0.19} + \underset{(2.518)}{0.270e} + \underset{(2.309)}{0.233e_{-1}} + \underset{(1.426)}{0.149p_{-1}} + \underset{(2.948)}{0.274h} + \underset{(4.364)}{2.434Z} + \underset{(4.298)}{3.286Z'} \qquad R^2 = .750$$

Compared with equation 13.1, the inclusion of the additional observations has had the effect of considerably reducing the coefficient of the credit variable. This is in many ways a welcome development, as the original value of the credit coefficient was too high to be entirely credible, and must have either reflected some degree of colinearity or a tendency for the credit variable to act as a proxy for some factor not specified in the formulation.

As the updated model is based on data to the end of 1969, there are insufficient data available outside the period of observation for meaningful testing of the equation as a forecasting tool.

## §4.14 *Conclusion*

None of the models described here has ever been applied in a mechanistic way in arriving at the Institute's forecasts of National Accounts. Nevertheless, most of them in their original forms have proved useful tools, when considered in conjunction with other methods, in the forecasting process. It is hoped that the versions presented here, updated and in some cases modified, will continue to make a modest but useful contribution to improving the quality of macro-economic short-term forecasting, both within the Institute and elsewhere.

SECTION 5: CII/ESRI

# QUARTERLY INDUSTRIAL SURVEY

## JUNE 1970

The report contains the results of the June Quarterly Industrial Survey conducted jointly by the Confederation of Irish Industry and the Economic and Social Research Institute. The survey covers the Second Quarter of 1970 compared with the Second Quarter of 1969 with forecasts for trends in the Third Quarter of 1970 compared with the corresponding period of 1969. Over 80% of respondents replied to the survey and the results can be taken to represent the current views of a good cross-section of Irish Industry. Overall survey results are given for each industry—these include Dublin and Areas Outside Dublin. A breakdown is available, however, and respondents wishing to have the two sets of results for their industry may do so on request to the CII.

SECTION INDEX



## CII/ESRI QUARTERLY INDUSTRIAL SURVEY—JUNE 1970

*All Manufacturing*

The results of the June Quarterly Industrial Survey of the Confederation of Irish Industry and the Economic and Social Research Institute indicates an increase in production and home sales. However, with the exception of the strike-affected first quarter of 1969, the increase is lower than any recorded since October 1967, and suggests a significant slowing down in the rate of increase.

The value of exports in the second quarter of 1970 was considered to be at much the same level as in 1969.

A substantial majority of respondents—70%—admitted that during the second quarter of 1970 more could have been produced with present resources. This is the highest proportion since early 1968, and confirms the impression that the volume of orders and production is levelling off. Where firms replied that more could not have been produced the main reason specified was insufficient capacity, and insufficient raw material supply was classed as the second most important factor. In spite of the bank closure, very few firms listed shortage of cash or credit as a factor limiting production.

The outlook for the third quarter of 1970 compared to the third quarter of 1969 appears optimistic in that respondents feel that production, home sales and exports will increase. The optimism is strongest in regard to export prospects. Over the past five quarters there has been a steady increase in the percentage who considered that exports would be higher in the following quarter. It is interesting to note, however, that in the March Quarterly Industrial Survey only 6% of respondents expected a lower export performance in the following quarter compared with the corresponding period of the previous year. It transpires in this survey that in fact 38% experienced lower exports.

According to the survey there has been a definite slowing down in investment. The percentage of respondents who estimated that capital investment was higher in the past year compared with the previous year exceeded the percentage of those who considered it lower by 1%. This corresponds to a figure of 45% at the same time last year. Expectations for investment in the coming year also indicate a slowing down in the rate of increase.

Employment is considered in the second quarter of 1970 to be at much the same level as in the corresponding period of the previous year, and no significant change is anticipated in the coming quarter.

*Dublin and Areas Outside Dublin*

In the areas outside Dublin 61% of respondents, as against 45% from the Dublin area, estimate that production was higher in the second quarter of 1970 compared to the same period of the preceding year.

Where respondents stated that more could not have been produced with the same resources, the main reason—for both Dublin and Areas Outside Dublin—was given as insufficient capacity. Areas outside Dublin are more constrained by this factor—51% as compared with 33% in Dublin area. Insufficient raw material supply and insufficient skilled female labour were the next most important factors in both regions.

There is little difference between Dublin and Other Areas in expectations for the third quarter.

*Sector Results*

*Food Sector*—As with All Manufacturing insufficient capacity was the most restrictive factor on production. But in this sector shortage of raw materials was also a significant constraint.

In contrast to All Manufacturing, the Food Sector reckons employment was higher in the second quarter, and will also be higher in the third.

*Drink and Tobacco*—The picture in this sector is generally pessimistic. Lower exports are reported by 67% of firms; stocks are high; 100% of respondents feel that more could be produced with present resources. Expectations for the 3rd quarter 1970 compared with the 3rd quarter 1969 are cautious—production, home sales and exports being estimated to remain at the same level.

*Textiles*—Production and home sales are estimated to be at the same level in 2nd quarter 1970 compared to second quarter 1969. They are expected to continue at the same level.

Exports are lower and stocks of finished products are considered to be excessive. The main production constraint is insufficient unskilled female labour.

*Clothing and Footwear*—Production was higher in the second quarter due to increased exports. Home Sales were the same as last year; this situation is expected to continue in the third quarter. Stocks of finished products and of materials are considered excessive. 53% feel that no more could be produced with present resources—of these 28% list insufficient skilled female labour as the main constraint.

*Wood and Furniture*—Production and home sales are higher and it is felt that they will continue to increase. Exports are also higher and it is estimated that they will continue at the same level.

On the other hand respondents anticipate a decline in numbers employed in the 3rd quarter.

*Paper and Printing*—Exports in the second quarter of 1970 were well above 1969, while production and home sales were slightly up. Outlook for the 3rd quarter of 1970 compared with the 3rd quarter of 1969 is optimistic. It is expected that productivity, home sales and exports will be higher.

One quarter of respondents thought that no more could be produced with present resources, insufficient capacity and skilled male labour being the main factors responsible.

*Chemicals*—Production, home sales and exports all rose in the second quarter and the increase is expected to continue in the third quarter, although at a reduced rate. 92% of firms said more could be produced with present resources, and 42% expect a fall in the number employed.

*Glass, Clay and Cement*—Exports were lower in the 2nd quarter of 1970 compared to 2nd quarter of 1969. Production of home sales were the same. Stocks of finished products are considered to be insufficient. This unfavourable situation can be explained by the cement strike earlier this year.

Outlook for the coming quarter is good with increases in production, sales, exports and employment anticipated.

*Metals and Engineering*—Lower exports were experienced by 61% of firms. However home sales were higher. Production and exports are expected to improve in the 3rd quarter 1970 compared with 3rd quarter 1969. Respondents calculate that sales will continue at the same level. Insufficient raw material was the main cause in retarding production, though only 22% felt that they could not have produced more.

*Other Manufacturing*—Prospects look good for the majority of firms in this category. But employment has declined and is expected to decline further.

## CII/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 in four previous surveys. In questions 1, 2, 3, 4, 8, 9, 10, 11, 12 and 13 the difference between the positive and negative replies is taken. Where a positive sign appears before a figure 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 experienced a fall or who expected to experience one; the opposite applies where a negative sign appears.

For questions 5 and 6 the difference is taken between the percentage of respondents reporting finshed goods and raw materials insufficient and the percentage reporting them excessive. Here a positive sign before the answer arrived at indicates that the number of respondents who considered that raw materials and finished goods were insufficient was that percentage higher than those who did not; a negative sign indicated 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 and the percentage replying in the negative is taken to show the trend of excessive capacity during the surveys.

TABLE 5.1

| Question | July 1969 | October 1969 | January 1970 | April 1970 | July 1970 |
|---|---|---|---|---|---|
| 1. Total Production was ... ... | +64 | +61 | +52 | +52 | +28 |
| 2. Homes Sales were ... ... | +72 | +66 | +53 | +45 | +36 |
| 3. Exports were ... ... | +15 | +54 | +47 | +47 | + 3 |
| 4. Labour Force was ... ... | +29 | +22 | + 5 | — 2 | — 3 |
| 5. Finished Stocks were ... ... | + 1 | + 5 | — 2 | — 2 | — 6 |
| 6. Materials Stocks were ... ... | +20 | — 4 | — 7 | + 4 | — 4 |
| 7. Constraints ... ... | + 4 | —12 | + 6 | +26 | +40 |
| 8. Total Production will be ... | +61 | +46 | +50 | +44 | +45 |
| 9. Home Sales will be ... ... | +52 | +44 | +52 | +40 | +32 |
| 10. Exports will be ... ... | +21 | +10 | +46 | +51 | +66 |
| 11. Labour Force will be ... ... | +32 | + 9 | + 6 | — 7 | 0 |
| 12. Investment was ... ... | +45 | +44 | +36 | +44 | + 1 |
| 13. Investment will be ... ... | +47 | —23 | +40 | +27 | +18 |

