

STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.

SYMPOSIUM ON NATIONAL INCOME AND SOCIAL ACCOUNTS

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I.—Contribution by DR. M. D. McCARTHY.

NATIONAL INCOME ACCOUNTS FOR IRELAND, 1938 AND 1944-1949.

The series of tables and notes which form the kernel of this contribution to the Society's symposium on National Income are designed as an appendix to the recent White Paper,¹ which contained the official estimates of National Income and Expenditure for 1938 and 1944-50. In order to make comparison easy and to avoid the repetition of many definitions already given in the White Paper, the various items in the accounts have in the Notes been related to the data given in that document. As was indicated in regard to the official estimates for 1950, the published figures were preliminary and they, therefore, have not been included in the accounts since many revisions would now be necessary in them. Certain changes in the original concepts have been made in order to conform to those used in the Standardised System of National Accounts designed by the National Accounts Research Unit of the Organisation for European Economic Co-operation. The changes are not of major importance in the aggregate and will be found detailed in the Notes. The most important are (a) the inclusion in the total agricultural income for each year of the value of the changes (positive or negative) in the numbers of live stock on farms at end of the year prices; (b) the inclusion of the amount of employers' contributions to Social Insurance in "Compensation to employees" which requires that such contributions, in addition to those from employees, should be regarded as a direct tax on households; (c) the exclusion of Emigrants' Remittances from the total of National Income and their classification as a transfer payment to the Irish economy from the "Rest of the World". These changes do not mean that the system adopted in the present instance is considered as the most suitable from the Irish point of view, but since one object of the preparation of the accounts is to give data for this country in a form in which they can be compared with those for other countries, certain concessions have to be made in the interests of comparability.

While it was possible to make many of the entries in the National Accounts directly from the corresponding figures in the White Paper, in other cases it was necessary to estimate certain items which had been included in global totals, for which official figures were available or, in some instances, to allocate a total between two headings. An example of such a division is to be found in the two series of figures given for "2.4, Direct taxes on Corporations" and for "4.2, Direct taxes on households, etc." It must be clearly understood that such estimates have not official status, and in the circumstances it is hoped

¹ Tables of National Income and Expenditure, 1938 and 1944-50 (Pr. 350).

that attention will be concentrated on the general form and usefulness of the tables rather than on the figures themselves. It is to be anticipated that it will later be found possible to produce official versions of the National Accounts with definitive estimates of the different items, though the system adopted may differ from that given here. The present data should, therefore, be considered mainly as illustrative and as indicating the order of magnitude of the different items. Many technical difficulties have yet to be overcome before completely reliable estimates can be prepared and, in view of this, no attempt will be made to draw inferences from the tables at this stage.

DEVELOPMENT OF NATIONAL INCOME ACCOUNTING.

A few remarks on the origin and growth of national income accounting may be of assistance both in an understanding of the more important characteristics of such a system and of the uses to which it may be put. It is important to realise that its development is not the result of any movement towards centralisation or planning, but arises rather from the increasing complexity of economic activity itself and from the emergence of certain specific economic problems on a national scale. The existence of such problems necessitates decisions on economic policy, and their existence is quite independent of any particular line of policy that may be adopted in regard to them. It may be decided that the proper solution is the adoption of "economic planning", but that is only one of many possible actions. Any other form of action or inaction which is decided on in the given set of circumstances is equally an economic policy.

Once it is admitted that economic problems exist on a national scale to which some sort of solution must be found, it is manifestly essential that the relevant facts for arriving at decisions and formulating a policy should be available. This is not to suggest that facts by themselves provide a sufficient basis for policy formulation. The fundamental philosophy and values of the community must be taken into consideration. Different individuals and different political parties will have widely divergent views as to the proper policy to be pursued on the basis of a given set of facts. Nevertheless, whatever the particular goals or aims of the policy decided on, the basic information about the economy is necessary in order to ensure that the methods adopted to attain the desired ends achieve their purpose. It is quite obvious that many economic policies fail to attain their end, and the cause of their failure can often be traced to the lack of sufficient information or to an inadequate understanding of the relations involved.

It might appear at first sight that all that would be needed to provide adequate data in relation to such national economic problems is the accumulation of more and more accurate and more and more detailed statistical information about every aspect of the economic life of the nation. At the moment in this country, as in all others, there are certain serious lacunæ in the statistics available in regard to certain sectors of the economy, but at the present stage of development of our statistics, it is certainly possible to over-emphasise the lack of data needed for the consideration of economic problems. Masses of unrelated statistics add little to the understanding of the economic system and the very existence of such unorganised material confuses the policy-maker and obscures the issue. If completely detailed data existed on the whole economy, they would, in their

unorganised state, constitute a meaningless chaos even to a skilled technician, and unless all the data are presented to the policy-maker, the picture will be one-sided and biased. It is the existence and misuse of such unorganised information that is often the reason for the statement that statistics will prove anything. By careful selection of certain figures and the suppression of others, it is possible from such an inchoate mass to give a completely distorted picture of the facts. The individual investigator is free, consciously or unconsciously, to present the material in any form which best suits his own views. It is essential that in relation to national economics a completely objective and standard framework should be available which systematises objectively the data in relation to the problems to be solved. It is on theoretical grounds that the division into relevant and irrelevant statistics must be decided and upon such decisions rests the usefulness of the organisation of the data.

One point that should be made here is that it is not necessary for correct policy decisions that the facts on which they are based should be 100 per cent. accurate. For instance, it does not much matter to any general decisions whether the total value of imports of this country in 1951 aggregated £203 million or £204 million. If the statistical data produced is unbiased, if it is ready reasonably quickly and if it is possible to state that the figures used are subject to a known margin of error, which is sufficiently close so as not to affect the decisions based on them, the statistician has fulfilled his rôle. That is not to say that we statisticians take our responsibility in the matter of accuracy of the statistics lightly, but it is essential that policy-makers and administrators generally should not make a fetish of exactitude, which is, incidentally, attainable only at an exorbitant cost, but should know and appreciate the amount of precision required in statistical data which is to be used for the purpose of formulating economic policy. Such a statement is particularly relevant in the case of national income statistics. The field to be considered is wide and figures have to be prepared with the minimum of delay, since out-of-date information is of little use, so that inevitably inaccuracies arise in the estimations. The national income statistics are estimates and, only in the very exceptional case, really firm figures should be borne in mind. This does not take from their usefulness for the purpose for which they are designed. The technical improvement of the statistics can safely be left to the statisticians whose job it is to prepare the figures. It is the rôle of this Society and of economists in this connection to criticise the theoretical framework of the tables, to say whether or not they are the totals best designed to measure the effects of economic policies.

Up to the early 'thirties very little organised work on national income had been carried out by Governments. Most of the research had been done by theoretical economists. Their attention was mainly concentrated on the building up of totals which would show for a series of years the sum of the incomes of all individuals in a given country. At that time, the usual procedure was to use revenue statistics and similar sources on one hand to estimate directly the aggregate of income received, and on the other to consider the production of goods and services in the community and the expenditure on them. These latter figures, when properly computed and suitably adjusted, provide the basis for an indirect estimation of the total amount of income payments and thus give an independent total for

national income. Apart from the allocation of the totals among the various types of income arising, there was, at this stage, little attempt to construct a framework which would synthesise the information both for the economy as a whole and for its various parts.

In the U.S.A. especially, the depression of the 'thirties gave a great impetus to work on national income. All sorts of changes took place in the economy which it became essential for analytic purposes to measure. The effect of the increase in unemployment, the decline in wage rates and in profits, the consequent effect on the consumption and saving of the community and on Government revenues had to be estimated in order that remedial measures might be attempted. Then there came the war and the system of national accounts provided essential information both as to the possibility and magnitude of the quantitative controls needed, as to the redistribution of manpower and of productive effort that had to be undertaken and of the best methods of financing the war. It was the war, too, that led to the development of national income and expenditure estimates in Great Britain and the first such official statistics were presented by the Chancellor of the Exchequer in connection with the Budget in April, 1941, in *An Analysis of the Sources of War Finance and an Estimate of the National Income Expenditure in 1938 and 1940* (Cmd. 6261).¹ In 1947 appeared the first fully integrated system of social accounts for the United Kingdom and a similar analysis has appeared regularly since in conjunction with each Budget Statement. Most countries now attempt to draw up such accounts for their economies annually.

Here in Ireland the development was much the same. The first estimates were made by private research workers. Dr. T. J. Kiernan prepared an estimate of national income for 1926 in the *Economic Journal* of March, 1933² and in an address to this Society in the following June made an estimate of the national expenditure in the same year.³ In an appendix to the Report of the Banking Commission, 1938⁴ appeared Professor Duncan's estimates of national income for the years 1929 and 1931-1935, and in a paper⁵ to this Society in October, 1939, he gave estimates for the years 1926, 1929, 1931, 1936 and 1936-38 with a conjectural estimate for 1939. Official figures were published covering the years 1938-44⁶ and 1938, 1944-50⁷, and it is intended to continue such estimates annually in future. The next obvious extension is the preparation of a system of social accounts for our economy. Some tables which appeared in the recent White Papers might form part of a system of social accounts, e.g., the Savings-Investment table, and the development merely requires a not very considerable extension of the items estimated.

¹ For an account of how this White Paper came to be prepared, see an essay on "The Use and Development of National Income and Expenditure Estimates" by Richard Stone in *Lessons of the British War Economy*.

² T. J. Kiernan, "The National Income of the Population of the Irish Free State in 1926," *Economic Journal*, March 1933, pp. 74-87.

³ T. J. Kiernan, "The National Expenditure of the Irish Free State in 1926," *Journal of the Statistical & Social Inquiry Society of Ireland*, 1932-3, pp. 91-103.

⁴ *Report of the Commission of Inquiry into Banking, Currency and Credit, 1938*, Appendix, 7, pp. 426-484.

⁵ G. A. Duncan, "The Social Income of the Irish Free State, 1926-35," *Journal of the Statistical and Social Inquiry Society of Ireland*, 1939-40, pp. 1-16.

⁶ National Income and Expenditure, 1938-1944 (P. No. 7356).

⁷ Tables of National Income and Expenditure, 1938 and 1944-50 (Pr. 350).

A SYSTEM OF NATIONAL ACCOUNTS.

The system of national accounts presented herewith is that elaborated in "A Standardised System of National Accounts" published in a vari-type edition by the National Accounts Research Unit of the Organisation for European Economic Co-operation, November, 1951, and from that publication the basic descriptions are largely drawn.

The system of accounts in question is a relatively simple one and may not be sufficient for all purposes. The preparation of a separate appropriation account for enterprises is an obviously useful extension, while some detail on the capital side of the rest of the world account would also be desirable. It has, however, the advantage of illustrating the principles without confusion. It presents a picture of the main structure of the economy and of the inter-relations between the principal types of economic unit. In making such a systematic record the whole economy is divided into its principal constituent sectors and all economic transactions within the country and between it and other countries are classified into the relevant flows. The various entries in the table are the estimates of the magnitude of these flows. Nevertheless, for the purpose of interpretation of the tables it is very necessary to refer to the general corpus of economic statistics relating to employment, production, trade, etc.

The national economy for the purpose of these tables records the transactions carried out by the *normal residents* of the country and the national income (or net national product at factor cost) is the factor income accruing to these normal residents. Various difficulties arise in the definition of normal residents which need not detain us. A distinction is made between domestic product and national product in that the former excludes the factor income received by residents from the rest of the world but includes the contribution to domestic production by residents of other countries. Domestic product is the aggregate product resulting from all economic activity taking place on the domestic territory of the country.

Before proceeding to explain any system of national accounts, it is necessary to specify and define the sectors of the economy which are to be considered as distinct, as well as the different types of account which have to be prepared for each sector. Each of these sectors relates to a particular type of economic activity and the different accounts prepared for each sector include economic transactions of a particular type from the point of view of the transactor in that sector.

