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Short Term Economic Forecasting and
its Application in Ireland

by

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PART I.—METHODS

Foreword

Applied economic research—of which economic forecasting forms a part—is a relative newcomer in the social sciences. Although, in a general sense relevant economic thinking at all times has been based on the perception of the living economy—and time and again economists have built models from their experience as administrators, bankers or landlords—the fact that statistical evidence of the kind needed was only scantily available prohibited the development of applied economic research in a really systematic manner. Only towards the close of the nineteenth century did the statistical equipment of economists improve appreciably, and it was not until the nineteen-twenties that the majority of economic research institutes came into being.

Research then was mainly concerned with the analysis of what came to be known as the “business cycle”, i.e. the more or less violent recurrence of economic crises. Literally hundreds of statistical series were being scrutinised for their usefulness as barometers in predicting the direction of economic activity. The work of Mitchell in the United States of America and—to a degree—of Wagemann in Germany are well known examples of this practice.

Business cycle analysis by “barometer tapping” became somewhat disreputable when it failed to foresee the great depression of the late nineteen twenties and early thirties which brought economic ruin and personal tragedy to a multitude. Although it is still practised, at its best it has become auxiliary to theoretically better founded methods of analysis and prediction.

The change was effected mainly with the discovery of the multiplier principle, and new insights into macro-economic equilibrium associated with the name of John Maynard Keynes. The “New Economics”, as this school of thought was called, made its contribution in assisting the major industrial

nations out of the depression, and it also played a fundamental role in the organisation of the war economy and post-war adjustment. Because of the “New Economics” and the many improvements contributed by scholars provoked by its impact on their thinking, economic analysis is now much more useful in formulating economic policy than it was in the nineteen twenties. Specifically for business activity analysis and short term prediction a range of fairly satisfactory techniques is now available to the analyst.

Today, forecasts are based on a thorough analysis of all major variables which influence the path of development. With the aid, and inside the framework, of the national accounts—an analytical tool developed during the second world war—all major constituents of aggregate demand (consumer demand, government demand, investment demand, exports) and of aggregate supply (labour, capital, technical progress, raw materials) as well as monetary conditions are projected into the future and checked for consistency. In many countries this is done in regular quarterly intervals, correcting previous forecasts, if necessary, in the light of more recent information.

Of course, even the new methods are still far from perfect. Since the demand situation in itself only reflects the moods and desires of human beings, every forecast is bound by its underlying assumptions regarding the behaviour of economic subjects in the market place. For a free or open economy the forecaster cannot guarantee that they will perform as predicted. Moreover, it is the sole object of economic forecasting in such an economy to provide sufficient information as to afford the very opportunity to those in the market place to alter their plans either in their own interest or—in the case of the government—in the interest of the nation. A further reason why economic forecasts do not always interpret the signals heralding the shape of the future accurately is that in many cases these are not clear enough to allow for only one answer.

Last but not least, forecasts depend on sufficient information about the different variables which have to be brought together to form a picture of the economy. These data are usually unrelated information or time series about the various sub-sectors and branches of the economy and have to be translated into macro-economically consistent terms. Therefore, the more extensive and the more up-to-date statistics or information supplied from official sources or by private concerns, the more reliable—other things being equal—forecasts will turn out.

The following paragraphs discuss the application of modern methods of short term economic forecasting to the Irish economy as envisaged by the recently established Economic Research Institute. At this stage the statements attempt no more than staking the terrain and providing a rough survey. As familiarity with the techniques and sources of information grows improvements will be made. It is hoped that ultimately a method will be developed from which a reasonably accurate up-to-date quantitative appraisal of the state of the national economy and its prospects in the short run can be made.

In Part 2 of the study the experimental model sketched below will be applied in making a forecast of the national accounts for the year 1961. While, strictly speaking, as a forecast it appears much too late, it should be kept in mind that at the moment of writing the available statistics on which the figures

are based relate generally to the first half of the year,¹ and the first *official* estimates of the major national account variables for 1961 will not be available for another six months. It is planned that for future years the first forecast will appear in the January of the year of reference with subsequent reappraisals every three months.

The National Accounts As a Tool for Analysis and Projection

Developed during the second world war and improved in the post war period national book-keeping has become a universally adopted tool for economic activity analysis. In making use of accounting identities it presents the national economy in quantitative terms from different angles and thereby reveals important structures and properties. The national product, i.e. the combined effort of the community in the procurement of goods and services is shown in four different breakdowns: (1) value added by types of industry, incomes ((2) gross and (3) net of tax) by factor groups, and (4) final demand. More recently financial transaction accounts have been added in some countries, showing gross transactions rather

¹At present the forecaster is seriously hampered by the time-lag in the publication of many official statistical series. It would be highly desirable to improve the time schedule of official statistics, as well as perhaps to introduce such important series as monthly indices of industrial production and retail sales, though the author is aware of the considerable difficulties with which the official statisticians in Ireland have to cope.

GROSS NATIONAL PRODUCT OF IRELAND 1958

	£ million		£ million
(1) <i>Value added</i> :		(2) <i>Gross income</i> :	
Agriculture	120·5	Income (gross of tax) of factors of production	446·4
Industry	122·2	Net income from abroad	33·4
Services, etc.	203·7	Indirect taxes	97·9
Rest of World	33·4	<i>less</i> Subsidies	-14·7
Indirect taxes	97·9	Depreciation	31·6
<i>less</i> Subsidies	-14·7		
Depreciation	31·6	Gross national product	594·6
Gross national product	594·6		
(3) <i>Net income</i> :		(4) <i>Expenditure</i> :	
Income (net of tax) of factors of production	427·8	Personal consumption	456·3
Net income from abroad	33·4	Public authority consumption	63·5
Income transfers (including net income of public authorities)	101·8	Gross fixed investment	80·8
Depreciation	31·6	Addition to stocks	-5·0
Gross national product	594·6	Exports	220·6
		Imports	-221·6
		Gross national product	594·6

than net. The table shows how gross national product may be regarded as aggregations of macro-economic variables in different ways.

The four accounts presented indicate the flow of goods and services from their source to their final use. Gross output less input of materials, indirect taxes and depreciation allowances yields value added by major branches of the economy and/or individual industries. Value added is then distributed among the factors of production, i.e. labour, capital, and land ownership. The third account depicts the redistribution of income by the State: the incomes of factors are shown net of tax, also shown are state pensions, dole and relief payments. The major object of this account is to disclose the disposable incomes of what might be called the working class, of entrepreneurs, and of the State. The final account reveals how the disposable incomes are spent on consumer goods and investment.

These identities come to life when modern economic theory is applied to them. It can be shown how the different accounts interact on one another. The relationships are generally taken to be functional, i.e., rather than one or several variables determining the value of the other variables each and every variable is capable of influencing the others. However, the influences which prevail at different times show a certain regularity, and for practical purposes of short period analysis the economist is able to identify them. In the following paragraphs an attempt is made to show some of the relevant relationships for Ireland, though the discussion is by no means exhaustive.

Ireland derives a very large share of its gross national product directly or indirectly from agriculture. One fifth of the national product is produced by the farming sector, and another fifth comes from an industry processing domestic raw materials of agricultural origin to a considerable extent. This specialisation, which is the result of a combination of geographical, political and economic influences, renders the country heavily dependent on foreign trade.

The Value of Total Trade (Exports plus Imports) as a Percentage of Gross National Product in Selected European Countries in 1959

	Per Cent.			
Netherlands..	93·8
Norway	83·7
Ireland	65·5
Denmark	65·1
Belgium	63·8

	Per cent			
Switzerland	61·2
Austria	51·3
Sweden	51·1
Germany	44·9
United Kingdom	38·4
Italy	28·2
France	26·8

The imports of items such as mineral raw materials, investment and consumer durable goods, and luxury goods which are procured insufficiently from domestic sources are paid for with the agricultural surplus and, to a lesser degree, with the proceeds of the tourist industry and of manufacturing exports.