TABLE 5.2: INDUSTRY GROUP — ALL MANUFACTURING

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 52 | 24 | 24 | Higher |
| 2. Value of Home Sales was | 59 | 18 | 23 | Higher |
| 3. Value of Exports was | 41 | 21 | 38 | Same |
| 4. Wage Paid Labour Force was | 26 | 45 | 29 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 18 | 70 | 12 | Adequate |
| 6. Stocks of Materials are considered to be | 12 | 80 | 8 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 70<br>*No* 30 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 41<br>Insufficient Skilled Male Labour 8<br>Insufficient Skilled Female Labour 13<br>Insufficient Unskilled Male Labour 4<br>Insufficient Unskilled Female Labour 7<br>Insufficient Raw Mats. Supply 16<br>Insufficient Cash and/or Credit 1<br>Any other Reason 10 | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 57 | 31 | 12 | Higher |
| 9. Value of Home Sales will be | 44 | 44 | 12 | Higher |
| 10. Value of Exports will be | 76 | 14 | 10 | Higher |
| 11. Wage Paid Labour Force will be | 24 | 52 | 24 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | 36 | 29 | 35 | Same |
| 13. Capital investment in coming year compared with last year will be | 50 | 18 | 32 | Same |

TABLE 5.3: INDUSTRY GROUP — ALL MANUFACTURING — DUBLIN

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 45 | 25 | 30 | Same |
| 2. Value of Home Sales was | 60 | 8 | 32 | Higher |
| 3. Value of Exports was | 37 | 13 | 50 | Same |
| 4. Wage Paid Labour Force was | 26 | 44 | 30 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 19 | 65 | 16 | Adequate |
| 6. Stocks of Materials are considered to be | 11 | 78 | 11 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 70<br>*No* 30 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 33<br>Insufficient Skilled Male Labour 8<br>Insufficient Skilled Female Labour 15<br>Insufficient Unskilled Male Labour 6<br>Insufficient Unskilled Female Labour 9<br>Insufficient Raw Mats. Supply 15<br>Insufficient Cash and/or Credit 2<br>Any other reason 12 | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 55 | 28 | 17 | Higher |
| 9. Value of Home Sales will be | 53 | 31 | 16 | Higher |
| 10. Value of Exports will be | 72 | 14 | 14 | Higher |
| 11. Wage Paid Labour Force will be | 28 | 46 | 26 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | 23 | 38 | 39 | Same |
| 13. Capital investment in coming year compared with last year will be | 60 | 9 | 31 | Higher |

TABLE 5.4: INDUSTRY GROUP—ALL MANUFACTURING —AREAS OUTSIDE DUBLIN

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 61 | 22 | 17 | Higher |
| 2. Value of Home Sales was | 58 | 29 | 13 | Higher |
| 3. Value of Exports was | 44 | 30 | 26 | Same |
| 4. Wage Paid Labour Force was | 26 | 46 | 28 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 17 | 75 | 8 | Adequate |
| 6. Stocks of Materials are considered to be | 14 | 82 | 4 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | | *Yes* 70<br>*No* 30 | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 51<br>Insufficient Skilled Male Labour 8<br>Insufficient Skilled Female Labour 11<br>Insufficient Unskilled Male Labour 3<br>Insufficient Unskilled Female Labour 4<br>Insufficient Raw Mats. Supply 16<br>Insufficient Cash and/or Credit —<br>Any other reason 7 | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 58 | 35 | 7 | Higher |
| 9. Value of Home Sales will be | 34 | 57 | 9 | Higher |
| 10. Value of Exports will be | 80 | 15 | 5 | Higher |
| 11. Wage Paid Labour Force will be | 18 | 59 | 23 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | 52 | 17 | 31 | Higher |
| 13. Capital investment in coming year compared with last year will be | 38 | 29 | 33 | Same |

TABLE 5.5: INDUSTRY GROUP — FOOD

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 60 | 14 | 26 | Higher |
| 2. Value of Home Sales was | 58 | 24 | 18 | Higher |
| 3. Value of Exports was | 38 | 26 | 36 | Same |
| 4. Wage Paid Labour Force was | 26 | 63 | 11 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 5 | 81 | 14 | Adequate |
| 6. Stocks of Materials are considered to be | 9 | 76 | 15 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 60<br>*No* 40 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 50<br>Insufficient Skilled Male Labour —<br>Insufficient Skilled Female Labour 8<br>Insufficient Unskilled Male Labour —<br>Insufficient Unskilled Female Labour 2<br>Insufficient Raw Mats. Supply 34<br>Insufficient Cash and/or Credit —<br>Any other reason 4 | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 75 | 17 | 8 | Higher |
| 9. Value of Home Sales will be | 71 | 26 | 3 | Higher |
| 10. Value of Exports will be | 94 | 4 | 2 | Higher |
| 11. Wage Paid Labour Force will be | 31 | 58 | 11 | Higher |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.6: INDUSTRY GROUP — DRINK AND TOBACCO

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 42 | 58 | — | Higher |
| 2. Value of Home Sales was | 100 | — | — | Higher |
| 3. Value of Exports was | 8 | 25 | 67 | Lower |
| 4. Wage Paid Labour Force was | 10 | 90 | — | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 24 | 76 | — | Excessive |
| 6. Stocks of Materials are considered to be | 24 | 76 | — | Excessive |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | | *Yes* 100<br>*No* — | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity —<br>Insufficient Skilled Male Labour —<br>Insufficient Skilled Female Labour —<br>Insufficient Unskilled Male Labour —<br>Insufficient Unskilled Female Labour —<br>Insufficient Raw Mats. Supply —<br>Insufficient Cash and/or Credit —<br>Any other reason — | | | — |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 28 | 72 | — | Same |
| 9. Value of Home Sales will be | 20 | 80 | — | Same |
| 10. Value of Exports will be | 18 | 82 | — | Same |
| 11. Wage Paid Labour Force will be | — | 93 | 7 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.7: INDUSTRY GROUP — TEXTILES

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 50 | 12 | 38 | Same |
| 2. Value of Home Sales was | 50 | 19 | 31 | Same |
| 3. Value of Exports was | 37 | 3 | 60 | Lower |
| 4. Wage Paid Labour Force was | 24 | 48 | 28 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 61 | 38 | 1 | Excessive |
| 6. Stocks of Materials are considered to be | 14 | 85 | 1 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 78<br>*No* 22 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 22<br>Insufficient Skilled Male Labour 10<br>Insufficient Skilled Female Labour 20<br>Insufficient Unskilled Male Labour 18<br>Insufficient Unskilled Female Labour 28<br>Insufficient Raw Mats. Supply 2<br>Insufficient Cash and/or Credit —<br>Any other reason — | | | Insufficient Unskilled Female Labour |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 34 | 49 | 17 | Same |
| 9. Value of Home Sales will be | 30 | 58 | 12 | Same |
| 10. Value of Exports will be | 39 | 26 | 35 | Same |
| 11. Wage Paid Labour Force will be | 25 | 37 | 38 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

## TABLE 5.8: INDUSTRY GROUP — CLOTHING AND FOOTWEAR

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 63 | 12 | 25 | Higher |
| 2. Value of Home Sales was | 42 | 16 | 42 | Same |
| 3. Value of Exports was | 71 | 16 | 13 | Higher |
| 4. Wage Paid Labour Force was | 27 | 40 | 33 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 39 | 54 | 7 | Excessive |
| 6. Stocks of Materials are considered to be | 26 | 69 | 5 | Excessive |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 47<br>*No* 53 | | | No |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 18<br>Insufficient Skilled Male Labour 6<br>Insufficient Skilled Female Labour 28<br>Insufficient Unskilled Male Labour 22<br>Insufficient Unskilled Female Labour 6<br>Insufficient Raw Mats. Supply 4<br>Insufficient Cash and/or Credit —<br>Any other reason — | | | Insufficient Skilled Female Labour |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 33 | 47 | 20 | Same |
| 9. Value of Home Sales will be | 26 | 50 | 24 | Same |
| 10. Value of Exports will be | 33 | 57 | 10 | Higher |
| 11. Wage Paid Labour Force will be | 22 | 46 | 32 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

## TABLE 5.9: INDUSTRY GROUP — WOOD AND FURNITURE

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 54 | 24 | 22 | Higher |
| 2. Value of Home Sales was | 63 | 9 | 28 | Higher |
| 3. Value of Exports was | 73 | 5 | 22 | Higher |
| 4. Wage Paid Labour Force was | 15 | 60 | 25 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 6 | 94 | — | Adequate |
| 6. Stocks of Materials are considered to be | 3 | 97 | — | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 55<br>*No* 45 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 47<br>Insufficient Skilled Male Labour 19<br>Insufficient Skilled Female Labour —<br>Insufficient Unskilled Male Labour —<br>Insufficient Unskilled Female Labour –<br>Insufficient Raw Mats. Supply 17<br>Insufficient Cash and/or Credit 17<br>Any other reason – | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 50 | 37 | 13 | Higher |
| 9. Value of Home Sales will be | 50 | 37 | 13 | Higher |
| 10. Value of Exports will be | 42 | 5 | 53 | Same |
| 11. Wage Paid Labour Force will be | 5 | 56 | 39 | Lower |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.10: INDUSTRY GROUP — PAPER AND PRINTING

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 39 | 33 | 28 | Same |
| 2. Value of Home Sales was | 39 | 38 | 23 | Same |
| 3. Value of Exports was | 66 | 32 | 2 | Higher |
| 4. Wage Paid Labour Force was | 24 | 64 | 12 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | — | 82 | 18 | Adequate |
| 6. Stocks of Materials are considered to be | 15 | 85 | — | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | | *Yes* 76<br>*No* 24 | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 38<br>Insufficient Skilled Male Labour 35<br>Insufficient Skilled Female Labour 17<br>Insufficient Unskilled Male Labour —<br>Insufficient Unskilled Female Labour —<br>Insufficient Raw Mats. Supply —<br>Insufficient Cash and/or Credit —<br>Any other reason 10 | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 36 | 60 | 4 | Higher |
| 9. Value of Home Sales will be | 33 | 55 | 12 | Higher |
| 10. Value of Exports will be | 78 | 22 | — | Higher |
| 11. Wage Paid Labour Force will be | 7 | 82 | 11 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.11: INDUSTRY GROUP — CHEMICALS

