

Short-Term Economic Forecasting

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PART I: GENERAL CONSIDERATIONS

The main purpose of short-term economic forecasting is to try to assess prospective economic conditions as a guide to the policy required to maintain economic activity at the highest sustainable level. The period of the forecast is usually one of nine to twelve months, i.e., to the end of the calendar or fiscal year ahead. This distinguishes it from the type of forecasting, or more properly programming, in which targets or aims covering a period of years are set.

As a result of general acceptance of Keynesian theories, governments since the end of the war have become increasingly concerned with problems of economic growth and demand management. This has called for a continuous review of economic trends so that the implications of various alternative policies can be assessed. Intelligent decision-taking by the government—just as in the case of private individuals or business firms—must rest on a view of all the salient facts. It must obviously rest also on a view about the future, in particular a view about the appropriate pressure of demand as given by the prospective relationship between total demand and total supply. Short-term forecasting provides a framework in which all the ascertainable facts and predictions in connection with future trends are assembled. In the absence of knowledge of what is happening in the economy and without an informed view of its likely performance in the months ahead, government policy cannot be intelligently formulated to further the economic objectives considered necessary. Alfred Marshall stated that a chief purpose of every study of human action should be to suggest the probable outcome of present tendencies and thus to indicate, tacitly if not expressly, such modifications of those tendencies as might further the well-being of mankind.

It is chiefly in connection with the formulation of fiscal policy at budget time that short-term economic forecasts are most useful from the point of view of management of the economy. This is particularly true in Ireland where the room for manoeuvre in monetary policy is at present limited and reliance has to be placed mainly on fiscal policy. The budget is the most effective instrument available for management of the economy and short-term forecasts are an invaluable aid to the making of budgetary decisions.

Another important purpose of short-term economic forecasting is to provide information about the progress of the economy towards longer-term objectives. This is of special relevance to countries, such as Ireland,

with long-term programmes or plans of economic development. It may too have other subsidiary uses. In the Netherlands, for example, short-term forecasts play a part in the process of wage determination.

The growing importance of short-term forecasting in relation to fiscal control arises from the fact that the budgets of central governments in nearly all countries since the last world war have become much more than an arithmetical exercise of balancing current expenditure and revenue and gearing public capital expenditure to available financial resources. Even from the narrow viewpoint of government finance, public sector expenditure is now so vital a factor in the national economy that it is impossible to construct a budget for exchequer revenue and expenditure without at the same time forming a view of the national economy as a whole. With the assumption by the State of responsibility for not alone maintaining overall economic balance but indeed in this and other countries of responsibility also for conscious economic development, the central government budget has in fact become an instrument for central direction of the economy. Because of this new role, the whole economic situation has to be assessed and projections of the main economic trends made to try to ensure that the *overall* financing of the budget is consistent with the objective of promoting and maintaining the maximum feasible rate of economic advance. Changes in taxation and government spending should fit in with these considerations.

Demand management, to be effective, requires the prior development of suitable tools of analysis. These have been made available mainly as a result of the great improvement after the last world war in the range, frequency and quality of statistical data. This has been especially true of the national income accounts which are so important in this field. The national income data fit nicely into the theoretical framework that has been developed as a basis for economic analysis. They provide a comprehensive measure of the level of economic activity and much detailed information about the various components of demand which determine that level.

Methods of short-term economic forecasting vary widely. They range from the simple and naive to the elaborate and sophisticated but neither simplicity nor sophistication guarantees accuracy. The forecasting may be done, for example, on the basis of a question and answer technique, intuition or hunchmanship, extrapolation of past trends, the use of business cycle indicators or statistical series which past experience has shown are a guide to cyclical fluctuation, or the use of the national income accounting framework to derive quantitative forecasts on the basis of either an eclectic or econometric approach. Whatever the methodology employed, economic forecasting is an attempt to predict, on the basis of certain assumptions,¹ the relationship between total demand and the capacity available to meet it.

Before the second world war, techniques were so imperfect and the statistical data so limited that most macro-economic forecasts, irrespective of the method used, were the result of a process which was almost in-

¹ Any assumption that will predetermine the result must, of course, be avoided.

tuitive Nowadays, most countries have developed the necessary statistical tools and rely mainly on the national income framework as a foundation for economic forecasting. The national income accounting procedure has many advantages over other methods whether an eclectic or econometric approach is employed. First, it provides a framework for quantitative analysis. Secondly, it ties down the forecaster to the necessity for balancing the overall accounts and observing all the known relationships. Thirdly, estimates of the main components of national income and expenditure aggregates may be built up independently on the basis of incomes, output and expenditure and the results then checked for internal consistency. The use of the national income accounts ensures that the forecaster takes account of the whole economic situation and not just part of it.

Apart from the Netherlands, reliance on expert appraisal of the sources of information available has so far been preferred in most countries to the use of econometric models for short-term forecasting. This preference is justified mainly on the grounds (i) that many of the factors that affect economic conditions in the actual world are not readily subject to mathematical treatment and econometric models, therefore, cannot take account of specific influences affecting such factors and (ii) for short-term forecasting there is direct information about probable future trends, such as the level of government expenditure and investment intentions, which makes it unnecessary to have recourse to econometric models with their precisely-stated quantitative relationships. "Feel" of the situation is very important in short-term forecasting and the informal or flexible approach by which judgments are expressed quantitatively in terms of the expected levels of demand and supply allows maximum scope for imagination and judgment in contrast to the rigidities of the mathematical processes employed in the use of econometric models. The fact that computers have a superhuman ability to do sums does not mean that they have independent judgment. The formulation of accurate relationships and provision of accurate data are human responsibilities. It is men who make all the important assumptions, the machine merely calculates the effects of these assumptions in a given environment.

Short-term forecasting by informal methods within the framework of the national income accounts is built up on the basis of all the evidence available. The accuracy of the various projections depends, of course, on the weight given by the forecaster to the various items of information. The procedure begins with an examination of the strategic sectors and the main factors that influence them and, on the basis of the provisional forecasts obtained, works through the various succeeding stages to derive forecasts of the complete national income and expenditure aggregates. With this approach, attention is directed to both the important forces affecting activity and the derivative changes that the operation of those forces will call forth. It is essentially an arithmetical method—a process of successive approximations. In seeking the right solution through successive approximations, initial forecasts of various factors are reopened for reflective judgment. Once a result is obtained, the validity of all the initial judgments and computations can be checked for consistency and

corrected before the next approximation is taken. The end-result should be a forecast internally consistent and incorporating all that is known about the special forces affecting each important sector.

In contrast to the arithmetical and successive approximation procedure of the informal approach, the use of econometric models involves a system of precisely-stated quantitative relationships from which forecasts are derived by solving simultaneous equations. The case for the use of econometrics in short-term forecasting is that, while the forecast of variables must be based on qualitative and implicit functional relationships, there is no way of testing these relationships against reality, unless the assumptions underlying them are set out quantitatively. Bassie,² however, states that "the more a function is complicated by additional variables or by non-linear relationships, the surer it is to make a good fit with past data and the surer it is to go wrong at some time in the future". This seems an exaggerated view but the record of econometric models in the field of short-term forecasting is not particularly impressive. Moreover, as stated above, there are always special factors affecting the short-term economic situation which cannot be satisfactorily quantified and cannot be taken into account if the forecaster relies on an econometric model.

