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STUDIES AND REPORTS ON STATISTICAL METHODS

No. 7

MEASUREMENT OF NATIONAL INCOME AND THE CONSTRUCTION OF SOCIAL ACCOUNTS

REPORT

OF THE SUB-COMMITTEE ON NATIONAL INCOME STATISTICS
 OF THE LEAGUE OF NATIONS COMMITTEE OF STATISTICAL EXPERTS

Appendix : DEFINITION AND MEASUREMENT
 OF THE NATIONAL INCOME AND RELATED TOTALS

By RICHARD STONE



UNITED NATIONS

GENEVA

1947

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EDITORIAL NOTE

The present document is one among three methodological studies undertaken by the Committee of Statistical Experts of the League of Nations which were in process at the time the League's functions and activities in the field of statistics were taken over by the United Nations

Dealing with the interrelated problems of (i) Measurement of National Income and the Construction of Social Accounts, (ii) Banking Statistics and (iii) Balance-of-Payments Statistics, the three studies are essentially complementary

In its Reports of 18 February 1947, the Statistical Commission of the United Nations, desirous of seeing the three studies made available to specialists, recommended that they should be published under the imprint of the League of Nations "as the last in the League series — STUDIES AND REPORTS ON STATISTICAL METHODS" This recommendation was further amplified by the following statement:

"The Commission wishes it to be understood that these reports are published as valuable technical documents. They do not carry the Commission's endorsement in detail. The Commission, moreover, wishes to assert its continuing interest in the development of statistical methodology in these and other subjects."

Taking note of the recommendation of the Statistical Commission the Economic and Social Council, by resolution adopted on 29 March 1947, requested the Secretary-General to arrange for the publication of the three studies, to collate any comments received or to be received from Governments on them, and in consultation with the appropriate agencies to make these comments available in connexion with any work undertaken in the fields to which these studies relate

PREFACE

At its eighth session, held in April 1939, the Committee of Statistical Experts decided, in accordance with its general mandate under the International Convention relating to Economic Statistics, to include in its programme the statistical measurement of national income.¹ The Committee observed on that occasion that a need for guidance in this matter, to which reference had been made in the recommendations of the 1928 Conference², was being increasingly felt in a number of countries

The activities of the Committee were interrupted by the outbreak of the war later in 1939, and it was only possible to resume them in the course of 1945. In the autumn of that year, the present Sub-Committee was set up to study and report on the problem of measuring national income.

The members of the Sub-Committee were chosen primarily from among those experts in a representative selection of countries who are directing the computation of national income and related estimates. The Inter-American Statistical Institute was invited to send a representative to the meetings of the Sub-Committee

The Sub-Committee met for four days, 17-20 December 1945, at Princeton, New Jersey. The following members participated:

- Mr Richard STONE, Chairman of the Sub-Committee, Director of the Department of Applied Economics, University of Cambridge (*United Kingdom*)
- Mr H. P. BROWN, Senior Research Officer, Commonwealth Bureau of Census and Statistics, Canberra (*Australia*)
- Dr J. B. D. DERKSEN, Professor at the Rotterdam School of Economics, Chief of Division for Business Cycle Research, Central Bureau of Statistics, The Hague (*Netherlands*)
- Dr C. M. ISBISTER, Senior Economist, Dominion Bureau of Statistics, Ottawa (*Canada*)
- Mr George JASZI, Chief, National Accounts Section, National Income Unit, Department of Commerce, Washington (*United States of America*)
- Dr Hildegard KNEELAND, Principal Economist, Division of Statistical Standards, Bureau of the Budget, Executive Offices of the President, Washington (*Representative of the Inter-American Statistical Institute*)
- Mr Raul Ortiz MENA, Chief, National Income Unit, Research Department, Bank of Mexico (*Mexico*)
- Dr Arne SKAUG, Commercial Counsellor, Norwegian Embassy, Washington; formerly Chief of Division, Central Bureau of Statistics, Oslo (alternate for Dr Gunnar Jahn, Member of the main Committee) (*Norway*)
- Dr Julius WYLER, Professor of Economics and Statistics, Graduate Faculty, New School for Social Research, New York; formerly Chief of Division, Federal Bureau of Statistics, Berne; (alternate for Dr C. Brüscheiler, Member of the Main Committee) (*Switzerland*)

The meeting was attended, in addition, by Miss Agatha CHAPMAN, Economist on the Staff of the Bank of Canada, who took part in the discussions

The Sub-Committee had before it a preparatory memorandum drawn up by Mr Stone at the request of the Secretariat to serve as a basis of discussion. This memorandum as subsequently revised in the light of the discussions which took place at the meeting is appended to the Sub-Committee's Report. The Report itself is confined to the main conclusions reached in these discussions. The Sub-Committee hopes that the guiding principles and recommendations formulated in the Report and further elaborated in the Appendix will be applied to the widest possible extent in each country in the computation of national income and related accounts in order to secure greater international comparability than in the past

¹ Cf. Document C 133 M 85 1939.11 A (CES 145). Geneva, 27 April 1939

² Recommendations V(1) of the Final Act of the International Conference relating to Economic Statistics, Geneva, 14 December 1928

MEASUREMENT OF NATIONAL INCOME
AND THE CONSTRUCTION OF SOCIAL ACCOUNTS: REPORT BY
THE SUB-COMMITTEE

METHOD OF APPROACH

1. It has come to be realized in recent years that national income studies which had their origin in an attempt to measure certain broad totals have a much more general interest and usefulness if they provide information on the structure of the constituent transactions and on the mutual interdependence of these transactions. This is particularly true where national income studies are used in connexion with the formulation of economic policy, since, in this case, it is the interrelationship of transactions that is important rather than individual totals, such as the national income or gross national product. We are therefore in full accord with the general treatment embodied in the appended memorandum by Mr. Richard STONE, which approaches national income studies by setting out the economically distinct transactions among different branches of the economic system and obtains national aggregates, such as the national income and the gross national product, by a suitable combination of these constituent transactions.

The social accounting approach, of which a full discussion will be found in the Appendix, may be described briefly as follows:

Instead of seeking to build up a single total, such as the national income, an investigation is first made of the classification of accounting entities, of the types of accounts that they keep and of the transactions into which they enter. In this way, all the transacting entities of an economic system are classified into broad sectors such as productive enterprises, financial intermediaries and final consumers, and a series of accounts for each of these sectors is set up, in which the separate entries represent economically distinct categories of transaction. Economic activity is represented by money flows and related bookkeeping transactions, actual or imputed, between accounts. The national income and other similar aggregates are obtained from the system by selecting and combining the constituent entries in the accounts.

2. The process just described of setting out the distinct types of transaction in an economic system may be regarded as a significant way of summarizing transactions and presenting a picture of the structure of an economic system. In this way, a logical framework is presented into which the greater part of economic statistics can be fitted. This framework should prove useful in showing how far statistics actually available at any time fall short of a complete coverage of economic activity.

3. The approach referred to above has not only shown itself to be useful in practical economic analysis, but even if all its details cannot be elaborated statistically, it has been found a convenient aid in thinking through the complicated interrelationships of different transactions and branches of activity. Experience shows that these ideas can be expounded and presented more lucidly if the elementary transactions of an economic system rather than the final aggregates of transactions, such as the national income, are made the starting-point of the enquiry. Transactions whether actual or imputed take place between such accounting entities as business enterprises and individuals, and the accounts of these entities are much easier to grasp than the consolidated

accounts of the whole system. By studying the different classes of accounting entity in an economy and the different types of transaction in which these entities engage, we shall at once obtain a clearer picture of how the national totals are built up and, at the same time, exhibit the relationship between the constituent transactions and the implications of elaborating the accounts in one way rather than another. This approach will also ensure consistency in the treatment of different transactions and will show the implications to other parts of the system of any treatment proposed.

4 The system of transactions set out in the Appendix is drawn up in the main in terms of concepts which are believed to be those currently in use and therefore to form a basis of economic decisions. The system of social accounts presented does not, it is true, attempt to meet all the requirements which might be suggested on the basis of pure economic theory. The consequences of various changes which might be proposed in order to bring the system nearer to some theoretical ideal are discussed in Chapter VII of the Appendix. We are, however, in favour, for practical purposes, of the familiar basis adopted here, and this for two reasons: In the first place, a system of social accounts drawn up on the basis of familiar concepts will be presented in those terms and with those distinctions that may be supposed to play an important part in actual decisions. Secondly, a more recondite system will give rise to the necessity of measurement in areas where statistical data are lacking and where in many cases even the operations of measurement are unclear. We are not unmindful of the need for certain additional information in connexion with some uses of the system, but we think that most of the practical uses are best served in the present state of knowledge by avoiding as far as possible those types of estimate for which the operational basis of calculation is obscure.

5 We think it important to emphasize that the approach as described in the Appendix is no radical innovation, but a logical development of recent investigations in the field of national income. The difficulties of definition in this field have naturally led investigators to attempt to set out the relationships between the constituent items of the national aggregates, and the set of accounts developed in the Appendix extends this approach to describe the transactions in a complete economic system. Not only is this method not new, but it is also not untried and has been used successfully by investigators in many countries in which national income studies have been developed to a high degree. In recent years, official estimates on substantially the lines suggested here have been compiled in several countries, notably Australia, Canada, Eire, the Netherlands, the United Kingdom and the United States. The extent to which it has been thought profitable to present numerical estimates in the detail suggested in the Appendix varies from country to country, but in each one there is observable a tendency to make available more detailed information as time goes on.¹

¹ The following references indicate the published sources from which information may be obtained in the different countries:

Australia Official estimates were given for the first time in a Budget Paper entitled *Estimates of National Income and Public Authority Income and Expenditure* presented in September 1945. A second issue, entitled *National Income Estimates, 1938-39 to 1945-46*, appeared in 1946 and a third, entitled *National Income and Expenditure, 1946-47*, appeared in 1947.

Canada Official estimates prepared by the Dominion Bureau of Statistics have recently become available in a publication entitled *National Accounts, Income and Expenditure, 1938-1944*. These have subsequently been brought up to date in issues for the years 1938-1946 and for 1947.

Eire Official estimates prepared by the Department of Industry and Commerce have recently become available in a publication entitled *National Income and Expenditure, 1938-1944* (P. No. 7356), presented to the Oireachtas by the Minister for Finance, March 1946.

Netherlands Official estimates have appeared in a pamphlet issued by the Central Bureau of Statistics entitled *Nationale boekhouding doeleinden, problemen en resultaten*. An account of this system in English is available in Occasional Paper X entitled *A System of National Bookkeeping, illustrated by the Experience of the Netherlands Economy* by Professor J. B. D. Derksen, in the series of Occasional Papers issued by the National Institute of Economic and Social Research, London.

United Kingdom Official estimates prepared by the Central Statistical Office have been published annually for the last seven years in a White Paper, the latest issue of which is entitled *National Income and Expenditure of the United Kingdom, 1938-1946* (Cmd. 7099), which appeared at the time of the 1947 budget and presented estimates up to the end of the calendar year 1946.

United States Official estimates are published regularly in the *Survey of Current Business*, prepared by the National Income Unit of the Department of Commerce. See in particular the *National Income Supplement* to the issue for July 1947.

USEFULNESS OF AN OVER-ALL SYSTEM OF SOCIAL ACCOUNTS

6 The great stimulus to this branch of investigation which has arisen out of its utility for purposes of economic policy has resulted in a very rapid development in recent years both of the concepts involved and of the methods of statistical estimation. The most rapid period of development has been during the second world war, and we see no reason to believe that this process will slacken. In particular, the need for investigations of this kind in connexion with peace-time economic policy and especially with reconstruction and employment policies seems likely to ensure a continued process of development for some years to come. In many countries, additional stimulus may also be given to work in this field through the need for national income estimates in connexion with the problems of various international organizations now being established.

7 This system of analysis has grown out of the needs of economic policy and is therefore best adapted to certain types of economic analysis which have recently become of practical importance. Since the structure of the economic system is presented as far as possible in commonly adopted terms, the approach is not ideal for all classes of investigation. Moreover, strict international comparability in all respects is not possible, since wide institutional variations between countries involve among other things a degree of imputation of income on a basis which must necessarily be highly uncertain. However, the system of accounts here presented provides a framework within which true comparability can be developed as time goes on and also estimates for a number of component items which are comparable among all countries. These problems are discussed in more detail in Chapter VIII of the Appendix. Great difficulties stand in the way of removing these limitations, so that the type of system presented here probably achieves as much as can be achieved with existing knowledge.

TABULAR FRAMEWORK

8 For a detailed presentation of a system of social accounts reference may be made to Chapters III and IV of the Appendix. While it is rarely possible to present a picture of the structure of an economic system in the detail envisaged in the example given on pages 44-53, experience has shown that certain accounts for the whole economic system or for major sectors of it are of great utility in practical economic analysis and are also capable of statistical estimation. A set of statements each of which serves a different purpose is presented in the following tables, which we recommend should be adopted as a framework in the presentation of national income statistics. These statements are set out in terms of the categories of the working system of accounts presented in the Appendix. The numbers given in square brackets in the notes accompanying each table refer to the corresponding components or groups of components of the schedules shown at the end of Chapter III of the Appendix.