From the foregoing discussion it is clear that the key variables to economic conditions in Ireland are export demand and—to some extent—the limitations imposed by the weather. As exports are mainly going to the United Kingdom—in 1960 this country alone bought 62 per cent. of total Irish domestic exports—economic conditions and prospects there are of importance to Ireland. Of course, the influence of the British economy on Ireland is not confined to foreign trade alone. The close association for centuries has led to extensive British capital formation in Ireland and to financial transactions between the monetary sectors of the two countries beyond the scope of those usually prevailing between sovereign nations.

Thus, the assets of Irish banks held “elsewhere” (mainly in Britain) amount to £280 million or 50 per cent. of their total assets; similarly external liabilities are approximately one-third of total liabilities. The commercial inter-relationships are manifold; British concerns hold the controlling interest in a large segment of Irish industry. Furthermore, there is a free and sizeable flow of labour between the two countries. While Ireland’s contribution to this exchange by far outnumbers Britain’s, the United Kingdom nevertheless supplies a substantial share of managerial and technical talent in the Republic. For these reasons it can be expected that the larger and more highly developed economy of Great Britain will set the pace for the smaller and less developed Irish economy. Or, in other words, any efforts by Ireland to influence its own economic progress—as matters stand now—will have to take into account conditions and opinions prevailing in Great Britain.

While export demand depends largely on events in Great Britain it also depends to a degree on

economic conditions in other parts of the world. Agricultural products—which constitute the major part of Irish exports—have to be disposed of in buyers markets and against protective practices abroad. Where protection is absent, competition from other primary producing countries is keen. The repercussions of business fluctuations and financial conditions in other countries will be felt in Ireland partly by a rise or drop in direct export demand from those countries and partly by a change in exports to Britain, because economic conditions and economic policy in the United Kingdom—being one of the great trading nations and financial centres of the world—depend, in turn, very much on international developments.

Investment demand—in other countries more often than not the cause of business fluctuations—as yet is not a dominating propelling agent in the Irish economy. Fixed capital formation in relation to gross national product is well below investment activity in other European countries. For example, while Norway, Sweden, Austria, the Netherlands and Germany in 1959 saved approximately a quarter or more of their currently earned income in order to expand production facilities, in Ireland only one seventh of the national product was devoted to this purpose. Furthermore, a considerable part of new equipment has to be imported, so that the types of investment which make the main contribution to economic growth in Ireland in the short run are constructional work and additions to live-stock.

Consumer demand at this stage of economic development can be expected to follow rather than lead production. Because of a relatively low average per capita income and therefore a high propensity to consume, marked fluctuations in the spending and saving habits of the majority of the population are not likely to occur.

Government consumption of goods and services is mainly self-sustaining, and in the past showed a fair amount of stability. While, by definition, it raises national product and income through payments for services it does little to increase the flow of goods to the economy except by a not very easily ascertainable redistribution effect. One should expect a certain stabilising influence from it as government current expenditure does not fluctuate in accordance with revenue receipts. The employment opportunity afforded by public expenditure is, of course, considerable, and any change in government economic principles may have far reaching effects on the national economy.

The Share of Gross Domestic Fixed Capital Formation in Gross National Product in Selected European Countries in 1959

	Per cent.
Norway	29·3
Netherlands.. .. .	23·5
Germany	23·2
Austria	22·8
Sweden	22·1
Italy	20·9
Greece	20·5
Denmark	18·4
France	17·5
Belgium	16·6
United Kingdom	15·2
Ireland	13·9

The Data

Estimating output and final demand and projecting it into the future is a complex operation. As each table of the national accounts is being built up—production, distribution of incomes and expenditure of gross national product—information will be cross-checked and put to the test of consistency with the other tables. It is crucial, that information should be as exhaustive as possible. Yet, as has been stated above, much of the information needed cannot be obtained as early as desired. Related data if available are therefore substituted, and much depends on the ingenuity of the analyst in ferreting out supplementary information which can give him a clue as to the likely behaviour of his variables.

In Ireland, as in other countries, the official estimates by the Central Statistics Office of the national accounts are provisional for a period of about two years in retrospect; when accounts are revised they are known to differ at times substantially from the earlier estimates. Production data are not collected very frequently—while comprehensive censuses are taken once a year an industrial enquiry is being made only each quarter. However, there exist current time series which give an indication of activity in several branches of the economy from month to month. These are made available to the public by the Central Statistics Office under the title “Economic Series”. Among other things, they contain information about foreign trade, a number of agricultural and industrial products, prices and finance. These series are useful in current economic analysis and forecasting. For example, as there is a close correlation between the

agricultural gross output of pigs and the value of pigs received at bacon factories (one of the series) the former can be estimated with a fair amount of accuracy. Correlation also exists between the output of cattle and exports of beef and cattle. Allowing for supplementary information such as the change in stocks, cattle output and its probable trend can be approximated.

Although, industrial production data are available on a quarterly basis for two reasons their use for *current* assessments of the economy is limited. Firstly, they are not available for a considerable length of time after the period to which they refer and secondly, the quarterly index of industrial production averaged for a year differs in no predictable way from the production index based on the yearly census returns. The difficulty can be overcome to some extent by substituting export data for products of certain industries and checking for consistency of employment and productivity data.²

Information about final demand is more straightforward. Thus, the most dynamic part of final demand, exports, is well under observation: trade statistics are available in great detail and on a monthly basis. There is, however, a time lag of about three to four months before the latest figures become accessible. Other sources of information are the forecasts of economic activity in Great Britain and the world economy at large which are prepared at various institutions abroad. This, of course, merely places the responsibility for the accuracy of the forecast on the foreign source without necessarily increasing the probability of being right.³

Government consumption of goods and services can be forecast with the help of the proposed budget. A further guide to public current expenditure in Ireland is the time series of Exchequer expenditure which is available monthly.

For obvious reasons consumer demand and personal income are closely related, information about one therefore reveals information about the other. Forecasts of production, employment, and wage claims put forward can be synthesised to provide forecasts of consumer demand.

²However, as productivity data are not found independently the check can be merely one of plausibility. It seems inevitable that, sooner or later, the expanding economy of the Republic will require a similarly expanding statistical coverage including above all monthly series of industrial activity.

³A frank appraisal of the accuracy of various forecasting models and practices in Britain has recently been furnished by the National Institute of Economic and Social Research, cf. R. R. Neild and E. A. Shirley: *An Assessment of Forecasts, 1959-1960*, National Institute Economic Review, May 1961.

In Ireland, investment demand is largely identifiable from comparatively few sources of information. Present trends are revealed by planned government and state enterprise capital outlay, by activity of the building trades, by imports of capital goods, and by increases or decreases of herds of cattle.

Overall economic activity can be assessed by an observation of banking statistics. As financial flows accompany the exchange of goods and services at all stages the former reflect production trends. Financial statistics are also more up-to-date than statistics of commodity transactions; this makes them especially welcome for current analysis.

Business statistics usually deal with the past and by themselves reveal nothing about the future, there are few exceptions to this, for example statistics about orders placed which give an indication of production to come (though, in Ireland, these would be meaningful for only a relatively small fraction of industry). But, aside of this, the forecaster must apply to social phenomena what are in essence mechanical devices in order to make these statistics tell the future. He observes past trends and performances and, if no other evidence is available which points to the contrary, assumes their continuation. Often enough he finds himself frustrated by ensuing changes of which he had no forewarning. However, in recent years statistical sampling methods have been developed which deal with anticipations and opinions rather than past happenings. They are now fairly widely used in market research and, in some instances, for indicating general business trends. Where they are applied for macro-economic analysis they have helped to overcome the lack of advance information about imminent changes of trends. By revealing their expectations of, say, future sales, business men will give an indication of policy regarding employment, investment in stocks and capital and so forth. Inquiries are carried out and are conducted by telephone, by letter or by personal interview. The sample size depends on the information required but usually does not exceed 3,000 in number, in other words it constitutes only some fraction of one per cent. of any total over 300,000.