The flexibility of the informal method gives it, to my mind, a considerable advantage over the use of econometric models for *short-term* forecasting. For forecasts extending over two years or more, however, econometric models are invaluable because little direct information about conditions so far ahead is available and the forecasts have to be based on presumed conditions more or less explicitly stated. Econometric models are in fact extensively used for long-term programming.

In most countries short-term forecasts are on the basis of a whole year, either the fiscal or calendar year. In the United Kingdom and the United States, however, forecasts of gross national output and expenditure are made in quarterly terms, i.e., they relate to the position in the last quarter of the period covered rather than to changes in the course of the year as compared with the preceding twelve months. In these countries the period covered ranges from six to eighteen months depending on the time the forecast is made. Short-term forecasting on the basis of the calendar year has its drawbacks since economic changes rarely follow the course of the calendar year and an annual figure can mask developments within the year. It is doubtful, however, whether forecasting on the basis of quarterly figures represents much improvement, as reliable figures for quarterly national accounts have not been achieved in any country. Initial quarterly aggregates are nearly always subject to substantial revision and any forecasts based on such figures must be regarded with the greatest reserve. In any event, quarterly estimates of national income are not really feasible for countries such as Ireland with a large agricultural sector, the output of which is seasonal. The difficulty may be visualised easily when it is realised that to arrive at an appropriate figure of output, national accounts

² Article by V. Lewis Bassie, in "*Short-term Economic Forecasting*", *Studies in Income and Wealth*, volume 17, page 35.

theory would require estimates to be made of the product generated in respect of growing crops each quarter¹

A possible way out of this difficulty would be to forecast gross national product, excluding agriculture, on the basis of projected developments quarter by quarter. In the more advanced countries in which agriculture accounts for, say, less than ten per cent of total production this could give worthwhile results provided reasonably reliable quarterly data on current trends were available. There is a snag, however, in this procedure. Other sectors, in particular the construction sector, are also subject to wide seasonal variations in many countries. Having regard to the possibility of serious errors in forecasting on a quarterly basis, it would seem preferable to rely on full-year forecasts, despite their imperfections, until national income accounting has made further substantial advances. The implications of forecasts on the basis of the calendar or fiscal year can be reassessed quarterly or even more frequently with the aid of various economic indicators. The trend of imports and exports, the behaviour of prices and the level of industrial activity, to mention but a few, can tell a lot about the direction the economy is taking within the year.

Apart from the period covered by the forecast, there is the question of the frequency with which short-term forecasts should be made. Forecasting is essentially continuous in nature and the predictions require modification and adjustment as the economic scene changes. Except in the United States, where full forecasts are made every quarter, and Canada, where forecasting is relatively continuous, most developed countries in the West adopt the same procedure. They have a forecast prior to the budget made on the basis of unchanged policies, a second some months later, which takes account of the budgetary decisions, and a third some months later again when a first tentative assessment of the economic situation in the following twelve months (eighteen months in the case of the United Kingdom) is also usually made.

Short-term economic forecasting is beset with difficulties but, no matter how imperfect our ability, the attempt must be made to predict the future as a guide to policy in this complex dynamic world of ours with its booms and slumps and recurrent need to accelerate or brake. Otherwise, in a situation calling for, say, corrective measures, action would have to be deferred until all indicators pointed that way. Drastic steps might then be necessary which could have been avoided if the unfavourable situation were predicted and brought under control at an early stage. It is a fundamental principle of fiscal and monetary policy that "a stitch in time saves nine". It is true that at times when the economy is undergoing violent change as a result of internal or external developments short-term forecasts could prove so inaccurate that they might actually mislead the policy-maker. This chance has to be taken. The quality of short-term predictions will inevitably improve with the development of statistics and better knowledge of the behaviour of the economy and the relationships between the different forces operating on it.

Apart from regular reviews of the short-term economic situation, it is also necessary, since government policy cannot be effectively altered

every day, or indeed in every budget, to have long-term plans for stable growth. Otherwise there is the danger of the retarding effects on growth of the stop-go policies which some countries have suffered from in recent years. Aims or targets, however, can be achieved and expectations fulfilled only if the economy continues to run smoothly. It is the purpose of short-term economic forecasting to assist in achieving this, if the economy leaves the rails, it is difficult to get it back.

PART II: IRISH SHORT-TERM ECONOMIC FORECASTING

Introduction

Although forecasts have not been published, economic and fiscal policy in Ireland has rested for many years on explicit predictions of the course of the economy. Since the early 1950s the Department of Finance have carried out regular projections of the economy from the macro-economic point of view. The Minister for Finance in his 1950 Budget stressed the importance of these surveys when he said

“One of the primary responsibilities of a government is to promote, by an enlightened budgetary and investment policy, the continuous and efficient use of national resources in men and materials. A sound economic system is an essential condition of progress but, unfortunately, the automatic working of economic forces does not guarantee that available resources will adequately and unfailingly be employed to advance the national interest. The modern democratic State is, therefore, rightly expected not only to maintain the essential liberties of its citizens but to take an active part in securing conditions favourable to their material well-being. This entails a continuous survey of the economic and social scene”

The publication of national income and expenditure figures on a regular annual basis by the Central Statistics Office from 1950 made it possible to undertake these surveys. Over most of the 1950s the economic budget or short-term macro-economic forecast was prepared as an inflationary/deflationary gap calculation on the basis of an assessment of the prospective overall supply and demand situation. In recent years it has been the practice to prepare more elaborate short-term predictions of the likely outturn in the main sectors of the economy and of the impact of the main forces of demand and supply and from these to build up projections of total national income and national expenditure.

The objective of current financial policy in this country, as defined in the Second Programme for Economic Expansion,³ is to maintain adequate—while avoiding excessive—demand as a basis for maximum economic advance. The Programme states that the maintenance of adequate demand in the sense of productive activity at the highest rate consistent with a competitive level of prices and costs and a reasonable degree of external balance cannot be expected to be automatic. It is constantly in danger of being upset by both external and internal forces. If demand should begin

³ Part II, Chapter 15.

to fall below the desirable level the government will be concerned to ensure that appropriate action is taken to make good the deficiency by fiscal measures, increased public capital expenditure or other means. The opposite situation—an excessive increase in demand—must also be guarded against. Obviously, continuous review of the current and prospective situation is essential if this policy objective is to be attained.