(i) *Personal Income and Outlay*

Table 1 shows the income available to persons—*i.e.*, individuals and non-profit-making bodies—arising either from participation in economic activity or as a transfer, as in the case of unemployment benefit. The corresponding total of outlay shows the way in which this income is distributed between expenditure on consumer's goods and services, direct tax payments including social security contributions of employees and saving. From this account, a figure of disposable income—*i.e.*, personal income minus direct tax payments, can readily be obtained. This income concept is useful in connexion with the analysis of the demand for consumer's goods and services. The components of income and outlay may be set out as follows:

TABLE 1
PERSONAL INCOME AND OUTLAY

<p>1 Income arising from participation in economic activity:</p> <p>(a) Wages, salaries, etc.</p> <p>(b) Interest.</p> <p>(c) Payments to depositors, and policy holders, actual and imputed</p> <p>(d) Net return from house ownership</p> <p>(e) Dividends and withdrawals</p> <p>2 Transfers:</p> <p>(a) National debt interest</p> <p>(b) Other transfer payments from public collective providers.</p> <p>(c) Social security benefits</p> <p>(d) Contingency claims</p> <p>(e) Gifts.</p> <p>(f) Capital transfers from abroad.</p> <p>3. Personal income</p>	<p>4 Consumers' expenditure on goods and services:</p> <p>(a) Payments to factors of production</p> <p>(b) Purchases of goods and services from productive enterprises.</p> <p>(c) Bank, etc., charges, actual and imputed.</p> <p>(d) Payments equal to the cost including profit of conducting personal insurance business and private pension funds.</p> <p>(e) Fees paid to public collective providers.</p> <p>5 less Transfers from enterprises in respect of bad debts</p> <p>6 Current transfers:</p> <p>(a) Gifts and fines</p> <p>(b) Direct taxes.</p> <p>(c) Contributions to social security funds.</p> <p>7 Saving:</p> <p>(a) Direct.</p> <p>(b) Via insurance and private pension funds.</p> <p>8. Personal outlay</p>
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Notes to Table 1

- 1 (a) [198] Payments to employees in cash and as far as possible in kind, deduction being made for such business expenses of the employees as purchases of working clothing. In so far as this deduction cannot be made or cannot be made completely, consistency requires that the corresponding purchases appear in 4 below.
- 1 (b) [170 + 199] Payments in respect of money lent for all business purposes. Interest on loans between consumers does not appear on either side of this account. National debt interest is not included here but is shown separately under 2 (a) below.
- 1 (c) [200 + 201] Payments to depositors with banks and other financial intermediaries such as building societies, together with imputed payments by financial intermediaries and insurance companies and societies. The reason for including these imputed payments is set out in Chapter III of the Appendix, pages 40-41, and a numerical example is given in Chapter VI, pages 87-90.
- 1 (d) [202] The net return actual and imputed to individual landlords as calculated in account (5) of Chapter III, page 46 of the Appendix.
- 1 (e) [171 + 203] Payments to shareholders, and withdrawals by partners and individual owners from unincorporated enterprise.
- 2 (a) and (b) [204] Payments for money lent to public authorities which is not used for ordinary business purposes such as the finance of a publicly owned or controlled enterprise—i.e., interest on what is sometimes called dead-weight debt. In many cases, it will not be possible to distinguish interest payments to persons (or aggregates of persons) in respect of this type of debt from other interest payments to persons made by public authorities. Where this is so, it will be necessary to combine the public authority portion of 1 (b) with 2 (a) in a single total.
- In practice, there may be many other forms of transfer payments from public collective providers to persons, such as payments and allowances to trainees under a government training scheme and payments to agricultural or other producers in compensation either for not producing or for destroying their produce. Transfer payments of this kind are ignored in the example of Chapter III of the Appendix.

- 2 (c) [208]. Cash benefits in respect of unemployment and health insurance, pensions paid by public authorities other than to their own employees, and all other payments of a like kind.
- 2 (d) [205]. Claims received from third parties in respect of accidents and other chance events. An example is payments from enterprises (or their insurers) in respect of employers' liability. In some countries, this type of contingency is largely taken care of by public authorities, so that many of these claims will appear under 2 (c).
- 2 (e) [209]. As in the Appendix, this item may be given and include gifts between persons as well as gifts to persons from other sources. Alternatively, gifts from persons may be excluded from both sides of the account.
- 2 (f) [210]. Net sums accompanying immigrants. In some countries, an important component of this item will be the repatriation of fortunes earned abroad.
- 4 (a) [174 a + 212 a]. Payments to direct employees of persons—e.g., in the case of families, domestic servants, and in the case of non-profit-making bodies, servants, clerical staff, etc. This item will include issues in kind and be subject to deductions to the extent that similar adjustments to cash earnings have been made in 1 (a) above.
- 4 (b)-(e) [136 + 175 + 213]. Payments for goods and services of all kinds by persons and aggregates of persons other than those charged to capital account. The insurance component of this item is made up of the cost including profit of conducting personal insurance business as shown in accounts 12 (b) and 14 of Chapter III of the Appendix.
- 5 [214].
- 6 (a) [218].
- 6 (b) [219]. Income tax, surtax, death duties and all other taxes levied on income rather than on commodities. Motor-vehicle duties on vehicles owned by persons may conveniently be included here.
- 6 (c) [220]. Contributions paid by employees to unemployment, health, pension and all other social security funds.
- 7 (a) [222]. The net addition during the period to the stock of personal saving made directly rather than through the agencies specified in the next item. Equal to net lending less net borrowing plus net capital formation shown in account (21) in Chapter III, page 52, of the Appendix.
- 7 (b) [135 + 176]. These net additions to reserve form part of personal saving but are not under the direct control of persons and are therefore conveniently shown separately.

(ii) *The relation between Personal Income and National Income*

This table shows the relation between personal income and national income

TABLE 2

RELATION BETWEEN PERSONAL INCOME AND NATIONAL INCOME

9. Personal Income
10 less Transfers included in personal income.
11 plus Undistributed income of enterprises of all kinds arising from property
12 plus Income from property accruing to public authorities
13 National Income.

Notes to Table 2

- 10 Same as group 2 above.
- 11 [25 + (28 - 21) + 29 + 79 + 80 + 109 + 110 + 158 + 159 - 251 a - 22 - (20 - 26 - 27) - 75 - 105]. Sums put to reserve and direct taxes—e.g., excess profits taxes, corporation income taxes—met out of business funds abated by the contribution of transfers—e.g., national debt interest, realized capital gains—to these sums. A more detailed description of the composition of this item is given on page 84 of Chapter V.
- 12 [184 + 185 + 240 + 241 + 242]. Investment income and receipts out of the profits of public authority enterprises accruing to social security funds and public collective providers.

(iii) *National Income, Net Product and Expenditure.*

This table shows the value of all currently produced goods and services, the basis of valuation being given by the remuneration of the factors of production absorbed in producing the economy's output of goods and services of all kinds. The totals headed national income and national product are broken down by factor shares and branches of activity respectively. Thus, the first indicates how much of the total accrues to factors of production in the form of wages and salaries, interest, profit, etc., while the second shows how much of this income was generated in different branches of activity such as agriculture, mining, manufacturing, etc. The third total, defined so as to be exactly equal to the first two, is classified according to the different types of final expenditure and shows the items needed to adjust these expenditures to a factor cost basis of valuation.

TABLE 3
NATIONAL INCOME, NET PRODUCT AND EXPENDITURE

<p>14. Income shares: (a) Wages, salaries, etc. (b) Interest. (c) Operating surpluses and net dividends received from the rest of the world.</p>	<p>16. Net products: (a) Productive enterprises: (i) Agriculture (ii) Mining (iii) Manufacturing (iv) Net rentals. (b) Banks and other financial intermediaries. (c) Insurance companies and societies and social security funds.</p> <p>17. Payments to factors of production by final consumers: (a) Persons. (b) Public collective providers</p> <p>18. Net income received from the rest of the world</p>	<p>20. Current domestic expenditure on goods and services: (a) Persons. (b) Social security funds and public collective providers.</p> <p>21. Domestic net capital formation: (a) Persons. (b) Public collective providers (c) Business enterprises. (i) Construction, works and durable equipment (ii) Inventories (iii) Gold and silver bullion and coin.</p> <p>22. Net expenditure by the rest of the world on goods and services.</p> <p>23. <i>less</i> Insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business policy-holders</p> <p>24. <i>less</i> Allowances by enterprises for bad debts.</p> <p>25. <i>less</i> Indirect taxes net of subsidies.</p> <p>26. <i>less</i> Social security contributions of employers</p> <p>27. Net national expenditure at factor cost.</p>
<p>15. National income</p>	<p>19. Net national product at factor cost</p>	

Notes to Table 3

14 (a) Same as item 1 (a) above

14 (b) [5 b + 57 b + 147 b + 246 b + 277 b - 267 b]
Interest received from enterprises of all kinds with the exception of payments to depositors (deposit interest) received from the banking system, plus interest received from public authorities in respect of money borrowed for

productive purposes such as the construction of municipal power stations, but excluding interest on dead-weight debt, which is treated as a transfer payment. Interest received from abroad is included, while interest paid abroad is excluded.

- 14 (c) [13 + 62 + 70 + 100 + 150 + 278 - 268]. Net gain on all current operations of a productive or commercial character and equal to the sum of the closing items recorded in the operating accounts of the system plus dividends and withdrawals from abroad, less dividends and withdrawals paid abroad.
- 16 (a) [5 + 13 + 36 + 57 + 62]. Total income—*i.e.*, wages, salaries, etc., interest and operating surpluses arising in productive enterprise. Further subdivision as shown in the table implies that separate operating accounts can be provided for different branches of activity. If such a breakdown is given, that part of force account wages which appears in [36] must be debited to the appropriate branch of activity which will normally be construction.
- 16 (b) [66 + 70 + 96 + 100].
- 16 (c) [147 + 150 + 174 + 188].
- 17 (a) [212 + 229]. For some purposes, it may appear desirable to allocate these factor payments to branches of activity, thus getting rid of this separate heading altogether. [212] would appear under service trades and [229], mainly, under construction.
- 17 (b) [246 + 260].
- 18 [277 + 278 - 267 - 268].
- 20 (a) [136 + 174 + 175 + 212 + 213]. This expenditure is at market prices and covers all current goods and services whether home produced or imported. Insurance is represented by the cost including profit of conducting personal insurance business and not by the premiums paid. Imputations are made in respect of goods and services not involving a cash transaction such as the rental of owner-occupied dwellings. Transactions in second-hand goods are net—*i.e.*, sales of such goods by persons are deducted, so that only the handling and repairing costs including profit appear in this item.
- 20 (b) [188 + 189 + 246 + 247 + 248 + 250 - 244]. Expenditure at home and abroad in the provision of common goods and services of all kinds—*e.g.*, defence, justice, education.
- 21 (a) [229 + 230 + 231 - 226]. Personal capital formation is restricted here to land and buildings. This item is equal to gross expenditures less sales and less sums needed to meet depreciation and obsolescence—*i.e.*, needed to maintain the assets intact.
- 21 (b) [260 + 261 + 262 - 256]. Net additions to the capital equipment of public authorities in their capacity as final consumers. This item comprises capital formation less allowances for depreciation and obsolescence for all such pur-

- poses as education, public health and administration. Capital formation by public authority enterprises is included in the next item.
- 21 (c) (i) [36 + 37 + 38 - 32]. Net additions to the fixed capital of all enterprises. It is fortuitous that in the example of the Appendix banks and insurance companies are not shown as adding anything to their capital equipment.
- 21 (c) (ii) [39 - 31]. Physical change in inventories—*i.e.*, stocks and work in progress, valued at the prices ruling in the period. The realized inventory profit or loss which would arise on account (3) of the Appendix is assumed there to be zero. The change in the value of inventories is made up of two items: investment in inventories (this item) and inventory profit, whether realized or not.
- 21 (c) (iii) [87].
- 22 [277 + 278 + 279 - 267 - 268 - 269]. Expenditure on the goods and services of the country under investigation by the rest of the world less that country's purchases of goods and services from the rest of the world. This item is not equal to the said country's balance of payments on current account since unilateral payments of all kinds are excluded. If it be desired to substitute the balance of payments for this item, appropriate adjustments for unilateral payments must be made to the other components of the net national expenditure.
- 23 - [125 + 126]. This deduction is needed, since other items of expenditure—*e.g.*, [17]—include business insurance premiums in the value of sales while these premiums only give rise to income of the factors of production to the extent that they represent the cost of conducting insurance business for enterprises. Reflection will show that if, as here, charges in respect of business insurance met out of the investment income of insurance companies are imputed to enterprises, no further adjustment is required to take care of this complexity.
- 24 - [12]. This deduction is needed because a certain proportion of goods and services is never paid for and an allowance is made for this fact in business accounts in arriving at the operating surplus.
- 25 - [239 - 252]. Expenditures being at market prices include the value of indirect taxation levied on commodities and exclude subsidies, since they do not enter into prices. The value of indirect taxation does not get through to the factors of production as income while the value of subsidies does. Hence this adjustment is necessary.
- 26 - [9 + 248]. This adjustment is needed for the same reason as the preceding one.

(iv) *Income Payments An Alternative Breakdown of the National Income.*

An alternative breakdown of the national income to that set out in Table 3 is frequently given under the title of "income payments". In terms of the present example, this alternative may be set out as follows:

TABLE 4
INCOME PAYMENTS

28. Wages, salaries, etc
29. Interest:
(a) Persons.
(b) Social security funds and public collective providers.
30. Rent, dividends, withdrawals and payments to depositors, actual and imputed:
(a) Persons.
(b) Social security funds and public collective providers.
31. Undistributed income of enterprises of all kinds arising from property.
32. National income.

Notes to Table 4.

28	Same as item 1 (a) above	30 (a)	Total of items 1 (c), (d) and (e) above.
29 (a)	Same as item 1 (b) above.	30 (b)	[185 + 240 + 242]. The remaining part of item 12 above.
29 (b)	[184 + 241]. Part of item 12 above	31	Same as item 11 above.

(v) *The Relation between National Income and Gross National Product.*

The national income is equal to the net national product valued at factor cost and is related to the gross national product in the following way:

TABLE 5
RELATION BETWEEN NATIONAL INCOME AND GROSS NATIONAL PRODUCT

33. National income
34. Depreciation and obsolescence allowances
35. Insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business policy holders.
36. Allowances by enterprises for bad debts.
37. Indirect taxes, less subsidies
38. Social security contributions of employers.
39. Gross national product

Notes to Table 5

34	[32 + 226 + 256] Equal to the sum of the negative components of items 21 (a), 21 (b) and 21 (c) (i) above.	36	Same as item 24 above.
35	Same as item 23 above	37	Same as item 25 above
		38	Same as item 26 above.

(vi) *Expenditure Classification of the Gross National Product*

This table shows gross final expenditures, that is, consumers' expenditures, expenditure on goods and services by social security funds and public collective providers, gross capital formation, and net expenditure on domestically produced goods and services by the rest of the world.

TABLE 6
EXPENDITURE CLASSIFICATION OF THE GROSS NATIONAL PRODUCT

40. Current domestic expenditure on goods and services:
(a) Persons.
(b) Social security funds and public collective providers.
41. Domestic gross capital formation:
(a) Persons.
(b) Public collective providers.
(c) Business enterprises:
(i) Construction, works and durable equipment.
(ii) Inventories.
(iii) Gold and silver bullion and coin.
42. Net expenditure by the rest of the world on goods and services.
43. Gross national expenditure at market prices (= gross national product).

Notes to Table 6.