The domestic economy of the country is in the accounts shown divided into three sectors:

- (i) Business enterprises.
- (ii) General government covering all public authorities, central and local.
- (iii) Private householders and non-profit making institutions.

It is not intended to attempt the exact definition of these sectors here, but it may be indicated that the first, business enterprises, contains both all incorporated and all non-incorporated enterprises engaged in the production of goods and services for sale to the public at an economic price. It includes such enterprises as farms, retail shops, craftsmen working on their own account, professional men and all

private persons in their capacity as landlords, whether or not they occupy their own property. It also includes all Government and local authority enterprises which come within the purview of the Census of Industrial Production as well as the Postal, Telephone and Telegraph services of the Department of Posts and Telegraphs, semi-state corporations such as the Electricity Supply Board, Bord na Móna, Aer Lingus, Irish Shipping, the Irish Assurance Company, the Agricultural and Industrial Credit Corporations and the Central Bank.

The Government sector comprises all forms of activity undertaken by central and local authorities other than those included in business enterprises. It includes in addition to Government agencies in the narrow administrative sense all the extra-budgetary activities in respect of social insurance, etc.

Households and private non-profit making institutions comprise all individuals who are normal residents of the State as well as private organisations which are not primarily established with a view to earning a profit or to rendering services to enterprises.

The most convenient method of presenting the structure of the national accounts is to set out the various accounts which, conceptually at least, are to be kept for each sector and from the amalgamation of which the national accounts emerge. This procedure will have the advantage of indicating those flows which are recorded and will show their precise nature and how they are articulated. These sector accounts are four in number and are, of course, prepared on the familiar double entry system, viz.:

- (i) Production Account.
- (ii) Appropriation Account.
- (iii) Capital Transactions Account.
- (iv) External Account.

The first of these, the *Production Account*, presents the revenue and expenditure connected with the productive activity of the sector. This shows on the credit side:

- (a) Proceeds of sales outside the sector and to the capital account within the sector;
 - (b) Subsidies accruing to the sector;
 - (c) Value of the physical increase of stocks held by the sector,
- and on the debit side:
- (d) Materials, Fuel, etc., purchased outside the sector;
 - (e) Indirect Taxes;
 - (f) Depreciation and other operating provisions;
 - (g) Net value added by the sector.

This final item is equal to the factor income generated in the sector and represents the total amount gained in the sector from all its productive activity. In this item is included wages, salaries and other compensation of employees, interest other than interest on consumers' debts and the operating profit. This item (g) is then transferred to the credit side of the *appropriation account* where also is included:

- (h) The sector income from investments and current transfers from other sectors including those from the rest of the world.

On the debit side of the appropriation account is entered :

- (i) Current transfers to other sections including direct taxation;
- (j) Current expenditure on consumers' goods;
- (k) Saving of the sector.

The last item also appears on the credit side of the *capital transactions account* on which is also entered item (f) depreciation and other operating provisions of the sector as well as

- (l) capital transfers and borrowings from other sectors and the rest of the world.

On the debit side of this account appear

- (m) The asset formation of the sector;
- (n) The capital transfers and lending of the sector.

The final account, the *external account*, is used to provide a closed system. It contains as credits all the foregoing debit items ((d), (e), (i), (g), (m) and (n)) which are not also credit items in one of the other accounts of the sector and as debits all the corresponding credit items ((a), (b), (h), (l)) which have not been cancelled similarly.

These four accounts, if drawn up for each of the three sectors mentioned, would give in all twelve accounts for the economy and would show respectively revenue and expenses involved in the production of each sector, the various current financial transactions relating to the activity of each sector, the capital transactions of each sector, its savings and asset formation, and finally the flows, both capital and current, between that sector and the other sectors distinguished, as well as with the rest of the world. The accounts for each sector are, of course, consolidated for all the individual units within the sector and thus, apart from sales to the capital account, omit all intra-sector transactions. In the system of accounts shown not all these individual sector accounts are presented. They are further consolidated into six accounts with certain rearrangements of the entries in order to make each of the accounts relate to some of the important aggregates such as gross national product, at market prices, national income, gross addition to national wealth, etc. This final consolidation is desirable but is not essential theoretically. Some of the individual sector accounts are of little interest practically, for instance the production account for households would relate only to the provision of paid domestic service.

Account 1. National Product and Expenditure Account is a somewhat modified version of the consolidated production account for the whole economy. Certain rearrangements of the entries are made in order that the total of each side of the account may give gross national product and expenditure. In order to achieve this end the following changes are made :

- (i) Subsidies (Item (b) listed above) are transferred from the credit side of the account and entered as a deduction on the debit side.
- (ii) That portion of Item (d) above which represents the purchase of goods and services from the rest of the world (i.e., the imports of the country including both the visible imports and the import of services) are transferred from

the debit side of the account and shown as a deduction from the credit side.

- (iii) Factor incomes received from and payable to the rest of the world have been transferred from the appropriation account and entered in this account in order that the total of the debits and credits may give the gross national instead of the gross domestic product and expenditure. The factor payments in question are included in the credit side of the account, payments received from the rest of the world as a positive entry with exports in 1.8 and factor income payable to the rest of the world with imports in 1.9 as a deduction.

A consolidated appropriation account for the economy might be derived from the consolidation of Accounts 2, 3 and 4. It is easily seen that such a consolidation would result in the cancellation of the following pairs of items 2.1 and 4.5, 2.2 and 4.6, 2.4 and 3.10, 2.5 and 3.6, 2.6 and 3.7, 3.3 and 4.7, 3.9 and 4.2. Such amalgamation would leave on the debit side

3.1 + 4.1	Current expenditure on goods and services by consumer and by government
3.2	Subsidies
3.4 + 4.3	Total current transfers to the rest of the world
2.3 + 3.5 + 4.4	Total saving

and on the credit side

2.7	National Income
3.8	Indirect Taxes
3.11 + 4.8	Total current transfers from the rest of the world

An account of this form does not yield much of interest and instead *Account 2* shows the *Allocation of National Income*, while *Accounts 3 and 4* are the *Consolidated Appropriation Accounts of Government and of Households*. *Account 2* may be in a sense considered as the appropriation account related to the production account given in the first table. The Government account shows the income whether from property and entrepreneurship, taxation or otherwise, currently accruing to Government and the allocation of this income to expenditure on current goods and services, subsidies, transfer payments and saving. The account for households shows on the credit side the income of households (personal income) gained from participation in economic activity (including personal rent), together with transfer payments from Government and the rest of the world, and on the debit side the expenditure of this income as allocated between expenditure on consumers' goods and services, direct taxes, current transfers to the rest of the world and personal saving.

Account 5. Consolidated Capital Transactions Account sums up the capital transactions of the three domestic sectors. It shows on the debit side the gross domestic asset formation and the net lending to the rest of the world, an entry which is negative when there is a net decrease in the foreign assets of the nation. The net increase in national assets may be arrived at by subtracting from this side item 5.3, the depreciation provisions, which are transferred to the credit side of this account from *Account 1*. The remaining items on the credit side of the account show the method of financing this net domestic investment by the savings of the various sectors.

Account 6. Consolidated Account for the Rest of the World differs from the other accounts in containing both capital and current items and is conceptually arrived at by the consolidation of the external accounts for the three domestic sectors. It summarises all transactions, both capital and current, between the normal residents of the country and foreigners, and is closed on the credit side by an entry for the net lending to the rest of the world.

The Conceptual Framework of National Accounts.

At the outset it was stated that no attempt would be made to make any deductions from the figures presented in the national accounts. Instead in this contribution attention is concentrated on the concepts used and on the methods adopted for estimation both in the accounts themselves and in the White Paper on which they are based. The Central Statistics Office would value highly any informed criticism of its efforts in this field. Certain defects in the White Paper have come to light in the preparation of the national accounts, which will be clear to anybody who makes a careful comparison of the annotations to the two sets of data. If any other such defects exist it is hoped that they will be discovered by discussions such as that in this Society. Furthermore, apart from any flaws in the concepts themselves, the Office would welcome demands for the estimation of the values of any other items or flows which may be considered economically significant. It is only by such demands for the purpose of development of economic analysis that progress can be made. The elements of national income accounts can be used as building blocks to be rearranged for different purposes. It is the duty of such bodies such as this Society and the University Departments of Economics to say what basic "blocks" they need, and if they do, every effort will be made to provide them.

The national accounts themselves might conceivably be prepared on the basis of the consolidation of the accounts of individual units in the various sectors. In point of fact, however, many units, especially households and such economic enterprises as farms, never keep accounts at all. Other units keep such accounts but do so on so many different bases that amalgamations would be meaningless. For instance the basis of the provision for depreciation varies from firm to firm and the profits shown in the published accounts may differ considerably from those assessed to income tax which, by and large, are fairly close to those defined by economic theory, apart from the vexed question of depreciation. It is not, therefore, possible to proceed on these lines. Neither has it been found possible so far to attempt to keep the national accounts so that they reflect the costs and profits of various transactions to the community as a whole, desirable as such a system might be. What is done is to prepare the accounts, not from the viewpoint of the community as a whole but from that of the individual transactor with the assumption that he is "reasonable", that is, that he adopts the conventions and principles which are defined with an eye both to their usefulness in economic analysis and their manageability from the statistical viewpoint.

Once the broad lines of the inquiry are laid down, it is to economic theory one must look to provide the framework and concepts for the analysis. Thus Economics will provide the definitions of such items as income, consumption and saving, direct and indirect taxation, etc.,

and the theory of, say, "rational" consumers' behaviour, etc., which will integrate them into a neat system. But from the point of view of the statistician it is then the trouble begins, for in the actual work many situations arise which are assumed away at the theoretical level and, more important, the theoretical concepts are not expressed in operational terms. To the practical physicist a "length" is not a philosophical concept but a number at which he arrives as the result of the application of a certain procedure of measurement. In the same way "profits" or "income" or "savings" to the statistician or applied economist are totals which are to be obtained as the result of the application of certain set of classifications, rules or conventions in the formulation of which little guidance is given by economic theory. For instance in the assessment of "profits" in private industry it is impossible to say how much of the profit in any industry or firm represents monopoly gains, and no distinction is made in such a case. Certain kinds of activity are sometimes organised on the basis of Government or semi-State monopolies, and the prices are fixed so as to yield a substantial surplus which in other countries is obtained by placing an indirect tax on the products of private enterprises. Is the surplus in question to be considered as a profit or an indirect tax? One might consider it a "profit", but then the total so obtained is very far from the usual concept of this item and gives in the aggregate a heterogenous total. One might, on the other hand, drop the distinction between indirect taxes and profits altogether, but that leads to a different and equally undesirable heterogeneity in the total obtained. What one does in practice is, of course, to introduce a convention which will endeavour to preserve the distinctions which are worth preserving and yield totals which satisfy a certain number of relations between well-defined aggregates, deciding in favour of those which are found by experience to give data of use in analysis.

One of the most useful functions that this Society can perform in relation to the computations of national income is to provide a forum in which the conventions, which those who make the estimations have to use, are criticised. If these "rules" have shortcomings from the point of view of the economists, it is up to them to say so and their criticism must be constructive and not merely destructive. All the conventions used in the recent estimations of the various elements of national income in this country have been set out at length in the notes to the different tables, and though the absence hitherto of any criticism whatsoever of this aspect of the work might be taken as a compliment to the work of the compilers, it is far more likely to be due to lack of interest among those who have the duty and should have the ability to provide such criticism. If what is given in the tables is not conceptually correct from the economists' point of view, it is up to them to say so. They need not add that it is impossible to produce the relevant figures for, to the statistician, the "impossible" is only a little more difficult to attain than the possible.