Short-term projections of the likely trend of events in the economy from the macro-economic point of view are prepared in the Department of Finance at least twice and often three times a year. The forecasts are made following close consultation with the Central Statistics Office and informal consultations, whenever necessary, with other departments. The first exercise is carried out in February in order to have available before the budget a statistical picture of the economy extending to the end of the calendar year. The projections and the reasoning behind them are then discussed between departmental officials and a small group of outside economic consultants and a composite view of the economic climate ahead obtained. The Director of the Central Statistics Office attends the meetings with the economic consultants. Particular attention is paid to the key projections of the growth rate and the balance of payments outturn. The Minister for Finance in his 1964 budget speech described the purpose of the pre-budgetary assessment in that year as “to help in framing the budget in such a way that economic growth will be sustained at a high rate without too great a deficit being incurred in our external payments”. Because of our open economy—imports and exports of goods and services represent over 80 per cent of gross national product—the likely impact of demand pressures on the external account is of special significance.

The February or pre-budgetary assessment is usually reviewed in June, especially if the trade figures or other economic indicators point to signs of strain or stress in the economy. The June forecast takes account, of course, of the budgetary measures. The situation is always reassessed in the second half of the year from the macro-economic point of view, usually in October-November, when the detailed estimates of national income and expenditure for the previous calendar year become available.

Apart from the projections of total national income and expenditure as a guide to policy, regular and careful watch is maintained on the various economic indicators issued weekly, monthly or quarterly by the Central Statistics Office showing the trend, *inter alia*, of imports and exports, agricultural and industrial production, activity in construction, employment and unemployment, emigration, retail sales, prices and wages and earnings. On the monetary side quarterly banking statistics are available from the Central Bank. With this information it is possible in the autumn to evaluate with a reasonable degree of assurance the performance of the economy in most sectors in the year under review. At this time tentative predictions of likely developments in the following year are also made.

In addition to the Department of Finance projections, the Economic Research Institute has since 1961 published papers forecasting short-term trends in the economy. Dr. A. Kuhn was responsible for the 1961 and

1962 projections⁴ and Dr C. E. V. Leser for those in 1963 and 1964⁵. Another recent development has been the initiation by the Central Bank in its *Quarterly Statistical Bulletin* for January 1963 of a series of estimates of national income and expenditure for the preceding year in anticipation of the official CSO estimates. These are based on the supply-of-money approach to national income.

As mentioned earlier, the short-term forecasts as a guide to policy prepared in the Department of Finance have not been published. The Minister for Finance in his budget speeches gives, however, a general view of the outlook for the calendar year ahead on the basis of the pre-budgetary projections. In Britain predictions about the future have now also to be read between the lines of the Chancellor's budget speech. Up to 1963 official predictions of the course of the economy were made in the "Economic Survey" published before the budget. This procedure was dropped in 1963 and the "Economic Report" which replaced the "Economic Survey" in that year is concerned with the past, like most of the other official documents issued prior to the budget. Some countries, e.g. the United States, the Netherlands, Sweden and France, publish at least some of their official forecasts. In Ireland we have some distance to go in the field of publication before reaching the position of having a disedifying proliferation of contradictory forecasts¹.

With the publication of the Second Programme for Economic Expansion and the establishment of the National Industrial Economic Council (NIEC) the need has arisen in this country for an extension of the present formal arrangements for the preparation of macro-economic projections. The NIEC in its second interim report on "Procedures for continuous review of progress under the Second Programme for Economic Expansion", published in June 1964, says that it believes that "the flexible, timely and rational adaptation and modification of the framework of the second programme is an essential element in its effective execution" and for this purpose adequate information will be required in order to keep the performance of the economy under continuous review. It recommends an annual review of the economy at the macro-economic level and suggests that the Department of Finance, after consultation with the Central Statistics Office and other departments and with the Economic Research Institute, should make available to the Council, for consideration at its February meeting in each year, a report describing what happened to output and employment in the main sectors, to costs, incomes, savings and prices, and to private and public consumption, investment, exports and imports in the previous year and indicating the main developments expected in the year that lies ahead.

This recommendation has been accepted by the government and it is intended that every February the Central Statistics Office, the Economic Research Institute and the Central Bank will be invited to take part in a conference to discuss macro-economic projections prepared in the Department of Finance on the basis of stated assumptions and judgments.

⁴ Economic Research Institute Papers, nos. 2 and 6.

⁵ Economic Research Institute Papers, nos. 15 and 21.

Following consideration of the projections by the conference a final version will be prepared for the NIEC. The customary pre-budgetary consultations with independent economists and forecasts of economic prospects by the Department of Finance in the summer and autumn will continue as heretofore.

Method of Forecasting

The national income and expenditure framework is used by the Department of Finance in assessing macro-economic prospects. Projections of total national income and total national expenditure are built up independently by estimating their main components.

Qualitative judgments play a very important part in the process. These are based on extrapolation of past trends, views on various relationships which hold good in the economy, e.g. between real disposable income and consumer spending, the facts available about supply and demand at home and abroad and other aspects of the economic position and also to a very appreciable extent on "feel" of the situation. "Feel" of the situation comes into play in regard to the weighting given to the various pieces of evidence available and in testing and synthesising the estimates obtained from the different methods used. It is precisely here that judgment is all-important. Expressing the various qualitative judgments in quantitative terms within the national income framework imposes a discipline on the forecaster, ensures that all the implications of the various judgments are taken fully into account and makes for an internally consistent forecast, though, of course, it does not guarantee its validity.

In arriving at an aggregate forecast of the value of gross national product by the income approach regard is had to the likely trend of production considered from both the demand and supply sides. Independent forecasts are made of employee and other factor income (profits, etc.) arising in both the agricultural and principal non-agricultural sectors as well as of net factor income earned abroad (wages and salaries, pensions, profits, etc., and emigrants' remittances).

Income from Agriculture

The projection of employee income in agriculture gives little trouble. The total has changed little in recent years, the rising level of wage rates being offset more or less by the secular decline in employment.

On the other hand, the forecasting of trends in farmers' incomes is particularly hazardous especially at the beginning of the year when the first set of projections are prepared. The vagaries of the weather can affect output to a considerable extent not alone in regard to crop production but also in regard to livestock and livestock products, particularly milk and beef output. The best that can be done is to postulate average weather conditions.

Another factor on the supply side to be taken into account is the fact that taking one year with another livestock numbers can only increase at a relatively slow rate. If, for instance, an exceptionally large number of

cattle are exported in one year, the depletion of the cattle herd will take some time to make good. Even if ample markets for cattle are available, supplies will not be forthcoming till further numbers are born and reared to an age at which they can be disposed of unless stocks are run down abnormally. So far as cattle and beef are concerned, demand considerations are the determining factor in the short-term.

On the demand side, the limiting factor is, of course, what markets will be available for our products. Since our domestic economy is small and consumption of food relatively stable this resolves itself in the main into an enquiry about how *export* markets for our products are likely to shape. This question has to be studied from a number of aspects, first, competitiveness, i.e., whether our products will be attractive from the point of view of both price and quality, secondly, whether we will have a reasonable degree of access to foreign markets—an important question in view of the limitation on agricultural imports into many countries, thirdly, the supply position of our competitors, and, finally, what is the state of prosperity of export markets.