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 83 | 17 | — | Higher |
| 2. Value of Home Sales was | 66 | 29 | 5 | Higher |
| 3. Value of Exports was | 37 | 63 | — | Higher |
| 4. Wage Paid Labour Force was | 25 | 45 | 30 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 8 | 75 | 17 | Adequate |
| 6. Stocks of Materials are considered to be | 8 | 92 | — | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 92<br>*No* 8 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 100<br>Insufficient Skilled Male Labour –<br>Insufficient Skilled Female Labour –<br>Insufficient Unskilled Male Labour –<br>Insufficient Unskilled Female Labour –<br>Insufficient Raw Mats. Supply –<br>Insufficient Cash and/or Credit –<br>Any other reason – | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 34 | 46 | 20 | Same |
| 9. Value of Home Sales will be | 50 | 30 | 20 | Higher |
| 10. Value of Exports will be | 24 | 76 | — | Higher |
| 11. Wage Paid Labour Force will be | 17 | 41 | 42 | Lower |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.12: INDUSTRY GROUP — GLASS, CLAY & CEMENT

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 46 | 11 | 43 | Same |
| 2. Value of Home Sales was | 46 | — | 54 | Same |
| 3. Value of Exports was | 29 | — | 71 | Lower |
| 4. Wage Paid Labour Force was | 46 | 11 | 43 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 12 | 48 | 40 | Insufficient |
| 6. Stocks of Materials are considered to be | — | 88 | 12 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 12<br>*No* 88 | | | No |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 31<br>Insufficient Skilled Male Labour 8<br>Insufficient Skilled Female Labour –<br>Insufficient Unskilled Male Labour –<br>Insufficient Unskilled Female Labour –<br>Insufficient Raw Mats. Supply –<br>Insufficient Cash and/or Credit –<br>Any other reason 61 | | | Any Other Reason |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 100 | — | — | Higher |
| 9. Value of Home Sales will be | 100 | — | — | Higher |
| 10. Value of Exports will be | 47 | 28 | 25 | Higher |
| 11. Wage Paid Labour Force will be | 80 | 20 | — | Higher |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.13: INDUSTRY GROUP — METALS AND ENGINEERING

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 37 | 29 | 34 | Same |
| 2. Value of Home Sales was | 63 | 5 | 32 | Higher |
| 3. Value of Exports was | 24 | 15 | 61 | Lower |
| 4. Wage Paid Labour Force was | 37 | 9 | 54 | Same |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 22 | 61 | 17 | Adequate |
| 6. Stocks of Materials are considered to be | 15 | 69 | 16 | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | *Yes* 78<br>*No* 22 | | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 7<br>Insufficient Skilled Male Labour 6<br>Insufficient Skilled Female Labour 25<br>Insufficient Unskilled Male Labour —<br>Insufficient Unskilled Female Labour 25<br>Insufficient Raw Mats. Supply 37<br>Insufficient Cash and/or Credit —<br>Any other reason — | | | Insufficient Raw Material Supply |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 71 | 1 | 28 | Higher |
| 9. Value of Home Sales will be | 26 | 43 | 31 | Same |
| 10. Value of Exports will be | 63 | 5 | 32 | Higher |
| 11. Wage Paid Labour Force will be | 37 | 35 | 28 | Same |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

TABLE 5.14: INDUSTRY GROUP — OTHER MANUFACTURING

| | Weighted Replies (%) | | | Apparent Trend |
|---|---|---|---|---|
| *In 2nd quarter 1970 compared with 2nd quarter 1969* | Higher | Same | Lower | |
| 1. Value of Total Production was | 70 | 30 | — | Higher |
| 2. Value of Home Sales was | 70 | 24 | 6 | Higher |
| 3. Value of Exports was | 80 | — | 20 | Higher |
| 4. Wage Paid Labour Force was | 13 | 30 | 57 | Lower |
| *At end June 1970* | Excessive | Adequate | Insufficient | |
| 5. Stocks of Finished Products are considered to be | 6 | 94 | — | Adequate |
| 6. Stocks of Materials are considered to be | 6 | 94 | — | Adequate |
| *During 2nd quarter 1970* | | | | |
| 7. Could more be produced with present resources | | *Yes* 87<br>*No* 13 | | Yes |
| 7a. Where firms replied No, the causes responsible were | Insufficient Capacity 100<br>Insufficient Skilled Male Labour –<br>Insufficient Skilled Female Labour –<br>Insufficient Unskilled Male Labour –<br>Insufficient Unskilled Female Labour –<br>Insufficient Raw Mats. Supply –<br>Insufficient Cash and/or Credit –<br>Any other reason – | | | Insufficient Capacity |
| *In 3rd quarter 1970 compared with 3rd quarter 1969* | Higher | Same | Lower | |
| 8. Value of Production will be | 70 | 30 | — | Higher |
| 9. Value of Home Sales will be | 43 | 57 | — | Higher |
| 10. Value of Exports will be | 80 | 20 | — | Higher |
| 11. Wage Paid Labour Force will be | — | 43 | 57 | Lower |
| *For firms whose financial year ended during 2nd quarter 1970* | Higher | Same | Lower | |
| 12. Capital investment in past year compared with previous year was | — | — | — | |
| 13. Capital investment in coming year compared with last year will be | — | — | — | |

## 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. Initially the results were circulated to a restricted list of recipients; since 1968 they have been published as Section 6 of the Quarterly Economic Commentary. Commencing with the June 1970 issue of the Commentary, the number of series corrected has been extended, and the presentation revised.

One of the main extensions to the coverage involves the disaggregation of industrial production to show the performance of each of the ten industrial groups. This makes possible a comparison between the statistics in Section 6 and the results of the Joint Industrial Survey in Section 5. The other major extension is a disaggregation of the merchandise trade statistics. Imports are shown by functional category, and exports by type, and, to a limited extent, by destination. In addition, a few other series, such as cement sales and turnover tax receipts, have been included where it is felt that they help to fill gaps in the original choice of series.

All the series included are based on figures from either the Central Statistics Office or the Central Bank of Ireland. Most of the series are self-explanatory and represent either the official quarterly figures or a simple arithmetic mean of three official monthly figures for each quarter. The only set of series which involves any serious departure from familiar presentation in official sources is that dealing with the disaggregation of exports.

These series (Nos. 60 to 70) are derived from the C.S.O. publications "Trade Statistics of Ireland" and "Review of External Trade". The categories of exports shown are based on those used by the C.S.O. in the Review of External Trade, but both the "agricultural" and "industrial" categories are further disaggregated. This additional disaggregation and the division of each category into exports to the U.K. and to the rest of the world are calculated from the Trade Statistics of Ireland. Because this detailed information is not subsequently revised in line with any revisions to the total of merchandise exports, it may be noticed that the figures for the categories of exports do not always add across to exactly the total for all exports. Fortunately the discrepancies are small, and it is felt that the provision of time series for the different types of export is worthwhile in spite of this flaw.

With regard to presentation, it will be seen that the series are now grouped according to subject. Table 6.1 covers production and employment, table 6.2 prices, earnings, private consumption, government receipts and expenditure and financial series, and table 6.3 external trade. In each table are shown the annual totals or averages (as appropriate) for each year since 1962, the raw quarterly averages or totals for each series (with the exception of series 24 where a moving annual total is given) and deseasonalised quarterly averages or totals in every case where a recognisable seasonal pattern is evident. Where no seasonably corrected figures are shown it can be taken that there is not discernable seasonality in the series, and the raw data can be used directly for comparing performance in consecutive quarters. 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. Caution must be exercised in interpreting trends in some series, particularly those dealing with unemployment, where changes of definition in recent years have affected the value of the figures.