The economy of this method is obvious. While sampling can be and often is applied in statistics to obtain an approximation of past data its main value lies in the application of the underlying principles for forecasting purposes. Without the possibility of drastically limiting the number being interviewed, the time needed to carry out a poll would be so long as to render the return obsolete.

Realising the value of this method the Economic

Research Institute proposes to initiate a similar inquiry into the expectations of business men and farmers in Ireland. Because of the expenses involved it would be impossible at this stage to conduct an elaborate enquiry on the basis of about 2,000 to 3,000 interviews. Instead, it is hoped that other institutions would cooperate in the course of discharging their regular duties and help obtain the information needed.

As regards industry, plans are well advanced to set up a panel of correspondents invited from among well-informed business men who will pass their judgment on branches of industry with which they are intimately acquainted. The proposed industry and farm sample enquiry should greatly enhance the ability to predict the course of the Irish economy.

PART 2.—THE IRISH ECONOMY IN 1961

In the foreword it has been pointed out that this paper is intended primarily to provide a preliminary survey of the methods to be used in economic analysis and short term forecasting in Ireland. However, notwithstanding the present lack of detailed studies into the significance of various factors governing economic activity in Ireland an attempt shall be made here to predict the probable development of the national product and its component parts for the year 1961.

The task is, perhaps, somewhat easier than the ultimate one, which is to predict economic development in Ireland twelve months in advance. Margins of error are smaller because the period is shorter about which speculation becomes necessary. It may be well to recall, however, that definite knowledge about the first half of the year is still limited and the advantage of forecasting in September therefore is not as great as it may seem.

Before estimating final demand and production in quantitative terms a general picture of prevailing economic conditions abroad and at home shall be drawn as only in the light of these can an appraisal of the data and future projections be made.

World Economy

The United States of America has emerged from the recession, and all available facts point to an expansion, in the remaining months of 1961. Increased consumer spending and investment demand have caused a rise in new orders and production in industry and stocks are considered to be inadequate. The determination to strengthen

armaments in view of the tense international political situation over Berlin and other issues will add force to the upswing. While the immediate impact of the improvement of business conditions in the United States on the Irish economy cannot readily be ascertained except, perhaps, in the case of direct trade, there is no doubt that in a general way it will contribute to economic conditions in Ireland through the reactions caused in the world economy.⁴

The prospects in Great Britain, Ireland's immediate neighbour and biggest trade partner, are less favourable at present. Although, in the first quarter of 1961 final expenditure on goods and services was up by 5 per cent. over the level of the first three months of 1960 and capital formation at home was rising by almost 10 per cent.—accompanied by a generally optimistic feeling in the business community pointing towards a good year—trade balance and balance of payments difficulties did not permit activity to continue at this rate. While the current balance became negative actually a year and a half ago, conditions grew worse in the third and fourth quarter of 1960. As there were no signs of a noticeable improvement in the balance of payments situation during the first six months of 1961, in July measures to curb expenditure have been taken by the British government. Although, it is too early to assess their impact on the national income of Britain for 1961, and consequently the effect on the demand for Irish made goods, it seems likely that demand for Irish exports to Britain will slacken to some degree in the second half of 1961 and possibly early in 1962.

Even in the absence of measures restricting demand it seems likely that exports of cattle and beef to England would not continue at their present high rate of growth. In Britain, slaughterings, sales by butchers, and consumer incomes have not risen nearly as much as imports of cattle and beef from Ireland, during the first half of 1961. As there seems to be no ground for the assumption that the share of Ireland in total British imports of livestock and livestock products has increased permanently, sooner or later an adjustment must occur.

⁴Because of its size the economy of the United States of America influences the economies of its smaller trading partners to a great extent. Even a mild recession in the United States might mean a relatively large reduction in demand experienced by primary producing countries, which in turn will reflect in their balance of payments position. To carry the line of deduction even further it may be pointed out that a weakening foreign exchange position of the overseas Commonwealth countries because of a recession in the United States will result in a reduction of export demand for Great Britain; this in turn will affect British demand for goods from Ireland.

Whether the economic restrictions embarked upon in Britain will be allowed to continue sufficiently long to reduce effective demand is, of course, another question. The slight reduction in the Bank rate early in October may indeed point to the contrary; although, officially it has been denied that the adjustment of the rate of interest should be interpreted as a deviation from the restrictive course. Furthermore, the likelihood of entering the Common Market, which will give rise to higher investment demand, and also the possibility of increasing defence commitments in a new arms race may cause merely a shift in the composition of total demand rather than a curtailment of its overall growth.

Economic conditions in the rest of Western Europe—generally speaking—are still favourable; however, of late growth which had been more or less universal throughout the Continent during the summer is showing a varied pattern. For example, while in Italy the rate of expansion is slightly accelerating, in the Netherlands and in Germany, it has considerably slowed down. Whether this will indeed seriously affect the position of Ireland in these Markets remains yet to be seen. It would probably require more than a temporary reduction in the Continental rate of expansion to halt the upward trend of Irish exports to this area.

Ireland

The forces causing an increase of gross national product in 1960 by 4 per cent.—a very high increase if judged by past performances of the economy—are still present in 1961. Demand for agricultural products, especially livestock and beef has been rising and export demand for manufactured goods has on the whole been a stimulus to increase industrial production and employment. The prospects of steadily rising output and revenue in industry aided by a firm commitment of the government to a policy of industrial development and balanced economic growth have created a more favourable attitude towards net investment. Furthermore, capacity of plant and labour supply allow still further increases of production.

Financing investment has been aided this year by two factors, one, government measures to relieve the burden of direct taxation on incomes, and the other, a relatively weak impact of wage rounds, though substantial claims are pending.

In April the standard rate of income tax had been reduced by ten per cent. In introducing his measure the Minister for Finance estimated that this would

free approximately £1.2 million in revenue. A substantial part of this sum, remaining in the hands of the sector of the public most likely to save, should have been available for additional private investment. Rough calculations indicate that the effect of higher hourly wage rates and the reduction of hours in the standard work week leading to increased overtime payments as well as a rise in the number employed will add to the wages bill of the nation approximately £18 million for the whole of 1961. This would in effect be much less than the expected increase of gross national product and should leave a larger proportion of the additional income available for capital expansion.

In August the discount rate of the Central Bank in Ireland was raised from $4\frac{2}{3}\frac{5}{2}$ per cent. to $6\frac{1}{16}\frac{5}{6}$ per cent. following the increase of Bank rate in Great Britain from 5 per cent. to 7 per cent. At the time of writing at $6\frac{3}{4}$ per cent. it is still substantially higher than in the summer. As commercial lending rates were raised similarly borrowing by the public has become dearer. With dearer money in Ireland and in the United Kingdom—where a large part of this country's traditional investors are domiciled—private investment in Ireland may be adversely affected and some capital outlay may now be postponed until easier borrowing terms can be obtained. The policy of dearer money may also affect the flow of short-term funds to enterprises. The financing of stocks of materials, trading stocks, and current operations will be somewhat less easy under the higher interest rate, which might depress demand and employment within the Republic itself apart from the repercussions to be expected from the curtailment of demand in Great Britain. However, the effect on total cost of the higher rate for borrowing should not be exaggerated.