This final aspect, the state of demand abroad, especially for live cattle and beef in Britain, is the most important of all on the demand side. All available information is assembled in regard to the current position in that market and an effort is made to determine the underlying trends. Prices have, of course to be examined first. If they are likely to remain favourable it is probable that farmers will be encouraged to dispose of their stocks during the year, if unfavourable, they may prefer to hold on to them. To determine the likely trend, it is necessary to take into account the state of supply from domestic British producers and from external sources other than this country. The fodder position in Britain in relation to the market for stores and many other such considerations have also to be taken into account. Then the general state of health of the British economy has to be examined since if incomes are rising steadily the demand for meat will be greater, while in a static situation one would expect the demand to show little, if any, improvement. The state of markets abroad for some other important agricultural products is also reviewed. On the basis of all these factors, a figure of the prospective change in farmers' profits is arrived at.

By the time of the autumn projection the position regarding agricultural output and incomes is, of course, a good deal clearer. Various indicators of the trend of output and prices in the course of the year are then available. There are estimates of output of the main crops and for livestock and livestock products fairly reliable estimates can be made of exports from the monthly trade returns. Changes in cattle stocks are estimated by adding to stocks at the beginning of the year the number of births (taken as cattle under one year in June) less estimated disposals (net of imports) and mortality. The output of sheep is estimated in the same way as for cattle. Indicators are also available in respect of other important items of output such as milk and pigs. From all these trends an estimate of gross agricultural output can be derived. To derive net agricultural output an estimate of seeds, feeding stuffs and fertilisers must be subtracted. An

estimate of the seeds used is based on the acreage of crops. Firm figures are available for the quantities and prices of fertilisers since inputs of fertilisers in the crop year ending the previous 30th June are used. Up-to-date estimates of the production of compound feeding stuffs, together with imports, enable estimates of inputs of feeding stuffs to be made. For other agricultural expenses, which must be subtracted in order to derive agricultural income, extrapolations are made, taking account of available data on specific items such as rates.

Non-Agricultural Income

Industry is by far the most important sector of non-agricultural activity. In 1963 it accounted for 42% of non-agricultural domestic income and 30% of total national income.

Projection of the change in total income arising in industry is arrived at in two ways. First, a forecast is made of the volume of production and of the expected change in prices. Secondly, independent assessments are made of changes in employee income and profits. Both methods give a projection of the total change in income arising in the sector. The forecast of employee income is on the basis of the likely trends in earnings and in numbers employed, while the forecast of profits is based on extrapolation of past trends and expected developments in regard to wage pressure and other factors such as the level of demand. For the pre-budgetary projection, when little, if any, data is available on the economic situation in the year under review, reliance has to be placed on the cross-check provided by these two methods and the process of successive approximations in the hope that a reasonably accurate forecast will emerge. For later forecasts, however, especially that made in the Autumn, a considerable amount of data regarding trends in the industrial sector is available for assessing trends in both output and income.

In assessing the likely change in incomes from the production side, both supply and demand factors have to be taken into account as in agriculture. The supply factors are not so important in this country as elsewhere, since there is no indication yet that there is pressure on resources of capital or manpower. Industrial capacity still seems to be capable of further extension without strain while our unemployed are relatively large in numbers.

The real question-mark in regard to industrial output hangs over the demand aspect. Despite rising standards with increasing prosperity at home, most of any increase in transportable industrial output, accounting for about three-quarters of total industrial production, must be sold abroad because of our limited home market and static population. The questions to be asked then are (i) whether our goods will remain competitive and (ii) whether foreign markets will be buoyant or stagnant. Both of these require a review of conditions abroad—in Britain, of course, since she is our main market, and also in Continental European countries and in America. If output and demand are rising at a significant pace in these countries the outlook is good for our industrial exports and, therefore, for our industrial output, provided the prices at which we are selling are competitive. To come to any tentative conclusions about competitiveness

we have to take account not only of any prospective rise in domestic costs but also of the costs of our competitors abroad. It is, obviously, not the absolute change in costs in this country alone that is important but their relationship to costs elsewhere.

The exact effects of a British recession or boom on production in this country have never been worked out. One would, *prima facie*, expect that because of the open nature of the Irish economy, it would, for example be depressed if Britain's economy is stagnant. This, however, has not been the position in recent years. The average annual rise in the volume of gross national product over recent periods has been as follows

	1954-1957 (incl)	1959-1963 (incl.)
	%	%
Ireland	0.7	4.3
United Kingdom	2.7	2.8

On the other hand there is obviously some relationship as the following figures of the annual increase in the volume of GNP for recent years show

	1959	1960	1961	1962	1963
	%	%	%	%	%
Ireland	4.4	5.4	4.7	2.9	4.0
United Kingdom	3.5	4.3	3.3	0.2	2.9

In these years the table shows that when the rate of increase in output rose in the UK as compared with the preceding year, the same phenomenon occurred here, while, if the rate of increase dropped, our rate slackened also. In preparing the projections it is safe, therefore, to assume that an increase in activity in Britain will have a stimulating effect on our industrial production and exports and that a contraction of activity may have some adverse repercussions, though not to the point of causing depressed conditions here.

When prospects for the competitiveness of our products and demand abroad have been assessed, we are in a better position to project increases in income in the industrial sector on the basis of changes in the volume of production and prices. The quarterly estimates of the volume of output in manufacturing and transportable goods industries in the previous year and the annual Census of Industrial Production returns for preceding years, together with the various price indices are, of course, also of some value in assessing the probable trend at the time of the pre-budgetary forecast. For the June forecast, and more so the October forecast, some data for the year under review on the volume of production in manufacturing and transportable goods industries and on the trend in prices of materials used and of output are available for the projection of total income.

An assessment is also made of the prospective volume and value of activity in building and construction which accounts for some 20 per cent of the total output of industry. In the past this industry has shown consider-

able variation from year to year. Weather conditions in the winter and spring can have an appreciable effect on output. Apart from this factor, output is conditioned by the demand for houses, factories, offices, hotels, roads and bridges and other construction work. Projection of trends is especially difficult in the early part of the year. Reliance must be placed then on the expenditure plans of the State and local authorities for housing, roads and other construction and on the intentions of the private sector regarding major building projects. For the June and Autumn forecasts a number of indicators are available. Useful trends are disclosed by the monthly statistics of employment derived from the sales of wet-time stamps,⁶ the monthly figures of the numbers employed on construction works of local authorities, the statistics of production of building materials (cement, bricks, etc.) obtained from the quarterly inquiry into transportable goods industries and the monthly series of houses built and in course of construction. These give a good line on the prospective change in the volume of production for the year as a whole and, using relevant wholesale price index numbers, an estimate of income from building and construction activity can be derived.

The alternative method is to project factor income directly for the industrial sector as a whole. As regards remuneration of employees, the wages climate must first be examined to see what are the prospects of a further general increase in wages and salaries and, if so, how much is it likely to amount to and for how much of the year will it be in operation. To arrive at conclusions on these matters a whole host of questions must be considered. Has there recently been a rise in wages? If so, have the full effects of the wage round been felt? Is there likely to be stability in earnings following this round apart from normal wage drift?

When these and other relevant factors have been assessed, a forecast is made of the likely increase in incomes of the existing industrial labour force. This has then to be increased to take account of a rise in employment in the industrial sector if this is anticipated. The size of the increase is a matter for rough estimation and takes account of the probable rise in industrial output and in output per worker in relation to past trends.