The method of seasonal correction is that set out in "Seasonality in Irish Economic Statistics" by C. E. V. Leser (ESRI Paper No. 26). The correction factors for the current year are derived from the data for the preceding five year period, pre-adjusted in some instances to allow for the influence of irregular disturbing factors such as major strikes. The factors by which the original quarterly data in the current year must be divided (the result being multiplied by 100) to obtain the seasonally corrected series are set out below.

| | Quarter | | | |
|---|---|---|---|---|
| Series | I | II | III | IV |
| 1 | 82.8 | 99.8 | 108.3 | 109.1 |
| 2 | 96.8 | 103.1 | 100.8 | 99.3 |
| 3 | 101.3 | 101.3 | 92.3 | 105.1 |
| 4 | 101.6 | 101.1 | 93.3 | 104.0 |
| 5 | 94.8 | 102.2 | 101.3 | 101.7 |
| 6 | 99.0 | 101.0 | 97.8 | 102.2 |
| 7 | 110.4 | 94.8 | 93.3 | 101.5 |
| 8 | 93.1 | 105.8 | 100.2 | 100.9 |
| 9 | 101.3 | 102.5 | 93.6 | 102.6 |
| 10 | 96.9 | 102.9 | 97.5 | 102.7 |
| 11 | 96.7 | 101.2 | 98.2 | 103.9 |
| 12 | 74.6 | 128.4 | 123.9 | 73.1 |
| 13 | 95.2 | 103.0 | 100.1 | 101.7 |
| 14 | 118.0 | 88.4 | 80.6 | 113.0 |
| 16 | 83.3 | 111.1 | 108.5 | 97.1 |
| 17 | 111.5 | 92.5 | 98.4 | 97.6 |
| 18 | 99.4 | 99.5 | 100.3 | 100.8 |
| 19 | 98.7 | 99.9 | 100.8 | 100.6 |
| 22 | 124.1 | 94.0 | 79.5 | 102.4 |
| 23 | 116.8 | 99.6 | 86.8 | 96.8 |
| 27 | 102.2 | 101.6 | 97.1 | 99.1 |
| 33 | 98.7 | 100.1 | 100.5 | 100.7 |
| 34 | 99.4 | 99.5 | 100.3 | 100.8 |
| 37 | 112.4 | 121.3 | 97.7 | 68.6 |
| 38 | 91.0 | 99.6 | 103.0 | 106.4 |
| 39 | 92.4 | 98.4 | 107.0 | 102.2 |
| 40 | 127.3 | 92.5 | 92.6 | 97.6 |

| | Quarter | | | |
|---|---|---|---|---|
| Series | I | II | III | IV |
| 41 | 108.4 | 93.4 | 94.8 | 103.4 |
| 42 | 99.2 | 98.2 | 100.6 | 102.0 |
| 43 | 99.3 | 103.8 | 94.8 | 102.1 |
| 44 | 100.0 | 100.1 | 100.2 | 99.7 |
| 46 | 102.8 | 97.4 | 97.4 | 102.6 |
| 47 | 101.6 | 98.1 | 98.3 | 102.0 |
| 48 | 102.7 | 103.3 | 94.7 | 99.3 |
| 49 | 96.5 | 95.0 | 106.2 | 102.3 |
| 51 | 100.8 | 103.9 | 94.4 | 100.9 |
| 52 | 95.8 | 93.9 | 106.2 | 104.1 |
| 54 | 101.8 | 110.2 | 93.2 | 94.8 |
| 55 | 103.0 | 100.1 | 91.4 | 105.5 |
| 56 | 97.4 | 101.0 | 95.3 | 106.3 |
| 57 | 101.6 | 104.1 | 96.4 | 97.9 |
| 58 | 122.7 | 84.8 | 71.9 | 120.6 |
| 59 | 95.2 | 105.4 | 99.8 | 99.6 |
| 60 | 111.1 | 83.8 | 102.1 | 103.0 |
| 61 | 81.3 | 96.7 | 118.4 | 103.6 |
| 62 | 100.8 | 100.9 | 96.1 | 102.2 |
| 63 | 79.1 | 112.9 | 117.8 | 90.2 |
| 64 | 95.7 | 95.1 | 106.6 | 102.6 |
| 65 | 81.0 | 72.4 | 116.7 | 129.9 |
| 66 | 101.6 | 87.3 | 96.3 | 114.8 |
| 67 | 99.4 | 97.5 | 102.7 | 100.4 |
| 69 | 85.1 | 94.6 | 109.4 | 110.9 |
| 70 | 99.9 | 93.8 | 105.7 | 100.6 |

Note: Series 20, 21, 35, 36 and 50 are indirectly corrected, as they are derived from other seasonally corrected or seasonality free series. The remaining 14 series exhibit no regular seasonal pattern, and accordingly are not corrected.

The seasonal corection factors for series 63 and 67 have been calculated after excluding respectively exports to the UK of petroleum and its products, and exports to the rest of the world of ships and aircraft. These two items are subject to large but non-seasonal quarterly variations, and if included would distort the true seasonal pattern of each category. In table 6.3. the uncorrected values of these items are added back to the seasonally corrected values of the remainder of their categories.

The actual figures for turnover tax receipts (Series 39) are given in the uncorrected section of the column. In order to preserve continuity, the figures relating to each month from May 1970 onwards have been divided by 2 in calculating the seasonally corrected totals.

From the beginning of 1970, Series 47 represents official external reserves, rather than external monetary reserves. At end-December 1969, the only date for which both figures are available, the new series was £9.5 million lower than the old. This unavoidable break in the continuity of series 47 may well alter the seasonal pattern, and the seasonally corrected figures since the end of 1969 should therefore be treated with caution. With the introduction of the new presentation, it is no longer possible to calculate series 46.

## TABLE 6.1: PRODUCTION AND EMPLOYMENT

| | Index of Volume of Production by Industrial Group | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | Food | Drink and Tobacco | Textiles | Clothing and Footwear | Wood and Furniture | Paper and Printing | Chemicals | Clay, Glass, Cement | Metals and Engineering | Other Manufacture | Total Manufacturing Industries | Mining Quarrying and Turf | Total Transportable Goods Industries |
| | Annual Averages 1953 = 100 | | | | | | | | | | | | |
| 1962 | 111.3 | 108.8 | 182.3 | 129.5 | 116.8 | 163.5 | 205.5 | 174.5 | 194.0 | 232.0 | 143.6 | 198.8 | 146.1 |
| 1963 | 113.3 | 109.3 | 189.3 | 140.3 | 132.8 | 169.3 | 213.3 | 183.8 | 219.5 | 251.2 | 150.9 | 207.5 | 153.5 |
| 1964 | 116.5 | 109.8 | 204.0 | 147.0 | 136.5 | 177.8 | 218.5 | 212.5 | 243.8 | 292.0 | 163.0 | 223.8 | 165.8 |
| 1965 | 119.8 | 112.0 | 211.0 | 147.3 | 142.5 | 174.5 | 262.0 | 247.3 | 254.0 | 355.5 | 171.0 | 219.5 | 173.9 |
| 1966 | 128.5 | 112.8 | 216.0 | 147.5 | 140.8 | 179.0 | 296.8 | 249.8 | 258.0 | 324.8 | 175.1 | 301.3 | 180.3 |
| 1967 | 140.3 | 114.8 | 236.3 | 155.8 | 143.0 | 195.8 | 336.8 | 286.3 | 268.0 | 376.5 | 189.4 | 371.3 | 196.6 |
| 1968 | 146.0 | 122.3 | 265.8 | 167.0 | 153.8 | 214.3 | 415.5 | 322.3 | 309.8 | 417.0 | 209.3 | 454.0 | 218.8 |
| 1969 | 153.0 | 123.5 | 279.5 | 182.0 | 164.5 | 230.8 | 426.3 | 346.8 | 332.8 | 475.3 | 222.3 | 504.0 | 233.2 |
| 1970 | | | | | | | | | | | | | |
| Quarterly Averages at Annual Rates. Not Seasonally Corrected 1953 = 100 | | | | | | | | | | | | | |
| 1967 I | 115 | 111 | 236 | 159 | 130 | 188 | 369 | 263 | 271 | 354 | 180.1 | 266 | 183.8 |
| II | 139 | 119 | 240 | 159 | 146 | 199 | 333 | 312 | 276 | 385 | 193.0 | 519 | 205.3 |
| III | 152 | 114 | 218 | 143 | 146 | 195 | 296 | 273 | 244 | 357 | 184.4 | 430 | 193.8 |
| IV | 155 | 115 | 251 | 162 | 150 | 201 | 349 | 297 | 281 | 410 | 200.1 | 270 | 203.4 |
| 1968 I | 119 | 114 | 255 | 165 | 144 | 204 | 386 | 289 | 298 | 400 | 192.8 | 281 | 196.7 |
| II | 146 | 128 | 270 | 165 | 150 | 215 | 382 | 348 | 318 | 433 | 211.8 | 584 | 225.8 |
| III | 157 | 125 | 246 | 157 | 154 | 212 | 428 | 323 | 285 | 407 | 207.4 | 573 | 221.2 |
| IV | 162 | 122 | 292 | 181 | 167 | 226 | 466 | 329 | 338 | 428 | 225.4 | 378 | 231.7 |
| 1969 I | 113 | 110 | 257 | 178 | 149 | 218 | 444 | 286 | 312 | 440 | 198.6 | 345 | 204.5 |
| II | 162 | 131 | 291 | 186 | 170 | 243 | 436 | 381 | 353 | 515 | 234.5 | 603 | 248.5 |
| III | 172 | 125 | 265 | 170 | 165 | 233 | 384 | 351 | 312 | 461 | 221.5 | 649 | 237.6 |
| IV | 165 | 128 | 305 | 194 | 174 | 229 | 441 | 369 | 354 | 485 | 234.8 | 419 | 242.3 |
| 1970 I | 128 | 116 | 303 | 183 | 159 | 231 | 458 | 263 | 322 | 458 | 211.5 | 358 | 218.1 |
| II | | | | | | | | | | | | | |
| III | | | | | | | | | | | | | |
| IV | | | | | | | | | | | | | |
| Quarterly Averages at Annual Rates. Seasonally Corrected 1953 = 100 | | | | | | | | | | | | | |
| 1967 I | 142 | 114 | 228 | 158 | 137 | 187 | 311 | 285 | 267 | 362 | 185.3 | 378 | 192.3 |
| II | 142 | 117 | 237 | 160 | 140 | 199 | 350 | 301 | 271 | 379 | 191.5 | 364 | 200.1 |
| III | 141 | 114 | 240 | 151 | 145 | 202 | 347 | 269 | 256 | 362 | 188.9 | 353 | 196.2 |
| IV | 137 | 114 | 240 | 153 | 150 | 195 | 347 | 290 | 277 | 402 | 191.7 | 415 | 197.5 |
| 1968 I | 144 | 117 | 246 | 164 | 151 | 203 | 334 | 307 | 295 | 404 | 198.4 | 392 | 205.1 |
| II | 148 | 125 | 267 | 165 | 144 | 214 | 399 | 331 | 312 | 426 | 210.1 | 437 | 220.3 |
| III | 146 | 125 | 271 | 167 | 153 | 219 | 489 | 323 | 301 | 417 | 212.5 | 450 | 223.0 |
| IV | 146 | 121 | 280 | 172 | 167 | 221 | 461 | 326 | 329 | 420 | 215.9 | 516 | 226.3 |
| 1969 I | 136 | 112 | 250 | 176 | 156 | 217 | 394 | 301 | 307 | 448 | 204.5 | 471 | 213.9 |
| II | 163 | 127 | 285 | 185 | 164 | 241 | 454 | 362 | 342 | 505 | 231.0 | 460 | 240.3 |
| III | 160 | 125 | 290 | 181 | 164 | 240 | 417 | 353 | 334 | 473 | 226.7 | 511 | 239.3 |
| IV | 149 | 129 | 293 | 186 | 174 | 226 | 444 | 368 | 347 | 474 | 226.4 | 609 | 238.2 |
| 1970 I | 155 | 120 | 299 | 180 | 168 | 233 | 415 | 282 | 318 | 473 | 218.7 | 480 | 229.1 |
| II | | | | | | | | | | | | | |
| III | | | | | | | | | | | | | |
| IV | | | | | | | | | | | | | |