40 (a)	Same as item 20 (a) above.	41 (c)	(i) [36 + 37 + 38]. Equal to the positive part of item 21 (c) (i) above.
40 (b)	Same as item 20 (b) above.	41 (c)	(ii) Same as item 21 (c) (ii) above.
41 (a)	[229 + 230 + 231]. Equal to the positive part of item 21 (a) above.	41 (c)	(iii) Same as item 21 (c) (iii) above.
41 (b)	[260 + 261 + 262]. Equal to the positive part of item 21 (b) above.	42	Same as item 22 above.

(vii) *Saving, Capital Formation and Net Lending to the Rest of the World.*

This account brings together on the receipts side the various forms of saving arising in the economy, whether as a transfer to free reserves or as a net transfer to other reserves, and shows how this total is used, first to finance net capital formation—*i.e.*, gross capital formation less allowances for depreciation and obsolescence—and net lending. The figure for net lending represents net lending to the rest of the world since total net lending within a closed economic system is necessarily zero.

TABLE 7
SAVING, CAPITAL FORMATION AND NET LENDING TO THE REST OF THE WORLD

44. Saving:	46. Net capital formation:
(a) Enterprises of all kinds	(a) Enterprises of all kinds
(b) Persons:	(b) Persons.
(i) Direct.	(c) Public collective providers.
(ii) Via insurance and private pension funds.	47. Net lending to the rest of the world.
(c) Social security funds and public collective providers	48. Capital formation plus net lending
45. Total saving.	

Notes to Table 7.

- 44 (a) [33 + 41 + 42 + 82 + 112 + 162 - 47 - 48]. The net additions to free and other reserves by all enterprises. Allowances for depreciation and obsolescence are not included here but are deducted from gross capital formation on the opposite side of this table. It would be possible to treat property insurance claims [33], in a manner similar to such allowances, but this treatment has not been followed here.
- 44 (b) (i) Same as item 7 (a) above.
- 44 (b) (ii) Same as item 7 (b) above.
- 44 (c) [192 + 255] Net additions to reserves by social security funds and public collective providers subject to the exception noted in 44 (a) above.
- 46 (a) Same as item 21 (c) above.
- 46 (b) Same as item 21 (a) above.
- 46 (c) Same as item 21 (b) above.
- 47 [273 + 274 + 275 - 284 - 285 - 286 - 287]. Net lending to the rest of the world and identically equal to the balance of payments on current account.

(viii) Combined Operating Account of Enterprises of all Kinds

This table shows the sales proceeds and other operating receipts of enterprises of all kinds on the one hand and the disbursement of these receipts in costs, charges and operating surplus on the other hand.

TABLE 8

COMBINED OPERATING ACCOUNT OF ENTERPRISES OF ALL KINDS

49. Sales proceeds including gross rentals, payments actual and imputed to banks, other financial intermediaries and insurance companies: (a) Domestic enterprises of all kinds. (b) Persons and aggregates of persons (c) Social security funds and public collective providers (d) Rest of the world.	53. Payments to factors of production: (a) Wages, salaries, etc. (b) Interest.
50. Subsidies.	54. Purchases of goods and services: (a) Domestic enterprises of all kinds. (b) Rest of the world.
51. Transfer from capital account in respect of inventories.	55. Insurance premiums.
	56. Indirect taxes.
	57. Contributions to social security funds.
	58. Transfers to reserve in respect of depreciation and obsolescence.
	59. Transfer to capital account in respect of inventories.
	60. Transfer to revenue account of persons in respect of bad debts.
	61. Operating surplus.
52. Total receipts.	62. Total payments.

Notes to Table 8

- 49 [1 + 55 + 64 + 94 + 145]. Payments, actual and imputed, to enterprises of all kinds in respect of goods and services. The breakdown shown in the subdivisions of this item involves a knowledge of the purchases of imports by the different sectors of the economy and cannot be provided from the information given in the example in the Appendix.
- 50 [2]. Charges incurred by public authorities with the object of enabling the general public to buy a commodity or service at less than the price which would otherwise have to be paid.
- 51 [3].
- 53 [5 + 57 + 66 + 96 + 147]. Wages, salaries, etc., and interest paid by enterprises of all kinds. These types of payment, unlike payments to enterprises for goods and services, are assumed, subject to certain minor adjustments, to represent income in their entirety.

- 54 [6 + 58 + 67 + 97 + 148]. Purchases of goods and services for current operating purposes from enterprises of all kinds at home and overseas. The breakdown shown in the subdivisions of this item involves a knowledge of the purchases of imports by the different sectors of the economy.
- 55 [7 + 59 + 68 + 98]. Insurance premiums paid by businesses plus an imputed charge equal to the investment income of insurers accruing in respect of business insurance.
- 56 [8 + 60 + 69 + 99 + 149]. Taxes levied upon commodities and therefore presumed to influence relative prices. These taxes may be contrasted with direct taxes levied upon income and presumed not to influence relative prices.
- 57 [9]. It is arbitrarily assumed in the example of the Appendix that branches of activity other than business enterprises do not pay these contributions. Only the employers' contributions are included here.
- 58 [11 + 61].
- 59 [10].
- 60 [12].
- 61 [13 + 62 + 70 + 100 + 150]. Gain from current operations either realized or held in the form of additional inventories.

(ix) Consolidated Account of Social Security Funds and Public Collective Providers

This table shows a consolidation of the revenue and capital and reserve accounts of public authorities in their capacity as redistributors of funds and final consumers. All purely financial transactions in cash, securities, etc., have been transferred to the receipts side of the account so that total receipts are composed principally of taxation, income from property and net borrowing. The payments side is composed principally of purchases of goods and services of all kinds, on current and capital account, transfer payments outside the public authority sphere and subsidies.

TABLE 9

CONSOLIDATED ACCOUNT OF SOCIAL SECURITY FUNDS AND PUBLIC COLLECTIVE PROVIDERS

63. Income from property: (a) Interest. (b) Dividends (c) Transfer of surplus from the appropriation account of publicly controlled enterprises.	67. Payments for factors of production: (a) Wages, salaries, etc. (b) Interest (other than national debt interest).
64. Transfers: (a) Direct taxes. (b) Indirect taxes. (c) Contributions to social security funds (d) Gifts and fines.	68. Purchases of goods, services and existing assets: (a) Revenue account (b) Capital and reserve account.
65. Net borrowing.	69. Less Fees received.
	70. Transfers: (a) Subsidies. (b) Transfer payments by public collective providers (c) Social security benefits.
66. Total receipts.	71. Total payments.

Notes to Table 9.

- 63 Same as item 12 above.
- 64 (a) [238].
- 64 (b) [239].
- 64 (c) [182 - 248]. Contributions of all employers and employees but not payments by public authorities other than those made in their capacity as employers.
- 64 (d) [243].
- 65 [257 + 258 - 195 - 196 - 264 - 265]. Borrowing after deduction of repayments made less lending after deduction of repayments received.
- 67 [188 (a) + 246 + 260].
- 68 (a) [189 + 247].
- 68 (b) [261 + 262].
- 69 - [244].
- 70 (a) Same as item 50 above.
- 70 (b) [251].
- 70 (c) [187].

9 Attention is drawn to the fact that the model set out at the end of Chapter III of the Appendix is concerned primarily with basic economic distinctions and does not present all the details required for different practical purposes. In particular, there are three types of classification, described on the text of the Appendix, though in the interests of simplicity not set out in the model. In the first place, it is useful to classify the national income according to the branch of activity (agriculture, mining, etc.) in which this income arises.¹ This classification is frequently difficult to handle statistically where national income is concerned because one is dealing essentially with financial entities rather than with establishments producing particular products. Accordingly, where there is a high degree of vertical integration great difficulties may arise in allocating a particular financial unit to the appropriate branches of activity to which it belongs. This problem is discussed in Chapter IV of the Appendix. A second classification which is useful, particularly in connexion with consumers' expenditure and capital formation, is a classification by product bought. A similar classification is also useful for some purposes in connexion with the purchases of public authorities, but, in this case, a further type of classification is frequently found to be necessary. This is a classification by the purpose for which the expenditure is made (for example, education, public health and defence), rather than by the product obtained by it.

BASIS FOR INTERNATIONAL COMPARISON

10 In so far as a common basis of presentation on the lines suggested in section 8 above is adopted in different countries, a broad basis will be available for international comparisons far more satisfactory than anything which could be obtained in the past. However, institutional differences, differences arising from individual preferences and differences in the statistical information available make it essential that procedures used in completing the basic tables should be explained as clearly as possible, so that the minor sources of difference which still exist in tables of different countries presented on a common basis can be understood and allowed for in making comparisons.

Experience shows that unavoidable differences of opinion arise in the treatment of certain transactions due in large measure to institutional differences in different countries. It is important that transactions which are the subject of these differences should be shown separately, so that the tables presented for any one country can be adjusted in detail to the basis of definition adopted in others.

The items in the tables may be divided, from one point of view, into cash items and imputed items, the former being those elements which reflect market transactions, and the latter being those for which a calculation has to be made in the absence of market transactions. In view of the difficulty of finding a commonly accepted basis for the second type of estimate, it is desirable that, as far as possible, items of this kind should be shown separately.

11 The system of social accounts set out in the Appendix does not cover all conceivable transactions, and in applying this system it will frequently be necessary to extend and adapt it to the particular circumstances of different countries. It is not feasible to provide a model which will take account of all the complexities that arise in practice nor one which is set out in terms most familiar in every country. In this connexion, reference may be made to Chapter VI of the Appendix, which provides methods for extending the system in detail and ensuring that new transactions introduced into the model are incorporated consistently.

¹ Reference should be made, in this connexion, to the industrial classification recommended by the Committee of Statistical Experts for use in statistics of the gainfully-occupied population *Cf. Studies and Reports on Statistical Methods*, No. 1, League of Nations, Geneva, 1938.

ADVANTAGES OF THE RECOMMENDED SYSTEM OF ACCOUNTS

12 It is recognized that the detailed system presented in Chapter III of the Appendix may appear somewhat formidable, particularly in cases where comparatively little statistical information is available. It is important to realize, however, that such a system provides a clear insight into the many cross-checks which are latent in systems of transactions and it is useful conceptually, at any rate, especially in countries with limited statistics. In such cases, there is a serious problem of making the best use of data, since it is impossible to find any single method by means of which a reliable total can be built up. By setting up a system in an interrelated form and attempting by all means available to estimate the elements of this system, it becomes possible to check the totals derived by the use of certain data against information obtained in other ways. In this way, a better opinion may be formed of the reliability of the resulting estimates.

13 The method of cross-checking discussed in the preceding paragraph can be usefully applied to the problem of forecasting national income and expenditure. The uncertainty attaching to forecasts means that if certain totals such as the national income are forecast in isolation, a very wide margin of error must be set on the estimates obtained. But if a system of related accounts is forecast simultaneously, the very fact that the items in these accounts are related prevents many of the estimates of these items, which taken in isolation would appear reasonable, from being acceptable. Thus the field of acceptable estimates is greatly narrowed down through the restrictions imposed by the interrelations of the system.

14 It will be seen that in measuring an interrelated set of transactions certain components can always be obtained as residuals without direct measurement. For example, in the United States, consumers' expenditure was for many years obtained as a residual, while in the United Kingdom the same has been true of capital formation throughout the war period. The gradual substitution of direct estimates for residual items in tables of the form proposed in section 8 above is the logical way of checking the reliability of the estimates for all items.

15 The system provides a consistent method of collecting statistics which is described briefly at the beginning of Chapter VIII of the Appendix. At present, however, such consistent information is not available in any country, so that piecemeal methods have to be adopted in filling in the tables numerically. It is important that in the statistical work full use should be made of all the information which is available and that reliance should not be placed on any single source. Experience shows that most statistical series are to a greater or less degree affected by the administrative requirements that led to their collection, and hence contain defects from the standpoint of economic analysis which are frequently difficult to remove. Thus, an important practical problem in this field of investigation arises from the difficulty not of defining the terms in the tables, but of knowing how far any particular statistical series reflects this definition accurately and of making the necessary adjustment where this is not the case. By approaching the problem of measurement from many angles and by using all information available, something can be done to correct the bias inherent in different types of source material, and the system presented here provides a way of using all the data available to the best advantage. A discussion will be found in the Appendix, Chapter VIII, of the principal means whereby the components of the system have been or may be measured and the practical difficulties that have been found to arise in using different sources of information.

APPENDIX

DEFINITION AND MEASUREMENT OF THE NATIONAL INCOME
AND RELATED TOTALS

MEMORANDUM SUBMITTED BY RICHARD STONE

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CHAPTER I

INTRODUCTION

The aim of this introductory chapter is to explain the purpose of this memorandum and the point of view from which it has been written. Its principal object is to set out the content and explain the nature of those investigations which are usually comprehended under the title of national income studies. These investigations are concerned with all such aggregates as national income, product, expenditure, capital formation, saving, balance of payments, etc., which, in recent years, have come to play so large a part in the analysis of the economic situation and in the formulation of economic policy. As is well known, this field of enquiry is highly technical but it now occupies an important position in the world of practical affairs. The problems of war finance, full employment and the marketing of the produce of all forms of economic activity, to name but examples of recent or existing economic problems which are common to the great majority of countries, have come to be discussed in terms of the concepts of national income studies. These concepts and the quantitative measures based upon them are an essential element in the understanding and solution of great issues. It is therefore important not only that the general character of those concepts and their bearing on practical affairs should be widely understood, but also that as far as is practicable agreement should be reached at the technical level on the detailed content and presentation of the estimates based upon them.

The national income or product which is the basic aggregate in this field provides a measure of the total value at factor cost of goods and services produced in a period which are available either for consumption or for additions to wealth. This total is valued in terms of money and is equivalent to the income accruing to the factors of production—*i e*, labour, management, enterprise and property. Experience shows that, while useful, this concept is insufficient for many purposes. It is necessary to know in quantitative terms how the national income is related to its constituent transactions and to other totals of transactions. Thus modern enquiries which had their origin in an attempt to measure certain broad totals have changed their emphasis and now concentrate more on the structure of the constituent transactions and on the mutual interdependence of these transactions. It has come to be realized that for different purposes certain related but distinct aggregates are useful and that beyond a given point it is only possible to specify a unique set of operations to define the content of one of these aggregates by adopting certain conventions.