The forecast for profits in industry will, of course, be closely connected with and largely derived from the predicted trend in production and in employee incomes. If, as in 1964, a substantial increase in wages and salaries is anticipated because of a wage and salary round, the expectation is that there will be some tightening of profit margins.

For the Autumn forecast a total for employee income can be derived from the data on movements of wage and salary rates and earnings and on the change in employment during the first half of the year. The forecast of the trend in profits can be checked against the profit figures of public companies published during the year.

The non-agricultural sector outside industry covers distribution, transport and communication and various services comprising a wide

⁶ Building workers are insured against loss of work due to bad weather. Sales of supplementary insurance stamps which must be affixed to wet-time books give an indication of the trend of employment.

variety of activities ranging from banking, insurance, teaching, entertainment and other personal services to public services such as administration and defence. In these sectors there is much less to go on in preparing forecasts of output. A number of economic indicators, e.g. the index of retail sales in the case of distribution, offers some guide to activity but, generally, only very broad conclusions can be drawn. Reliance is placed mainly on the projection of incomes and profits which are worked out on the same lines as for industry.

Income from Abroad

The sum of incomes in agriculture, industry and the remaining sectors gives a total for domestic income. To obtain total national income, a forecast of factor income from abroad must be added. This arises under three heads, viz., net inflow of profits, wages, salaries and pensions and emigrants' remittances. The aggregate of these various items has not varied much from year to year—no more than £1 to £2 million up or down—and foreign income is not, therefore, too difficult to forecast.

Adjustment for Stock Depreciation

There is one final calculation necessary to arrive at a figure for national income. In accordance with international practice only the value of the *volume* change in stocks is taken into account for national income purposes and, accordingly, an adjustment has to be made for the change in the value of non-agricultural stocks arising from *price movements* alone. This is based on the trend in certain wholesale index numbers.

Gross National Product at Current Prices

The sum of the projections of all these items gives a forecast of national income or net national product at factor cost. To obtain the value of *gross* national product at factor cost an allowance must be made for depreciation or that part of the nation's assets which has been used up in the current production of goods and services. Finally, to obtain the value of gross national product at market prices, i.e. in terms of the prices actually paid, which is the most convenient valuation and the one generally adopted, any indirect taxes on expenditure and subsidy payments must be accounted for. Valuation at market prices differs from factor cost by the amount of indirect taxes less subsidies. When estimates of these have been made, a figure for gross national production at current market prices has been built up.

Gross National Expenditure

When the value of gross national product has been tentatively projected, an independent assessment is then made of gross national expenditure which is what the community spends on consumption goods and services and on gross investment, less the net inflow of goods and services from the rest of the world. This is done by building up estimates of all the main constituents, viz. personal expenditure, current expenditure of public authorities, domestic fixed asset formation, the value of the physical

change in stocks and of imports and exports of goods and services.

A direct assessment is made of personal expenditure. For the pre-budgetary forecast, estimates are made of the change in the value of consumption on the basis of trends in retail sales at current values and the relationship between disposable income and consumer spending. Past experience indicates some time-lag between a rise in incomes and in consumer spending. For the later forecasts other economic indicators besides the retail sales index, such as car registrations, provide supplementary data. The forecast of net current expenditure of public authorities is based mainly on the estimates of expenditure in the public services for the financial year.

The projection of fixed asset formation is based to a large extent on prospective expenditure on the public capital programme (this accounts for about 50% of the financing of total fixed asset formation) and on information about investment intentions in the private sector. For the later forecasts, estimates of domestic capital formation (houses, other building and construction and plant and machinery) and of imported capital goods are built up from estimates of the trend of production of capital goods derived from the Census of Industrial Production and from merchandise trade figures.

Stocks are the most difficult of all the aggregates to forecast. Projections are in fact purely guesswork. However, in making the guesses regard is had to certain probable developments—how cattle stocks are likely to be affected by the trends in exports and output and how the business climate is likely to be reflected in changes in industrial stocks. The level of activity, particularly in manufacturing industry and in building and construction, is a pointer to the change in non-agricultural stocks.

“Feel” plays a big part in the projection of exports and imports of goods and services which give the prospective outturn on the current account of the balance of external payments. For the pre-budgetary forecast, extrapolation of past trends, assessment of economic conditions abroad and the prospects for cattle output as revealed by the January livestock enumeration are some of the important factors taken into account in projecting merchandise exports while in the case of merchandise imports the level of domestic demand (imports account for over 40 per cent of GNP) is a guide to consumer imports, the volume of industrial production to imports of raw materials and semi-manufactures and investment intentions to imports of capital goods. For later forecasts, the monthly trade figures are available as an indication of the likely outturn for the full year. The assessment of prices or the terms of trade is particularly important in our circumstances because of our large turnover of external trade; the favourable turn in the terms of trade in 1964 should assist the balance of payments by some £5-6 million. On invisible account, both export and import, the two main items to be considered are tourist expenditure and investment income. Both tourist income and outgo have been trending steadily upwards in recent years and past trends have been generally a fair guide to prospects ahead. Any major development to attract tourists, such as the car ferry service by boat from Britain to be

introduced in 1965, is, of course, taken into account. The projection of investment income and outgo depends mainly on the level of interest rates and the level of profits

As gross national expenditure is equal to gross national product this calculation acts as a check on the results arrived at for gross national product on the basis of the income approach. If the totals obtained from the two methods show any wide divergence the calculations are redone and the results synthesized to give the most reasonable forecast in the light of all the information available

Volume of Gross National Product

To arrive at the change in the *volume* of gross national product, the separate constituents of national expenditure must be adjusted for any anticipated changes in prices. Price changes, e.g. consumer prices, wholesale prices and import and export prices, have already been assessed in arriving at the total of national expenditure at current prices. A large increase in gross national product at current prices need not indicate any increase in the volume of total production available for consumer spending, domestic capital formation or external investment if prices have risen appreciably. The elimination of changes in money values also helps year-to-year comparisons. This is done by deflating expenditure rather than output because of the difficulty of measuring the output of education services, transport, etc. The constituents of expenditure are deflated separately. Personal expenditure is deflated by the consumer price index and current expenditure of public authorities by a weighted average of the index of wage rates for public authority employees and the general wholesale price index in the ratio of about 3 : 1. Fixed asset formation is deflated by an index of the prices of capital goods. Visible exports and imports are deflated by the export and import unit price numbers respectively while invisibles, both import and export, are deflated by the consumer price index.

The resultant overall rise in the volume of national production can be checked at this point by rough sectoral calculations of the likely growth in the economy, viz. in agriculture, industry and other non-agricultural activity which contribute approximately one-fifth, three-tenths and one-half of total national income.

Another check is provided by broad calculations of the likely percentage increases in national productivity and employment which together add up to the percentage increase in the volume of national production. This enables the forecaster to see whether the projected rise in the growth rate is reasonable from this point of view.