TABLE 6.1 (continued): PRODUCTION AND EMPLOYMENT

| Other Output Indicators | | | Employment | | | Output per Head | | Unemployment | | Emigration | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
| Electricity Output | New Houses Built | Cement Sales | Sales of Insurance Stamps | No. in Manufacturing Industries | No. in Transportable Goods Industries | In Manufacturing Industries | In Transportable Goods Industries | Benefit Claims Current | % of Insured on Live Register | Net Outflow by Sea and Air | |
| Mill. k.w.h. | No. | '000 tons | '000 | '000 | '000 | 1953 = 100 | 1953 = 100 | '000 | % | Moving Annual Total '000 | |
| 2,610 | 6,050 | — | 25,307 | 164.0 | 173.2 | 125.1 | 127.0 | 26.22 | 5.7 | 20.8 | 1962 |
| 2,861 | 6,556 | — | 26,164 | 168.6 | 178.2 | 127.9 | 129.7 | 28.35 | 6.1 | 21.9 | 1963 |
| 3,102 | 8,064 | — | 27,039 | 171.9 | 181.8 | 135.5 | 137.3 | 27.05 | 5.7 | 22.4 | 1964 |
| 3,483 | 11,800 | 876.7 | 26,955 | 173.7 | 183.7 | 140.7 | 142.6 | 27.66 | 5.6 | 26.9 | 1965 |
| 3,760 | 10,171 | 816.1 | 27,030 | 175.3 | 185.6 | 142.7 | 146.3 | 31.02 | 6.1 | 26.3 | 1966 |
| 4,160 | 12,335 | 913.3 | 27,401 | 177.3 | 187.7 | 152.7 | 157.7 | 31.66 | 6.7 | 49.1 | 1967 |
| 4,542 | 11,877 | 1,066.0 | 27,338 | 180.9 | 191.2 | 165.3 | 172.3 | 35.32 | 6.7 | 4.5 | 1968 |
| 5,124 | 13,983 | 1,168.6 | | 191.9 | 202.4 | 165.5 | 173.5 | 34.21 | 6.4 | 10.9 | 1969 |
| | | | | | | | | | | | 1970 |
| Quarterly Averages or Totals. Not Seasonally Corrected | | | | | | | | | | | |
| 1,164 | 3,215 | 201.5 | 7,511 | 175.9 | 185.4 | 146.3 | 149.3 | 40.2 | 7.7 | 13.50 | 1967 I |
| 933 | 3,012 | 257.8 | 13,323 | 176.2 | 187.7 | 156.5 | 164.7 | 29.1 | 6.5 | 10.20 | II |
| 847 | 2,856 | 234.0 | | 177.9 | 188.9 | 148.1 | 154.5 | 24.8 | 6.0 | 20.50 | III |
| 1,216 | 3,252 | 225.0 | 6,567 | 178.9 | 189.0 | 159.8 | 162.1 | 32.5 | 6.6 | 49.10 | IV |
| 1,265 | 2,897 | 217.4 | 7,598 | 176.1 | 185.8 | 156.5 | 159.4 | 40.5 | 7.7 | 38.20 | 1968 I |
| 1,018 | 2,747 | 295.5 | 6,417 | 179.1 | 190.7 | 169.0 | 178.3 | 34.6 | 6.8 | 22.96 | II |
| 947 | 2,942 | 284.5 | 6,653 | 182.5 | 193.0 | 162.4 | 172.6 | 30.7 | 6.0 | 25.53 | III |
| 1,312 | 3,291 | 268.6 | 6,670 | 185.8 | 195.4 | 173.4 | 178.6 | 35.6 | 6.4 | 4.51 | IV |
| 1,488 | 4,053 | 201.8 | 7,869 | 186.2 | 196.3 | 152.4 | 156.9 | 41.9 | 7.5 | 16.75 | 1969 I |
| 1,124 | 2,820 | 328.4 | 6,485 | 190.0 | 201.2 | 176.4 | 186.0 | 32.0 | 6.2 | 18.00 | II |
| 1,035 | 3,112 | 324.7 | 7,015 | 194.2 | 205.1 | 163.0 | 174.7 | 28.6 | 5.6 | 11.92 | III |
| 1,477 | 3,998 | 313.7 | | 197.1 | 207.2 | 170.2 | 176.1 | 34.3 | 6.3 | 10.97 | IV |
| 1,620 | 3,714 | | | 192.1 | 202.3 | 157,3 | 162.4 | 43.1 | 7.5 | –0.34 | 1970 I |
| 1,215 | | | | | | | | 42.5 | 7.9 | | II |
| | | | | | | | | | | | III |
| | | | | | | | | | | | IV |
| Quarterly Averages or Totals. Seasonally Corrected | | | | | | | | | | | |
| 970 | No | 241.9 | 6,520 | 176.8 | 186.9 | 149.8 | 155.0 | 31.1 | 6.5 | No | 1967 I |
| 1,071 | | 232.0 | 7,061 | 177.6 | 188.3 | 154.1 | 160.0 | 31.1 | 6.4 | | II |
| 1,056 | Seasonal | 215.7 | 7,061 | 177.0 | 187.6 | 152.5 | 157.5 | 32.8 | 7.1 | Seasonal | III |
| 1,081 | | 231.7 | 6,834 | 177.5 | 188.2 | 154.3 | 158.0 | 32.0 | 6.9 | | IV |
| 1,064 | Pattern | 261.0 | 6,712 | 177.0 | 187.3 | 160.2 | 164.7 | 31.8 | 6.5 | Pattern | 1968 I |
| 1,161 | | 266.0 | 7,059 | 180.5 | 191.1 | 166.3 | 173.0 | 37.3 | 6.8 | | II |
| 1,181 | | 262.2 | 6,748 | 181.4 | 191.7 | 167.4 | 175.2 | 40.1 | 7.1 | | III |
| 1,159 | | 276.6 | 6,855 | 184.5 | 194.8 | 167.2 | 175.0 | 34.4 | 6.6 | | IV |
| 1,263 | | 242.3 | 7,057 | 187.3 | 198.3 | 156.0 | 162.4 | 33.5 | 6.4 | | 1969 I |
| 1,274 | | 295.6 | 7,011 | 191.1 | 201.2 | 172.7 | 180.1 | 33.9 | 6.2 | | II |
| 1,286 | | 299.5 | 7,129 | 193.4 | 203.7 | 167.5 | 176.9 | 36.4 | 6.5 | | III |
| 1,303 | | 323.1 | | 195.5 | 206.6 | 165.5 | 173.6 | 33.6 | 6.5 | | IV |
| 1,373 | | | | 193.3 | 205.0 | 161.7 | 168.3 | 34.7 | 6.4 | | 1970 I |
| 1,374 | | | | | | | | 45.2 | 7.9 | | II |
| | | | | | | | | | | | III |
| | | | | | | | | | | | IV |