Agriculture

The outstanding feature of Irish agriculture in the past twelve months has been the improvement in sales of cattle. The main force behind this seems to have been a distinct increase in demand for cattle and beef by British buyers but exports of live animals and meat to other countries, for example to Germany and the United States also rose. Early in 1961 the falling trend in demand for store cattle was reversed and trade in all kinds of cattle became rather brisk. It is estimated that from January to June 1961, a total of 524,000 cattle was sold by farmers to be exported on the hoof or slaughtered for export in comparison to only 391,000 cattle during the same period of the previous year.

The decisive factor in cattle sales is the demand exercised by traders from Great Britain. With the bovine tuberculosis regulations in force, sales of store cattle to England continuously declined since the summer of 1959. On the other hand, sales of fat cattle increased to a similar degree. When gradually the Irish farming community increased its attested herds, demand for Irish stores rose again.⁵ It might very well be, therefore, that later in the year the demand for fat cattle will not be sustained. The present rate of increase in sales of cattle for export is approximately 34 per cent. This rate of growth, because of a possible reduction in demand in Britain, might not be maintained, but the rising demand by other countries would counteract this sufficiently to warrant forecasting an overall increase of cattle sales by 30 per cent. for the year 1961.

While the number of cattle sold have gone up, prices were slightly lower on average from January to August of this year compared with the same period in 1960. When the subsidy for fat cattle was reduced in August, this was reflected immediately in lower prices at the Dublin Cattle Market. However, since then prices have tended to regain the level previous to the reduction in the subsidy. The statistics available indicate that average prices in 1961 will almost certainly be somewhat lower than in 1960. Consequently the value of total cattle sold for export—dead or alive—will increase by less than 30 per cent. as indicated by physical volume of trade alone. It seems probable that it will be in the region of 25-27 per cent.

Estimated Number of Cattle Exported
Thousand

	January—June	
	1960	1961
Cattle (Live)	231	328
Meat (Cattle equivalent)	160	196
TOTAL	391	524

⁵It should be interesting to probe into the complexities of cattle production and turnover in the economies of Great Britain and Ireland combined. Great Britain depends to a considerable extent on the supply of store and fat cattle from Ireland. When Irish store cattle were forced partly out of the market by new health regulations in Britain regarding bovine tuberculosis, fat cattle had to fill the gap at the British meat counter. With more attested stores available demand also rose. Likewise, this year, because of an early grass season British farmers had sold their cattle early and are now in need of replenishing their herds. It appears therefore that store cattle from Ireland are now in demand as well as fat cattle and beef.

Prices for Cattle at Fairs and at Dublin Market

1956=100

	Store Cattle	Fat Cattle (Fairs)	Fat Cattle (Dublin)
1960			
January ..	124	118	126
February ..	124	118	125
March ..	127	119	124
April ..	122	125	130
May ..	122	120	126
June ..	116	115	122
July ..	113	115	117
August ..	118	112	114
Average	121	118	123
1961			
January ..	106	115	113
February ..	112	118	117
March ..	132	127	133
April ..	128	120	131
May ..	125	124	122
June ..	114	118	113
July ..	118	109	111
August ..	125	120	106
Average	120	119	118

The demand for other livestock and livestock products including those of the dairy industry has been high also. Because of a good grass season the supply of milk for industrial use during January-August 1961 as indicated by creamery butter production increased approximately by 12 per cent. over the same period last year. The number of pigs received at bacon factories increased by 13 per cent.

It seems likely that milk production for the entire year 1961 will be substantially higher than in 1960, although the increase from month to month has successively become smaller. Thus while from January to May the increase of milk supplied for industrial use averaged 27 per cent. it only came to 8 per cent. in June—usually the month with the highest production—and to 2-3 per cent. in July and August. It is being assumed here that in 1961 the value of milk supplied to industry will be approximately 10 per cent. higher than in 1960, with the amount of milk used for drinking purposes and farmers butter remaining constant.

Creamery Butter Production

	cwt. (000)		
1956	(monthly av.)	..	71.7
1957	" "	..	81.4
1958	" "	..	77.9
1959	" "	..	64.5
1960	" "	..	75.5
Jan. 1960	.. ..	..	9.2
Feb. "	.. ..	..	10.9
Mar. "	.. ..	..	23.7
Apr. "	.. ..	..	53.6
May "	.. ..	..	113.2
June "	.. ..	..	134.8
July "	.. ..	..	138.1
Aug. "	.. ..	..	132.3
Average	.. ..	..	77.0
Jan. 1961	.. ..	..	12.4
Feb. "	.. ..	..	13.6
Mar. "	.. ..	..	33.3
Apr. "	.. ..	..	72.8
May "	.. ..	..	135.0
June "	.. ..	..	146.2
July "	.. ..	..	141.0
Aug. "	.. ..	..	136.5
Average	.. ..	..	86.4

The demand for pigs in Ireland mainly depends on the numbers offered for sale because of an existing price guarantee to bacon factories. The production cycle of pigs has a length of approximately six months, which makes it possible to estimate total sales in the second half of the year from the number of pigs on farms in June. The Central Statistics Office has estimated⁶ that in June 1961 stocks of pigs were 11 per cent. higher than in June 1960. Prices should be only marginally more favourable this year; on the basis of this the value of total output of pigs in 1961 is estimated to be about 15 per cent. up.

⁶Ireland, Crops and Livestock, 1961—1 June, Preliminary statement for 1961 and comparisons with 1960, Central Statistics Office, Dublin, September 1961.

Pigs received at Bacon Factories

	Numbers (000)		
1956	(monthly av.)	..	75.28
1957	" "	..	93.00
1958	" "	..	113.95
1959	" "	..	98.17
1960	" "	..	108.19
Jan. 1960	.. ..	..	87.21
Feb. "	.. ..	..	95.55
Mar. "	.. ..	..	101.66
Apr. "	.. ..	..	86.75
May "	.. ..	..	97.75
June "	.. ..	..	103.64
July "	.. ..	..	113.01
Aug. "	.. ..	..	140.43
Average	.. ..	..	103.25
Jan. 1961	.. ..	..	113.33
Feb. "	.. ..	..	108.77
Mar. "	.. ..	..	114.41
Apr. "	.. ..	..	102.71
May "	.. ..	..	116.63
June "	.. ..	..	115.73
July "	.. ..	..	120.25
Aug. "	.. ..	..	137.58
Average	.. ..	..	116.18

No statistics have been published yet on the output of crops in 1961 the reason for this being that the harvest is still going on. A forecast of crop output therefore has to be based mainly on general observations. According to the Department of Agriculture's *Farm Bulletin*,⁷ early potatoes of excellent quality have brought average yields. Forecasts for main crop potatoes indicated that yields would be better than 1960. The yield of barley was slightly above average while the yield of wheat is expected to be normal.⁸ Oats, according to this source, would have below average yields.

The Central Statistics Office⁹ estimates that the acreage of wheat declined by 4 per cent. or 16,000 acres in 1961. The acreage of oats was less by 56,000 acres. On the other hand, there was an increase in acreage of malting barley by 3,000 acres and of other barley by 34,000 acres. As weather conditions, on the whole, were not unfavourable, it is estimated on the basis of this general

⁷*Farm Bulletin*, Department of Agriculture, July and September 1961.

⁸However, this is seriously in doubt in view of the recent announcement that 40 per cent. of the wheat harvest might be unmillable.

⁹ibid.

information that crop output will increase in 1961 by approximately 2 per cent.