This view based upon experience is reinforced since the ideas can be expounded and presented more lucidly if the elementary transactions rather than the final aggregates are made the starting-point of the enquiry. Transactions, whether actual or imputed, take place between accounting entities such as business enterprises and individuals, and the accounts of these entities are much easier to grasp than the consolidated accounts of the whole system. Thus by studying the different classes of accounting entity in an economy and the different types of transaction in which they engage, we shall at once obtain a clearer picture of how the national totals are built up and at the same time exhibit the relationship between the constituent transactions and the implications of setting up the accounts in one way rather than another. This approach will also ensure consistency in the treatment of different transactions and will show the implications in other parts of the system of any treatment proposed.

Accordingly this report approaches the study of the national income from the point of view of social accounting¹. This means that we shall begin by classifying accounting entities into

¹ It is believed that this term was first used by J. R. Hicks in his book "The Social Framework: An Introduction to Economics" (1942). For an explicit recognition of the accounting aspect of national income work see the following articles by M. A. Copeland: "National Wealth and Income—an Interpretation" in *Journal of the American Statistical Association*, Vol. XXX, No. 190, 1935, pp. 377-386, and especially pp. 379 and 386, and "Concepts of National Income" in *Studies in Income and Wealth*, Vol. I (1937), pp. 3-63 and especially p. 63.

certain broad sectors (such as production, finance, consumption) distinguished by function, and at the same time consider the different sorts of accounts and the different types of transaction that require to be kept distinct. The object here is to combine accounting entities and transactions as much as possible so as to be left with a relatively simple system which can conveniently be handled. At the same time, we must not carry the process too far, since if this is done we shall fail to make distinctions where they need to be made for the kind of purpose we have in mind. The result of this part of the enquiry will be a picture of an economic system viewed as a system of transactions presented in such a way that the various national aggregates can be obtained by adding together the appropriate entries in the different accounts.

This part of the investigation will occupy Chapters II, III and IV. Chapter II will describe the content of the social accounts in a general way and will illustrate this description with a simple example. At this stage, it will be convenient to discuss certain broad problems of treatment. In Chapter III, a working system of social accounts will be set out in detail and the reasons for adopting this system will be explained. In Chapter IV a detailed discussion of the entries in this system of accounts will be given. In this way, most of the problems of definition and treatment will be covered in the context of the accounts in which they arise.

In Chapter V we shall return to the national income and other national totals and show by means of numerical examples how these totals can be extracted from the elementary transactions in the working system. At this point, the implications of the treatments used in Chapter III will become apparent and the consistency of equivalent national totals such as national income and expenditure will be demonstrated. The relationship of the main totals such as national income and gross national product will be set out with the aid of the accounting system.

The system of Chapter III, though described as a working system, will be seen to be a highly simplified representation of an economy. This is inevitable and indeed intentional, since any attempt to reproduce in all their detail the many different types of entity and transaction of the real world would lead to a system so complicated that it could scarcely be grasped as a whole. Many volumes the size of this one would be required for such an undertaking and it would be impossible to see the field for the blades of grass. Consequently, while it is hoped that the principal problems of treatment have been covered in Chapters II to IV, a means must be provided of ensuring consistency in the many points of detail that arise in practical work. An attempt is made to do this in Chapter VI.

The working system is based essentially on the model of an advanced industrial economy in which transactions in money are dominant. Furthermore, it is drawn up in the main in terms of concepts which are believed to be those currently in use and therefore to form the basis of economic decisions in the real world. This kind of treatment is adequate and even desirable in dealing with those types of problem to which at present national income studies are asked to give practical answers. Thus, in studying problems of war finance it is necessary to know, for example, how far government borrowing has been met from different sources such as private saving, the failure to maintain equipment and inventories, the sale of assets and claims abroad, etc., and to estimate how far in quantitative terms these sources can be relied upon in the next accounting period. This purpose can be served by an accounting treatment which recognizes clearly different economic categories such as saving and capital depletion, but which is concerned principally with a consistent treatment of concepts which are recognized as to some extent arbitrary. In reviewing government transactions in relation to the rest of the national economy it does not matter if some of the concepts employed are arbitrary and conventional any more than it does in the case of actual business accounts themselves.

The same is true where income and expenditure components are used to work out behavioural or institutional coefficients such as the propensity to consume, the relation of imports to national income, etc. It may be argued that, in this kind of work, those definitions should be chosen which give rise to the simplest enduring regularities. Thus, such questions as whether corporate taxes should or should not be included in national income may, if they cannot be settled on theoretical grounds, be decided by econometric analysis. In this connexion, it must be re-

membered that, generally speaking, there is a very high correlation between different concepts of national income and product.¹

For other purposes, however, this approach needs to be supplemented by further investigation. In so far as the entries in the working system fall short of some theoretical ideal, either because a compromise has been made for lack of data or because the ideal is not expressible in terms of operations which permit of measurement, they will be misleading if they are used for purposes other than those for which they have been constructed. It is thus important to examine the definitions employed in order to see the limitations on the legitimate use of the system. Thus, for example, the concepts of consumers' expenditure and capital formation which seem appropriate from the point of view of distinguishing between the two principal components of the national product do not necessarily coincide with consumption and additions to wealth and such differences must be made explicit. This kind of problem is particularly important if the estimates are to be used to make comparisons of the material welfare of countries with very different economic and institutional arrangements. In studying the changes in the economic activity of an advanced industrial country it is unnecessary to impute an income to family services or to the services of household equipment and may even prove an embarrassment to do so, since, not only are there very little data in this field, but the principles on which such imputations should be made are obscure. On the other hand, if a comparison is to be made with a country in which subsistence and family production are important, problems of imputation will have to be faced squarely; indeed, for this purpose, it may be desirable to set up the system of accounts in a different way.

Problems of this kind, which will be discussed in Chapter VII, are difficult to handle quantitatively in the present state of knowledge. They need to be kept in mind in using and interpreting figures based on the working system, but they are not necessarily important in a wide field of applications.

Chapter VIII deals with the statistical problems of measurement. It is assumed that not only are usable figures needed for the past, but that it is also necessary to compile current figures on, say, an annual or even a quarterly basis. This requirement raises additional problems since, in every country, materially less information is available currently on a quarterly basis than can be obtained for a selected base period in the past.

The adoption of an accounting approach suggests a systematic method of collecting information on the main totals in the system, and this method is briefly explored. Even if this method is not followed, the same approach brings out the many cross-checks that are latent in the system. These checks are of two kinds. The first involves the measurement of equivalent or related totals by adding up different sets of transactions such as incomes on the one hand and expenditures on the other. The second consists in using alternative source material to measure a given set of transactions by different means. Thus, the national income or product may be viewed either as the sum of the incomes accruing to factors of production or as the sum of the net outputs of each branch of activity. It is frequently possible to measure equivalent totals in this way by means of data which are statistically though not, of course, conceptually independent.

In dealing with the detailed problems of compiling the numerical estimates an attempt will be made to indicate not only the kind of source material frequently available and the accepted difficulties of handling it, but also to sketch out the areas in which estimation is at once difficult and important. Many of the problems that give rise to intricate questions of logical treatment turn out to be numerically unimportant in practice.

The final chapter, IX, sets out some of the practical advantages of this method of approach. It may be emphasized in concluding these introductory remarks that the approach followed here is not altogether new and untried and is one which investigators in many countries have come to adopt. The need for a complete and comprehensive picture of the structure of transactions in

¹ For example, there is a correlation coefficient of 0.996 between the national income and the gross national product of the United States over the period 1929-1941. In view of this, the substitution of one concept for another in a regression equation will virtually only alter the coefficients by a scale factor. Accordingly, for this kind of use it is hard to insist vehemently that one concept is right and the other wrong, though differences in theoretical approach will lead different individuals to prefer to work with one concept rather than the other.

an economic system which is felt by those responsible for policy decisions in both government and business circles leads inevitably to this approach. In recent years, official estimates on substantially the lines suggested here have been compiled in several countries. There is no doubt, therefore, that the approach is a practical one. It is also one which offers a basis for greater uniformity of content and presentation in the estimates for different nations, since it concentrates on the structure of transactions rather than on individual aggregates that are expected to serve all purposes. From an historical point of view, it is interesting to note that modern investigations in this field come close both in form and in purpose to the work of the political arithmeticians of the seventeenth century with whom such studies originated. The estimates compiled by Gregory KING¹ are particularly striking in this connexion.

CHAPTER II

THE SOCIAL ACCOUNTS

To most people the national income and expenditure are unfamiliar concepts which cannot be manipulated with ease. This is due in large measure to the fact that the results of aggregating incomes and expenditures are not well understood, especially when the incomes and expenditures in question do not accrue to any single sector of the economy. An approach which concentrates on truly national, rather than sectional, concepts like the national income exhibits a complex result without demonstrating how it is built up from simpler and more familiar ideas. Consequently, a more understandable as well as a more illuminating view of the subject can be obtained by starting with simpler accounting entities, showing how they are related and deriving more complex concepts like the national income from their elementary constituents.

Thus the starting-point of this chapter is to regard an economic system as a set of accounts actually or at least potentially in relation with one another. This can easily be understood if we concentrate on one account in such a system—namely, the income and expenditure account of an individual family. This accounting entity receives payments in the form of wages or salaries together with dividend and interest payments from concerns in which members of the family are employed or hold an interest. It may obviously receive a great many other kinds of payment which need not be specified at this stage. On the payments side it will part with cash or an equivalent to all the tradesmen who supply the family's needs, to their landlord, public utilities, clubs, etc. It will also pay out sums in direct taxes to public authorities. After all current payments have been met a certain residue, positive or negative, will remain, which is termed saving, and is assumed to be transferred to the family's capital account by which it is held either in the form of cash or in some other form of investment. We are not concerned at the moment with the question of whether people actually keep accounts in this way.

In this system every transaction will be recorded twice: at the receiving and at the paying end. As envisaged in the preceding paragraph, however, the system is much too complicated for most practical purposes since it has been supposed that each single transaction between each single accounting entity is separately recorded. Such an amount of detail would be quite unmanageable and means must be found of reducing its bulk. Evidently this can be done in two ways: first, by combining accounting entities and, second, by combining transactions.

It is clear that little useful purpose is served by treating each family as a separate accounting entity. Although, for certain purposes, we may be interested in *some* subdivision of families,

¹ "Natural and Political Observations and Conclusions upon the State and Conditions of England" (1696). This work was printed as an appendix to "An Estimate of the Comparative Strength of Great Britain" (1802) by Sir George CHALMERS, and is available to modern students in the Johns Hopkins reprint entitled "Two Tracts by Gregory King" (1936) published by the Johns Hopkins Press.

we will suppose the income and expenditure accounts of all families to be combined¹. Similarly, no useful purpose will be served by recording separately each single transaction between families and the rest of the economy, and it will therefore be convenient to group these transactions into a manageable number of classes. How much detail to preserve depends on the problem to be solved.

Thus, in setting out a system of social accounts, the principal problem is to know how far to go in combining accounts and transactions. A course must be steered between the unmanageable detail of too many accounting entities and types of transaction and the lack of information which results when the process of combination is carried too far. At one extreme we should be faced with millions of individual transactions which take place in the economy in any period and at the other we should have reduced this mass of detail to one single transaction taking place within one combined account. In the first case we should have no use for so much detail even if we could keep such elaborate records which, of course, we cannot; in the second we should have reduced all that was taking place in the economy to one single figure² of very limited usefulness.

By looking at the matter in this way, it will be obvious that there is no one uniquely right way of combining accounts and transactions so as to form a manageable and useful system of social accounts. Given a set of accounts any system of combination completely covers the economy in the sense that there are no loose ends in the system. But the *degree* to which the economy is covered differs according to the system chosen. For example, it may be convenient to combine all business operating accounts into one single account for productive enterprises. This account may or may not include such enterprises as banks and insurance companies. If we are not primarily interested in problems involving the banking system it may be quite sufficient to combine banks with other enterprises. On the other hand, it may not always be sufficient even to combine all productive enterprises in the simple sense. The sort of problem we are trying to solve may require that agriculture, mining, manufactures of different kinds, trade, etc., be treated as separate accounting entities. Of course the more detail we require, the more complete will our system of records have to be. Care must be taken to see that the combined system does not involve distinctions which do not exist in the elementary accounts from which the system is conceptually built up³.

The working out of a useful and manageable system of social accounts is a matter which must be left in detail to the combined experience of those whose duty it is to compile the records for such systems in statistical offices all over the world. However, a beginning must be made somewhere, so, at the risk of producing a system with certain practical shortcomings, the general requirements of such a system will be discussed in the following pages and in Chapter III a plan will be presented in detail.

First, then, as regards accounting entities. This term covers all transacting units in an economic system, and these units may conveniently be grouped together into sectors, according to their function. The most important distinction is between producers and consumers, but in the more elaborate system set out in the next chapter a larger number of types of accounting entity is recognized. Every accounting entity must be allocated to one or other sector which may itself be further divided, and those falling within any division of a sector will be combined. Thus, in the next chapter an economic system will be represented by five sectors, four within the economy under investigation and one covering the rest of the world. They may be termed productive enterprises, financial intermediaries, insurance and social security agencies, final consumers and the rest of the world. Public authorities will in most economic systems of the world be represented in all five sectors. An example of a division of a sector is given by the banking system, which it will normally be advisable to keep separate from other financial intermediaries.

¹ A useful terminological distinction is between *combined* accounts, in which the transactions between the constituent accounts are retained on either side of the new account, and *consolidated* accounts, in which such transactions are omitted from both sides of the new account.

² This is strictly true only of a closed economy. In an open economy, transactions with the rest of the world would necessarily appear separately.

³ This question will be discussed more fully below. It arises, for example, in connexion with the definition of a branch of activity and of business saving. See pages 55-56 and 62 below.

Second, in addition to recognizing these five main classes of accounting entity it must be realized that each entity may have to keep more than one account. All entities within the economy under investigation must keep a current and a capital account, since for almost all practical purposes current and capital transactions must be kept separate. In the case of enterprises, for example, it is desirable to distinguish between purchases made in respect of current operations from those made for construction and other extensions of equipment of all kinds. This distinction can be made by debiting the first type of expenditure to a type of current account, here called an *operating* account, and the second type of expenditure to a capital account. At the same time, allowances for depreciation and obsolescence are debited to the operating account, thus making them appear as part of the cost of current operations, and at the same time are credited to the capital account, since they are a source of finance for gross additions to the capital equipment employed in the business.