The Uses of National Accounts.

The primary usefulness of national income accounting lies in the fact that it gives a systematic record of the basic information about the economic activity of the country as a whole. This is presented in such a way that it gives an unbiassed picture and it is designed to furnish material that is useful in carrying out economic analyses. It presents for the economy as a whole what a proper system of

accounts gives to the manager of a business concern. The accounts themselves, no matter how adequate, do not guarantee the success of the firm or of the State. There is no magic rule to be applied to the figures by which either the manager of the firm or the Government can solve all the problems which arise. But to understand what is taking place either in the business or in the whole economy, the accounts are vitally necessary. One essential rôle that they play is to ensure that when any policy is being discussed it is considered not merely in its immediate effects but in its relation to the economic structure of the business or State as a whole.

It is not possible on an occasion such as this to do more than indicate some of the ways in which national accounts can be used. They provide, in the first instance, a measure of the general level of economic activity in the economy which is the best overall economic barometer. Gross national product at market prices gives a measure of national output, and one of the pressing needs of the system at the moment is the development of a series of price index numbers which will adequately deflate the elements of this total for changing prices. If this were done it would give a measure of the changes in the total physical output of the economy both of goods and services and in its various constituents.

By the deduction of capital consumption allowances (or depreciation) from gross national product we arrive at net national product at market prices which yields another measure of output, one in which provision has been made for the contributions of past production to output by allowing for the total of capital goods used up in the economy during the period. Still a further measure is got by adding in subsidies and deducting indirect taxes to get the net national product at factor cost (or national income) which is the amount paid to the factors of production in return for their contributions to output. These are all different ways of evaluating the production of the economy and have their uses for various purposes.

The analysis of national income by the sector in which it originates gives a picture of the structure of the productive activity in the country. It indicates the relative importance of the various industries, and if it were supplemented by a table showing the various inter-industry transactions, would provide a basis for the allocation of the resources of the community between the different forms of activity. Such tables proved of vital interest when, under stress of war, rigid planning of resources has to be undertaken in other countries.

The tables showing the utilisation of gross national product indicate the relative importance of goods and services consumed by individuals, those bought by Government and those devoted to formation of capital for use in future economic activity. It also shows whether a portion of current production has been devoted to net exports to foreign countries or whether net imports from foreign countries have permitted total consumption for all purposes to exceed total production.

National accounting is undoubtedly useful in organising the economic information about the economy, in co-ordinating the data and in ensuring that it is systematically presented. Although it is in no sense a sufficient basis for formulating economic policy, it should be of considerable help in answering certain questions which help in policy formulation and it has the further advantage that since the

accounts form an articulated system, it enables the secondary effects of the policies to be taken into account and, in fact, if it is used, it forces such an analysis on the user.

As an example let us suppose that it is considered desirable that the capital formation (i.e., Item 5.1) in the economy should be increased and that the Government should take action to increase its saving to this end. Let us further suppose that it is proposed that this should be brought about not by a change in Government current expenditure on goods or services but by increasing the tax income of public authorities and that the actual mechanism proposed is increased direct taxation of individual incomes. It is true that in this country a big number of individual incomes, those earned in agriculture, largely escape such taxation. Nevertheless, the effect of such a step is to increase Item 4.2, direct taxes on households, and in the first instance individuals would be forced to curtail either their personal savings (Item 4.4) or their expenditure on current goods or services (Item 4.1). In practice it is probable that both items will absorb some part of the decrease. In as much as Item 4.4 decreases, since this entry also appears as Item 5.6, in order to attain an increase in domestic asset formation of a given amount, it is necessary to budget for an increase in taxation equal to the desired increase in the level of capital formation together with the contraction which takes place in the amount of personal savings. Hence the net effect of the change should first of all be to cause a decrease in consumers' expenditure on current goods and services of an amount equal to the required increase in the amount of asset formation.

In examining the further effects of the measures on the economy, it is convenient theoretically to make a distinction between the direct effect of the contraction of consumers' expenditure and that of the increased expenditure by the Government for the production of capital goods. This is not to suggest that one will occur before the other. In fact their operation would probably be simultaneous and the resultant in actual practice at any time would be the sum of the effect of the two processes.

The first impact of the decrease in consumers' demand would be that, in the domestic field, the producers of consumers' goods would receive fewer orders and would, therefore cut back production, while there would also probably be a decrease in the imports of such goods. A decline in the imports of raw materials for consumers' goods would follow, the total fall in imports being the sum of the two decreases. Some unemployment would be caused and this would result in a decline in Item 2.1, compensation of employees, with a resultant reduction of the national income and of the gross national product. This decrease in wages and salaries would in turn fall to be entered in Account 2 for households, and individuals would undoubtedly react to this decline in their incomes by cutting their expenditure and savings again. This secondary effect would again cause producers to sell less and, to a smaller degree, the earlier process would be repeated. Thus, neglecting for the moment any offsetting effects in the economy, the operation of this factor alone would eventually mean that, after a period, national income and gross national product would tend to an equilibrium value at a somewhat lower level than before with probably an increase in the rate of lending to the rest of the world due to the decrease in the volume of imports.

Meantime, however, the taxation surplus would be available to the

Government for use in increased domestic asset formation, let us say, for the sake of precision, on the production of houses. Some readjustment of the system caused in the first instance by the decline in the demand for consumption goods, etc., cannot be avoided. The effect of this on employment and employee remuneration, etc., will tend to be offset when the increase in the wages, salaries and profits in the building trade, together with an increase in the imports of building materials occurs. There will probably be some transfer of manpower from the production of consumers' goods to that of capital goods. The output of consumers' goods will tend to fall with, after the initial dislocation, perhaps no drop or even an increase in personal income. The factor income arising from the production of capital goods will not be represented in the production of consumers' goods and services, and there will, therefore, tend to be either a price increase in the case of such goods or an increased import of them. The short-term effect on the balance of trade will depend on the relative magnitude of the various items and on the time lags and frictions which occur during the changes in the economy. Ultimately, however, as a result of both processes, it is probable that the reduction in personal savings would result in a decrease in lending to the rest of the world, or an increase in foreign disinvestment, coupled with the decrease in consumers' expenditure necessitated by the diversion of resources from the production of consumers' goods to that of capital goods.

This rather cursory analysis on a qualitative basis indicates the way in which the use of a system of national accounts forces on the user a precise analysis of the effects of various changes. The quantitative application in practice is not, of course, as simple as might appear from the foregoing account of it, but it is hoped that sufficient has been said to indicate that the use of the accounts not only enables the policy makers to make projections of the effects they believe their policies will have, but forces them to follow the effects through the different accounts. The separate accounts, presented as they usually are, when used for forecasting, on the basis of constant prices, will balance and tie with each other only if the net increase in output does not exceed the assumed change in available resources. The use of the accounting system makes it possible to see if the proposed economic policy is consistent with itself and whether it can be expected to produce a result superior to the current method of using available resources. It would be a useful exercise for policy makers to project into the near future the probable values of the various items in the different tables on the basis of past experience and of a rational expectation of the effects of their proposed policies. The fact that the tables must balance will be found to impose a salutary curb on the extravagance of many ambitious projects.

IRELAND.

Account 1. National Product and Expenditure Account.

Debit									Credit								
No.	Category	1938	1944	1945	1946	1947	1948	1949	No.	Category	1938	1944	1945	1946	1947	1948	1949
£ million									£ million								
1.1	National income (2.7).	155.4	248.0	267.7	277.9	304.1	329.5	349.3	1.5	Consumers' expenditure on goods and services (4.1).	145.6	209.1	223.5	238.6	286.4	304.9	314.2
1.2	Depreciation and other operating provisions (5.3).	4.2	4.6	4.8	5.9	7.5	8.0	8.4	1.6	Government current expenditure on goods and services (3.1).	22.5	33.2	35.9	36.1	38.2	40.8	43.7
1.3	Indirect taxes (3.8)	24.1	29.4	32.4	35.7	44.3	49.0	51.0	1.7	Gross domestic asset formation (5.1).	14.4*	9.7	13.3	28.4	56.8	51.7	54.9
1.4	Less: Subsidies (3.2).	2.0	6.3	6.8	5.9	13.6	17.1	15.2	1.8	Sales of goods and services to the rest of the world and factor income payments from the rest of the world (6.1).	48.2	60.8	75.4	92.9	103.5	120.5	123.6
									1.9	Less: purchases of goods and services from the rest of the world and factor income payments to the rest of the world (6.5).	49.0	37.1	50.0	82.4	142.6	148.5	142.8
	Gross National Product at market prices.	181.7	275.7	298.1	313.6	342.3	369.4	393.5		Gross National Expenditure at market prices.	181.7	275.7	298.1	313.6	342.3	369.4	393.5

*Change in value of stocks (other than livestock) included in (1.5).

IRELAND.

Account 2. National Income Account.

Debit									Credit								
No.	Category	1938	1944	1945	1946	1947	1948	1949	No.	Category	1938	1944	1945	1946	1947	1948	1949
£ million									£ million								
2.1	Compensation of employees (4.5).	78.5	109.4	120.1	130.8	150.4	166.0	176.2	2.7	National income (1.1).	155.4	248.0	267.7	277.9	304.1	329.5	349.3
2.2	Income from property and entrepreneurship accruing to households, etc. (4.6).	73.3	129.2	135.1	132.5	138.0	150.4	159.3									
2.3	Saving of corporations (5.5).	1.7	3.4	6.1	7.3	7.7	5.7	7.6									
2.4	Direct taxes on corporations (3.10).	1.7	6.0	6.2	7.0	7.6	7.0	5.9									
2.5	Government income from property (3.6).	2.5	2.8	3.0	3.3	3.4	3.6	3.9									
2.6	Less: Interest on the public debt (3.7).	2.3	2.8	2.8	3.0	3.0	3.2	3.6									
	National Income	155.4	248.0	267.7	277.9	304.1	329.5	349.3		National Income	155.4	248.0	267.7	277.9	304.1	329.5	349.3

IRELAND.

Account 3. Consolidated for Appropriation Account General Government.

		Debit									Credit						
No.	Category	1938	1944	1945	1946	1947	1948	1949	No.	Category	1938	1944	1945	1946	1947	1948	1949
		£ million									£ million						
3.1	Government current expenditure on goods and services (1.6).	22.5	33.2	35.9	36.1	38.2	40.8	43.7	3.6	Government Income from property and entrepreneurship (2.5).	2.5	2.8	3.0	3.3	3.4	3.6	3.9
3.2	Subsidies (1.4).	2.0	6.3	6.8	5.9	13.6	17.1	15.2	3.7	Less: Interest on the public debt (2.6).	2.3	2.8	2.8	3.0	3.0	3.2	3.6
3.3	Current transfers to households, etc. (4.7).	8.9	9.6	10.9	10.7	13.4	14.8	16.4	3.8	Indirect Taxes (1.3)	24.1	29.4	32.4	35.7	44.3	49.0	51.0
3.4	Current transfers to the rest of the world (6.6).	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.9	Direct taxes on households, etc. (4.2).	9.3	15.1	16.7	15.9	17.3	20.9	24.0
3.5	Saving of government (5.4).	1.7	1.2	1.7	6.0	4.2	4.4	5.7	3.10	Direct taxes on corporations (2.4).	1.7	6.0	6.2	7.0	7.6	7.0	5.9
									3.11	Current transfers from the rest of the world (6.2).	—	—	—	—	—	—	—
	Current expenditure and savings of general government.	35.3	50.5	55.5	58.9	69.6	77.3	81.2		Current revenue of general government.	35.3	50.5	55.5	58.9	69.6	77.3	81.2

IRELAND.

Account 4. Consolidated Appropriation Account for Households and Private Non-profit Institutions.