Estimated Value of Livestock on Farms

£ million

	1 January 1961	1 January 1962	Change 1962/1961
Cattle ..	162.8	153.0	-9.8
Sheep ..	17.8	18.8	+1.0
Pigs ..	8.6	9.4	+0.8
Poultry ..	2.6	2.6	—
TOTAL	191.8	183.8	-8.0

On the basis of these forecasts for major agricultural items, total agricultural output in 1961 at current prices will be approximately £215 million. As changes in livestock numbers between the first

of January of each year and the value of changes in livestock numbers according to the official estimates show a fairly close relationship, it can be estimated that in 1961 the value of the reduction in livestock numbers will be approximately £8 million. The value of farm materials does not fluctuate very much from year to year and with somewhat higher prices expected for this year it is being assumed that farm materials purchased will be slightly higher than in 1960 and will amount to approximately £37 million. Deducting changes in livestock numbers and the value of farm materials from gross output one arrives at a value of £170 million for net agricultural output. This constitutes an increase of £10 million or 6 per cent. over 1960.

Industry

Provisional statistics of industrial production in the first half of 1961 indicate that the momentum of growth in the manufacturing sector generated in 1959 is still quite strong. The quarterly index of production of manufacturing industries during the

ESTIMATED OUTPUT OF AGRICULTURAL PRODUCTS

£ million

	1958	1959	1960	1961	Per cent. change 1960/61
Horses	2.6	2.6	3.5	3.5	—
Cattle and Calves	50.1	49.6	55.0	68.8	+25
Cattle hides	0.1	0.1	0.1	0.1	—
Milk :					
Consumed by persons	12.7	12.9	13.5	13.5	—
Used in Industry	21.6	19.6	24.1	26.5	+10
Farmers' Butter	5.7	6.1	6.8	6.8	—
Buttermilk	0.5	0.5	0.5	0.5	—
Sheep and Lambs	8.6	8.0	9.5	9.0	-5
Wool	2.5	3.2	3.5	3.5	—
Pigs	21.9	20.2	20.8	24.0	+15
Poultry	5.0	3.9	4.2	4.2	—
Eggs	10.5	9.5	8.5	9.0	+6
Other livestock products	0.1	0.1	0.1	0.1	—
Total livestock and livestock products ..	141.9	136.3	150.1	169.5	+13
Crops and Turf	37.8	45.2	44.8	45.5	+2
Gross Value of Agricultural Output ..	179.7	181.5	194.9	215.0	+10
Value of change in livestock numbers ..	+3.2	+11.0	-0.5	-8.0	—
Value of farm materials	37.1	36.0	34.6	37.0	+7
Net Value of Agricultural Output ..	145.8	156.3	159.8	170.0	+6

Sources : Estimated Gross and Net Agricultural Output in 1960, Central Statistics Office, Dublin ; 1961 estimate by Economic Research Institute.

March quarter rose to 123.5 and during the June quarter to 131.2 (1953=100), which represents increases of more than 8 and 9 per cent. respectively over the corresponding periods in 1960. This indicates that the trend of growth of production which had slowed from 10 per cent. in the first quarter of 1960 to 5 per cent in the fourth quarter of 1960 is again accelerating. Nearly all major industries producing transportable goods took part in the expansion; in those cases where production declined it was more than made up by the performance of other industries in the same group. For example, although in comparison to the first quarter last year the assembly of motor vehicles decreased by 19 per cent. and that of other vehicles by 6 per cent. the group "metal and engineering" of which vehicle assembly forms a part increased its production by 9 per cent. This was due mainly to an increase in electrical engineering of 42 per cent, and in the manufacture of non-electrical machinery of 31 per cent.; but the remaining industries in this group also expanded their production to a considerable degree during the first quarter.

MANUFACTURING INDUSTRY
INDEX OF PRODUCTION
(unrevised series)

	1st quarter	2nd quarter	3rd quarter	4th quarter
1957	94.2	99.9	97.6	109.8
1958	100.7	104.3	100.7	111.7
1959	103.5	112.0	112.0	120.7
1960	113.9	120.3	119.0	126.7
1961	123.5	131.2		

PERCENTAGE INCREASE OF PRODUCTION OVER
SAME QUARTER IN PREVIOUS YEAR

	1st quarter	2nd quarter	3rd quarter	4th quarter
1958	6.9	4.4	3.2	1.7
1959	2.8	7.4	11.2	8.1
1960	10.0	7.4	6.3	5.0
1961	8.4	9.1		

Source: *Quarterly Industrial Inquiry*, Central Statistics Office, Dublin.

PERCENTAGE INCREASE IN INDUSTRIAL PRODUCTION OVER SAME QUARTER IN PREVIOUS YEAR

	1960/59				1961/60	
	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter
Coal, Turf	79.7	-12.1	-31.6	12.5	-14.3	9.9
Stone, Slate, Gravel	24.4	21.4	7.4	-4.4	20.7	14.1
Miscellaneous Mining	28.9	72.7	37.9	27.3	57.2	-8.8
Bacon Factories	1.9	0.1	13.1	10.3	12.3	11.4
Meat other than bacon	20.2	-9.5	-1.5	9.2	8.1	67.9
Fish	52.6	-2.2	-25.7	23.1	15.5	310.0
Grain Milling	-3.6	-4.2	3.1	11.6	5.6	9.6
Bread, Biscuits	-5.8	-4.8	-5.3	-19.5	-0.1	-2.9
Sugar	-34.0	-51.3	-76.1	-9.2	36.4	93.4
Cocoa, Chocolate, Sugar Confect.	1.4	2.1	7.3	3.1	10.7	9.0
Creamery Butter, Cheese	1.9	-13.0	0.1	2.8	4.2	19.6
Jams, Preserves	7.9	9.3	19.1	38.9	26.0	13.6
Margarine, Cooking Fats	9.8	22.7	10.5	4.3	3.3	-9.5
Miscellaneous Food Preparations	102.9	61.2	-5.2	-22.3	-35.1	-36.9
Malting	14.9	-14.4	-55.0	-25.9	2.2	76.6
Brewing	9.3	4.3	13.1	4.8	5.7	13.2
Distilling	2.6	16.4	0	-15.3	-2.2	-0.9
Mineral Waters	-2.4	0.3	-13.9	1.9	-1.5	-15.8
Tobacco	7.0	0.7	-0.7	0.1	5.0	3.7
Wood and Cork (except Furni- ture)	11.6	12.1	12.3	2.2	11.8	5.5
Brushes and Brooms	-3.4	7.9	45.7	3.0	11.7	0.1
Furniture	-2.5	-4.9	-10.7	-16.3	11.6	-5.1

(Table continued overleaf)