## TABLE 6.2: PRICES, EARNINGS, CONSUMPTION AND FINANCE

| | | Price Indices 1953 = 100 | | | | | | | Money Earnings, weekly average | | | Real Earnings | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| | | Consumer Price Index | Wholesale Price Index | Agricultural Price Index | Import Unit Value | Export Unit Value | Terms of Trade | Price of Stocks and Shares | Agricultural Minimum Wage | Earnings in Manufacturing Industries | Earnings in Transportable Goods Industries | In Manufacturing Industries | In Transportable Goods Industries |
| | | Annual Averages 1953=100 | | | | | | | Annual Av. Shillings | Annual Averages 1953=100 | | | |
| 1962 | | 125.3 | 118.3 | 101.7 | 107.6 | 101.9 | 94.7 | 214.2 | 122.50 | 159.0 | 160.0 | 126.9 | 127.7 |
| 1963 | | 128.4 | 119.8 | 102.2 | 109.4 | 103.9 | 94.9 | 261.3 | 127.75 | 165.1 | 165.8 | 128.6 | 129.1 |
| 1964 | | 137.0 | 126.8 | 113.1 | 110.4 | 109.8 | 99.5 | 325.5 | 145.25 | 185.4 | 186.2 | 135.3 | 135.9 |
| 1965 | | 143.9 | 131.6 | 117.7 | 112.9 | 110.9 | 98.2 | 316.2 | 160.75 | 190.9 | 191.7 | 132.7 | 133.2 |
| 1966 | | 148.2 | 134.2 | 115.9 | 112.9 | 112.9 | 100.0 | 295.1 | 180.50 | 207.9 | 209.0 | 140.3 | 141.0 |
| 1967 | | 152.9 | 137.7 | 118.3 | 112.2 | 112.9 | 100.6 | 294.5 | 180.50 | 222.6 | 223.8 | 145.6 | 146.4 |
| 1968 | | 160.1 | 145.9 | 130.4 | 121.5 | 121.1 | 99.7 | 420.0 | 194.44 | 241.5 | 243.2 | 150.8 | 151.9 |
| 1969 | | 172.0 | 156.4 | 134.0 | 126.4 | 128.5 | 99.0 | 444.0 | 223.63 | 270.7 | 272.9 | 157.4 | 158.4 |
| 1970 | | | | | | | | | 262.96 | | | | |
| | | Quarterly Averages. Not Seasonally Corrected | | | | | | | | | | | |
| 1967 | I | 150.6 | 136.3 | 117.9 | 113.4 | 114.3 | 100.8 | 272.2 | 180.5 | 216.4 | 217.6 | 143.7 | 144.5 |
| | II | 153.2 | 138.4 | 118.0 | 113.2 | 114.2 | 100.9 | 284.6 | 180.5 | 220.8 | 222.1 | 144.1 | 145.0 |
| | III | 153.3 | 137.0 | 114.0 | 112.6 | 112.6 | 99.9 | 300.4 | 180.5 | 223.2 | 224.0 | 145.6 | 146.1 |
| | IV | 154.3 | 139.0 | 123.2 | 113.0 | 114.4 | 101.3 | 320.9 | 180.5 | 230.1 | 231.6 | 149.1 | 150.1 |
| 1968 | I | 157.5 | 143.6 | 131.3 | 120.5 | 121.0 | 100.5 | 357.6 | 180.5 | 229.3 | 230.2 | 145.6 | 146.2 |
| | II | 160.0 | 145.9 | 130.3 | 122.5 | 122.6 | 100.1 | 410.6 | 195.75 | 237.4 | 240.9 | 148.4 | 150.6 |
| | III | 160.3 | 145.9 | 128.2 | 125.0 | 122.5 | 98.0 | 449.3 | 195.75 | 245.3 | 246.5 | 153.0 | 153.8 |
| | IV | 162.7 | 148.2 | 131.7 | 123.2 | 123.2 | 100.1 | 462.6 | 200.75 | 254.0 | 255.1 | 156.1 | 156.8 |
| 1969 | I | 168.1 | 153.2 | 136.2 | 127.3 | 124.6 | 97.9 | 473.6 | 200.75 | 259.3 | 260.4 | 154.3 | 154.9 |
| | II | 171.0 | 156.9 | 138.0 | 127.5 | 127.7 | 100.2 | 463.8 | 231.25 | 268.9 | 271.4 | 157.3 | 158.7 |
| | III | 173.8 | 157.1 | 132.9 | 130.3 | 130.7 | 100.3 | 429.2 | 231.25 | 273.8 | 276.4 | 157.5 | 159.0 |
| | IV | 175.1 | 158.3 | 135.2 | 131.3 | 131.3 | 100.0 | 409.4 | 231.25 | 280.9 | 283.3 | 160.4 | 161.8 |
| 1970 | I | 178.0 | 162.4 | 141.4 | 134.9 | 135.2 | 100.2 | 413.6 | 231.25 | 282.8 | 285.8 | 158.9 | 160.6 |
| | II | 185.3 | | 144.2 | | | | 382.5 | 259.8 | | | | |
| | III | | | | | | | | 269.3 | | | | |
| | IV | | | | | | | | 291.5 | | | | |
| | | Quarterly Averages. Seasonally Corrected | | | | | | | | | | | |
| 1967 | I | No | No | 116.4 | No | No | No | No | No | 219.3 | 222.1 | 145.6 | 146.8 |
| | II | | | 116.5 | | | | | | 219.5 | 220.3 | 143.3 | 143.8 |
| | III | Seasonal | Seasonal | 116.1 | Seasonal | Seasonal | Seasonal | Seasonal | Seasonal | 221.9 | 222.7 | 144.7 | 145.3 |
| | IV | | | 124.2 | | | | | | 229.9 | 231.1 | 149.0 | 149.8 |
| 1968 | I | | | 129.1 | | | | | | 232.1 | 233.5 | 147.4 | 148.3 |
| | II | Pattern | Pattern | 128.4 | Pattern | Pattern | Pattern | Pattern | Pattern | 236.0 | 239.0 | 147.5 | 149.4 |
| | III | | | 131.4 | | | | | | 244.3 | 245.5 | 152.4 | 153.2 |
| | IV | | | 132.8 | | | | | | 253.5 | 254.6 | 155.8 | 156.5 |
| 1969 | I | | | 133.3 | | | | | | 264.1 | 265.4 | 157.1 | 157.9 |
| | II | | | 136.1 | | | | | | 267.8 | 269.8 | 156.6 | 157.5 |
| | III | | | 136.7 | | | | | | 272.2 | 275.0 | 156.6 | 158.2 |
| | IV | | | 136.3 | | | | | | 278.7 | 281.1 | 159.2 | 160.5 |
| 1970 | I | | | 138.4 | | | | | | 286.5 | 287.5 | 161.0 | 161.5 |
| | II | | | 141.9 | | | | | | | | | |
| | III | | | | | | | | | | | | |
| | IV | | | | | | | | | | | | |