No.	Category	Debit							No.	Category	Credit						
		1938	1944	1945	1946	1947	1948	1949			1938	1944	1945	1946	1947	1948	1949
		£ million									£ million						
4.1	Consumers expenditure on goods and services (1.5).	145.6	209.1	223.5	238.6	286.4	304.9	314.2	4.5	Compensation of employees (2.1).	78.5	109.4	120.1	130.8	150.4	166.0	176.2
4.2	Direct taxes on households, etc. (3.9).	9.3	15.1	16.7	15.9	17.3	20.9	24.0	4.6	Income from property accruing to households, etc. (2.2).	73.3	129.2	135.1	132.5	138.0	150.4	159.3
4.3	Current transfers to the rest of the world (6.7).	—	0.2	0.2	0.4	0.3	0.4	0.3	4.7	Current transfers from Government (3.3).	8.9	9.6	10.9	10.7	13.4	14.8	16.4
4.4	Saving of households, etc. (5.6).	8.8	33.1	35.3	28.9	7.5	13.8	23.4	4.8	Current transfers from the rest of the world (6.3).	3.0	9.3	9.6	9.8	9.7	8.8	10.0
	Expenditure and saving of households and private non-profit institutions.	163.7	257.5	275.7	283.8	311.5	340.0	361.9		Income of households and private non-profit institutions.	163.7	257.5	275.7	283.8	311.5	340.0	361.9

IRELAND.

Account 5. Consolidated Capital Transactions Account.

No.	Category	Debit							No.	Category	Credit						
		1938	1944	1945	1946	1947	1948	1949			1938	1944	1945	1946	1947	1948	1949
		£ million									£ million						
5.1	Gross domestic asset formation (1.7).	14.4*	9.7	13.3	28.4	56.8	51.7	54.8	5.3	Depreciation and other operating provisions (1.2).	4.2	4.6	4.8	5.9	7.5	8.0	8.4
5.2	Net lending to the rest of the world (6.8).	2.0	32.6	34.6	19.7	-29.9	-19.8	-8.6	5.4	Saving of government (3.5).	1.7	1.2	1.7	6.0	4.2	4.4	5.7
									5.5	Saving of corporations (2.3).	1.7	3.4	6.1	7.3	7.7	5.7	7.6
									5.6	Savings of households, etc. (4.4).	8.8	33.1	35.3	28.9	7.5	13.8	23.4
									5.7	Net capital transfers from the rest of the world (6.4).	—	—	—	—	—	—	1.1
	Gross addition to national wealth.	16.4	42.3	47.9	48.1	26.9	31.9	46.2		Gross addition to national wealth.	16.4	42.3	47.9	48.1	26.9	31.9	46.2

*Change in value of stocks (other than livestock) included in (1.5).

IRELAND.

Account 6. Consolidated Account for the Rest of the World.

No.	Category	Debit							No.	Category	Credit						
		1938	1944	1945	1946	1947	1948	1949			1938	1944	1945	1946	1947	1948	1949
		£ million									£ million						
6.1	Purchases of goods and services from the nation and factor income payments to the nation (1.8).	48.2	60.8	75.4	92.9	103.5	120.5	123.6	6.5	Sales of goods and services to the nation and factor income payments from the nation (1.9).	49.0	37.1	50.0	82.4	142.6	148.5	142.8
6.2	Current transfers to government (3.11).	—	—	—	—	—	—	—	6.6	Current transfers from government (3.4).	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6.3	Current transfers to households, etc. (4.8).	3.0	9.3	9.6	9.8	9.7	8.8	10.0	6.7	Current transfers from households (4.3).	—	0.2	0.2	0.4	0.3	0.4	0.3
6.4	Net capital transfers to the nation (5.7).	—	—	—	—	—	—	1.1	6.8	Net borrowing from nation (5.2).	2.0	32.6	34.6	19.7	-29.9	-19.8	-8.6
	Total ..	51.2	70.1	85.0	120.7	113.2	129.3	134.7		Total ..	51.2	70.1	85.0	102.7	113.2	129.3	134.7

NOTES TO NATIONAL ACCOUNTS

The figures in brackets refer to items correspondingly numbered in the White Paper "Tables of National Income and Expenditure, 1938 and 1944/50."

Account 1

- 1.1 Equals item (11) plus value of increase in farm livestock numbers minus emigrants' remittances.

	1938	1944	1945	1946	1947	1948	1949
	£ million						
Item (11)	158.2	253.8	277.1	289.8	318.1	334.1	352.1
Livestock Changes ..	+0.2	+3.3	—	—2.5	—4.6	+3.8	+6.9
Less Emigrants' Remittances (net) ..	3.0	9.1	9.4	9.4	9.4	8.4	9.7
Adjusted National Income	155.4	248.0	267.7	277.9	304.1	329.5	349.3

- 1.2 Equals item (30)

- 1.3 Equals item (51)

- 1.4 Equals item (55)

- 1.5 Equals item (22) less transfer payments in kind which are considered to be part of Government consumption in the system presented here, plus interest on public debt paid to the rest of the world.

In the OEEC system social security payments in kind are also considered as Government consumption and other transfer payments in kind as current transfers to households, and are therefore included in consumers' expenditure on goods and services. All transfer payments in kind are here treated as government consumption and the amounts are

	£ million			
1938	0.7
1944	3.1
1945	3.0
1946	3.1
1947	3.1
1948	3.0
1949	3.1

- 1.6 Equals item (25) plus transfer payments in kind (see above) less item 3.4 and less interest on public debt paid to the rest of the world.

- 1.7 Equals items (27) plus (28) plus (29) plus the value of the changes in livestock numbers (cf. note to 1.1).

- 1.8 Equals total on credit side of current account of the Balance of Payments Statement less item 4.8.

- 1.9 Equals total on debit side of current account of the Balance of International Payments Statement less item 4.3 and less item 3.4.

Account 2

- 2.1 Equals items (2) plus (8) plus (9) plus employers' contribution to social insurance as follows:—

	£ million			
1938	1.2
1944	1.2
1945	1.3
1946	1.3
1947	1.4
1948	1.7
1949	2.1

- 2.2 Computed as a residual item so as to incorporate all changes from the concepts in the White Paper as well as to allow for the allocations to the other entries in the table as detailed in the notes. Because of the method of computation this item will contain the total interest on the Public Debt paid to the rest of the world (of the order of £0.2 million).

- 2.3 Revised figure for (39). In the White Paper (36) should have differed from (39) by the amount of direct taxation on corporate enterprises. The effect of this revision is to reduce the total of this item for each year by an amount equivalent to the estimated tax on the undistributed profits of corporations, in addition to certain adjustments which have been made in the allocation of profits.
- 2.4 Not estimated separately in the White Paper. This item includes corporation profits tax, excess corporation profits tax and that part of income tax attributed to undistributed profits of corporations (see 2.3).
- 2.5 Equals item (33) together with the income of Government on foreign investments.
- 2.6 The total interest on the Public Debt. This figure was not given explicitly in the White Paper since the method of computation of income used automatically excluded this interest income.

Account 3

- 3.1 See 1.6.
- 3.2 See 1.4.
- 3.3 Equals item (56) less item 2.6 less transfer income in kind (see 1.5).
- 3.4 The annuity of £ $\frac{1}{4}$ million paid to the British Government under the Damage to Property (Compensation) (Amendment) Act, 1926.
- 3.5 Equals item (40) adjusted for the inclusion of income from investments abroad in item 2.5.
- 3.6 See 2.5.
- 3.7 See 2.6.
- 3.8 See 1.3.
- 3.9 Equals total of direct taxation (including employees' and employers' contribution to social security), i.e. item (50) less item 2.4. Note that the total Social Security payments are considered as paid by way of remuneration to employees and then considered as a direct taxation on households.
- 3.10 See 2.4.
- 3.11 Negligible.

Account 4

- 4.1 See 1.5.
- 4.2 See 3.9.
- 4.3 The Debit entry in item (17) of the Balance of International Payments Statement, i.e. outgoings in respect of emigrants' remittances and legacies.
- 4.4 Balancing item. Equals (38) corrected because of adjustment in corporate savings and savings of government, plus value of increases in farm livestock numbers.
- 4.5 See 2.1.
- 4.6 See 2.2.
- 4.7 See 3.3.
- 4.8 Equals item (10) plus 4.3, i.e. gross inflow in respect of emigrants' remittances and legacies.

Account 5

- 5.1 See 1.7.
- 5.2 Equals (26) except for the year 1949 when £1.1 million of the deficit in the Balance of Payments was financed by ECA grant which is recorded as a capital transfer in item 5.7.
- 5.3 See 1.2.
- 5.4 See 3.5.
- 5.5 See 2.3.
- 5.6 See 4.4.
- 5.7 ECA Grant in 1949.

Account 6

- 6.1 See 1.8.
- 6.2 See 3.11.
- 6.3 See 4.8.
- 6.4 See 5.7.
- 6.5 See 1.9.
- 6.6 See 3.4.
- 6.7 See 4.3.
- 6.8 See 5.2.

II.—Contribution by PROFESSOR G. A. DUNCAN.

1. I greatly regret that Dr. McCarthy has been unable to be present to-night. I should have liked to congratulate him on his public graduation from Mathematical Physics to Economics. As an early player of this game, I should also wish to congratulate him and the Central Statistics Office on the elegant toy they have produced for us to test. I am only sorry that Dr. Kiernan, an earlier local practitioner, is not here to add his congratulations—he has graduated out of Economics into Diplomacy. Yet even in this rosy atmosphere I must enter a *caveat* for the protection of our less expert members—they should not be misled by the exact balancing of the *actif* and *passif* sides of each account: many of the qualitatively important items are residuals, obtained by difference in order to make the accounts balance exactly. In other words, double-entry accounting is not quite the same thing for a community embracing many firms and households as it is for a single firm. In the latter, all the items are under statistical control, and the emergence of a difference has an important diagnostic significance: it indicates either a failure in the accounting system, such that some items have been wrongly counted or overlooked, or a failure in the control, suggesting speculation or embezzlement or theft. In dealing with the consolidated accounts of a numerous community, however, this practical implication, with its *sequela* of direct action to discover the leak or loophole or error, does not arise. As Dr. McCarthy wisely insisted at an early point, National Income computations are estimates, with an inevitable margin of error. Equating the accounts by residuals or differences, therefore, can indicate only one of two things, either that the margins of error in the direct estimations are uncomfortably large, or that the concepts on which the direct estimations and their combinations are based do not fit in with the structure of accounts used. No doubt, either of these conclusions would point to positive action by the people interested in the compilation of the Accounts, but it is action of a kind very different from that indicated to the private firm. My conclusion here is that all “residuals” should be clearly indicated, and sophisticated members of the Society will be well aware that it is in the Saving—Investment—*Kapital—bildung* complex that this point is peculiarly important and disturbing

2. I should like now to add something to Dr. McCarthy's remarks on the development of National Income Accounting (p. 476), particularly in view of his later strictures (p. 482) on the Universities and the Economists. First, I should like to add to his references the fact that in later Notes to this Society, I carried on the story on my imperfect lines to 1942. The academic economist's tradition of studies, based on some concept of the National Income, goes back a long way. In this country, indeed, we can trace it right back to Petty's “Political Arithmetick”. Even the latest developments of Econometrics have a respectable ancestry. It would, I think, be fair to say that the great difference between this rather amateurish efforts many years ago of people like Feaveryear, Flux, Stamp, Heilperich, W. I. King, Kiernan and myself, and the present conventional set-up, is that we were content, with our limited facilities, to devise aggregates which, suitably cooked, might possibly be used as measures of the total effects of given accidents, catastrophes or policies. It was based

on the idea that the effects of some natural catastrophe such as the Japanese earthquake of 1923 or some political catastrophe such as war (hot, cold or economic) should be measurable in terms of economic aggregates, and on the attempt to construct and interpret the appropriate aggregates. I need not remind you here of the intellectual difficulties involved in the process. Some of Dr. McCarthy's remarks on page 482 tempt me to ask him why the physicists had not split the atom a century ago, or why cures for cancer are still offered only by quacks. To come back, however, to the "General Line", Dr. McCarthy is quite correct in implying (he does not actually say) that it has been in the direction of substituting double-entry accounts, sector by sector, for unrelated aggregates, with the silent hope that these accounts will portray, in a form usable by the student and the politician, the inter-related flows which constitute our economic life. That is undoubtedly a great step forward, whose limitations I shall mention later, but it is not new. The root idea goes back to the Physiocrats—Quesnay's "*Tableau Economique*" was a primitive form of National Income Accounting, with the added virtue that it tried to show the *operational* connection between different parts of the complex, which no system of accounts can do. It is quite true that until comparatively recently economists commonly directed their attention to other objectives. Even those with a specifically mathematical bent—such as Cournot, Edgeworth and Walras—were concerned with elucidating the relations between entities which make up the economic system—a task in which statistical compilation of aggregates could then and can now offer little assistance. As an instance I offer the example propounded by Dr. McCarthy on pp. 484-5. To round off this point, I should remark that the O.E.E.C. structure of accounts owes a great deal to the independent work of the Norwegians, Professor Ragnar Frisch and Mr. Odd Aukrust, and to the collective work of the Cowles Commission for Economic Research and of the International Association for Research in Income and Wealth.