PERCENTAGE INCREASE IN INDUSTRIAL PRODUCTION OVER SAME QUARTER IN PREVIOUS YEAR

Continued from page 13

	1960/1959				1961/1960	
	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter
Jute, Canvas, Rayon	17.0	12.6	10.8	22.1	14.1	28.2
Linen and Cotton	36.7	36.7	37.6	32.0	3.8	-8.1
Made-up Textile Goods	63.4	53.2	34.1	28.6	-17.5	-25.9
Woollen and Worsted	21.9	41.3	25.4	21.2	0.6	-3.4
Clothing : Men's and Boys' ..	9.8	-0.6	5.0	4.1	-7.9	-1.6
" Shirtmaking	14.6	14.3	10.1	11.4	7.4	-4.2
" Women's and Girls' ..	17.1	5.0	8.8	9.0	9.8	9.1
" Miscellaneous	7.4	3.7	2.1	3.5	4.2	5.9
Hosiery	3.9	4.3	16.6	12.3	21.2	25.0
Fellmongery	4.7	-3.4	11.5	15.8	14.0	22.9
Leather Goods	12.3	18.2	-7.4	3.3	-18.3	-34.0
Boot and Shoe	6.5	-2.7	-0.2	23.9	21.5	25.9
Glass, Pottery	-2.6	13.2	19.3	6.1	25.7	6.7
Printing, Publishing	-1.1	1.4	-6.2	-9.9	6.0	4.6
Paper, Paper Products	23.1	14.3	9.8	9.2	-2.6	4.9
Vehicles, Motor	39.8	20.8	18.9	-5.3	-19.2	-12.2
" Other	-20.2	-17.7	-2.0	-5.9	-5.7	26.1
Metal Trades	7.9	3.7	3.2	6.9	16.4	13.7
Machinery : Electrical	20.8	4.5	16.3	16.9	42.3	31.1
" non-Electrical	100.8	101.5	91.4	91.9	30.6	37.5
Railroad Equipment	-23.2	-22.9	-27.2	-9.7	12.6	68.6
Ship and Boat Building	26.1	37.9	26.8	48.3	24.6	16.5
Soap Detergents	8.0	-1.5	-6.6	-10.0	19.7	23.3
Chemicals, Drugs	24.3	9.2	22.1	8.1	5.1	10.8
Oils, Paints, Polishes	8.5	1.6	1.4	4.0	18.8	18.2
Fertilisers	18.4	37.4	-18.9	30.4	44.8	14.9
Cement	15.3	20.8	8.4	-9.5	18.7	-28.6
Structural Clay Products, Asbestos	8.7	4.9	-2.9	-8.2	-2.7	-9.3
Miscellaneous Manufacturing ..	59.2	42.2	7.2	5.2	11.4	13.5
Transportable Goods Industry	11.3	6.0	4.2	5.0	8.2	9.1

Source : Quarterly Industrial Inquiry, Central Statistics Office, Dublin.

The statistics of goods exported which can be roughly linked with particular industries support the trend indicated by the index of industrial production. While exports of the class "Other raw materials and manufactured goods" in the first six months of this year compared with last year rose only by a moderate 4 per cent. exports of a wide range of manufactured goods taken by themselves increased considerably more. For example, although exports of "Ores and Metals" decreased by 14 per cent. exports of metal manufactures increased by 48 per cent., and exports of "Cutlery, Hardware and Machinery" increased by 24 per cent. Exports of textiles, clothing and footwear and leather manufacture also showed substantial increases.

On the other hand, exports of vehicles were lower than in the first six months of 1960 due mainly to a big reduction in automobile assembly¹⁰ and trade in used cars as well as a decline in the disposal of aircraft by the national airline. The decrease in exports of oils and chemicals, etc., can be traced to the crude oil refining industry; exports of petroleum products during the first six months of the current year were only 69 per cent. of the amount shipped during January-June 1960;¹¹ other main exports in this group showed an improvement.

¹⁰ ¹¹ These facts incidentally may show up the less desirable aspects of large enterprises under foreign control in a small developing country. As production decisions by these concerns are being taken with regard to world wide operations, production in subsidiary plants may fluctuate in no predictable way, upsetting, because of their relative importance, the balance of payments and revenue receipts in the country in which they are based.

It is of course extremely hazardous to predict solely on the basis of the production and export data for the first half of 1961 what the production of Irish industry will be in the entire year. Past trends—while helpful—do not provide the full answer, especially in the case of an industrial community only beginning to think in terms of growth.

A useful check is therefore an appraisal of employment and productivity data. In manufacturing industry employment in the first half of 1961 was higher by 5,200 persons or 3.5 per cent. than in the first half of 1960. If past trends can be relied upon productivity could be expected to rise by 4—5 per cent. The increase in employment in manufacturing industry and the productivity gains combined would mean that the volume of production will rise by approximately 8 per cent. As prices are slightly higher in 1961 net product of manufacturing industry at

current prices is estimated to rise by 9—10 per cent.

The output of electricity, gas and water—in short of total energy production—is expected to rise in accordance with overall economic activity. An indication that this will be the case is given by the figures published on the monthly output of ESB Generating Stations. According to this source during the first eight months in 1961, 1,495 million KWh were generated against 1,413 million KWh in the same period 1960, which constitutes an increase of 6 per cent.

The building industry has been doing rather well this year, if the impressions formed by people looking for homes to buy are any guide. Generally, in spite of rising prices builders had no difficulty in disposing of standard type houses. Purchases of better type houses and luxury homes also increased. According to the statistics of State-aided housing schemes however, which cover the greater part of

DOMESTIC EXPORTS OF SELECTED COMMODITIES

£,000

	January-June		Per cent. increase Jan.-June 1961/1960
	1960	1961	
FOOD, DRINK, TOBACCO	21,813	29,636	35.9
Beef, fresh, frozen	5,655	7,898	39.7
Bacon	2,085	3,258	56.3
Butter, creamery	367	2,650	622.1
Beer	3,185	3,487	9.5
OTHER RAW MATERIALS AND MANUFACTURED GOODS	21,721	22,683	4.4
Ores and Metals	2,220	1,915	-13.7
Metal unwrought and wrought ..	872	573	-34.3
Metal manufactures	213	315	47.9
Cutlery, Hardware, Implements, Machinery and Electrical goods	1,663	2,064	24.1
Vehicles	2,053	424	-79.3
Motor cars, new	678	68	-90.0
Aircraft and parts	620	55	-91.1
Textiles	4,932	6,050	22.7
Clothing and Footwear	2,560	3,338	30.4
Hides, Skins, Leather	1,565	1,871	19.6
Paper and Cardboard	1,268	1,213	-4.3
Oils, Fats, Fertilisers, Chemicals, Colours, Perfumery	2,323	1,845	-20.6
Petroleum products	1,669	1,159	-30.6
Medical products	80	106	32.5
Oils and Fats	158	265	67.7

Source : "Trade Statistics," Central Statistics Office, Dublin.

construction of private homes, from January to August 1961 the total number of new houses built was not higher than in the corresponding period last year. Construction of commercial buildings and public construction will conceivably be higher than last year but owing to lack of statistical information it is difficult to predict by how much. The average number of building workers in the first half of this year in comparison to the first six months of 1960 increased by more than 2,500 persons. Taking this as a rough indication of production trends—as productivity increases in the building trades can be assumed to be negligible—it is estimated that total building and construction will increase in volume by 4 per cent. Since prices in a seller's market have tended to go up, net output at current prices will probably be higher by 8—10 per cent. in 1961 as compared to 1960.

The combined effect of the increases in output of transportable goods industries, power supply, and construction should be an increase of the gross

national product of the industrial sector by approximately 9 per cent. at current prices, and by 7 per cent. at real terms.

Services

Service-type industries and public administration together are a significant segment of the national economy of Ireland; they provide employment for 60 per cent. of the total working population outside agriculture. However, with the exception of public administration and defence, for which the government publishes yearly accounts and estimates, current information about this sector is scarce. Forecasting would be extremely difficult were it not for the fact that this sector traditionally is one of the least dynamic. Ireland makes no exception to this rule. The employment figures reveal that numbers at work are fairly stable for a considerable length of time. As there exists no agreed method for measuring productivity changes in this sector, it is

EMPLOYMENT, PRODUCTIVITY AND PRODUCTION IN MANUFACTURING INDUSTRY

	Index 1958=100			Percentage change over quarter in previous year		
	Employment	Productivity	Production	Employment	Productivity	Production
1958						
1 Quarter ...	98.7	98.6	97.3			
2 Quarter ..	99.2	101.4	100.6			
3 Quarter ..	100.5	97.0	97.5			
4 Quarter ..	101.6	102.8	104.4			
Year ..	100.0	100.0	100.0			
1959						
1 Quarter ..	100.9	97.0	97.9	2.2	-1.6	0.6
2 Quarter ..	102.0	103.9	106.0	2.8	2.5	5.4
3 Quarter ..	103.5	102.4	106.0	3.0	5.6	8.7
4 Quarter ..	105.1	108.7	114.2	3.4	5.7	9.4
Year ..	102.8	103.2	106.1	2.8	3.2	6.1
1960						
1 Quarter ..	103.7	104.0	107.8	2.8	7.2	10.1
2 Quarter ..	104.3	109.1	113.8	2.3	5.0	7.4
3 Quarter ..	105.2	107.0	112.6	1.6	4.5	6.2
4 Quarter ..	107.8	111.2	119.9	2.6	2.3	5.0
Year ..	105.3	107.8	113.5	2.4	4.5	7.0
1961						
1 Quarter ..	107.2	109.0	116.8	3.4	4.8	8.3
2 Quarter ..	108.2	114.7	124.1	3.7	5.1	9.1

generally assumed that these are insignificant and can therefore be ignored. Output at current prices increases with the increases in numbers employed and with the rises in remuneration of employees.