The excess of receipts over costs on the operating account of an enterprise is the operating surplus, that is the *profit* or *gain* from current productive activity. This surplus is transferred to a second type of current account which may conveniently be called an *appropriation* account. This account brings together gains accruing to the enterprise from all sources and distributes them. The balance on this account is essentially an element of *saving* which is transferred to free reserves.

In the case of non-profit-making entities of which final consumers are the principal example, the balance on current account is not a profit but saving. Accordingly, the current accounts of these entities are given a distinctive name and are referred to as *revenue* accounts.

Capital accounts, especially in the case of enterprises, may for some purposes conveniently be divided into two kinds. An account concerned primarily with the capital equipment employed in the business is here termed a *capital* account and a further account principally concerned with changes in reserves and in financial claims and investments of all kinds is here called a *reserve* account. This terminology is exemplified in the working system presented at the end of Chapter III.

Third, as regards transactions. These may be classified broadly according to the economic *consideration* against which money passes. By consideration is meant the immediate economic return, such as a week's labour of a particular kind, a specified commodity, such as a loaf of bread, or a security or other financial claim. The principal distinction in the case of considerations is between something and nothing, while the first of these categories may be further subdivided into real and nominal.

Transactions in which the consideration is nothing form an important class and are sometimes called unilateral payments. All that is meant is that money is transferred without any direct return immediate or deferred in the form of goods, services, assets or claims; it does not mean that no benefit of any kind accrues indirectly to the entity making the payment. Examples of this kind of transaction are gifts, taxes, subsidies, and transfer payments in the technical sense such as unemployment and health benefits, old-age pensions, etc. Transactions in which the consideration is something real relate to all purchases of goods and services, while those in which the consideration is something nominal relate to all transfers of cash and financial claims.

It will be found in experience that very little progress can be made unless these three basic types of consideration are kept distinct. If, however, no further distinctions are made, only broad categories will be available in the final records. Thus, for example, consumers' expenditure on goods and services will appear as one item—namely, the payment from persons to productive enterprises against something real. If more detail is required, as for example, of food is to be distinguished from clothing or loaves from fishes, the single consideration something real will have to be further subdivided. In a similar way, if we are not content to regard all productive enterprises as a single accounting entity, but require to distinguish different types of business, the entity productive enterprises will have to be further subdivided. The need for more detail means that the process of combining entities or considerations has been carried too far for the particular purposes in hand.

Once the accounting entities, the nature of the accounts they are to keep and the considerations to be distinguished have been specified, the process of drawing up the accounts is simple.

Each account must show its receipts from and payments to each other account in respect of each separate type of consideration. In this way, each entry in one account has its counterpart on the opposite side of another account (or, in the case of *internal* transactions, of the same account). Every entry appears twice and there are no loose ends unaccounted for. Each account might be cut in half and the payments sides and receipts sides might be collected into two piles. The whole system could be perfectly reconstructed from the information contained in either pile. Such a system of accounts may conveniently be termed *articulated*.

A feature of this system is that each entry in any account will relate to one and only one type of transaction, so that the accounts, as they stand, provide all the information required and the items of which they are composed do not require further subdivision. Thus, for example, suppose that businesses pay both direct taxes on profits and indirect taxes in the form of excise duties. If these two types of taxes are to be kept separate, as in the ordinary way they should be, it will be necessary for them to be paid out of separate accounts. This can readily be done, since it is natural that indirect taxes should be paid out of the operating account while profits taxes may be debited to the appropriation account. Given the criterion for distinguishing between direct and indirect taxes, the two classes should be debited to the two different accounts so as to preserve the distinction. Again, it will normally be desirable to be able to distinguish between direct taxes paid in respect of dividends to persons and those met out of business income. This can be done by debiting gross dividend payments to business appropriation accounts and the tax payments arising in respect of these dividends to personal revenue accounts. Thus it will be seen that practical complications impose a certain minimum of complexity on the system of accounts to be adopted.

Before giving in detail a system of accounts which may reasonably purport to represent an economic system of the real world, it will be convenient to illustrate the preceding ideas with a numerical example which, though oversimplified, will bring out the main features of such a system. This example will also provide an opportunity for discussing a number of conceptual problems under conditions in which the main outlines of the system are not obscured by points of detail. Finally, the passage from the highly simplified to the more realistic example will indicate how such systems of accounts have to be adapted to take account of the complexities of the real world.

In the following example we shall consider a closed economy consisting of only four accounts and three considerations. The four accounts, which will be lettered *a*, *b*, *c* and *d*, are the current and capital accounts of businesses and the current accounts of persons and public authorities respectively. The three considerations which will be numbered 1, 2 and 3 will relate to nothing, goods and services, and cash and other financial claims respectively. The symbol *ab* 1 means a payment from *a* to *b* in respect of consideration 1 and as required by the property of articulation each such symbol must appear twice in the whole set of accounts, once on the receipts side and once on the payments side.¹

PRODUCERS

(a) *Business Operating and Appropriation Accounts*

Receipts		Payments	
Sales of goods and services to:		Payments for goods and services to:	
ca2	Persons 4,000	ac2	Persons 3,000
da2	Public authorities 175	aa2	Businesses 40,000
Businesses on:		ad1	Indirect taxes 1,000
aa2	Revenue account 40,000	ab1	Saving (transferred to capital account) 250
ba2	Capital account 50		
da1	Subsidies 25		
	44,250		44,250

¹ Since a payment is a negative receipt, the two symbols might be placed on the same side of the set of accounts but with opposite signs. There is no need, however, to consider this sort of arrangement in the present example.

(b) *Business Capital Account*

<i>cb3</i> Loans from persons	100		<i>bc2</i> Persons	150
<i>ab1</i> Saving (transferred from appropriation account)	250		<i>ba2</i> Businesses	50
	350		<i>bd3</i> Loans to public authorities	150
				350

CONSUMERS

(c) *Personal Revenue Account*

<i>cc1</i> Gifts from persons	300		<i>cc1</i> Gifts to persons	300
<i>dc1</i> Transfer payments from public authorities	550		<i>ca2</i> Current goods and services	4,000
Earnings from work or property received from:			<i>cd1</i> Direct taxes	500
<i>ac2</i> Business revenue	3,000		<i>cb3</i> Saving (all lent to businesses)	100
<i>bc2</i> Business capital	150			
<i>dc2</i> Public authorities	900			
	4,900			4,900

(d) *Public Authorities Revenue Account*

<i>cd1</i> Direct taxes from persons	500		<i>dc2</i> Persons	900
<i>ad1</i> Indirect taxes	1,000		<i>da2</i> Businesses	175
<i>bd3</i> Loans from businesses	150		<i>da1</i> Subsidies	25
	1,650		<i>dc1</i> Transfer payments to persons	550
				1,650

It is not difficult to think of everyday transactions that have no place on this simplified economic system: yet the main features are there. Income payments, expenditure by consumers and public authorities, capital formation, saving, government borrowing, to take only examples, all make their appearance. In order to understand the system better, it will be convenient to run through the items in the order of their appearance in the different accounts.

On the left-hand side of account (a), the first item, *ca2*, represents receipts from the sale of goods and services to persons for purposes of consumption. Persons are assumed not to buy capital goods of any kind; if they did, it would be necessary to introduce a capital account for persons against which such purchases could be debited. It will be noticed that consumers' purchases appear as a single item; if more detail is required consideration 2 must be subdivided so as to show different goods and services as separate considerations.

Item *da2* represents receipts from the sale of goods and services to public authorities in their capacity as providers of common goods and services to the community. The problem of classifying public authority expenditure will be considered in some detail in commenting on the payments side of account (d).

The third entry, item *aa2*, represents receipts from the sale of materials and services for purposes of current operations within the business sector and the same figure appears again on the other side of the account. In many problems this figure is not of much interest, but it may be useful in a study of the relation of activity to the means of payment available. The fourth entry,

item *ba2*, represents the sale of capital goods of all kinds to business capital accounts and forms part of the economy's gross capital formation.

Item *da1* represents receipts from public authorities the object of which is to enable the general public to buy a commodity at less than the price which would otherwise have to be paid. Like item *da2*, this item is considered further in the discussion of account (d).

On the other side of the account, item *ac2* represents payments to persons in respect of their participation in economic activity. No distinction is made between different types of payment such as wages, salaries, entrepreneurial gains, dividends, interest and rent. If these different types of payment are to be kept separate, the services of labour or property in respect of which they are made must be treated as separate considerations. This item covers, of course, only payments made by enterprises in respect of services contributing to current activity. Similar payments made by business capital accounts and by public authorities appear separately in items *bc2* and *dc2* below.

Item *ad1* represents a transfer from business operating accounts in the form of indirect taxation. It is assumed that businesses pay no direct taxes: for this to be shown it would be necessary to introduce a separate business appropriation account against which direct tax payments by businesses could be debited.

The distinction between direct and indirect taxation is made for analytical reasons, the object being to separate those taxes which directly affect relative prices from those which do not. A clear line of division cannot be attained in practice, but the line of demarcation usually adopted from practical considerations accords fairly closely with ordinary usage. Thus, direct taxes are taxes levied on income, such as income tax, surtax, and excess profits taxes, and on accumulated wealth, such as death duties; while indirect taxes are those levied on goods and services and chargeable as a cost against the proceeds of sale, such as customs and excise duties, sales taxes and local rates.

The last item in this account, *ab1*, represents the undistributed profit of all businesses combined and is transferred to business capital accounts for purposes of investment.

On the left-hand side of account (b) is shown the two sources of capital funds supposed to exist in this economy—namely, personal and business saving. On the right-hand side are shown the uses of these funds. The first two items represent capital formation—*i.e.*, the purchase of capital goods, together with the purchase of direct labour and similar services for construction and installation, while the third item is simply the finance of public authority deficits, which is assumed to be done entirely by businesses. If subscriptions to different types of loan, etc., were to be shown separately each would have to appear as a separate consideration.

It will be observed that the only source of capital funds in this economy is saving of one kind or another. Apart from capital gains of various kinds there is no entry for allowances for maintenance and depreciation. Such allowances can only conveniently be brought into the picture with a rather more elaborate arrangement of accounts. It is assumed, therefore, that all capital formation is net—*i.e.*, that existing equipment does not wear out or become obsolete.

On the left-hand side of account (c), item *cc1* is a form of unilateral payment appearing on both sides of the current account for persons. It represents gifts and allowances of a recurrent kind. If large lump-sum transfers are supposed to take place, it would be necessary to introduce a capital account for persons and show the transfers as an entry on either side of this account.

Item *dc1* represents unilateral payments from public authorities to persons—*i.e.*, so-called transfer payments, such as unemployment and health benefits. The distinguishing feature of these payments is that they are made against no direct economic return. They will be discussed more fully in dealing with the classification of government transactions.

The next three items, *ac2*, *bc2* and *dc2*, represent the earnings paid to persons in respect of their participation in economic activity. Item *ac2* represents the earnings of all kinds arising in business operating accounts; *bc2* the payments for, say, direct labour engaged in construction and the installation of equipment for business capital accounts, while *dc2* represents payments for services rendered by civil servants and other public authority employees and members of the armed forces.

On the payments side, the first two items have already appeared. The third item, *cd*1, represents direct tax payments made by persons to public authorities. It will be seen that formally this item is the negative of item *dcr*, transfer payments.

Item *cb*3 represents in this system the balance between current receipts and current outgoings arising on the combined revenue account for persons—*i.e.*, it represents personal saving. It is an arbitrary assumption of this example that persons hold all their saving in the form of loans to businesses. A more adequate treatment of personal saving would require three complications in the system. First, the introduction of a capital account for persons to which the balance of current receipts over payments could be transferred. Second, the introduction as separate divisions of the economy of various financial intermediaries such as banks, building societies and assurance companies which in general are the immediate recipients of personal lending and borrowing. Third, the subdivision of considerations into different types of assets and financial claims.

The fourth account, (*d*), relates to the current receipts and payments of public authorities. It is similar in form to the first account for persons, except that there is no item for saving on the payments side, but instead an item headed loans from businesses on the receipts side. On the assumption (here adopted) that public authorities do no capital formation and purchase only current goods and services, this item might equally well be labelled dissaving.¹ However the accounts of public authorities are set out, it is usually important to be able to distinguish their net borrowing from their capital formation.

Apart from borrowing, the public authorities in this example obtain all their revenue from taxation—*i.e.*, from transfers from persons and businesses, the private sector of the economy. They do not obtain any revenue from property or the profits of trading.

The payments side of this account shows the disposal of public authority revenue. Public authorities are regarded essentially as agents of the community in the provision of a wide variety of common services. Accordingly, they may themselves be regarded as the final purchasers of the goods and services they provide, and there is no need to go a stage further and to try to introduce persons and businesses as the ultimate buyers. The representation of public authorities as business concerns selling common services for taxes is not satisfactory, because there is no necessary connexion between the payment of a tax and the enjoyment of a common service. This treatment also involves regarding the excess of the cost of services provided by public authorities over tax revenue as a loss which implies that all government transactions are regarded as necessarily commercial in character.

This type of analogy with private enterprise leads to paradoxical results, and it seems best to recognize at the outset that public authorities are not essentially commercial in their activity—*i.e.*, they are consumers, or agents for consumers, rather than producers, and that a meaningful classification of their transactions must reflect the differences of intention underlying these transactions. Following this line of thought we may consider what transactions we shall treat as government losses as opposed to payments for final goods and services. We shall find it convenient to group these transactions into four categories, only one of which can appropriately be regarded as a business loss.

We may start with the position where a public authority organises a service and provides it free or at less than cost to the recipients, and first consider the case where the commercial analogy holds. If the transaction were a private one, any excess of the buying over the selling price would normally be regarded as a loss. The same treatment may be applied in the case of a public authority if the transaction in question is intended to be a commercial one; that is, if the authority

¹ It may be recalled that saving is given by two identities and not simply by one. Thus:

$$\begin{aligned} \text{Saving} &= \text{current receipts} - \text{current outgoings} \\ &= \text{lending} - \text{borrowing} + \text{capital formation} \end{aligned}$$

Each of these identities is true for any one account and therefore for any aggregate of accounts. For a closed economy, $\Sigma (\text{lending} - \text{borrowing}) = 0$, whence saving = capital formation. For an open economy, $\Sigma (\text{lending} - \text{borrowing})$ is called the foreign balance and may, of course, be positive or negative.