3. We have here a further point of some interest. Dr. McCarthy speaks rather slightly of the universities and economists of this country. I feel it necessary to point out the difference between the position of the Central Statistics Office in this Republic, or of the Central Statistical Office in the United Kingdom, or of the Department of Applied Economics in Cambridge, or of the Cowles Commission in Chicago, or of the organs set up by O.E.E.C., E.C.E., U.N.O. or the former League of Nations—and the position of an ordinary University Department of Economics, particularly in the Irish Republic. The only Irish University which has even a hope of organising research on the factual side of the economy is the Queen's University of Belfast. In Dublin University we have not even one full-time economist. Of our three part-time economists, each has been or is seriously burdened with public work on top of a heavy load of teaching and administration. We have a full-time statistician but he is overloaded with teaching. Furthermore, local econometrics cannot be the sole interest of practising economists. My interests, for example, are quite different—and that is as it should be. I quite agree that the Universities in the Republic should do more about local econometrics—but that is a question not of lack of interest but of lack of staff and money—if the Universities were endowed on the same scale as even the Central Statistics Office here in Dublin, not to mention the other organisations I referred to a moment ago, the work would be done.

Even in 1949-50, the last year for which I happen to have the volume of Estimates handy, the then Statistics Branch of the Department of Industry and Commerce enjoyed an appropriation scarcely less than one-half of the gross income of my University. I should also ask the laymen, i.e., people who are not statisticians or economists by trade, in the audience to remember that National Income Accounting is only a tiny, specialised fraction of economics.

4. This brings me back by a roundabout way to the core of what I want to say. Naturally, I do not wish to crab in any way the excellent work done, within its limitations, by the Central Statistics Office. Indeed, being subjects of a small and poor State on the periphery of civilisation, we have been extremely lucky in the statisticians who have served us, officially and unofficially, for the past three hundred years. The present Office and its predecessors have added much to both the theory and practice of statistics—contributions of which we are all gratefully recognisant. In extending its activities to National Income Accounting, the Office has not only fallen in with O.E.E.C. requirements and current fashion, but done it very well. Given the current fashion, I do not propose to question the Office's categories except on certain points where I am in grave doubt myself. I expect that later speakers will raise other points.

- (a) On a strict double-entry accounting system, stocks (including the net value of foreign investments as well as changes in the value of total domestic physical assets) should be brought in by way of comparisons of their total market values at the beginning and end of each period in question. Instead, these Accounts deal with industrial assets in one way (which I mention below) and with agricultural assets by multiplying the physical change by end-of-year prices and entering them under a different head. In my own calculations for the 1930's I decided to disregard this element of change in stocks. I agree that that could yield nonsense results, but so could the method used here. And this possibility emphasises one of my points—under conditions of changing prices in an accumulation of stocks may represent any one of a number of reactions to the current situation, and no accounting convention that can be devised can show what is really happening, while certain conventions may lead to nonsense conclusions—as, e.g., that an accumulation of unsaleable cattle is an “investment”.
- (b) I am not quite clear how the estimated total of “Gross domestic asset formation” (Account 1.7 and Account 5.1) is arrived at, and this doubt is connected with my remarks just previously. In default of specific statement in Dr. McCarthy's paper, and on the analogy of Pr. 350, it would seem to be built up out of an edition of imports judged to be “capital”, of domestic production or assembly or polishing of goods judged to be “capital”, and of total domestic expenditure on activities such as house-building. Now, that is not good enough: it is substituting a material for a functional approach. There is no necessary connection between imports and/or domestic production of “capital” goods, even if these could be unequivocally identified as such, and

asset-formation. Whether a particular good is a "capital good" or a "consumer's durable good" depends so often on the use to which it happens to be put (e.g., a motor-car or a house or even a horse). Even if unequivocally identifiable as such (e.g., a machine capable only of being used for a certain productive purpose), the investment for which it is intended may well fail. Again, if it comes off successfully, it includes much more than the import of domestic values of the machines, etc. (e.g., a railway, and even a factory contains a large element of local labour), and its ultimate value has no automatic connection with the sum of the values of the equipment embedded in it. Finally, there is no unanimity of opinion among economists as to whether domestic housing should be regarded as "investment" or "consumers' durable goods"—I belong to the still respectable body of opinion which holds that the latter classification is more appropriate.

- (c) There is also the complex of problems connected with capital-formation, taxes and subsidies. Can a transaction which is *superficially* one of "capital-formation" be regarded as such *essentially* if the industry in which it occurs is subsidised directly by payments from the Exchequer or indirectly by "protection"? What we have created in the latter case is an instrument for extracting a concealed excise-duty from the rest of the population for the benefit of one favoured group of people. There might be no asset at all created, in the sense of an equipment capable of making a *net* addition to the welfare of the economy.

These are not merely doubts about the *accuracy* of certain calculations, but about the intellectual validity of the procedure. They may not be "constructive" in the sense rather aggressively asked for by Dr. McCarthy, and they may suggest that some of the necessary concepts of the economists, such as "capital" are not "operational" in Dr. McCarthy's sense of being susceptible to trapping by the statistician. But such doubts are inherent in the exercise, and in the material, and, to reverse the charges, it is up to the statistician to show that the exercise is worth the effort.

5. Before I leave this topic, I wish to ask one further question out of the many that occur to me:

Given present conditions, is it not correct that under the head "Direct Taxation" should be included not only the obviously direct taxes of the Central Government—Property, Income and Sur-taxes; Corporation Profits Tax; Estate Duties—but also the whole of the Land Annuities and Social Security contributions paid to the Exchequer or its agencies, and the Rates paid to Local Authorities? Since 1933 the Land Annuities have had no "operational" connection with either debt or rent: they have become a land-tax applied to the general purposes of the Exchequer. Rates similarly are not a deduction from rent, but a rather arbitrary tax imposed on the owners and/or occupiers of real property—a rather antiquated legal category, neither statistically nor economically relevant. Incidentally the Motor Tax comes into the same boat. The Social Security contributions, so far as paid by the employer, are a direct tax on employment, and, so far as paid by the employee, a poll-tax.

6. I come back now to an earlier general point. I had remarked that after a number of early false starts, Social Income Accounting had recently come back into fashion, on a full and flowing tide. Why? I suggest three reasons:

- (a) The simple, technical one is that, with the growth of authoritarian ideas of Government since 1870, most Governments have greatly strengthened their services of collection and compilation; *pari passu*, investigators have found their interest attracted by the possible ways of fitting these massive compilations into the examination of their own problems.
- (b) The second is that it is easy. In saying this I intend no reflection upon our professionally statistical colleagues—I have indeed one foot in that galley myself. What I do mean is this, that here there seemed to be opened a way to concrete, defined pieces of work, more satisfying than the “nebulous theorising” of Economics, and bearing a superficial resemblance to statistical control in the laboratory. As I have already delicately hinted, this resemblance is only superficial.
- (c) The third is that it seemed to reveal truth, rather on the lines of Descartes’ famous quip about Philosophy, and in three several ways.

7. It promised, first, a clear and intelligible measure of economic change in an aggregative sense, which would afford the student a measure of the economic effects of events (including “policies”). Alas! when we come to the point of practical application, the aggregates are tied to artificial entities called “States” (or called “nations” when you try to imply that they are not artificial and accidental); for historical comparisons between the subjects of different States, monetary aggregations have to be corrected by price-indices, for which purpose no satisfactory price-index has ever yet been devised; and when you get down to brass tacks, the real problem too often is one of the relationship between magnitudes which do not appear, and probably cannot appear, in the conventional accounting system. There is, of course, an historic interest in such compilations, but the satisfaction of historical curiosity, legitimate in itself, is not the same thing as providing analytical tools.

8. It promised, secondly, a picture of the inter-related flows of a living economy—intelligible not only to the economist, who laboriously and patiently builds up in his own mind a *Tableau* of complicated inter-relationships such as those of which Dr. McCarthy gives us a simple example in his last pages, but also to the layman and particularly the politician and civil servant, who are only too apt to assume straight-line causation. This, you will remember, was Quesnay’s idea. Alas, again! The accounting set-up is necessarily static. It can record only the imperfectly-known events of a time past, probably long past. As Dr. McCarthy’s example so well shows, this static *Tableau* can be dynamised only by the insertion of estimates or guesses about the still fundamental micro-economic relationships, conditioned by assumptions about *ceteris paribus*. How far these guesses and assumptions can go wrong, even when armed with all the panoply of political power, is well illustrated by the record of the United Kingdom’s “Economic Surveys”.

9. It promised, thirdly, as Dr. McCarthy specifically recognises, an instrument of assistance in determining economic policy. Frankly, although I have already spoken too long to take you into a field that contains in itself the material for a considerable book, I am extremely sceptical about such ambitious ideas. In my own war-time experience in London, war-time economic policy always boiled down to particulars—a flap about tarpaulins for Overlord deck-cargo, or about bodies for Civil Defence or D.D. tanks, or about the depletion of overseas reserves, or about taxation, rationing or price control. Even the question of the limit to which the war-effort could be driven commonly boiled down to proportions of particular incomes taken in tax, or the disincentive effect of P.A.Y.E., or cigarettes for coal-miners. I could not honestly say that in my experience—admittedly limited formally to the Ministry of Production, but knowing the people in the Cabinet Secretariat and Statistical Office—I ever came across a line of policy being determined by aggregates of the Social Accounting variety. My opinion has not been altered by anything written in the volume of Essays on “Lessons of Britain’s War Experience”. Indeed, using Dr. McCarthy’s example, I still need to be convinced that such a system could be used for that purpose. I grant, indeed, that if laymen, particularly politicians and administrators, unhabituated to the analytic approach, could be brought to see that in such a system of accounts, a change imposed by force or volition on a total item 5·1 necessarily involves a probable change in a total item 2·4 and so on, something would be gained in authoritarian perception—but that seems as remote a goal as the teaching of the analytic method.