Savings and Capital Formation

Finally, a table of savings and capital formation is prepared in which gross domestic physical capital formation is equated to the total amount available for investment. Assessments of the changes in fixed asset formation and stocks which give the total gross domestic capital formation have already been made for the projection of national expenditure. The

amount available to finance domestic capital formation is the sum of current savings, provision for depreciation and net foreign disinvestment. An allowance for depreciation has been made in arriving at an estimate for gross national product while the figure for net external disinvestment, plus or minus, has been arrived at in calculating national expenditure. The difference between the totals of these two items and the value of total gross capital formation represents total current savings. This is a pure residual. The figure, however, can be checked roughly, at least in the case of the forecast in the autumn, against the trend in such categories of monetary savings as deposits in the trustee and Post Office savings banks, sales of savings certificates, subscriptions to prize bonds, interest-bearing deposits in the commercial banks, life assurance premiums and cash subscriptions to private share issues.

PART III: SHORT-TERM FORECASTING IN OTHER COUNTRIES

In this part of my paper an attempt is made to summarize the short-term forecasting procedure followed in the United Kingdom, the United States, Sweden and the Netherlands. It would be impossible in a paper of this length to go into all the aspects of economic forecasting in these countries. I propose, therefore, to touch only on the more interesting features of the different approaches followed.

(i) *United Kingdom*

Three official forecasts of short-term economic prospects are prepared in the United Kingdom every year. These forecasts cover periods of up to eighteen months ahead and consist of a preliminary appraisal in the Autumn, a forecast in the new year in preparation for the Budget and a further projection in early June to take account of budgetary changes. They are prepared by two committees of the Treasury on which other government departments concerned are represented. One committee deals with internal economic prospects and the other with the balance of payments. An econometric model is not used, both committees relying on a building up of relevant data to arrive at the final aggregates. The predominant aim is to forecast the level of activity at the end of a period. The change is typically shown as a change between the present or recent past and a quarter near the end of the forecast period rather than a change from one calendar year to another.

So far as the internal situation is concerned the method used is to diagnose trends in the recent past by an examination of national income and expenditure figures which are available on a quarterly basis in the United Kingdom, by industrial production figures and by other indicators, including demand for labour, job vacancies, unemployment, retail sales, registration of new cars and housing starts and completions. The components of demand are built up by a process of successive approximations into a total which is internally consistent on the basis of past experience. The forecasting process relies on available programme or survey material and on the detailed knowledge of the relevant departments on particular

items. The surveys of business intentions are used in the preparation of estimates for the private sector while a good deal of information is available about the plans of the public sector.

In forecasting the balance of payments, estimates of the current position are prepared first. Then an assessment is made of prospects for the world economy. Forecasts are made of the movement of gross national product and its main components in the principal industrial countries, drawing on the information available from these countries and from parallel studies made in the United Kingdom and by international organisations. The forecast of exports is essentially a demand forecast. The Treasury believe that in the short run it is principally conditions in overseas markets which determine the value of exports of British goods. Separate forecasts are made of the value of exports to each main area. To project imports, there is a detailed commodity by commodity approach. This is checked by calculations which deduce the volume of total imports as a function of the forecast of final sales and stock-building. Invisible and long-term capital transactions are then projected and a forecast of the identified balance of current and long-term capital transactions is arrived at.

Besides the official short-term forecasts prepared by the Treasury a number of projections by private groups are prepared during the year, e.g. those of the National Institute of Economic and Social Research and the London and Cambridge Economic Service. These projections are published and provide useful information on the likely trend of the economy.

(ii) *United States*

Considerable work is done in the United States on the preparation of short-term economic projections. Consultative groups of academic and business economists prepare appraisals of the business outlook, periodicals of economic and financial interests publish their own projections while economists in the various departments of the Federal Government and in the Federal Reserve System make forecasts for internal use.

The main official forecast—the only one published—is prepared jointly by the Treasury Department, the Bureau of the Budget and the Council of Economic Advisers. This is used as a basis for the formulation of the Federal Government's fiscal policy. Estimates of GNP, personal income and corporate profits, on which the budget calculations are based, are given in the Budget Document published in January. These are discussed later in detail in the Economic Report by the Council of Economic Advisers. Revised GNP figures are given in the Annual Review of the Budget published in late Summer or Autumn depending on when Congress adjourns.

In the preparation of the official forecasts, a Working Party consisting of economists of the Treasury, the Budget Bureau and the Council of Economic Advisers carries out reviews during the year of the economic prospects. A monthly review of the economic and budgetary outlook is prepared by the group, while at quarterly intervals a complete set of calculations is made covering revised national income and expenditure.

figures, price levels, the unemployment rate and Federal receipts and expenditure. These figures are submitted to the President and discussed with him by the heads of the three Agencies.

While a fully-articulated econometric model is not used in the preparation of official United States forecasts, the Department of Commerce has recently begun to make use of a model constructed in the University of Pennsylvania for quarterly forecasts. The need for using judgment to check closely the results obtained from such a model is, however, realised.

Forecasters in the United States have access to a great volume of information on current trends in the economy because of the advanced stage which the preparation of statistical data has reached. Important indices such as those of retail sales and car and steel production are compiled remarkably quickly. Regular sample surveys give indications of businessmen's confidence, the state of stocks and investment intentions. A special quarterly forecast of government expenditure is also available from the Bureau of the Budget. Because of the magnitude of government spending and its effect on the whole economy, this calculation is of considerable importance.

While the balance of payments is of vital concern to the U.S. it does not act as a major determinant of economic activity. Imports are not very volatile and most of their short-term fluctuations have been induced rather than automatic. For the prediction of exports the forecasters rely on the views of government specialists in the field of external trade. The forecasts for exports are built up from an analysis by commodity and by country of world markets.

When the projections of one quarter's figures are prepared, the forecast proceeds to the next quarter of the year and so on. Finally, the forecasts are studied for their implications for the utilisation of capital and labour resources.

(iii) *Sweden*

In Sweden a "preliminary national budget" is prepared at the beginning of each year giving projections for the national economy which form the background to the economic policy proposals in the Finance Bill. A "revised national budget" is prepared at the end of the Spring session of Parliament, giving revised figures for the fiscal year which extends from 1st July to 30th June.

Both sets of calculations are prepared in the Economic Department of the Ministry of Finance in co-operation with experts from other government authorities, such as the National Labour Market Board, the National Institute of Economic Research and the Board of Trade. Advice is available from a Research Council founded in 1954, consisting of the heads of Agricultural and Industrial Research Institutions, the National Institute of Economic Research and the Research Departments of the Federation of Trade Unions and of the Organisation of Salaried Employees.

The national budget is prepared as an inflationary/deflationary gap calculation. Economic trends are assessed by mutually independent judgments from the demand and supply sides on the assumption that

economic policy remains unchanged. If a gap emerges suitable economic policy to restore equilibrium is then considered. Economic forecasts in Sweden, therefore, aim to provide a guide for policy rather than to suggest what may actually happen.