It is a convenient terminological distinction to use the term *saving* to mean the addition to wealth in a period and *savings* (in the plural) to mean total accumulation.

is operating a commercial concern such as an electricity undertaking with the object of covering its costs, or making a profit, and in fact makes a loss. Consideration will show that this is not in most countries an important category since most government services are not provided on a commercial basis. In such a case, the accounts of the undertaking would appear above along with other producers.

A numerically more important case is where the public authority is wholly financing or helping to finance a common service. This is the category into which the greater part of government expenditure on goods and services of all kinds will normally be put. Goods and services in this category are not commercial in the sense that they are supplied and charged for by public authorities. In the case where they are provided free, a public authority is unequivocally the final buyer paying the market price for the constituent goods and services that enter into the common service. In valuing these services at cost, charges will appear in the final value in respect of management expenses, in the form of the salaries of the public servants who are engaged in organizing the service, and of interest which usually appears under the head of working expenses. There is, of course, no entry for profit except for the profits charged by the suppliers of the constituent goods and services.

In the case where the general public pay a fee in order to meet part of the costs of the service, it is possible to regard this fee either as a tax or as a payment for part of the service. Different cases will call for different treatments. When, for example, a charge is made for the services of policemen at a private function, it is reasonable to treat the payments made for such services as a part of personal or business expenditure and to treat the remaining expenses of maintaining a police force as a common service provided by public authorities. On the other hand, in some cases the fees paid are charged not so much in respect of particular services rendered as on an ability-to-pay basis so as to prevent the relatively well-to-do from taking full advantage of free services, such as public hospitals primarily intended for the poor. Fees of this kind are perhaps better treated as taxes.

The goods and services included in this item cover so-called services rendered to businesses as well as services such as tax collection which do not appear *prima facie* as final services, but are nevertheless essential to the running of a modern community. It is sometimes argued that the inclusion of services rendered to businesses in the expenditure of public authorities on goods and services involves double counting, since the value of these services is already included in the value of the product which these services help to produce. This, however, can hardly be the normal case, since such services as those rendered by the police force to the road transport industry or those rendered by agricultural departments to the farming industry are rendered free to all comers and can hardly get included in the cost of transport of farm produce. From the point of view of the community they are a necessary expense and the real difficulty in practice is not that any appreciable amount of double counting arises, but that certain intermediate services are included in government expenditure as though they were final services instead of being allocated to the final goods or services to the supply of which they have contributed. Thus the fact that public authorities maintain a police force which would be substantially smaller but for the need to regulate traffic means that the cost to the community of transporting goods and services is underestimated if only the charges arising in the transport industry are included, while if the whole cost of the police force is put down in government expenditure on goods and services, the expense of the provision of final goods and services by public authorities will be correspondingly over-estimated. This point is worth bearing in mind, although an attempt to allocate government services rendered to business to the final goods and services to which they contribute may not be worth while in dealing with most practical problems.

The third case to be considered is where in buying high and selling low the public authority is incurring a charge in order to provide a subsidy. A subsidy may be defined as a charge incurred by a public authority with the object of enabling the general public to buy a commodity or service at less than the price which would otherwise have to be paid. Subsidies may take the form of payments to producers in relief of costs or of a differential in the buying and selling prices of the public authority paying the subsidy. Subsidies may be regarded as negative indirect taxes, and from this point of view it is an essential feature of them that they should aim at affecting relative

prices to the consumer. Thus the so-called cost-of-living subsidies granted in the United Kingdom since 1940 are undoubtedly subsidies in this sense. On the other hand, certain other agricultural payments normally termed subsidies should perhaps be differently treated. For example, the principal effect of most of the British agricultural subsidies before the war, such as the Beet-sugar Subsidy, was not to lower the price of sugar to the consumer, but to enable British sugar producers to obtain a larger share in the home market than they would have obtained unaided. Such payments might, therefore, best be treated as expenditure on goods and services. On the other hand, payments for not producing things are probably best regarded as transfer payments akin to relief.

The fourth and last case is where the transaction may be regarded as a transfer payment *in kind*. Before discussing this treatment it will be convenient to say something about transfer payments in general. As explained above, the general idea of a transfer payment is a payment made by a public authority in return for which no goods, service, asset or financial claim is received. The simplest examples of such payments are unemployment benefits and non-contributory old-age pensions. Transfer payments are normally thought of as payments in money and are frequently subject to direct taxation.

It seems reasonable to treat certain purchases by public authorities as transfer payments in kind where the benefit may reach the recipient in the form either of money or of goods. Thus until recently it was the practice in the United Kingdom to treat both sickness and medical benefits under the National Health Insurance Schemes as transfer payments. The provision of medical benefits under these schemes may take the form either of the payment of a doctor's or a chemist's bill or of the provision of medical services and supplies in kind. There does not seem to be any good reason for treating these two methods of providing what is essentially the same benefit differently.

It may be argued, however, that medical as opposed to sickness benefits, whether in cash or kind, should not be treated as transfer payments at all, but should be regarded as one of the common services provided by public authorities on just the same basis as public education. This view has a great deal to commend it, and indeed would seem the obvious method of treatment if a full-scale public medical service was in operation. Thus, it seems best to treat as transfer payments only those health benefits which take the form of payments in lieu of earnings during periods of sickness and injury, and to regard medical benefits, however paid, as purchases of goods and services by public authorities.

This raises the question of why some government transactions, such as unemployment benefit, are regarded as transfer payments, while others, such as free education, are regarded as a purchase of goods and services. The line of distinction is perhaps best seen by considering transfer payments as essentially free additions to the current receipts of the recipients, which can be disposed of at will and which, generally speaking, will be treated like other current receipts, while those services which are provided as services by public authorities and take certain specific forms are included in government expenditure on goods and services. On this view of the matter, the concept of transfer payments in kind is somewhat unusual, as indeed are earnings in kind in most advanced industrial communities.

So far nothing more has been described than a closed system of accounts which represents the transactions between the sectors of a simplified closed economy. Most of the entries in these accounts relate to receipts and payments the general nature of which is well known, and a more precise description of their content will be given later. Certain terms, especially those arising in the classification of government transactions, are less well known, so the problems of definition have been briefly indicated. So far no aggregates relating to the whole economy such as the national income and expenditure have been introduced. It is now necessary to see how these aggregates can be extracted from the accounts so far presented.

The national income, or product at factor cost, may be regarded in one of two ways. The simplest view is to regard it as the total gain accruing to the factors of production arising in the form of wages, salaries, entrepreneurial earnings, profits, interest and rent. For the moment we will assume that these terms do not require definition. Gain from these sources may accrue to

persons or public authorities or may be retained in businesses. The national income is therefore given by adding up the amounts accruing to the factors of production from their participation in economic activity. Alternatively, the same sum may be shared out among the various industries or branches of activity in which these gains arise. The total of the sums accruing to all factors of production taken together classified by industry is usually termed the national output or product, and the qualification "at factor cost" indicates the basis on which the product is valued. In the present simplified system, these two classifications cannot be distinguished. To provide the first, it would be necessary to distinguish the services of different types of work and property as separate considerations: to provide the second, separate operating accounts for different branches of activity would have to be shown.

In the present instance a little consideration of the four accounts will show that the national income or product at factor cost is given in the following way:

	Personal earnings from work or property received from:	
ac2	Business revenue	3,000
bc2	Business capital	150
dc2	Public authorities	900
ab1	Business saving	250
		4,300
	National income or product at factor cost	4,300

All the income shown here is gained from economic activity of one sort or another and there is no other income shown in the accounts which is gained in this way. In particular, as can be seen from account (d), public authorities have no income from property.

Corresponding, and exactly equal, to the national income is the national expenditure, which comprises the different forms of expenditure from which the national income arises. It must be noted, however, that this equivalent expenditure must be valued not at the prices paid by the different buyers, but at factor cost—i.e., it must not include, or must have subtracted, such components of price as indirect taxes and depreciation allowances which do not form part of the income of any factor of production. The national expenditure, in the present example, is made up in the following way:

ca2	Personal expenditure on current goods and services	4,000
	Expenditure by public authorities on:	
da2	Goods	175
dc2	Services	900
	Capital formation:	
ba2	Goods	50
bc2	Services	150
da1	Subsidies	25
—ad1	less Indirect taxes	— 1,000
		4,300
	National expenditure	4,300

This equality of national income and expenditure defined in this way arises fundamentally from the balancing property of the four combined accounts. The entries in these accounts relate to a particular period of time, as do the two national totals of income and expenditure. No question of approximation due to time-lags between income and expenditure arises, because the two terms of the identity are contemporaneous sets of flows and do not follow one another in time. The tables do not show either the income to be derived some time in the future as a result of the expenditure taking place in the period, nor do they show the expenditure some time in the future made out of the income of the period. Sequential problems are entirely ruled out by the static accounting basis from which the two equivalents were derived.

Other equivalent aggregates summing to identically the same total could readily be given. In the present instance, however, they are not of particular interest, and a discussion of the formal basis on which they rest, though essentially very simple, would take us too far afield in the present memorandum. In general, in a complete system of n accounts, there will be n identical aggregates in all cases where the aggregate involves transactions of such a kind that each account appears at least once either as a payer or as a receiver. In certain cases, where some of the possible transactions in the system happen to be zero, the number of elements in the set of equivalents may be greater than n . In the present case, $n = 4$, so that two more aggregates exactly equal to the national income can be readily obtained.

Other national aggregates can be computed from the four accounts. For example, total saving is given by adding together the saving of persons, businesses and public authorities. The first two categories are equal to 100 and 250 respectively, while the last category is equal to —150, making 200 in all.

It will be convenient at this point to bring together the principal aggregate income and product concepts in common use and demonstrate the relationship between them. Not all these concepts are truly national, some being merely the total income accruing to one large sector of the economy.

MAIN INCOME AND PRODUCT TOTALS.

1. Personal income before tax	4,900
2. <i>plus</i> Other private income before tax	250
3. Private income before tax	5,150
4. <i>plus</i> Income of public authorities from public property, trading, etc.	—
5. <i>less</i> Transfer payments from public authorities to the private sector	— 550
6. <i>less</i> Gifts between persons	— 300
7. Net national income (or product at factor cost)	4,300
8. <i>plus</i> Indirect taxes and similar levies net of subsidies	975
9. Net national product at market value	5,275
10. <i>plus</i> Sums allowed for depreciation and maintenance	—
11. Gross national product at market value	5,275

The total shown in item 1 of this table is simply the total current receipts accruing to persons. It is the basic concept in the study of consumers' demand for goods and services, since it shows the total sums accruing to consumers. It may be desirable to deduct direct taxes, since these represent a scarcely avoidable commitment, and even to deduct gifts between persons.

The total shown in item 3 includes, in addition to personal income, the undistributed profits retained by businesses, and is therefore the most appropriate income concept to relate to the total sum paid out by the private sector in taxation. Again, gifts between persons and other receipts exempt from all forms of taxation because of their nature, rather than their size, might be excluded.

The total shown in item 7 represents the incomes accruing to the factors of production or, what is the same thing, the true net output of all branches of activity. From many points of view, it is the most important of all these aggregates and the one to which the unqualified title "national income" may most appropriately be applied. It records the value of the product of labour, capital and all other factors of production as measured by the incomes received from

economic activity. This total represents the value of resources that is divided year by year between current expenditure, whether by consumers or public authorities, and additions to capital wealth whether at home or abroad.

The total shown in item 9 is a concept which is not nowadays in common use. It represents the net value of the national product valued, not at factor cost, but at market prices, and may therefore be more readily adjusted for price changes than the national product at factor cost. Of course the result of the adjustment for prices will not lead to quite the same series of product at constant prices in both cases, since the unequal incidence of indirect taxes and subsidies will result in the weights of the components of the two quantity measures being slightly different. In practice, however, the difference is likely to be small.

The total shown in item 11, the gross national product, has the advantage that the main categories of the national expenditure—namely, consumers' expenditure, expenditure on goods and services by public authorities, gross capital formation at home and the foreign balance (the excess of exports over imports of goods and services of all kinds)—add up to it without adjustment. It can thus be readily partitioned into these categories without raising the problems of allocating indirect taxes, subsidies and allowances for maintenance and depreciation which have to be faced in using the net national product at factor cost. This convenience which may be taken advantage of legitimately in some cases may, however, prove of doubtful benefit. If, for example, a comparison is being made between the proportion of current product devoted to war expenditure in two countries, an analysis based on the constituents of the gross national product may prove highly misleading.

The principal reason is that the two countries may have a very different distribution of indirect taxation. One country may levy all its indirect taxation on the items of consumers' expenditure, while the other may adopt an indirect tax system in which the taxes are spread more or less evenly over the whole of final output. In the first case, it may in practice make an appreciable difference to the answer whether or not the taxes are taken off consumption before the proportion of war to total expenditure is calculated, while, in the second case, it will make no difference at all. In such cases, it is clearly best to work at factor cost rather than at market values, since, working at market values, the proportionate war expenditure of the country whose indirect taxes are all levied on consumers' goods is unduly depressed, while its proportionate expenditure on consumers' goods and services is correspondingly inflated. This inflation has nothing to do with the greater use of resources for the satisfaction of the needs of consumers in the one country, but is due simply to the character of its tax system.

CHAPTER III

A WORKING SYSTEM OF SOCIAL ACCOUNTING

The preceding chapter set out in simple terms the general ideas of social accounting and showed how such aggregates as the national income could be built up from the system of accounts. It was important then to be able to see the wood in spite of the trees. But, in practical work, the trees are very important and it is the object of this chapter to discuss some of the more detailed problems that arise by means of an example which may reasonably be held to describe a real economic system in sufficient detail for many practical purposes. This example, it must be emphasized, is no more than an example and to anyone accustomed to the accounts of a large undertaking, such as General Motors or the London County Council, it will still appear as a drastic simplification. This, however, is part of its purpose, and more detail can be obtained by subdividing accounts or considerations. Such subdivisions provide their own problems, which are best ignored altogether until the general lay-out is clear. It will be convenient at this stage to discuss the main accounting entities and the kinds of accounts they should keep, and then to bring their accounts together in one fully articulated system.