It is assumed here that in 1961 the increase in net output of all services combined will be in the region of 6 per cent.

Capital expenditure

Investment in fixed capital assets will reach an all-time high level in 1961. This, at least, seems to be indicated by imports of capital goods and output data for the building industry. A further indication that investment demand is expanding is to be found in the increased amount of funds allotted to capital expansion by the State. According to expenditure budgeted in the Public Capital Programme, government and State enterprise capital outlay will be substantially higher in 1961. The Programme calls for an increase of nearly £5 million in the fiscal year 1961/1962. In addition to funds made available by the State, business men will find themselves with increased net profits in 1961. On the average, earnings will rise faster than cost, the income tax rate, too, will be lower. The combined result of this should be a rise of undistributed profits and of savings out of entrepreneurial income.

Construction will probably rise by 8 per cent. or £4 million, according to the estimates of output for the building industry. So far as equipment is concerned an analysis of import data indicates a probable increase of transport equipment—mainly aeroplanes and rolling stock—by £4 million. Agricultural machinery should increase by approximately £1 million, and other equipment—including the machinery needed for industrial expansion—can be expected to rise by £5 million. It can

therefore be assumed that total investment in machinery will be increased by £10 million or 25 per cent. Total fixed capital formation will be £106 million in 1961 which is an increase of 15 per cent. over 1960.

INVESTMENT IN FIXED CAPITAL ASSETS £ MILLION, AT CURRENT PRICES

	1958	1959	1960	1961
Construction	46	49	52	56
Equipment	35	36	40	50
Transport equipment	14	14	14	18
Agricultural ..	4	4	4	5
Other	17	18	22	27
TOTAL	81	85	92	106
	<i>change</i>			
Construction		+3	+3	+4
Equipment		+1	+4	+10
Transport equipment		0	0	+4
Agricultural ..		0	0	+1
Other		+1	+4	+5
TOTAL		+4	+7	+14

Sources : 1958-1959 National Income and Expenditure 1959, Central Statistics Office, Dublin; 1960-61 estimate Economic Research Institute

National Product and Expenditure¹²

The sum total of the preceding discussion clearly indicates a further improvement in the performance of the Irish economy. It appears that 1961, too,

¹²The national accounts data used here are those compiled by the Central Statistics Office, Dublin and published in *National Income and Expenditure* 1959, and *Economic Statistics*, Stationery Office, Dublin. For 1959 and 1960 certain amendments have been made by the present writer in order to allow for recent revisions in the official estimates of agricultural output. The officially revised national accounts, which were not available at the time of writing, may be expected to differ slightly from those used in this study. However, this would not invalidate the forecast for 1961, which is mainly concerned with the rate and magnitude of changes in the variables.

ESTIMATED NUMBER OF PERSONS AT WORK IN MAIN BRANCHES OF NON-AGRICULTURAL ECONOMIC ACTIVITY 1956 TO 1960

Thousand

	1956	1957	1958	1959	1960	1961
Mining and Manufacturing	200	194	195	198	202	207
Construction	82	75	65	61	63	66
Electricity, gas, water	12	12	12	12	11	11
Service industries	385	383	381	382	384	386
Public administration and defence ..	39	39	39	39	39	39
TOTAL	718	703	692	692	699	709

Sources : Economic Statistics, 1961, Central Statistics Office, Dublin; 1961 estimate Economic Research Institute.

will be a year of substantial increase in the national product and income. Thus, the moderate growth achieved for the first time in 1959 and repeated in 1960, should be sustained.

Gross national product at current prices is estimated to total £697 million. Compared to 1960 the increase will be £43 million or 6.6 per cent. Of this agriculture will add £8 million. The biggest single contribution, however, will come from industry, which is estimated to produce £13 million more over 1960.

Public administration and other domestic sectors will add another £13 million to the national product, emigrants' remittances and other factor income from abroad are expected to rise by £3 million.

Part of the increase will be due simply to higher prices and gross national product in real terms is expected to rise only by 4 per cent., the same as in 1959 and 1960.

The increase in the real national product will be accompanied by a rise in overall productivity by more than 3 per cent., and an increase of the total labour force by less than 1 per cent. It is estimated that the number at work in the economy will rise by approximately 3,000 persons, which would be the net effect of a reduction of employment in agriculture and an increase of employment in the non-agricultural sector, mainly in manufacturing and construction.

GROSS NATIONAL PRODUCT

	At current prices	At constant (1953) prices
	£ million	
1956 ..	556.5	529.9
1957 ..	576.8	535.1
1958 ..	594.6	516.1
1959 ..	628.0	536.0
1960 ..	654.0	557.0
1961 ..	697.0	579.0

Rising earnings will stimulate personal expenditure. While in 1960 £489 million was spent on consumer goods and services in 1961 this should come to about £525 million. Public authorities current expenditure is expected to rise by £2 million to £71 million. Gross domestic fixed capital formation will be much higher than in any year before. The value of increased fixed investment will be £14 million and should bring the total to £106 million.

REAL GROSS NATIONAL PRODUCT AND PRODUCTIVITY (1956=100)

	Gross National Product	Labour	Productivity
1956	100.0	100.0	100.0
1957	101.0	97.7	103.4
1958	97.4	96.4	101.0
1959	101.2	95.6	105.9
1960	105.1	95.6	109.9
1961	109.3	95.9	114.0

Movements in stocks of agriculture and of the non-agricultural sector of the economy will probably cancel out to a large extent this year. While stocks of merchandise, materials and unfinished products should be up by at least £10 million, the value of physical changes in livestock on farms is expected to be down by £8 million.

Total exports of goods and services in 1961, thanks to an increase in external demand for Irish products and an increase in the tourist trade are estimated to rise by £32 million to £287 million. On the other hand, increased consumer expenditure and additions to stocks in step with the expansion of output should make for a rise of imports by £38 million to £294 million. Consequently the balance of payments is expected to show a deficit of £7 million.

Concluding Remarks

In this exercise care has been taken to present an estimate not only of the gross national product total but also of major variables in the national economy. This procedure provides a system of checks, since the value of each individual variable must lend itself to rational explanation. However, in spite of the detail thus displayed, not all of the variables can be estimated with the same degree of confidence. This is especially true of personal expenditure and savings. While personal expenditure has been estimated to amount to £525 million, it would have been equally justifiable to put this figure several million pounds higher or lower.

Such a change in the estimate of personal expenditure would have a corresponding effect, of course—assuming the estimate for gross national product to be unchanged—on the estimates for the trade deficit and private savings. While the scope for actual deviations may be limited by what we know

generally about the trends of savings, imports and exports, it is still large enough to affect seriously the accuracy of estimates for relatively small values, such as the trade deficit, which will hardly exceed £10 million either way, or private savings, which at present come to between £50 and £60 million. As for the trade deficit, the margin of error could

easily be in the region of 25 per cent., while for savings it may reach 10 per cent.