TABLE 6.2 (continued): PRICES, EARNINGS, CONSUMPTION AND FINANCE

| Consumption Indicators | | | Government | | Banking and Finance Indicators | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | |
| New Cars-Registered | Index of Retail Sales (value) | Turnover Tax Receipts | Revenue Receipts | Exchequer Expenditure | Money Supply (not adjusted) | Bank Debits | Bills Loans Advanced (within state) | Investments (within state) | External Assets | External Monetary Reserves | |
| Total | 1961 = 100 | Total £'000 | Average of weekly figures £'000 | | Av. of Monthly £ million | Av. of Daily £ million | Average of monthly figures £ million | | | | |
| 31,931 | 107 | — | 3,019 | 3,440 | 236.4 | 10.91 | 224.4 | 29.54 | 227.2 | | 1962 |
| 37,028 | 113 | — | 3,308 | 3,795 | 259.1 | 12.06 | 245.4 | 36.40 | 230.3 | | 1963 |
| 41,352 | 124 | 13,118 | 3,974 | 4,523 | 294.0 | 13.53 | 278.8 | 35.51 | 235.5 | | 1964 |
| 43,267 | 132 | 14,097 | 5,221 | 5,221 | 309.8 | 16.76 | 313.8 | 33.49 | 219.9 | 226.3 | 1965 |
| 39,546 | 135 | 14,867 | 5,016 | 5,632 | 334.5 | 17.74 | 328.4 | 42.0 | 235.4 | 236.0 | 1966 |
| 40,300 | 141 | 15,906 | 5,735 | 6,271 | 352.5 | 21.24 | 346.2 | 48.60 | 270.8 | 270.9 | 1967 |
| 51,360 | 153 | 17,590 | 6,411 | 7,325 | 384.9 | 23.74 | 398.1 | 62.50 | 256.0 | 286.4 | 1968 |
| 50,523 | 170 | 20,040 | 7,613 | 8,544 | 409.3 | 28.78 | 461.9 | 94.10 | 234.7 | 275.8 | 1969 |
| | | | | | | | | | | | 1970 |
| Quarterly Averages or Totals. Not Seasonally Corrected | | | | | | | | | | | |
| 10,740 | 127 | 3,568 | 7,149 | 6,394 | 339.4 | 20.21 | 339.5 | 49.6 | 254.4 | 254.1 | 1967 I |
| 12,743 | 139 | 3,836 | 5,349 | 5,714 | 339.5 | 22.36 | 335.1 | 49.0 | 262.0 | 261.7 | II |
| 9,428 | 144 | 4,299 | 5,407 | 6,306 | 357.5 | 20.22 | 346.4 | 48.3 | 275.6 | 275.7 | III |
| 7,389 | 154 | 4,203 | 5,025 | 6,670 | 372.9 | 22.19 | 363.6 | 47.5 | 291.2 | 292.0 | IV |
| 13,300 | 135 | 3,878 | 7,544 | 7,247 | 373.1 | 21.90 | 379.0 | 49.2 | 284.3 | 292.2 | 1968 I |
| 15,064 | 151 | 4,316 | 5,691 | 6,716 | 370.3 | 22.36 | 394.0 | 49.2 | 250.1 | 280.1 | II |
| 11,983 | 158 | 4,723 | 6,273 | 7,463 | 390.5 | 23.69 | 405.2 | 62.5 | 239.9 | 281.0 | III |
| 11,013 | 170 | 4,673 | 6,137 | 7,872 | 405.7 | 27.00 | 414.0 | 89.1 | 249.7 | 282.3 | IV |
| 13,212 | 147 | 4,508 | 8,349 | 8,579 | 402.1 | 26.61 | 437.6 | 87.7 | 240.4 | 284.4 | 1969 I |
| 16,471 | 170 | 4,895 | 7,221 | 7,619 | 402.3 | 31.21 | 459.0 | 86.9 | 224.2 | 269.1 | II |
| 11,219 | 177 | 5,402 | 7,239 | 8,398 | 412.0 | 27.17 | 475.2 | 93.2 | 225.9 | 268.2 | III |
| 9,621 | 187 | 5,235 | 7,643 | 9,581 | 420.9 | 30.16 | 475.9 | 108.5 | 248.2 | 281.6 | IV |
| 13,856 | 169 | 5,102 | 9,462 | 10,015 | | | | | | 298.6 | 1970 I |
| 16,923 | 180 | 8,551 | | | | | | | | 301.5 | II |
| | | | | | | | | | | | III |
| | | | | | | | | | | | IV |
| Quarterly Averages or Totals. Seasonally Corrected | | | | | | | | | | | |
| 8,972 | 139.3 | 3,899 | 5,229 | 5,599 | 341.8 | 19.9 | 340.9 | No | 251.1 | 250.6 | 1967 I |
| 10,985 | 138.1 | 3,879 | 6,141 | 5,879 | 343.3 | 22.1 | 335.1 | | 266.0 | 265.4 | II |
| 9,680 | 140.9 | 4,018 | 5,948 | 6,922 | 360.7 | 21.1 | 345.4 | Seasonal | 280.7 | 278.7 | III |
| 11,045 | 143.6 | 4,096 | 5,905 | 6,841 | 363.1 | 21.9 | 363.2 | | 285.5 | 288.8 | IV |
| 11,896 | 147.9 | 4,238 | 5,625 | 6,494 | 376.4 | 21.6 | 380.5 | Pattern | 279.3 | 288.2 | 1968 I |
| 12,512 | 151.3 | 4,364 | 6,373 | 7,025 | 376.3 | 21.8 | 394.0 | | 253.4 | 284.0 | II |
| 11,947 | 153.8 | 4,414 | 6,833 | 8,076 | 390.8 | 25.1 | 404.0 | | 243.0 | 284.1 | III |
| 16,316 | 159.8 | 4,555 | 7,237 | 7,841 | 395.4 | 26.6 | 413.6 | | 247.7 | 289.1 | IV |
| 11,469 | 160.8 | 4,927 | 6,349 | 7,687 | 405.8 | 26.5 | 438.5 | | 233.4 | 280.8 | 1969 I |
| 13,601 | 171.2 | 4,949 | 8,006 | 7,961 | 409.7 | 30.6 | 459.0 | | 228.1 | 274.0 | II |
| 11,495 | 172.2 | 5,049 | 7,843 | 9,331 | 410.4 | 28.5 | 473.8 | | 229.3 | 271.7 | III |
| 14,555 | 175.8 | 5,102 | 8,887 | 9,329 | 411.4 | 29.5 | 475.4 | | 247.7 | 276.6 | IV |
| 12,327 | 185.8 | 5,522 | 7,433 | 9,239 | | | | | | 293.9 | 1970 I |
| 13,951 | 180.9 | 5,350 | | | | | | | | 307.3 | II |
| | | | | | | | | | | | III |
| | | | | | | | | | | | IV |

TABLE 6.3: EXTERNAL TRADE

| | | Visible Trade Indicators | | | | | Imports by Functional Category | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 |
| | | Total Imports (value) | Total Exports (value) | Import Excess (value) | Total Imports (volume) | Total Exports (volume) | Ships and Aircraft | Other Capital Goods | Food, Drink, Tobacco | Other Consumer Goods | Materials for Industry | Materials for Agriculture | Unclassified |
| | | £ million | | | 1953=100 | | £ million | | | | | | |
| 1962 | | 273.7 | 174.4 | 99.3 | 137.2 | 149.1 | 0.8 | 38.6 | 17.2 | 40.1 | 149.9 | 15.8 | 11.4 |
| 1963 | | 307.7 | 196.5 | 111.1 | 151.6 | 164.9 | 2.2 | 45.1 | 19.9 | 45.3 | 164.4 | 16.9 | 13.9 |
| 1964 | | 349.3 | 222.0 | 127.3 | 170.7 | 176.5 | 4.0 | 48.2 | 19.8 | 51.4 | 195.5 | 16.5 | 14.0 |
| 1965 | | 371.8 | 220.8 | 151.0 | 177.5 | 173.7 | 7.1 | 53.2 | 23.2 | 56.8 | 201.8 | 17.8 | 11.8 |
| 1966 | | 372.6 | 244.3 | 128.2 | 177.9 | 188.9 | 4.7 | 53.2 | 23.7 | 60.5 | 203.9 | 15.2 | 11.4 |
| 1967 | | 392.3 | 285.1 | 107.2 | 188.6 | 220.5 | 4.7 | 54.1 | 25.0 | 62.8 | 217.5 | 17.0 | 11.1 |
| 1968 | | 496.1 | 332.5 | 163.6 | 220.2 | 239.5 | 1.2 | 71.5 | 29.5 | 86.5 | 273.5 | 22.6 | 11.4 |
| 1969 | | 588.9 | 371.1 | 217.8 | 251.2 | 252.3 | 18.8 | 93.5 | 31.6 | 102.6 | 311.7 | 20.7 | 10.0 |
| 1970 | | | | | | | | | | | | | |
| | | Quarterly Totals. Not Seasonally Corrected | | | | | | | | | | | |
| 1967 | I | 100.3 | 64.4 | 35.9 | 192.4 | 198.3 | 1.2 | 13.7 | 6.3 | 15.5 | 55.1 | 5.7 | 2.8 |
| | II | 98.4 | 67.2 | 31.2 | 189.0 | 207.3 | 0.3 | 14.4 | 6.2 | 15.1 | 56.6 | 3.3 | 2.5 |
| | III | 92.9 | 76.6 | 16.2 | 179.2 | 239.6 | 3.0 | 12.6 | 5.4 | 14.9 | 51.2 | 3.0 | 2.7 |
| | IV | 100.7 | 76.8 | 23.9 | 193.7 | 236.7 | 0.2 | 13.2 | 7.0 | 17.0 | 53.6 | 5.0 | 3.1 |
| 1968 | I | 116.3 | 74.5 | 41.8 | 210.4 | 217.1 | 0.2 | 15.8 | 7.3 | 19.0 | 64.5 | 6.8 | 2.5 |
| | II | 125.2 | 80.4 | 44.8 | 222.8 | 231.3 | 0.2 | 18.8 | 7.4 | 21.1 | 70.2 | 4.8 | 3.6 |
| | III | 118.2 | 88.0 | 30.1 | 206.1 | 253.3 | 0.3 | 17.2 | 6.8 | 20.8 | 66.6 | 3.7 | 2.6 |
| | IV | 136.5 | 89.6 | 46.9 | 241.5 | 256.5 | 0.5 | 19.0 | 8.0 | 26.3 | 72.5 | 7.3 | 2.7 |
| 1969 | I | 134.7 | 80.4 | 54.2 | 232.9 | 225.7 | 0.5 | 20.3 | 7.8 | 23.5 | 74.5 | 5.7 | 2.3 |
| | II | 158.9 | 92.0 | 66.9 | 274.0 | 252.2 | 11.2 | 24.8 | 8.7 | 26.4 | 81.9 | 4.0 | 2.7 |
| | III | 140.9 | 96.9 | 44.0 | 238.3 | 259.8 | 3.1 | 23.0 | 7.3 | 25.9 | 74.7 | 4.4 | 2.5 |
| | IV | 154.5 | 101.7 | 52.7 | 259.8 | 271.3 | 4.0 | 25.4 | 7.8 | 27.4 | 80.8 | 6.6 | 2.5 |
| 1970 | I | 152.8 | 99.5 | 53.3 | 244.3 | 257.3 | 2.9 | 24.3 | 7.2 | 27.3 | 81.5 | 4.7 | 2.5 |
| | II | 166.7 | 103.6 | 63.2 | | | | | | | | | |
| | III | | | | | | | | | | | | |
| | IV | | | | | | | | | | | | |
| | | Quarterly Totals. Seasonally Corrected | | | | | | | | | | | |
| 1967 | I | 99.4 | 66.5 | 29.9 | 191.1 | 204.2 | 1.2 | 13.6 | 5.9 | 16.0 | 54.9 | 4.3 | 2.9 |
| | II | 94.4 | 72.2 | 22.2 | 182.3 | 224.8 | 0.3 | 13.3 | 6.1 | 14.8 | 55.6 | 4.2 | 2.1 |
| | III | 99.6 | 71.6 | 28.0 | 191.9 | 225.6 | 3.0 | 13.7 | 6.5 | 16.1 | 52.5 | 4.1 | 2.7 |
| | IV | 99.1 | 74.6 | 24.5 | 189.5 | 226.5 | 0.2 | 13.4 | 6.4 | 15.7 | 53.4 | 4.3 | 3.6 |
| 1968 | I | 114.6 | 76.8 | 37.8 | 207.1 | 224.3 | 0.2 | 15.5 | 7.0 | 19.6 | 63.4 | 5.2 | 2.6 |
| | II | 120.5 | 85.0 | 35.5 | 214.2 | 247.1 | 0.2 | 17.3 | 7.3 | 20.9 | 68.4 | 6.0 | 3.1 |
| | III | 126.0 | 82.6 | 43.4 | 220.9 | 237.8 | 0.3 | 18.5 | 7.9 | 22.2 | 68.9 | 5.3 | 2.7 |
| | IV | 135.4 | 88.0 | 47.4 | 238.9 | 248.8 | 0.5 | 19.7 | 7.4 | 24.2 | 73.2 | 6.1 | 3.1 |
| 1969 | I | 131.1 | 83.5 | 47.6 | 231.1 | 235.6 | 0.5 | 19.6 | 7.5 | 23.9 | 73.0 | 4.3 | 2.4 |
| | II | 152.9 | 97.6 | 55.3 | 263.7 | 268.6 | 11.2 | 22.6 | 8.6 | 25.9 | 78.9 | 4.8 | 2.5 |
| | III | 148.8 | 90.8 | 58.0 | 252.4 | 244.6 | 3.1 | 24.7 | 8.2 | 27.8 | 77.2 | 6.1 | 2.5 |
| | IV | 156.5 | 99.0 | 57.5 | 257.5 | 260.6 | 4.0 | 27.1 | 7.4 | 25.7 | 83.0 | 5.5 | 2.6 |
| 1970 | I | 148.8 | 103.1 | 45.7 | 242.4 | 268.6 | 2.9 | 23.9 | 7.0 | 28.0 | 80.2 | 5.5 | 2.6 |
| | II | 161.4 | 109.1 | 52.3 | | | | | | | | | |
| | III | | | | | | | | | | | | |
| | IV | | | | | | | | | | | | |