10. In conclusion, I apologise, first to the Society for having spoken so long, and, secondly, to Dr. McCarthy for having taken him at his word. I have the greatest admiration for the work done by successive statisticians in public employment in Dublin, and could not agree more with a plea for closer co-operation between statisticians and economists; but would point out this—the development of economic analysis has been and is along the line of the search for “operational” concepts, but that search has been hampered by the intractability of the material. Moreover, in that search the possibility of statistical measurement has always been one component of our idea of an “operational” concept—but only one component, and we may often have to resign ourselves regretfully to the belief that that component is and will remain missing, that no elaboration of statistical compilations and techniques will ever succeed in trapping it. That is the real difference between us and the statisticians—they are content with a more formal and limited idea of an “operational concept”, or, alternatively, are not too reluctant to give to a concept, which is “operational” in their sense but not in ours, work which it is incapable of doing.

III.—Contribution by MR. T. K. WHITAKER.

1. The last time we had a discussion in this Society on national accounting, namely, when Mr. Richard Stone gave a lecture in March, 1950, on National Income Research, I suggested that the presentation of the national accounts on the double entry principle had become popular with statisticians because it delighted them as a sophisticated kind of jigsaw puzzle. That was a lighthearted remark, not intended to give offence. I recognised then, as I do even more to-night after

hearing Dr. McCarthy's paper, that this form of presentation is most valuable for expository purposes. It helps us to see how the various components of the economic system are linked together and gives us a glimpse of the working of the economic process. Dangers lurk in the elegance and symmetry of the balance sheets, amongst them the risk that items that are merely residual may be regarded as independent constituents of the equations which the balance sheets represent. But these dangers can and should be guarded against by suitable warnings.

2. One of the accounts presented by Dr. McCarthy exhibits, to my mind, a marked superiority over the manner of presentation adopted in the official papers. I refer to Dr. McCarthy's Account No. 5—the Consolidated Capital Transactions Account. Here it is shown clearly that external disinvestment must be deducted from gross domestic capital formation in order to arrive at the gross addition in any year to national wealth. Thus, whereas the gross *domestic* asset formation for, e.g., 1947 is given as £56·8 million, the gross addition to national wealth is reduced to £26·9 million when allowance is made for the *external* disinvestment of £29·9 million in that year. I think Dr. McCarthy would agree that, when a similar account is prepared for 1951, the external disinvestment (which, of course, is the same as the deficit in the balance of payments) will probably be as great, if not greater than gross domestic asset formation, indicating that gross national wealth did not increase at all or perhaps was actually reduced last year. The seriousness of such a finding needs no emphasis, more especially as there is reason to doubt whether the amount included in gross domestic asset formation for maintenance and replacement of domestic assets is really sufficient to keep these assets intact.

3. The fact of external disinvestment and the possibility of national wealth being consumed have led me to question the soundness of the procedure by which estimates of the *real* increase in national income since 1938 are obtained by correcting the current money figure for the increase in the price level since 1938. The validity of the result depends on the current money figure being a true income figure, i.e., a figure of income available after national capital has been maintained. National capital means domestic capital plus external capital. I am suggesting that our definition of national income may, at times like the present, prove to be misleading in the sense of not allowing for consumption of national capital.

4. While the double entry system of national accounting has its particular merits, it is not, of course, the only way of deriving significant conclusions from national income and expenditure figures. I should like to draw attention to the importance of the changes from year to year in the principal economic aggregates—income, consumption, investment and saving. With these differentials before us, we can consider how far Keynesian theory applies to recent Irish experience.

5. It would be difficult—and I think it is unnecessary—to attempt to express Keynes's general theory in a few words. Perhaps it will suffice if I recall his main thesis, namely, that income and employment depend on effective demand and that effective demand is determined by the propensity to consume and the volume of investment. The propensity to consume is assumed by Keynes to be normally less than unity, i.e., he assumed that consumption normally increases by a

lesser amount than income when income rises. Keynes considered that in a given community over a short period of time the subjective and objective factors determining the propensity to consume and to save are relatively fixed and, therefore, that income and employment are in effect determined by the level of investment. Indeed, given the marginal propensity to consume, it is possible, on Keynesian principles, to tell how much income and employment will increase as a result of any given increase in investment. An increase in investment causes a multiple increase in income and employment, the multiplier being related to the marginal propensity to consume as follows:—

$$\begin{aligned} \text{Marginal propensity to consume} &= \frac{\Delta C}{\Delta Y} \\ \text{Multiplier} &= \frac{\Delta Y}{\Delta I} \\ \text{But} \quad \frac{\Delta Y}{\Delta I} &= \frac{\Delta Y}{\Delta Y - \Delta C} \\ \therefore \text{Multiplier} &= \frac{1}{1 - \frac{\Delta C}{\Delta Y}} \end{aligned}$$

What this means is that, if, in a closed system, four-fifths (say) of any increase in income is consumed (and one-fifth saved) the effect of an increase in investment will be to generate consumption spending within the country which will ultimately raise the national income by five times the primary increase in investment. The simplicity of the multiplier formula is, however, illusory. There are various qualifications to the theory, an important one being that the multiplier is reduced by the extent to which increased expenditure on consumption falls on imports rather than on home-produced commodities. Moreover, the supply of domestic consumer goods and of labour is rarely as elastic in practice as is supposed in order to make the theory more readily intelligible.

6. Now let us turn to the differentials revealed by the official statistics for the years 1946 to 1950. These are shown in the following table:—

Changes in National Income, Consumption, Investment and Savings.

Change during	Income	£ million Consumption*	Net Domestic Investment	Domestic Savings
	(ΔY)	(ΔC)	(ΔI)	(ΔS)
1947	+28.3	+49.0	+28.9	-20.7
1948	+16.0	+19.9	-14.0	- 3.9
1949	+18.0	+ 8.3	- 0.4	+ 9.7
1950	+11.0	+20.8†	+10.5†	- 9.8†

*Public and private consumption, plus subsidies less indirect taxes.

†It is assumed that stocks increased by £5 million in 1950 (see pp. 6 and 9 of Statistical Survey 1949-50).

7. The table shows :

- (1) a declining rate of increase in national income, even in money terms;
- (2) an increase in consumption greater in every year, except 1949, than the increase in income, which means that, contrary to the theoretical hypothesis, the marginal propensity to consume has been *greater* than unity;
- (3) a downward trend in net domestic investment until 1950 when stockpiling is believed to have accounted for about half the increase over 1949;
- (4) a decrease in domestic savings in 1947 and 1948, followed by an upturn in 1949 and a further setback in 1950.

One might add the following record of external disinvestment :

	£ million			
1947	29.9			
1948	19.8			
1949	9.7			
1950	30.0			

These figures enable us to complete the table given above. Thus, in 1950, the increase of £20.8 million in Consumption was made possible by an increase of £11 million in National Income and a fall in Domestic Savings of £9.8 million. Net Domestic Investment increased by £10.5 million while Domestic Savings fell by £9.8 million, the result being an *increase* in external disinvestment of £20.3 million. The equality is not between Savings and Investment but between the change in Investment and the net result of the change (+ or -) in Savings and External Disinvestment.

8. The trend in employment over these years is not so easy to trace but it does not appear that there has been any significant increase in aggregate employment as compared with 1946. The increase in the numbers engaged in industry has roughly balanced the reduction in male employment in agriculture. It is probable that this has meant some increase in effective employment and in the *value* of national output. Taking together the number of persons insured under the National Health Insurance Acts and the number of males engaged in farm work (excluding permanent employees who are already included in the N.H.I. figures), the following picture emerges :—

	Number (000)	Change (000)
1946 ..	884	—
1947 ..	890	+ 6
1948 ..	901	+11
1949 ..	883	—18
1950 ..	886	+ 3

9. These series of changes in income, employment, consumption, investment and savings are as unlike the text-book illustrations of Keynesian theory as it would be possible to devise. The picture they present, indeed, is of an unstable economy in which the expansive effects on income and employment of such increases as have occurred

in domestic investment have been lost through an excessive propensity to consume which has spent itself mostly on imports rather than in activating increased domestic production. We would need more details of expenditure on home-produced as distinct from imported goods to analyse the position fully. But it may be useful to note that, in accordance with Keynesian doctrine and indeed with commonsense, more income and employment would be generated if we spent less on imports and produced more at home to satisfy our consumption needs. There is a further point of Keynesian doctrine worthy of mention, namely, that an increase in exports founded on increased production would have precisely the same expansive effect on employment and incomes as a similar increase in domestic investment.

IV.—Contribution by MR. P. LYNCH.

1. It is apparent from the method he has chosen of presenting his contribution to the Society this evening that Dr. McCarthy's purpose was less to permit the expressions of thanks and appreciation which are his due than to provoke thought and critical discussion. For many of us his pioneering exploration of a country which has fascinations that often blind us to its pitfalls and deceive us by its mirages. It will not be to-night or to-morrow that a final assessment is made of the real significance of Dr. McCarthy's paper amongst the records of the Society. And I feel that Dr. McCarthy will agree that I am not minimising its significance if I pause for a moment to consider his contribution in a somewhat wider context and pose some considerations which may have already occurred to other members of the Society. The occasion is a notable one; it gives the Society an opportunity of having a formal critical discussion of the White Paper on National Income and Expenditure to which the tables we were given this evening may be regarded as an illuminating pendant. I, for one, should not like to let the occasion pass without trying to find the views of other members not only on the Social Accounts but on the rôle of the statistical method in assessing the economic condition of the country. It would be to misunderstand Dr. McCarthy's purpose to assume from the severely classical form of his contribution that he intended it mainly as an essay in the pure science of statistics. It would be doing much less than justice to his work if those of us who are not statisticians left this evening's discussion to the select few who, like Dr. McCarthy and Dr. Geary, whisper truth to each other in the mandarin language of Greek symbols and algebraic formulæ.

2. We are told that Pythagoras said that "all things are numbers". Commenting on that statement Bertrand Russell, fairly early in his *History of Western Philosophy*, observes: "Most sciences, at their inception, have been connected with some form of false belief, which gave them a fictitious value." "Astronomy," he says, "was connected with astrology, chemistry with alchemy. Mathematics was associated with a more refined type of error. Mathematical knowledge appeared to be certain, exact and applicable to the real world" . . . "It was supposed," continues Lord Russell, "on the basis of mathematics, that thought was superior to sense, intuition to observation. If the world of sense does not fit mathematics, so much the worse for the

world of sense." Now although my acquaintance with the science of statistics—to which, incidentally, Lord Russell does not refer—is slight, it is sufficient, nevertheless, to enable me not merely to admire the apparent internal consistency of Dr. McCarthy's study but to compel me to pose some questions as a student of economics.

3. Let it be said at the outset that an accurate factual knowledge of the national income, its growth and distribution, is essential if the study of economic science is to give results. For my part I am prepared to leave the refinement of statistical methodology to the statisticians. From the economic view I am concerned mainly with their conclusions, always reserving the right to ask them questions about their definitions. So conscious am I, however, of the limitations of economics as a social science that I think I may be permitted to express the view which I think Dr. McCarthy shares, that we cannot hope to appreciate the worth of the science of statistics unless we have a very clear notion of its limitations. Members will remember Lord Keynes's account of his conversation with Professor Planck of Berlin, the originator of the Quantum Theory. Professor Planck had remarked that in his early life he had thought of studying economics but had found it too difficult. What he meant, said Keynes, was not the whole corpus of mathematical economics which Planck could have mastered in a few days, but what Keynes called "the amalgam of logic, intuition, the wide knowledge of facts, most of which are not precise, which is required for economic interpretation".

4. If, then, the economist accepts the definitions of the statistician he may accept his conclusions, but he must make it plain to the statistician no less than to the public that economic action is determined by more than quantities susceptible of statistical representation. Furthermore, the economist must be permitted to make explicit what to the statistician is always implicit—the operation of the rule of significant numbers, which postulates that the result of any calculation is no more accurate than the least accurate item in the calculation. He must be permitted the right to place what may seem unnecessary emphasis on the importance of not investing statistics with a sanctity which not even their most fervent compilers would invoke. Statistics has become an extremely popular subject and statisticians cannot be blamed if they are often poorly served by their popularisers.