The accounting entities in a closed economy may conveniently be grouped into sectors: productive enterprises, financial intermediaries, insurance and social security agencies and final consumers. Since no important economy is closed, a fifth sector, the rest of the world, must be added in order to provide a closed system with no loose ends. It will be noticed that in the list just given public authorities are not mentioned. The reason is that each of the internal sectors may be subdivided into a private and a public authority sphere. This is obviously true of productive enterprises and the distinction is important for a number of reasons. The most topical perhaps is the fact that public-authority enterprises, being more subject to social control than private enterprises, may be more readily used, through the timing of their capital formation, to help to stabilize the general level of activity. It is therefore important to know the relative contribution made in normal times by these two types of enterprise to domestic capital formation as a whole. The line between those enterprises which can and those which cannot be controlled is clearly not a hard-and-fast one and, in any country, there is likely to be a considerable range of activity carried on by privately controlled enterprises, which are subject to some measure of persuasion by government agencies. Also the existence of semi-public enterprises of one sort and another makes a hard-and-fast line difficult to draw and renders international comparisons on this point difficult.

The second sector comprises the banking system, private agencies providing financial facilities, such as discount and acceptance houses, building societies, hire-purchase companies, savings banks and investment trusts, and also public agencies, such as loan corporations and exchange stabilization funds.

The third principal sector is composed, in the private sphere, of all forms of insurance and assurance companies and societies. These organizations are regarded here as essentially aggregates of users who club together to provide the funds necessary to pay claims and also to pay for the labour, management and equipment needed to enable the organizations to function. It is of course recognized that, with the exception of certain mutual undertakings, this is not the order of initiative in the real world. It could be argued that certain charities whose object is to provide financial relief should be included in this category. In fact, many charitable organizations provide, not only services such as the maintenance and care of children, but also financial assistance. The discussion of transfer payments in kind undertaken on page 34 above in connexion with the classification of public authorities is relevant here also. On the public authority side, this sector comprises all social security funds and other provision for relief and assistance which is not provided by means of a common service. In war time, other aspects of government activity in this sphere have made their appearance, notably in the field of war risks and war damage insurance.

Final consumers in the private sector are mainly individuals, but non-profit-making bodies such as charities, colleges, etc., may, for purposes of simplicity, be put into the same category. It is always possible, in principle, to treat them separately should need arise, though there are usually considerable statistical difficulties in the way of achieving such a distinction in practice. On the public authority side, all that part of government activity which is concerned with the provision of common services, such as education, public health or defence, may be included in this sector. In this aspect of their work, government agencies are regarded as agents of the community whose function is to organize common services on behalf of the community, but who are themselves the final buyers of these services, since they are not then sold to those who ultimately consume them except in unimportant cases for which provision can be made. The problem of allocation in the case where public authorities provide intermediate services has already been discussed on page 33 above.

The rest of the world may be presented in one single account, since from the present point of view we are not interested *ex hypothesi* in the detail of the transactions outside the country under investigation.

A few remarks may conveniently be made at this point about the nature of the entities with which we have to deal. In the first place, by the total product of an economy or a country it is usual to mean one of two things: either (1) the geographical product—that is, the value of goods and services of all kinds produced in a certain territorial area excluding, of course, the value of

any component goods or services imported into that area, or (2) the product of the factors of production possessed by the normal residents of that area. The principal difference between these two concepts is that the first excludes and the second includes the net income accruing to an area from the overseas investments of its normal residents. In times of war, when large movements of military and other personnel take place, it is also important to be clear on the treatment of these temporary non-residents. In the British official estimates, the income arising from overseas investments and that accruing to British personnel overseas is included in the national income. It is usual to include at least income from overseas investments and conversely to exclude income arising within the geographical area concerned which accrues to investors overseas. In the case, however, of certain primitive economies in which foreigners have large economic interests, it may be more useful for most purposes to work with the concept of the geographical product.¹

A productive enterprise is an entity in which a number of factors of production and intermediate products and services are brought together for the purpose of producing, usually for gain, one or a number of goods or services. Gain may not be the principal motive, as in the case of certain government enterprises such as the British General Post Office or in the case of certain productive agencies organized to provide employment for disabled persons. In the standard case, the concept is an obvious one, but as we get farther away from this standard the concept becomes less clear-cut. For example, real estate companies, which provide accommodation together with certain incidental services such as cleaning and lift attendance, are clearly enterprises. But accommodation may also be provided by individual house owners who rent their premises to occupiers and at most take care of insurance and structural maintenance. It is not usual to treat such landlords as enterprises, although it is conceptually possible to do so. In such a case, however, the distinction between the landlord in his personal and his business capacity is likely to be very weak. The same applies with even more force to the owner-occupier.

Not all final goods and services are provided by enterprises. An example occurs in the case of domestic service rendered by individuals to private households. If it were thought desirable on conceptual grounds to arrange matters otherwise, it would be possible in this case to treat households, as opposed to the people living in them, as enterprises. From the point of view of logic, this would have a great deal to recommend it, but it would have the disadvantage that it would lead to a treatment of economic transactions considerably removed from ordinary ideas. As a consequence, the transactions that would appear in this proposed treatment would be difficult to measure and in any case would be measured only by a series of arbitrary imputations. This is not, of course, a decisive argument against such a treatment, but it brings into clear relief the difference between the operational and the theoretical approach to the subject.²

The contribution of an enterprise to the national product is measured by taking the sum of the payments it makes to the factors of production it employs plus its operating surplus after allowance has been made for depreciation, obsolescence, bad debts and similar charges properly debited to operating account. It is evident that an enterprise may operate in several industries either because of the wide range of products which it produces or because it provides additional services, such as transport and distribution, in addition to, say, manufacturing. Accordingly, it will not normally be possible to obtain an industry classification of the national product even in principle from the study of financial accounts; an element of cost-accounting will also be involved. The same is equally true of a classification by factor shares. For example, a part of the factor share rent will appear in the profits of real estate companies and can only be disentangled by cost-accounting methods. It will be seen that the classifications of the national product do not arise easily in practice from a study of accounts. At the same time, a detailed investigation of the distinctions that can be made in the real world is necessary if records are to be kept in such

¹ For an example of the importance of this distinction, see "Measuring National Income in Colonial Territories" by Miss P. DEANE in *Studies in Income and Wealth*, Vol. VIII (1946), Part VI, pages 145-174. This article is based on an enquiry which Miss Deane has been undertaking at the National Institute of Economic and Social Research, London. The results of this enquiry will shortly appear in the Institute's series of occasional papers.

² This distinction is discussed at greater length on page 93 below.

a way that requirements can be met. Alternatively, it may appear that certain theoretical distinctions cannot be met and that, in terms of operations which will indicate how they are to be measured, they are meaningless.

The operating account of an enterprise shows the receipts, costs and charges, and surplus arising from the activity of the period. At the same time, there are other receipts accruing to the enterprise which are available for distribution. Examples are investment income and realized capital gains (which may be negative) and these, together with the operating surplus of the period, may be brought together in a separate account called the appropriation account. On the payments side of this account are shown dividends and withdrawals, direct taxes and a balance which is transferred to the concern's reserve account and represents an addition to business savings or undistributed profits. Receipts of capital funds from other sources such as borrowing, the sale of assets and claims, and allowances for depreciation, obsolescence, etc., are shown together with business saving on the receipts side of the capital and reserve accounts, while the other sides show the payments for capital equipment and inventories and for investments and claims of all kinds. It will readily be appreciated that, just as it is necessary to subdivide the operating account of a complex concern so as to find out the extent of its participation in different branches of activity, so it may equally be necessary to subdivide the capital and reserve accounts in order to distinguish capital transfers of different kinds.

The second sector—namely, financial intermediaries—of which the banking system is usually the most important single element, is normally partly privately owned and partly operated by public authorities. Many of its constituents are privately owned and provide a service for gain, but the influence of this sector on the functioning of the economic system is out of all proportion to its contribution to the national product. It would thus be inconvenient to combine it with productive enterprises, for such a combination would obscure the movements of banking funds which are capable of changing so differently from those of ordinary productive enterprises.

Financial intermediaries require special treatment in view of the different functions they perform and the method they adopt in charging for their services. Consider commercial banks as a typical example. On the one hand, they provide services to their customers in the form of keeping their accounts for them and providing advice on various financial matters. For this they make a charge which, in some cases, is inadequate. On the other hand, they lend the money deposited with them, whether as a result of their own activities or not, and from this receive a net return large enough to enable them to subsidize the other aspect of their business.

If we treated banks (and other financial intermediaries) like ordinary businesses, we should show as their sales proceeds simply their charges to customers and, as a consequence, a deficit rather than a surplus would appear on the other side of the operating account. In practice, this deficit would be so large that the property income generated in banking and even perhaps the whole income generated in banking would appear to be negative. This is clearly unsatisfactory. Alternatively, we might credit the interest received by banks to their operating accounts, but exclude deposit interest from our calculation of the income generated in banking. The effect of this would be to include in the national income all interest paid out by concerns of all types, with the exception of deposit and similar interest paid by financial intermediaries together with all wages, salaries and operating surpluses, whether arising in financial intermediaries or elsewhere. This is tantamount to assuming that interest payments made by enterprises are none the less income generated in these enterprises because the lender happens to be a financial intermediary, and that the wages, salaries and profits accruing to those who work in and own banks are to be treated as the net contribution of banking to the national income without any deduction in other parts of the economy.

For a different reason, this treatment may be thought to over-estimate the total income generated in all branches of activity. The point is that since the services of banks to their customers are paid for only indirectly they do not appear as a charge against the user. Where the user is an enterprise, this means that its operating surplus is larger than it would be if such a charge were made. The income generated in banking as just defined reflects this and accordingly duplication is involved to the extent of the value of banking services rendered to but not paid for by enterprises. Another way of looking at the matter is to note that, in so far as banks do

not charge sufficient to cover the value of the services they render, the "interest" payments to banks must include a service charge and are not, therefore, true interest in the sense required of a factor share.

These difficulties can be resolved by the following procedure. An income is imputed to bank depositors for the use of their money equal to the excess of interest and dividends received by banks over interest paid out and this income is assumed to be used in "paying" for uncharged banking services. In the case of persons, this imputed income and outlay appears on either side of the revenue account of persons, but, in the case of enterprises of all kinds, the imputed outlay is charged to operating account, thus diminishing the surplus of the enterprise while the imputed income is credited to the appropriation account, thus restricting the effect of this adjustment to the operating surplus alone. In this way, the form of duplication referred to in the preceding paragraph is avoided.

In dealing with the banks themselves it is convenient to credit to appropriation rather than operating account all interest and dividends received, as in the case of other enterprises, and to debit the appropriation account, not only with the dividends and taxes, but also with deposit interest and the imputed income of depositors. The imputed outlay on banking services is, of course, credited to the operating account of banks.

If it could be assumed that the imputed service charge in the case of enterprises was zero, the method here suggested would give similar results to the "aggregates of individuals" method. The allocation of the total amount imputed between persons and businesses can only be based on knowledge of the bank expenses incurred in respect of, but not charged to, these two types of depositor.

This somewhat involved treatment can perhaps be grasped more easily by means of a numerical example. The treatment of banks is therefore set out in detail in Chapter VI, which deals with methods of ensuring consistency in the layout of the accounting system.¹

Income and a corresponding outlay are only imputed in the cases where a service not charged for directly occurs. In the field of other financial intermediaries, investment trusts are an example of a type of enterprise where imputation is important: hire-purchase companies are a case where it is not.

The third sector mentioned above is composed of all forms of insurance and assurance undertaking, pensions funds, social security funds and government agencies dealing with assistance and relief. It may seem strange that such entities should be segregated and grouped together. In particular, they may very well be organised in the form of productive enterprises in the sense that, along with acting as a channel for the redistribution of funds, they are also engaged in providing, frequently for gain, a current service—namely, security or a knowledge that provision is being made for the normal hazards of existence. Equally, they partake of the nature of financial intermediaries in that they act to some extent as a channel for saving and as providers of finance for borrowers. But neither of these parallels seems important compared with their principal activity, which is to organise the redistribution of certain types of funds. Thus, publicly controlled social security funds, which engage in activity similar to that undertaken by private pension funds and sickness and workmen's compensation insurance, can hardly be regarded as productive enterprises, although of course the staff engaged in them do provide a service to the community.

Insurance companies, like financial intermediaries, are partly financed from sources, investment income, other than payments for the services they render. But there is also an additional complication due to the fact that the payments made by policy-holders, premiums, comprise in part a payment for services and in part saving. These considerations provide an additional reason for keeping insurance and social security agencies separate from other types of economic entity.

The above factors are reflected in the accounting system by showing revenue, operating, appropriation, and capital and reserve accounts for insurance companies and societies. The

¹ See pages 87-90 below.

first of these, the revenue account, is itself subdivided so that transactions with different types of policy-holder are kept distinct. In the present example, separate revenue accounts are shown for enterprises of all forms, final consumers and the rest of the world. Into these revenue accounts are paid, not only premiums, but also imputed charges equal to the investment income accruing in respect of business done with the different distinct classes of policy-holder. Since it is only in the case of life assurance that large reserves are built up by insurance companies and since this form of assurance is almost wholly a transaction with individuals, most of the imputed charge will be debited to final consumers. The opposite sides of the revenue accounts show the payments in respect of claims and surrenders, transfers to reserve in respect of the increase in accruing liability and a transfer to operating account of the balance which represents the total contribution of the different classes of policy-holder, whether from premiums or from the investment income of the insurance companies themselves, towards the cost of conducting insurance business.

The receipts of the operating account are made up entirely of the transfers just mentioned. The payments are similar to those appearing in any other type of business.

The appropriation account shows the surplus from the operating account together with the interest and dividends received by insurance companies. On the payments side the imputed income to policy-holders, by definition equal to the charge imputed to policy-holders, appears along with dividends and withdrawals, direct taxes and transfers of surplus to the capital and reserve account.

It will be seen that this arrangement ensures that in the relevant particulars insurance companies and societies are treated like financial intermediaries. It also makes possible the construction of an account of personal income and outlay. This is obtained by consolidating the sub-account for final consumers, in this example restricted to persons, in the revenue accounts of insurance companies and societies with the revenue account for persons. These accounts are numbered (12 a) and (20) in the example given below. In this way, an amount equal to the imputed income of personal policy-holders is substituted on the receipts side of the revenue account of persons for the claims, surrenders and annuities received. On the payments side, two items are substituted for the premiums and consideration for annuities paid. These are, first, an amount equal to the cost of transacting insurance business for personal policy-holders which is an item of consumers' expenditure and, second, an amount equal to the sums transferred to insurance reserves in respect of personal business which is an item of personal saving made through the medium of insurance companies. Most of this saving will of course arise in connexion with life assurance.