On the supply side the estimated growth in GNP is calculated by adding together the forecasts in the various sectors of production, which are worked out independently. At a later stage of the analysis, corrections, by gradual adjustments of the various items to one another, take account of the manpower supply and estimated changes in productivity. Imports are calculated on the assumption of constant marginal relations between imports and certain sectors of demand and production. On the demand side calculations of consumption are based on estimates of disposable real income. For exports, the views of exporters on prospects are available through the Swedish Board of Trade. These are checked against established relationships in the export sector on the basis of the international demand for Swedish goods. Investment figures are based on the published plans of State capital expenditure and on statistics of investment plans produced by certain types of private industry. In other sectors, e.g. agriculture, extrapolation of present trends is used.

(iv) *The Netherlands*

In the Netherlands the State budget for the following year (which coincides with the calendar year) is submitted to Parliament in September. A quantitative macro-economic forecast is published simultaneously containing comments on the resources and expenditure tables for the coming year. The Central Economic Plan which is published at the beginning of each year is in a sense a more elaborate and, if necessary, revised version of the Autumn forecast. Both forecasts are based on broad policy outlines adopted by the government for the following year and are carried out by the Central Planning Bureau which belongs formally to the Ministry of Finance.

The most important tool of analysis in the preparation of the forecasts is the econometric model constructed by the Central Planning Bureau for making short-term projections. This model contains relationships for the categories of expenditure (exports, consumption, investment and stocks), prices, the volume of imports and the manpower position. In constructing the model, the years 1923 to 1960 (excluding the war years) were taken as the sample period, with equations formulated so as to fit the widely diverging earlier and later parts of the period. Where an estimate for a pre-determined variable appears uncertain an alternative estimate is introduced into the model and the effect of the changed assumption is then considered. As a check on the reliability of the forecast, an independent analysis, based on an input-output model at constant prices, is made of the main branches of production.

PART IV: IRISH MACRO-ECONOMIC FORECAST FOR 1964

It might, perhaps, be of interest to conclude this paper with a forecast of the main aggregates of national income and expenditure for 1964. This

forecast, which of course has no official standing and for which I am solely responsible, is set out in the following five tables. Its salient points are

- (i) a growth rate somewhat in excess of 4 per cent,
- (ii) a balance of payments deficit in the region of £30 million,
- (iii) a rise of £79 million (11.8%) in national income as a result of substantial increases in both agricultural and non-agricultural income,
- (iv) a 10 per cent rise in consumer spending of which 6½ per cent is attributed to higher prices and 3½ per cent to increased volume. The projected volume increase of 3½ per cent compares with the 1963 estimate of 4½ per cent,
- (v) a further substantial expansion of fixed capital formation which, together with the anticipated increase in stocks, gives a ratio for investment of 20 per cent of GNP,
- (vi) a marked rise in savings accompanying the increase in investment.

The extremely tentative nature of this exercise must be emphasised. It is impossible to be dogmatic about the outcome at this stage when so much data from which guidance is obtained in preparing the preliminary annual official estimates is still not available. Consumer spending, for example, may turn out to be somewhat higher than I anticipate with consequential effects on the forecasts for savings and the deficit in the balance of payments. The margin of error in any of these aggregates could be some millions either way. As regards the growth rate, rough checks on the basis of the main sectoral contributions to output seem to point to a rate of approximately 4¼ per cent. Of course, when all the information available has eventually been gleaned by the Central Statistics Office and the final revision has been made in its official estimates, the figure could well vary by one-half of 1 per cent either way.

TABLE I NATIONAL INCOME

	1961	1962		1963		1964 (Forecast)	
		Change	Total	Change	Total	Change	Total
	£ million						
Agriculture							
Remuneration of Employees	16.9	+ 0.3	17.2	- 0.2	17	+1	18
Farmers' Incomes	123.0	+ 4.0	127.0	- 1.0	126	+15	141
TOTAL	139.9	+ 4.3	144.2	- 1.2	143	+16	159
Non-agricultural sector.							
Wages, salaries and pensions	299.1	+30.5	329.6	+22.4	352	+52	404
Profits, etc	121.2	+ 8.5	129.7	+12.3	142	+12	154
TOTAL ...	420.3	+39.0	459.3	+34.7	494	+64	558
Adjustment for stock appreciation	-2.8	-1.2	-4.0	—	-4	-3	-7
Emigrants' remittances	13.5	-0.1	13.4	-0.4	13	+1	14
Other foreign income	22.6	+1.8	24.4	+1.6	26	+1	27
Total national income ...	593.5	+43.8	637.3	+34.7	672	+79	751

TABLE II GROSS NATIONAL PRODUCT AT CURRENT PRICES

	1961	1962		1963		1964 (Forecast)	
		Change	Total	Change	Total	Change	Total
£ million							
National Income	593·5	+43·8	637·3	+34·7	672	+79	751
<i>Plus</i> depreciation	42·4	+ 5·3	47·7	+4·3	52	+ 5	57
Gross national product at factor cost	635·9	+49·1	685·0	+39·0	724	+84	808
<i>Plus</i> Taxes on expenditure less subsidies	86·4	+ 5·2	91·6	+12·4	104	+22	126
Gross national product at current prices	722·3	+54·3	776·6	+51·4	828	+106	934

TABLE III: EXPENDITURE ON GROSS NATIONAL PRODUCT AT CURRENT PRICES

	1961	1962		1963		1964 (Forecast)	
		Change	Total	Change	Total	Change	Total
£ million							
Personal expenditure	521.0	+38.6	559.6	+39.4	599	+61	660
Net current expenditure of public authorities	83.7	+7.7	91.4	+7.6	99	+16	115
Gross domestic fixed asset formation	108.5	+20.8	129.3	+16.7	146	+29	175
Value of physical changes in stocks	+7.9	+1.8	+9.7	-3.7	+6	+8	+14
Exports of goods and services	291.7	+1.5	293.2	+25.8	319	+35	354
Imports of goods and services ...	-290.5	-16.1	-306.6	-34.4	-341	-43	-384
GNP at current prices ..	722.3	+54.3	776.6	+51.4	828	+106	934

TABLE IV EXPENDITURE ON GROSS NATIONAL PRODUCT AT CONSTANT (1958) PRICES

	1961	1962		1963		1964	
		Change	Total	Change	Total	Change	Total
£ million							
Personal expenditure	504.7	+17.6	522.3	+23.7	546	+19	565
Net current expenditure of public authorities	75.3	+4.1	79.4	+4.6	84	+4	88
Gross domestic fixed asset formation	104.2	+15.6	119.8	14.2	134	+19	153
Value of physical changes in stocks	+7.6	+2.2	+9.8	-3.8	+6	+7	+13
Exports of goods and services	286.4	-5.2	281.2	+18.8	300	+13	313
Imports of goods and services	-287.6	-14.5	-302.1	-28.9	-331	-31	-362
GNP at constant market prices	690.6	+19.8	710.4	+28.6	739	+31	770

TABLE V. SAVINGS AND CAPITAL FORMATION

	1961	1962		1963		1964 (Forecast)	
		Change	Total	Change	Total	Change	Total
				£ million			
Gross domestic fixed asset formation	108.5	+20.8	129.3	+16.7	146	+29	175
Value of physical changes in stocks	+7.9	+1.8	+9.7	-3.7	+6	+8	+14
Total gross domestic physical capital formation	116.4	+22.6	139.0	+13.0	152	+37	189
Provision for depreciation	42.4	+5.3	47.7	+4.3	52	+5	57
Net foreign disinvestment	-1.2	+14.6	13.4	+8.6	22	+8	30
Total savings	75.2	+2.7	77.9	+0.1	78	+24	102
Gross total available for investment	116.4	+22.6	139.0	+13.0	152	+37	189

DISCUSSION

Mr. Bourke in seconding the vote of thanks stated that this was not the first occasion upon which the Society was indebted to Dr. Menton. He had read in February 1948 a paper on the Theories of Adjustment of the Balance of Payments under Fixed Exchanges, and in March 1958 a paper on Ireland and International Monetary Institutions, both of which were valuable contributions. The present paper was no less valuable, and was written in a lucid straight-forward non-mathematical style.