5. Having made that confession of faith let me say that Dr. McCarthy's contribution to-night, taken in conjunction with the White Paper of Tables relating to National Income and Expenditure, marks a very notable addition to the rather limited list of instruments for Irish economic analysis. It occurs to me, however, that, from the public point of view, it is a pity that the study of his tables, is somewhat complicated as a result of revision of some of the totals in the White Paper which have become familiar to interested members of the public. I make that point not in captious criticism but because what is really important to the public is not so much the refinements in statistical method as a greater comprehension of the significance and implications of the material already available on national income. My admiration for Dr. McCarthy's achievement is accompanied, therefore, by an expression of regret that the progress made by the Central

Statistics Office in improving their system of public accounting has not been matched by a greater appreciation by the informed public of the national importance of the estimates which were published in the White Paper nearly a year ago. For this inadequate public illumination I fear that many of us who are interested in economics are largely to blame. Had more economists spoken sooner about the national implications of the table in the White Paper dealing with Savings and Capital Formation, a good deal of the recent controversy might have been even more fruitful, or entirely unnecessary. There is little doubt, however, that the White Paper on National Income was as much responsible as any critical or problematical economic situation that may have existed for the shift in public discussion this year to economic and social policy and away from the exhausted topics which have served policy and away from the exhausted topics which have served Irish political discussion for so long.

6. From a national viewpoint the most important material in the White Paper on National Income was embodied, I submit, in the table dealing with Savings and Capital Formation. Not alone did it clearly indicate the significance of the equation—saving is equal to investment—but it also underlined the real national meaning of that identity in an economic system which is drawing a large part of its saving from external sources. I have some doubt, however, as to whether the double-entry Account number 5 illustrates the identity between savings and investment with the same clarity as Table 5 of the White Paper or help us fully to appreciate the classic economic truism to which Dr. McCarthy refers, that a reduction in consumption may lead to reduced National Income rather than to increased investment.

7. What is most important in Dr. McCarthy's study is the attitude his Office is adopting towards social accounting. That brings me to a fundamental question of methodology which I should like to ask. Is it not a fact that the double-entry system of presenting accounts tends to ignore the essentially dynamic nature of the economic system unless the accounts can be presented for sufficiently short periods of time? When asset formation is included, the self-balancing nature of double-entry accounts makes national income equal to national expenditure. The validity of the presentation seems to rest on the somewhat unreal assumption that there is no time-lag between income and expenditure.

8. When Dr. McCarthy is in a position to include in Account No. 5 figures for savings for 1950, it will be possible for the economist to form certain vital conclusions about the economy. I suggest that two comments may legitimately be made on that Account. In the first place the all-important item 5 contains figures for savings of households which are described in the notes as a "balancing item". I think we should know the full connotation of the expression "balancing item" before a proper assessment of the figures is possible.

9. My second question arises from the figures for depreciation. How far do these figures reflect the destructive effect of rising prices on the purchasing power of money set aside to cover the depreciation of fixed assets or replacement of stocks. I understand that the figures

given in the Accounts for depreciation are related to wear and tear allowances and, so, give no indication of the replacement cost of machinery. The Accounts show, for instance, that between 1938 and 1949 depreciation rose from £4.2 million to £8.4 million. That seems to me to be unrealistic. Even assuming that there have been no net additions to real capital since before the war, it would seem that the 1938 figure of £4.2 million for depreciation should be in the region of three times that amount in 1949. If one increased the 1949 figures for depreciation to say £13 million, a sum that does not seem excessive, having regard to present day prices, the amount of true savings would be correspondingly reduced. This, of course, is a criticism not of Dr. McCarthy but of the tendencies in our economy which it seems to indicate. The figures for saving are low as they stand, but it is hard to escape the conclusion that the true figures would be much lower if Irish businessmen were not making altogether inadequate provision for the depreciation of their plant. Indeed it would be interesting to know the source from which businessmen draw the capital to replace their plant if it is not available for them from their own depreciation accounts.

10. One last word before expressing my thanks to Dr. McCarthy. Does he agree with the view that the formula which he and most other compilers of official social income accounts use tends to exaggerate the value of Social Income including public services? Is there not a danger of considerable duplication in using indirect taxation as a measure of the value of certain public services?

DISCUSSION.

Mr. Lynch.—I should like to add a comment or two on paragraphs 4 to 9 of Mr. Whitaker's interesting paper. He has raised here at least one issue of importance, but considerations of space and time unfortunately precluded his presenting anything more than a rather limited treatment.

It would, indeed, have been useful had he been able to show with some degree of conclusiveness whether or no Keynesian theory has been borne out by recent Irish experience. To base the effort, however, on such restricted statistical data as Mr. Whitaker does seems to me to be somewhat rash. He states, for instance, that his table in paragraph 6 shows that "contrary to the theoretical (Keynesian) analysis, the marginal propensity to consume has been greater than unity" in every year except 1949, and in his final paragraph he speaks with apparent confidence of some features of a picture of an unstable economy presented by the changes in income, employment, consumption and saving between 1947 and 1950.

The changes to which he refers are, indeed, unlike the text-book illustrations of Keynesian theory, but I have serious doubts whether his data really warrant those conclusions. To begin with the figures for 1949; these have to be omitted for they support quite a different conclusion: it would appear that in 1949 the propensity to consume was less than unity. Mr. Whitaker has to rely, therefore, on his figures for 1947, 1948 and 1950.

It would seem, *prima facie*, that, in these three years, consumption increased by more than the increase in income. One must enquire,

however, whether there was any notable element of normality in Irish consumption patterns during these periods. In chapters 8, 9 and 10, Book III, of his *General Theory*, Keynes refers to certain qualifications to his psychological law. He maintains that *normally* the propensity to consume is less than unity. Even if none of these qualifications affected Mr. Whitaker's calculus, I think it would be unwise to disregard the extreme abnormality of Irish economic conditions in 1947 and 1948 and to deduce from limited statistical data the conclusions which he advances with such apparent confidence. If there was the "excessive propensity to consume" to which Mr. Whitaker refers it is necessary to carry his analysis further if we are to preserve a measure of detachment in our commentary. The post-war back-lag of Irish demand was an obvious contributor towards the abnormality of economic conditions in 1947 and an equally obvious explanation of the big trading deficit incurred that year. Again, the figures for the level of consumption in 1948—"the excessive propensity to consume," to quote Mr. Whitaker—cannot but have been influenced by the boosting effect of the Government's policy on food subsidies. In 1950, Government policy which consciously aimed at contriving a deficit in the balance of payments as part of a programme of foreign disinvestment is surely another factor which must be taken into consideration.

I suggest, therefore, that even if one accepted Mr. Whitaker's conclusions about features making for instability in the Irish economy over the years in question, it would be most unwise to regard these features as decisive evidence that any branch of Keynesian theory does or does not apply to recent Irish experience.

Mr. Whitaker.—I feel I owe no apology to the shade of Keynes. There was no need for Mr. Lynch to rush to his defence. I did not set out to disprove Keynesian theory and I have not done so. I set out to inquire whether the facts of recent Irish experience were consistent with the assumptions upon which the theory of the multiplier rests. One of these assumptions is that consumption does not increase as much as income when income rises. I have shown that in most recent years consumption in Ireland has outrun the increase in income. Thus, Irish experience has been the direct opposite of the assumption upon which the theory of the multiplier is based. I have also shown how great has been the "leakage" due to effective demand being satisfied by imports rather than home production. Mr. Lynch has offered his own explanation of the economic instability which the figures quoted in my contribution reveal; I have been concerned not to explain the facts but to show that they reveal a state of affairs altogether different from the text-book illustrations of the working of Keynesian principles.

I adhere to my view that Dr. McCarthy's Account No. 5—the Consolidated Capital Transactions Account—presents much more clearly than the White Paper table dealing with Savings and Capital Formation the change from year to year in national wealth. Mr. Lynch still prefers the latter table. In his contribution he gave as his reason "not only did it clearly indicate the significance of the equation—saving is equal to investment—but it also underlined the real national meaning of that identity in an economic system which is drawing a large part of its saving from external sources". It is only by distorting the meaning of "saving" and using it in a sense Keynes

never intended that one can produce an equality between saving and investment in recent Irish circumstances. The drawing down of external resources is dissaving. It is of vital importance to distinguish this from current saving because our external resources were acquired under the compulsion of war-time shortage of imports and we neither hope nor wish for a recurrence of that process. It is on current savings, therefore, that we permanently and fundamentally depend for the development of our economy. Any presentation of our national accounts that obscures the position regarding current savings is to be deprecated as encouraging the illusion that all is well so long as we have external resources to draw upon for the maintenance and improvement of our domestic capital. The fact is that these resources are not inexhaustible and that unless current savings revive the employment and living standards now founded on the use of external resources must sooner or later collapse.

Mr. Eason.—The significance of the figures submitted to us by Dr. McCarthy in the White Paper and his series of balancing accounts depends upon the purpose which they are intended to serve. At the foot of page 11 he claims no more than that "National Accounting is undoubtedly useful in organising the data and in ensuring that it is systematically presented. Although it is in no sense a sufficient basis for formulating economic policy, it should be of considerable help in answering certain questions which help in policy formation". That I accept and endorse. I think the broad generalisations which the various tables present are of value in that they show trends of income and expenditure over a period—a bird's eye view of broad categories. But elsewhere he goes much further—on pages 482-3 he maintains that the White Paper and consolidated accounts "presents for the economy as a whole what a proper system of accounts gives to the manager of a business concern". That strikes me as a far-reaching and extravagant claim: the analogy is unsuitable. No manager could make decisions on the basis of composite figures such as these. Fundamentally: because such decisions are made on a valuation of the strength of the DYNAMIC factors which produced the results and the extent to which they will continue to exert their forces or will be supplemented or weakened by new counteracting forces emerging or likely to emerge in the future. Also: because a manager must know something of the precise results of the previous year—departmentally and in detail.

The importance of much of the criticism of the paper depends upon whether the figures are designed for "A" or "B".

For broad generalisations there should be a greater recognition by Dr. McCarthy of the tentative character of the details, the newness of the technique, and the ever-present danger of using figures prepared for one purpose to support other purposes.

It appears to me that the word "income" misleads and, consequently, the figures tend to be misused when they pass into the area of public discussion. Is that surprising? After all, if my income rises I can spend more—if National Income figures show a rising trend why should our Ministers show hesitation and caution in spending more. There are so many desirable things to spend it on. In that way the National Income can be raised! Would it not be an advantage to put the words in "italics", for instance?—or followed by a question mark?

On the claim that these are really Accounts I would pass the following comments.

As a manager I would, certainly, ask if there have been any changes in the details covered by the profits entered under item (3). It is clear from the explanatory notes on page 6 that no satisfactory comparison can be made without particulars showing what change has taken place between (3) and (4). There have been many private Companies formed in the intervening eleven years and the two items really require to be taken together. It also is important that the number of Companies operating at the beginning and ending periods should be clearly shown, if not in the text certainly in the notes.

Undistributed Corporate Profits are set out on page 4 (item 39) (White Paper): on page 3 (item 3) (White Paper), Profits are shown for Public and Private Companies. These figures have given rise to comment; Reserves represent only 25 per cent. of profits earned. Now, in the Chamber of Commerce booklet dealing with the operation of 49 Public Companies, which was prepared by Dr. F. G. Hall, the tables at the end show that from 1945-1949 (inclusive) 43 per cent., and in 1949 42 per cent. was retained: this on a capital of £14,000,000, aggregate net profit £4,048,000; it is important to know how the all-over figure comes down to 25 per cent.