TABLE 6.3 (continued): EXTERNAL TRADE

| Domestic Exports to U.K. | | | | | Domestic Exports to Rest of World | | | | | | Re-Exports | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | |
| Cattle and Beef | Other Agric. Products | Manufactured Goods S.I.T.C. 5-8 | Other Industrial | Total to U.K. | Cattle and Beef | Other Agric. Products | Manufactured Goods S.I.T.C. 5-8 | Metal Ores | Other Industrial | Total to Rest of World | To U.K. | To Rest of World | |
| £ million | | | | | | | | | | | | | |
| | | | | 103.1 | | | | | | 65.5 | 1.6 | 3.9 | 1962 |
| 45.4 | 43.5 | 29.6 | 16.7 | 138.4 | 13.9 | 11.9 | 11.8 | 0.0 | 4.1 | 52.9 | 2.5 | 2.1 | 1963 |
| 53.5 | 43.9 | 37.7 | 18.1 | 156.5 | 16.1 | 12.3 | 16.6 | 0.0 | 4.9 | 61.0 | 2.5 | 2.4 | 1964 |
| 46.5 | 47.1 | 37.6 | 17.8 | 160.0 | 15.3 | 11.5 | 19.9 | 0.0 | 6.6 | 58.1 | 3.2 | 2.7 | 1965 |
| 51.5 | 46.3 | 43.2 | 18.5 | 164.0 | 13.2 | 14.0 | 24.3 | 3.5 | 6.4 | 71.3 | 5.0 | 3.2 | 1966 |
| 71.6 | 48.2 | 52.2 | 23.9 | 200.2 | 14.1 | 12.5 | 26.3 | 4.4 | 8.3 | 75.5 | 4.6 | 4.1 | 1967 |
| 74.1 | 53.4 | 68.8 | 23.9 | 226.4 | 12.0 | 17.8 | 38.2 | 7.9 | 10.0 | 97.0 | 4.4 | 4.7 | 1968 |
| 69.8 | 58.3 | 76.2 | 25.5 | 236.0 | 16.3 | 22.2 | 47.0 | 15.5 | 11.8 | 122.2 | 6.8 | 6.1 | 1969 |
| | | | | | | | | | | | | | 1970 |
| Quarterly Totals Not Seasonally Corrected | | | | | | | | | | | | | |
| 16.3 | 9.3 | 12.4 | 4.3 | 43.3 | 3.7 | 3.6 | 6.2 | 1.1 | 2.1 | 19.2 | 1.3 | 0.7 | 1967 I |
| 15.8 | 11.6 | 13.2 | 6.7 | 48.4 | 2.6 | 2.5 | 6.4 | 1.3 | 1.6 | 16.9 | 1.2 | 0.8 | II |
| 20.7 | 14.8 | 12.0 | 6.9 | 55.6 | 3.9 | 2.7 | 6.6 | 1.0 | 2.4 | 19.0 | 0.8 | 1.2 | III |
| 18.8 | 12.5 | 14.6 | 6.0 | 53.0 | 3.9 | 3.7 | 7.1 | 1.0 | 2.2 | 20.4 | 1.3 | 1.4 | IV |
| 19.6 | 10.5 | 16.1 | 4.3 | 51.7 | 1.8 | 4.3 | 8.2 | 2.1 | 2.1 | 20.9 | 1.2 | 0.8 | 1968 I |
| 18.7 | 12.6 | 16.8 | 6.0 | 55.7 | 2.1 | 4.0 | 9.6 | 1.3 | 2.4 | 22.2 | 1.1 | 1.4 | II |
| 18.8 | 16.1 | 16.5 | 7.4 | 60.6 | 3.3 | 4.2 | 9.8 | 2.0 | 2.6 | 24.8 | 1.0 | 1.6 | III |
| 17.0 | 14.2 | 19.4 | 6.2 | 58.4 | 4.8 | 5.3 | 10.6 | 2.5 | 2.9 | 29.1 | 1.1 | 0.9 | IV |
| 19.0 | 11.2 | 17.4 | 4.9 | 53.6 | 2.6 | 4.0 | 10.9 | 3.5 | 1.4 | 24.7 | 1.0 | 1.1 | 1969 I |
| 16.2 | 14.9 | 19.3 | 6.9 | 59.2 | 3.0 | 4.9 | 12.1 | 4.2 | 3.4 | 29.9 | 1.7 | 1.2 | II |
| 17.4 | 15.9 | 18.6 | 6.9 | 60.3 | 5.8 | 5.7 | 12.1 | 3.0 | 3.3 | 32.6 | 2.0 | 2.1 | III |
| 17.2 | 16.3 | 20.9 | 6.8 | 62.9 | 4.9 | 7.6 | 11.9 | 4.8 | 3.7 | 35.0 | 2.1 | 1.7 | IV |
| 21.3 | 13.4 | 21.4 | 4.9 | 62.2 | 4.5 | 5.8 | 12.9 | 4.6 | 2.9 | 33.3 | 2.4 | 1.7 | 1970 I |
| | | | | | | | | | | | | | II |
| | | | | | | | | | | | | | III |
| | | | | | | | | | | | | | IV |
| Quarterly Totals Seasonally Corrected | | | | | | | | | | | | | |
| 13.9 | 11.4 | 12.4 | 5.2 | 44.4 | 3.7 | 3.6 | 6.5 | 1.1 | 2.6 | 18.9 | No | No | 1967 I |
| 19.0 | 12.4 | 12.9 | 5.9 | 51.8 | 3.6 | 3.1 | 6.4 | 1.3 | 1.7 | 18.8 | | | II |
| 20.8 | 12.2 | 12.4 | 6.0 | 51.7 | 4.0 | 2.6 | 6.4 | 1.0 | 2.1 | 17.3 | Seas- | Seas- | III |
| 18.8 | 12.0 | 14.4 | 6.9 | 52.2 | 3.0 | 3.1 | 6.8 | 1.0 | 2.0 | 20.6 | onal | onal | IV |
| 16.7 | 12.9 | 16.2 | 5.3 | 53.7 | 1.8 | 4.3 | 8.5 | 2.1 | 2.6 | 20.2 | | | 1968 I |
| 22.5 | 13.5 | 16.4 | 5.2 | 58.7 | 2.9 | 5.0 | 10.0 | 1.3 | 2.5 | 24.4 | Pattern | Pattern | II |
| 18.9 | 13.3 | 17.0 | 6.4 | 56.1 | 3.3 | 4.1 | 9.6 | 2.0 | 2.3 | 22.9 | | | III |
| 17.1 | 13.6 | 19.2 | 7.2 | 58.0 | 3.8 | 4.5 | 10.1 | 2.5 | 2.6 | 29.8 | | | IV |
| 17.0 | 13.8 | 17.4 | 6.1 | 56.4 | 2.9 | 3.8 | 11.0 | 3.5 | 1.6 | 24.3 | | | 1969 I |
| 19.3 | 16.2 | 18.9 | 6.1 | 62.4 | 4.2 | 5.9 | 12.4 | 4.2 | 3.5 | 32.8 | | | II |
| 17.5 | 15.2 | 19.2 | 5.9 | 56.1 | 5.5 | 5.6 | 11.9 | 3.0 | 3.0 | 31.0 | | | III |
| 16.4 | 13.3 | 20.6 | 7.6 | 61.2 | 3.7 | 6.8 | 11.7 | 4.8 | 3.4 | 34.3 | | | IV |
| 19.2 | 16.5 | 21.2 | 6.1 | 65.0 | 5.6 | 5.7 | 13.0 | 4.6 | 3.4 | 33.3 | | | 1970 I |
| | | | | | | | | | | | | | II |
| | | | | | | | | | | | | | III |
| | | | | | | | | | | | | | IV |

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