This was an age of rapid technical progress and one in which governments had had the responsibility for economic growth and demand management thrust upon them. A new importance therefore attached to predictions of total demand and the capacity available to meet it.

The paper rightly emphasised the importance of budgetary decisions in the management of the economy, and that this is particularly so in Ireland where the room for manoeuvre in monetary policy is limited and reliance must therefore be placed on fiscal policy. It is of interest that the Radcliffe Commission reached a non-dissimilar conclusion for the British economy, viz. "monetary measures are aimed at the level of demand, but by their nature they are incapable by themselves of having an effect sufficiently prompt and far-reaching for their purpose unless applied with a vigour that itself creates a major emergency", and again "Not so much a policy in themselves as a part of one general economic policy which includes among its instruments fiscal and monetary measures and direct physical controls".

The Second Economic Programme gives as its objective "To maintain adequate demand in the sense of productive activity at the highest rate consistent with a competitive level of prices and costs and a reasonable degree of external balance", and the National Industrial Economic Council has highlighted the necessity for an extension of the present formal arrangements for the preparation of macro-economic projections. It must be regarded as a substantial achievement that it will be possible to meet these requirements, and that the various bodies concerned are to take part in a Conference which will present to the Council for consideration at its February meeting a Report indicating not only what happened in the main sectors of the economy during the past year, but providing projections for what lies ahead.

The section of the paper which deals with the methods of short-term economic forecasting is of particular interest in that it pulls back the curtain from the Department of Finance and allows one to see the machinery at work. The procedure outlined by Dr. Menton of making short-term projections at least twice and often three times a year is a valuable exercise and must be of great help in devising techniques less susceptible to error. The forecaster of economic data, even of a short-term nature, gives hostages to fortune, but has the consolation that while there are difficulties in accurate prediction much can be learned from failures as well as from success. The National Income procedures for short-term forecasting have many advantages, but the development of other methods, particularly

econometric models, should be helpful. Computers are admirable for the speed and accuracy with which they carry out the most complicated calculations, but the computer is a slave to two masters, its programme and the data upon which it is fed, and it is bereft of that intangible thing that Dr. Menton calls "feel" for a situation, a factor which is to be disregarded at one's peril.

Reference is made by Dr. Menton to the initiation by the Central Bank in its Quarterly Statistical Bulletin of a series of estimates of National Income and Expenditure which are based on the supply-of-money approach to National Income. These estimates which are in anticipation of the more detailed official ones of the C S O are, I suggest, valuable as an independent approach based upon the relationship between the National Income (G D.E) and the supply-of-money and its velocity. The figures are a useful check on results arrived at by more laborious methods, and they have the advantage of enabling a quick approximation to be made at almost any point of time. They must be regarded as being still somewhat in the experimental stage, but the results arrived at have been good, though it must be borne in mind that normal relationships may be upset by some major departure from the norm in the supply or velocity element.

The measurement of demand of industrial output is not easy. It depends not only on whether our goods will remain competitive, and foreign markets will be buoyant or stagnant, but also on a variety of subsidiary factors. In our economy there has been a significant advance in the acquisition of expertise and know-how, and a break-through of a mental barrier. This is best proved by a perusal of the Coras Trachtala Report for 1963. If one excludes food, drink and tobacco, which rose by almost £19m, and live animals £83m in that period, the figures show an increase in our exports of manufactured goods and raw materials from £18m to £53m, a remarkable achievement, especially when the range and variety of the exports is studied. The more these figures grow the greater becomes the importance and the difficulty of accurate prediction. The United Kingdom Market is and will no doubt continue to be of the greatest importance to us. One hesitates to draw too many conclusions from a limited range of figures, but it would appear from the annual increase in the volume of G N P. in Ireland and Great Britain for the five years 1959-1963 that our rate of progress is becoming less dependent upon that in the United Kingdom. In those five years the percentage increase in Ireland has been 21.4, as against 14.2 in the U.K. In no year has the rate in Ireland been less than the rate in the U.K., and the annual figures indicate that our better percentage achievement varies from a low of 0.9 to a high of 2.7.

Not the least interesting section of the paper is Part 4 with its forecast of the main aggregates of National Income and Expenditure for 1964, and this section could indeed provide material for a very full and interesting discussion. The marked rise in Savings accompanying the increase in Investment is a very satisfactory feature. The forecast figure of £189m. for 1964 for the gross total available for Investment represents approximately 20 per cent of the G N P. £934m. The Gross National Capital Formation (i.e. deducting the figures for net Foreign Disinvestment) as

a percentage of the G N P (less a similar deduction) being for the four years 16.2, 16.4, 16.2, and 17.6

One provocative figure is that for Net Foreign Disinvestment, shown in Table 5 for the four years 1961-1964 at £64.2m Table 1, however, shows that "Other Foreign Income" so far from having fallen between 1961 and 1964, as one would have thought probable, has risen from £22.6m in 1961 to £24.4m. in 1962, £26m in 1963, and £27m. in 1964 The discrepancy may be explained in part by the tendency of investors in recent years to prefer Equities to fixed Interest Securities, with a consequential rise in income Moreover, much of the Foreign Capital which has moved into the country may not yet have resulted in an outward drain in the payment of dividends, no doubt in turn due to the ploughing back of the whole or the major part of profits which have arisen into financing expansion and there may be other causes explaining what seems at first glance to be a considerable discrepancy

It is a very great pleasure to me to second the vote of thanks to Dr Menton for this very excellent and opportune paper

Dr C E V. Leser The measurement of quarterly agricultural output seems to be a case of "what is difficult, we attempt today, the impossible will take a little longer" An Foras Taluntais is tackling this very problem at present The Economic Research Institute is also preparing a continuous study of quarterly economic indicators, in comparison with previous periods and with the help of seasonal corrections A study on wages and prices made by O'Herlihy should help with price forecasting and thus improve the accuracy of national accounts forecasts made in the Institute

Econometric models are in general not specifically designed for short-term forecasting but rather for projections showing what will happen given certain assumptions The problem of utilising econometric relations to the best advantage in short-term forecasting is a difficult one which still awaits a solution