Gross Domestic Investment is shown in items 45, 46 and 47 (page 4) White Paper.

The notes describe item 46 as covering all building in respect of which no direct economic return is involved; in itself that seems a masterpiece of understatement for all entail higher charges upon current Revenue. Is it appropriate to join Private dwellings with Schools or both with Hospitals? The value of the investments covered by these three categories must depend on (1) whether they—as is true of Schools—are largely replacements, (2) whether such expenditure is off-set by Depreciation, which is not estimated or included in item 42, (3) whether they cause a charge on Revenue—Hospitals.

Mr. Lynch draws attention to the time lag between Investment and Income. That is important, but unless the Investment categories were enlarged and the details of Profit (or Loss) made to correspond, it is not possible to trace what happens. Moreover this investment may not do more than off-set obsolescence and depreciation for which no figures are included. As for items 45 and 47 they are valueless for the purposes of estimating the true trading value of the expenditure; which is precisely what a manager would demand.

The completely vague and indeterminate character of the accounts is illustrated by the following sentences from Dr. McCarthy's closing paragraphs:—

“The short-term effect will depend upon the relative magnitude of the various items and on the time lags and frictions which occur during the changes in the economy”.

“The separate accounts when used for forecasting—on the basis of constant prices—will balance only if the net increase in output does not exceed the assumed change in available resources”.

“The use of the accounting system makes it possible to see if the proposed economic policy is consistent with itself and whether it can be expected to produce a result superior to the correct method of using available resources”.

"It would be a useful exercise for policy makers to project into the near future the probable values of the various items in the different tables on the basis of past experience, and of a national expectation of the effects of the supposed policies".

"The fact that the tables must balance will be found to impose a salutary curb on the extravagance of many ambitious projects".

I cannot share in Dr. McCarthy's optimism.

Mr. J. M. Dillon, T.D.—Statistics are designed to inform somebody. *Cave!* lest technical language of the science should employ common words, but with specialised meaning, thus leaving the reader under illusion that he fully understands significance of statistical table, whereas if he were put upon his enquiry as to the precise meaning of the definition he might discover the true significance of the statistic under consideration, e.g., "National Income" means the aggregate of all the incomes of all the individuals constituting the community; it does not mean the gross or net production of goods or other assets in the context of Balance of Trade or Balance of Payments. "National Income" sounds as if it was the income of the nation in the sense of a personal income earned and unearned on which taxpayer pays income tax, but that is just what it is not.

Its rise need not necessarily indicate growing prosperity nor its fall necessarily the reverse.

Would it be true to say that the global figure is of very uncertain significance whereas the size of the fractions devoted to each several part of national expenditure can accurately reveal economic trends—rise in per cent. for "Services" indicates rising standard of living for community?

Gross Agricultural Production during Calendar Year sounds as if it meant total agricultural assets as of December 31st minus total agricultural assets of the previous January 1st, but it does not.

In determining gross agricultural production no account is taken of increased stocks, equipment or fertility stored in land. It may not be practical to do this, but the words "Gross Agricultural Production" require to be qualified if they don't bear this meaning.

Statistics are a dangerous trap, unless elementary rules are provided for interpreting them. Some are highly significant as individual end results, others are significant only when taken together for the purpose of discerning the trend in progress.

Unless statisticians and technicians in agriculture consult and agree on rules of interpretation, not only may certain statistics prove useless, they may be the cause of major disasters. If the true criterion whereby to judge of an agricultural policy's success or failure is the trend over a ten year period, disaster may ensue if policy is changed as a result of three years statistics: e.g., our statistics of gross and *net* agricultural production, 1939-1951—where *net* production rises skyhigh, the correct interpretation of trend in which this isolated high year appears may reveal MINING OF LAND with certain collapse later; where *net falls steeply*, correctly interpreted, it may mean restocking and fertilisation of land with promise of future profit.

Premature and inexpert interpretation could in either case precipitate disaster.

Mr. Whitaker's invocation of Keynes and common sense to advocate policy of "generating more income and employment by spending

less on imports and producing more at home to satisfy our consumption needs" astonished me, coming from so distinguished an authority on national economics.

If one statute acre will yield two tons of barley, which is fed to six pigs, which are sold for £120, for conversion into bacon for export to Great Britain for consumption—would more income and employment be generated by growing on that acre 9 cwts. of wheat for home consumption—surely not?

As Mr. Lynch observed—Professor Plank was a truly great man; he early realised that life on earth would be too much like heaven if men were reasonable—how few of us mortals perceive and act upon this knowledge.

Dr. Geary.—I had made some notes, mostly on Professor Duncan's contribution, but I feel I should first try to deal with the points which have arisen in the discussion this evening, even though this may leave me little time for my notes. The Chairman (Mr. Eason) and Deputy Dillon both made a point which comes to this: a national balance sheet should be provided as well as tables of national income, national expenditure and social accounts, on the analogy of what a business concern requires to judge the state of its finances. Statisticians working in this field are well aware of the necessity—in fact the international association concerned with these problems is entitled "The International Association for Research in Income and Wealth." Unfortunately researches in wealth are not nearly so advanced as those in national income and cognate matters. As far as Ireland is concerned, we hope some day to have the necessary statistics, though the difficulties are formidable. As an example of Ireland's particular difficulties it may suffice to instance our considerable holdings abroad. These seem to be in such a different category from physical capital at home that it is hard to say that the total in money terms of our home and extern capital has real significance. As regards our capital at home, something like a soil survey on a wide scale must be instituted before we could hope to measure the appreciation or depreciation in capital held in the form of land.

Deputy Dillon is mystified by the concept of "national income". I can reassure him that, apart from the question of changes in capital, to which I have already referred, it means precisely what it says, as it is the total of incomes, whether in the form of dividends and remittances from abroad, profits less dividends paid to externs, employee remuneration and rents. There are various modifications but these do not affect the principle that national income is the sum total incomes of individuals and institutions. I may say that there is now a considerable measure of agreement throughout the world as to the definition of national income. In the Irish official White Paper the few divergences between the Irish definition and the United Nations Statistical Office definition are clearly indicated, and figures are supplied whereby anyone who wishes may modify the official totals to suit their own concepts. On the latter point I may remark that statistical officers are not dogmatic on the question of definition, principally because they realise that different definitions are used for the different purposes to which the figures may be put. The attitude of the offices is to favour a particular concept but to supply figures whereby other definitions may be realised. This brings me to a point mentioned by the Chair-

man and which also appears in Professor Duncan's paper : it is quite tenable that dwelling-houses might be regarded as in the same category as consumers' capital goods though the balance of the argument is against such an allocation ; still the Office has published figures which enable people who wish to do so to make a re-allocation in accordance with their concept of capital.

Deputy Dillon made the point that the value of the changes in livestock should be taken into account in estimating income of farmers. This concept has been adopted by Professor McCarthy for the Social Accounts tables because it is in accordance with the definition adopted by O.E.E.C. which drafted the tables. Professor McCarthy was careful to point this out and while he and I agree that the form of the tables which he presented is suitable for international comparisons, they are certainly not sufficiently detailed for individual countries, this country in particular. We will not be satisfied until we have produced Leontief input/output tables for each fairly detailed sector of the economy, and we are well on the way to this end. But returning to Deputy Dillon's point, in the early years of the agricultural output tables we did what he suggests but found that in years of big changes in numbers of livestock, the results were quite unreal. In 1938 when the Office adopted the present concept we gave the matter considerable thought and obtained expert advice on the subject. I am in complete agreement with Professor Duncan's views on this particular point if with little else in his contribution. I would like to say, however, that all four papers are a credit to the Society, whether we agree with all that is in them or not.

I think that in his interesting remarks Mr. O'Connor tended to misconceive statistical philosophy. Heaven forefend that the official statistician should be out to prove or disprove a particular thesis! His object is to produce statistics which are required for administration and for the citizens for the better conduct of their business. In the dark watches of the night he may apply higher mathematical methods to the determination of relations between the statistics, but he starts without preconceived ideas except those of common sense and general or specialised knowledge.

There are profound differences between Professor Duncan and myself as to the rôle of statistics in economics. Many times during the past twenty years we have argued the issue in public and in private without impairment, I am glad to say, to our personal relations. I have no intention of resuming the argument now, though it would be relevant, in view of the general tenor of his observations, which are based, I am convinced, on his philosophy, though they bear ostensibly on particular points. I shall merely point to a few of his errors of fact and to one solecism.

- (1) He implies that "residuals" are not clearly indicated. They are, in the notes to the White Paper. There are effectively only two residuals in the Irish tables (i) personal consumption at market prices, which can be regarded as controlled by a direct estimation which gives a systematic total known in advance to be in excess of the true figure but which agrees remarkably with the latter in trend in time; (ii) personal savings, notoriously difficult to assess directly, though we propose making the attempt in the near future.

- (2) He is wrong in stating that "no satisfactory price index has ever yet been devised" for deflating current values of national income and expenditure. We in Ireland have published two series of such indices in the White Paper, one for deflating private expenditure and one for deflating gross capital formation. In regard to the former we show that it is almost identical in recent years with the official cost-of-living index. Since the compilations were independent to the extent of four-fifths, this is surely a remarkable confirmation of both series. If deflating indices could not be devised the series at current prices would lose much of their value. The national income at constant prices is the best single indication of national well-being, regard being had, of course, to savings, investment and capital formation as well.
- (3) Professor Duncan is quite wrong in suggesting in his paragraph 9 that rudimentary social accounts were not used as an instrument in determining economic policy during war-time in Britain. His statements contradicts that of Mr. J. R. N. Stone who was close to the hub of affairs, and conflicts with common knowledge. The famous percentage of resources devoted to the war effort was derived from the tables of national expenditure. There was no other way of knowing this vital fact except through these tables.

I wondered if I would leave Professor Duncan to his conscience in his remarkable comparison of what he apparently regards as the liberal endowment of the Central Statistics Office with that of Trinity College, Dublin. For all the relevance the comparison has, he might have added that the Taj Mahal cost so many lakhs of rupees. Here, anyway, is the spectacle of a Professor of Economics calling the attention of taxpayers to the relatively generous endowment of the country's Central Statistics Office. Perhaps this is not what Professor Duncan intended: this has been the effect. We in the Office will be well content to let the public judge if they are getting value for their money having regard to the particular fact that its national audit costs it 0.03 per cent. of the national income, a proportion which you, Mr. Chairman, as a businessman, may not regard as excessive in relation to what these services cost in business. And the higher statistical work of the Office, analogous to the work which the universities should do, absorbs only a small fraction of the total cost of the Office, the principal function of which is to produce figures required for the formulation and criticism of public policy and for private citizens for the conduct of their business, as I have already said. The production of tables of national income and Professor McCarthy's social accounts tables, now before the Society, do not cost much more than £1,000 per annum.

Professor Duncan says that social accounts (which include all economic statistics and which are a liberal education in the working of the economy) are but a "tiny part" of economics. I can only say: "More's the pity!" I cannot help wondering if Professor Duncan has greater faith in the methods of pure economics for the solution of the practical economic problems which beset us, than he has in statistics. When economists have to deal with these problems we do not hear much about marginal utility, imperfect competition, utility

curves and the rest : they look for the statistics like the rest of us, and what they write is indistinguishable from what the statistician writes, if he can only write as well. I do not deny the value of pure economics for exegetic purposes in the classroom. The statistician at any rate knows what he wants to do, even if he cannot yet always do it. We will be glad to have the help of economists in improving statistical method and augmenting the corpus of statistics. Irish students of economics are welcome in the Central Statistics Office : we will indeed stretch our resources to the limit to help them. We offer them a place on the statistical band-wagon (or Juggernaut chariot, if you will), but if they continue to sulk in their tents we must travel alone.