However, in setting out these estimates of all the relevant variables in the accounts a certain amount of confidence is being expressed that the data will be close enough to reality to allow an appraisal of the current state of affairs in the economic life of Ireland.

NET NATIONAL PRODUCT AT FACTOR COST BY SECTOR OF ORIGIN AND GROSS NATIONAL PRODUCT AT CURRENT PRICES

	£ million*						% increase				
	1956	1957	1958	1959	1960	1961	1957/56	1958/57	1959/58	1960/59	1961/60
Agriculture	119.6	131.8	120.5	130	134	142	10.2	-8.6	7.9	3.1	6.0
Industry	121.3	117.2	122.2	133	144	157	-3.4	4.3	8.8	8.3	9.0
Distribution, Transport	67.1	66.1	68.2	71	74	78	-1.5	3.2	4.1	4.2	5.4
Other Domestic ..	84.1	86.0	91.2	96	100	107	2.3	6.0	5.3	4.2	7.0
Public Administration ..	40.8	41.7	43.6	45	47	49	2.2	4.6	3.2	4.4	4.3
Stock Appreciation ...	-7.0	-7.6	+0.7	+1	-1	—	—	—	—	—	—
Rest of World	28.7	31.8	33.4	32	35	38	10.8	5.0	-4.2	9.4	8.6
National Income ..	454.6	467.0	479.8	508	533	571	2.7	2.7	5.9	4.9	7.1
Plus Taxes on Expend.	91.3	95.0	97.9	103	106	110	4.1	3.1	5.2	2.9	3.8
Less Subsidies ..	-17.3	-15.8	-14.7	-16	-19	-20	-8.7	-7.0	8.8	18.8	5.3
Net National Product at Market Prices ..	528.6	546.2	563.0	595	620	661	3.3	3.1	5.7	4.2	6.6
Depreciation	27.9	30.6	31.6	33	34	36	9.7	3.3	4.4	3.0	5.9
Gross National Product	556.5	576.8	594.6	628	654	697	3.6	3.1	5.6	4.1	6.6

*Sources : 1956-1958 Central Statistics Office, Dublin ; 1959-1961 estimate Economic Research Institute.

EXPENDITURE ON GROSS NATIONAL PRODUCT AT CURRENT PRICES

	£ million*						% increase				
	1956	1957	1958	1959	1960	1961	1957/56	1958/57	1959/58	1960/59	1961/60
Personal Expenditure ..	426.9	436.1	456.3	465	489	525	2.2	4.6	1.9	5.2	7.4
Public Authorities current expenditure	62.4	61.2	63.5	66	69	71	-1.9	3.8	3.9	4.5	2.9
Fixed Capital Formation	89.0	77.2	80.8	85	92	106	-13.3	4.7	5.2	8.2	15.2
Stocks	-7.4	-6.9	-5.0	+21	+7	+2	—	—	—	—	—
Exports	194.4	217.8	220.6	230	255	287	12.0	1.3	4.3	10.9	12.5
Less Imports	208.8	208.6	221.6	239	256	294	-0.1	6.2	7.9	7.1	14.8
Gross National Product	556.5	576.8	594.6	628	654	697	3.6	3.1	5.6	4.1	6.6

*Sources : 1956-1958 Central Statistics Office, Dublin ; 1959-1961 estimate Economic Research Institute.

GROSS DOMESTIC PHYSICAL CAPITAL FORMATION AT CURRENT PRICES

	£ million*						% increase				
	1956	1957	1958	1959	1960	1961	1957/56	1958/57	1959/58	1960/59	1961/60
<i>Fixed Capital</i>											
Dwellings	17.0	11.7	9.9	11	11	12	-31.2	-15.4	11.1	0.0	9.1
Roads	4.5	4.1	4.4	5	5	6	-8.9	7.3	13.6	0.0	20.0
Other Construction ..	34.6	31.1	31.1	33	36	38	-10.1	0.0	6.1	9.1	5.6
Transport Equipment ..	13.4	11.6	14.0	14	14	18	-13.4	20.7	0.0	0.0	28.6
Agric. Machinery .. .	2.8	4.4	4.2	4	4	5	57.1	-4.5	-4.8	0.0	25.0
Other Equipment .. .	16.7	14.3	17.2	18	22	27	-14.4	20.3	4.7	22.2	22.7
Total Fixed Capital Formation .. .	89.0	77.2	80.8	85	92	106	-13.3	4.7	5.2	8.2	15.2
<i>Change in Stocks</i>											
Livestocks	-0.4	-0.1	+3.2	+11	-1	-8	—	—	—	—	—
Other Stocks	-7.0	-6.8	-8.2	+10	+8	+10	—	—	—	—	—
Total Value of Change in Stocks .. .	-7.4	-6.9	-5.0	+21	+7	+2	—	—	—	—	—
Total Gross Domestic Capital Formation ..	81.6	70.3	75.8	106	99	108	-13.8	7.8	39.8	-6.6	9.1

*Sources: 1956-1958 Central Statistics Office, Dublin; 1959-1961 estimate Economic Research Institute.

SAVINGS AND CAPITAL FORMATION

	£ million*						% increase				
	1956	1957	1958	1959	1960	1961	1957/56	1958/57	1959/58	1960/59	1961/60
Private Savings .. .	43.8	50.4	34.4	55	57	57	15.1	-31.7	59.9	3.6	0.0
Government savings ..	2.5	6.1	8.1	8	7	8	144.0	32.8	-1.2	-12.5	14.3
Total Savings (before adjustment for stock appreciation) ..	46.3	56.5	42.5	63	64	65	22.0	-24.8	48.2	1.6	1.6
Adjustment for stock appreciation .. .	-7.0	-7.6	+0.7	+1	-1	—	—	—	—	—	—
Total Savings	39.3	48.9	43.2	64	63	60	24.4	-11.7	48.1	-1.6	-4.8
Depreciation	27.9	30.6	31.6	33	34	36	9.7	3.3	4.4	3.0	5.9
Net Foreign Disinvestment .. .	+14.7	-9.2	+1.0	+9	+1	+7	—	—	—	—	—
Domestic physical Capital Formation ..	81.6	70.3	75.8	106	99	108	-13.8	7.8	39.8	-6.6	9.1

*Sources: 1956-1958 Central Statistics Office, Dublin; 1959-1961 estimate Economic Research Institute.

DISPOSABLE PRIVATE INCOME AND SAVING

	£ million*						% increase				
	1956	1957	1958	1959	1960	1961	1957/56	1958/57	1959/58	1960/59	1961/60
National Income† .. .	461.6	474.6	479.1	507	534	571	2.8	.9	5.8	5.3	6.9
Government trading Income .. .	-12.5	-13.6	-14.5	-15	-16	-17	8.8	6.6	3.4	6.7	6.3
National Debt Interest .. .	14.2	15.5	16.0	17	17	18	9.2	3.2	6.3	0.0	5.9
Other Transfer Income .. .	40.3	43.9	43.8	45	47	50	8.9	-2	2.7	4.4	6.4
Private Income	503.6	520.4	524.4	554	584	622	3.3	.8	5.6	5.4	6.5
Taxes on Income .. .	32.9	33.9	33.7	34	38	40	3.0	-6	.9	11.8	5.3
Disposable Private Income .. .	470.7	486.5	490.7	520	546	582	3.4	.9	6.0	5.0	6.6
Personal Expenditure .. .	420.9	436.1	456.3	465	489	523	2.2	4.6	1.9	5.2	7.4
Private Savings	43.8	50.4	34.4	55	57	57	15.1	-31.7	59.9	3.6	0.0

*Sources: 1956-1958 Central Statistics Office, Dublin; 1959-1961 estimate Economic Research Institute. †Before adjustment for stock appreciation.