The revenue account for private pensions funds (16), in the example, may also be consolidated with the revenue account for persons in arriving at an account of personal income and outlay. It will be noticed that in carrying through these consolidations no distinction is made between lump-sum and recurrent benefits. If it were thought desirable to include the latter in income a more refined treatment would be necessary. In the case of social security funds, the consolidation would not normally be made since it is usual to treat the contributions as taxes and the claims and benefits as transfer payments. Further refinements are, however, clearly possible and for some purposes might be thought desirable.

The effect of this consolidation on consumers' outlay may be restated as follows. If one considers one type of business, say, life assurance, it is clear that the total of premiums, etc., and interest flowing into this branch of activity can be divided into three parts. First, there is the amount necessary to pay current claims, annuities, etc. This represents a transfer from one set of persons to another. Second, there are the sums needed to meet the costs and charges of all kinds incurred in current operations, including the profits, distributed and undistributed, of this branch of activity. This is the cost of assurance services and can be treated as an item in consumers' expenditure on goods and services. The remainder is the net addition to the assurance fund and represents the saving of persons as a whole through the medium of life assurance. Premium payments are not simply a payment for goods and services, nor are they simply a form of saving, but a mixture of the two.

Social security funds operated by government agencies being non-profit-making can conveniently be set up from an accounting point of view in a simpler way. The following differences may be noted. As a rule, the contributions are compulsory, and, for this reason, are frequently regarded as taxes. Second, special contributions out of revenue are often made by government agencies. Third and most important, they are operated on a not-for-profit basis and are in no sense commercial in character, so that they show neither a profit nor a loss in addition to their operating expenses. They may or may not be operated on an actuarial basis, but they have the financial strength of the government behind them and may readily develop negative reserves after, for example, several years of severe unemployment. Unemployment funds in particular tend to act as a powerful stabilizing influence, since they tax and save in good times and dissave and distribute purchasing power in bad times.

The fourth sector comprises final consumers, whether persons and non-profit-making bodies or public authorities providing common goods and services. It will readily be seen that in the case of persons the accounts could be treated on the pattern of a productive enterprise. The operating account of an individual would show on the receipts side payments for services rendered, together with the value of receipts in kind, pension payments by employers, cash allowances, etc. The payments side would show the costs incurred in rendering the services in question and the individual's "operating surplus". The costs deducted in arriving at this surplus might simply be confined to the expense of obtaining tools, working equipment, etc., which, by custom, the employee is expected to buy out of his earnings. Alternatively, an attempt might be made to assess all the costs of obtaining the earnings shown on the receipts side. Such a broad treatment of "cost" in this connexion is not usually adopted, mainly because of the practical impossibility of deciding how much of what individuals buy is a cost of their work and how much represents enjoyment or the cost of merely staying alive. For this reason, it is usual for wages and other labour income to be so defined as to include costs to the employer which benefit the individual and to exclude cost items customarily charged to wages and to start the set of personal accounts with what is really an appropriation account. In it is shown the other current receipts of persons, whether arising from property or from transfers of one sort or another and the way in which the sum total of receipts is laid out in buying consumers' goods and services, meeting insurance charges and direct taxation, and making transfers to capital account.

Public authorities in their principal economic aspect as the organizers of common services are also treated as final consumers, rather than as producers. This is satisfactory from some points of view, since they are the last in the chain of economic transactions leading up to these services and it is clearly desirable in connexion with economic policy that government transactions should appear separately. A difficulty due to the fact that some of the services they supply are intermediate rather than final and are therefore allocated to the wrong category has already been noted.¹ It might be thought, however, that as agents only they should be eliminated. As long as one is dealing with the economy as a whole there would be no practical advantage in this, but it becomes important in a study of the redistribution of income where the extent to which different common services benefit the members of, say, different income groups is as important in determining the net advantage of each of these groups as are the taxes they pay for their provision.² It should be noted that, for many purposes, the elimination of public authorities in the way proposed is highly undesirable because government expenditure is not influenced by the same factors as personal or business expenditure and it is important in interpreting and anticipating economic change that it should be treated separately. This fits in with the point of view frequently appearing in this memorandum that, for many purposes, it is desirable to keep the social accounts in such a way as to exhibit clearly the different classes of decision-making units in the real world and the type of distinction they have in mind in arriving at their decisions.

The fifth sector, the rest of the world, being the last account, brings together the loose ends remaining in all the preceding accounts. It contains nothing new: it is not an independent

¹ See page 33 above.

² See a recent study on these lines by I. BARNÁ, entitled "The Redistribution of Income through Public Finance" (1945). This study, which deals with the United Kingdom in 1937, was published by the Oxford University Press.

account. It is assumed that we are only interested in transactions between the rest of the world and the country studied, and not in transactions taking place within the rest of the world. The account may therefore be presented in consolidated form. For some problems it may be necessary to subdivide this account, the most usual subdivision needed being on a geographical basis.

The following accounts relate to a system simplified in the manner just described. The figures used are invented, and their purpose is to provide a ready demonstration of certain equalities. The items in this set of accounts will be discussed in detail, as also will the derivation of aggregates such as the national income and expenditure. The system may be summarized thus:

Sector I — Productive Enterprises.

BUSINESS ENTERPRISES

PERSONS (HOUSE-OWNERSHIP)

- | | |
|----------------------------|------------------------|
| (1) Operating account; | (5) Operating account. |
| (2) Appropriation account; | |
| (3) Capital account; | |
| (4) Reserve account. | |

Sector II. — Financial Intermediaries.

BANKING SYSTEM

OTHER FINANCIAL INTERMEDIARIES

- | | |
|----------------------------------|-----------------------------------|
| (6) Operating account; | (9) Operating account; |
| (7) Appropriation account; | (10) Appropriation account; |
| (8) Capital and reserve account. | (11) Capital and reserve account. |

Sector III. — Insurance and Social Security Agencies.

INSURANCE COMPANIES AND SOCIETIES

PRIVATE PENSIONS FUNDS

- | | |
|------------------------|-----------------------------------|
| (12) Revenue accounts: | (16) Revenue account; |
| (a) Enterprises, etc.; | (17) Capital and reserve account. |
| (b) Final consumers; | |
| (c) Rest of the world; | |

SOCIAL SECURITY FUNDS

- | | |
|-----------------------------------|-----------------------------------|
| (13) Operating account; | (18) Revenue account; |
| (14) Appropriation account; | (19) Capital and reserve account. |
| (15) Capital and reserve account. | |

Sector IV. — Final Consumers.

PERSONS

PUBLIC COLLECTIVE PROVIDERS

- | | |
|-----------------------------------|-----------------------------------|
| (20) Revenue account; | (22) Revenue account; |
| (21) Capital and reserve account. | (23) Capital and reserve account. |

Sector V — The Rest of the World

ALL ECONOMIC ENTITIES

- (24) Consolidated account

The content of these accounts is set out in the following pages and discussed in detail in the next chapter

Sector I. — Productive Enterprises.

BUSINESS ENTERPRISES

(1) Operating Account.

1. Sales proceeds	50,000	5. Payments for factors of production:	
2. Subsidies	130	(a) Wages, salaries, etc.	3,975
3. Transfer from capital account in respect of unsold goods, work in progress and unused materials	70	(b) Interest	500
		6. Purchases of goods and services including bank and similar charges, actual and imputed	43,025
		7. Insurance premiums and imputed charges to policy-holders	80
		8. Indirect taxes	270
		9. Contributions to social security funds	30
		10. Transfer to capital account in respect of inventories taken over	55
		11. Transfer to capital account in respect of depreciation and obsolescence	440
		12. Transfer to revenue account of persons in respect of bad debts	25
		13. Transfer to appropriation account of surplus	1,800
4. Total receipts	50,200	14. Total payments	50,200

(2) Appropriation Account.

15. Transfer from operating account of surplus	1,800	24. Dividends and withdrawals	1,600
16. Interest	10	25. Direct taxes	300
17. Receipts in respect of deposits actual and imputed	95	26. Payments of contingency claims to employees and third parties (assumed to be handled by insurance rather than reserves)	15
18. Imputed receipts as policy-holders	5	27. Transfer to capital account in respect of property insurance claims	35
19. Dividends	120	28. Transfer to reserve account in respect of unpaid accruing tax liability	45
20. Insurance claims	55	29. Transfer to reserve account of surplus	110
21. Transfer from reserve account in respect of excess provision for taxation	5	30. Total payments	2,105
22. Transfer from reserve account in respect of realized capital gains	15		
23. Total receipts	2,105		

(3) Capital Account

31. Transfer from operating account in respect of inventories taken over	55	36. Payments for factors of production: (a) Wages, salaries, etc.	135
32. Transfer from operating account in respect of depreciation and obsolescence	440	37. Purchases of goods and services	800
33. Transfer from appropriation account in respect of property insurance claims	35	38. Net purchases of existing equipment and other assets	15
34. Transfer from reserve account	490	39. Transfer to operating account in respect of unsold goods, work in progress and unused materials	70
35. Total receipts	1,020	40. Total payments	1,020

(4) Reserve Account

41. Transfer from appropriation account in respect of unpaid accruing tax liability	45	47. Transfer to appropriation account in respect of excess provision for taxation	5
42. Transfer from appropriation account of surplus	110	48. Transfer to appropriation account in respect of realised capital gains	15
43. Receipts from subscription to new issues, etc	345	49. Transfer to capital account	490
44. Other new borrowing from: (a) Banks	25	50. Net sums deposited with banks and given in return for notes and coin	40
(b) Other financial intermediaries	40	51. Subscriptions to new issues, etc	5
45. Receipts from redemptions and repayments	15	52. Net purchases of existing securities	5
46. Total receipts	580	53. Redemption and repayment of obligations	20
		54. Total payments	580

PERSONS (HOUSE-OWNERSHIP)

(5) Operating Account

55. Gross rental received or imputed	500	57. Payments to factors of production: (a) Wages, salaries, etc.	70
		(b) Interest	20
		58. Purchases of goods and services	45
		59. Insurance premiums	30
		60. Indirect taxes	120
		61. Transfer to personal capital and reserve account in respect of depreciation and obsolescence	50
		62. Transfer to personal revenue account of surplus	165
56. Total receipts	500	63. Total payments	500

Sector II. — Financial Intermediaries.

BANKING SYSTEM

(6) Operating Account

64. Charges to customers, actual and imputed: (a) Actual: (i) Business enterprises	5	66. Payments to factors of production: (a) Wages, salaries, etc.	95
(ii) Persons	20	67. Purchases of goods and services	45
(b) Imputed: (i) Business enterprises	25	68. Insurance premiums	5
(ii) Persons	150	69. Indirect taxes	5
65. Total receipts	200	70. Transfer to appropriation account of surplus	50
		71. Total payments	200

(7) Appropriation Account

72. Transfer from operating account of surplus	50	77. Payments to depositors actual and imputed: (a) Actual: (i) Business enterprises	45
73. Interest	200	(ii) Persons	30
74. Dividends	50	(b) Imputed: (i) Business enterprises	25
75. Insurance claims	—	(ii) Persons	150
		78. Dividends and withdrawals	35
		79. Direct taxes	10
		80. Transfer to capital and reserve of surplus	5
76. Total receipts	300	81. Total payments	300

(8) Capital and Reserve Account

82. Transfer from appropriation account of surplus	5	87. Net purchases of gold and silver bullion and coin	15
83. Net sums deposited and received in return for notes and coin	65	88. Net sums deposited and given in return for notes and coin	—
84. Receipts from subscriptions to new issues	5	89. Discounts and advances to: (a) Business enterprises	25
85. Receipts from redemptions and repayments	10	(b) Persons	5
		90. Subscriptions to new issues, etc	35
		91. Net purchase of existing securities	5
		92. Redemptions and repayments of obligations	—
86. Total receipts	85	93. Total payments	85

OTHER FINANCIAL INTERMEDIARIES

(9) Operating Account

94. Charges to customers actual and imputed:		96. Payments to factors of production:	
(a) Actual:		(a) Wages, salaries, etc.	120
(i) Business enterprises	15	97. Purchases of goods and services	30
(ii) Persons	135	98. Insurance premiums	10
(b) Imputed:		99. Indirect taxes	5
(i) Business enterprises	5	100. Transfer to appropriation account of surplus	40
(ii) Persons	50		
95. Total receipts	205	101. Total payments	205

(10) Appropriation Account.

102. Transfer from operating account of surplus	40	107. Payments to depositors actual and imputed:	
103. Interest	80	(a) Actual:	
104. Dividends	20	(i) Business enterprises	20
105. Insurance claims	5	(ii) Persons	25
		(b) Imputed:	
		(i) Business enterprises	5
		(ii) Persons	50
		108. Dividends and withdrawals	25
		109. Direct taxes	10
		110. Transfer to capital and reserve of surplus	10
106. Total receipts	145	111. Total payments	145

(11) Capital and Reserve Account.

112. Transfer from appropriation account of surplus	10	117. Mortgage and similar advances to:	
113. Mortgage and similar debts repaid by:		(a) Business enterprises	40
(a) Business enterprises	—	(b) Persons	45
(b) Persons	90	118. Net sums deposited with banks and given to banks in return for notes and coin	5
114. Net sums deposited	5	119. Net purchase of existing securities	15
115. Receipts from redemptions and repayments	5	120. Subscriptions to new issues	5
116. Total receipts	110	121. Total payments	110

Sector III. — Insurance and Social Security Agencies.

INSURANCE COMPANIES AND SOCIETIES

(12) Revenue Accounts.

		(a) Business Enterprises	
122. Premiums less commissions to policy-holders	115	125. Claims and surrenders	60
123. Imputed charges	5	126. Transfer to reserve account in respect of increase in accruing liability	—
		127. Transfer to operating account of surplus	60
124. Total receipts	120	128. Total payments	120

(b) Persons

129. Premiums less commissions to policy-holders	130	133. Claims and surrenders	90
130. Considerations for annuities	45	134. Annuities	30
131. Imputed charges	65	135. Transfer to reserve account in respect of increase in accruing liability	35
		136. Transfer to operating account in respect of surplus	85
132. Total receipts	240	137. Total payments	240

(c) Rest of the World

138. Premiums less commissions to policy-holders	10	141. Claims and surrenders	5
139. Imputed charges	—	142. Transfer to reserve account in respect of increase in accruing liability	—
		143. Transfer to operating account of surplus	5
140. Total receipts	10	144. Total payments	10

(13) Operating Account.

145. Transfers from revenue accounts:		147. Payments to factors of production:	
(a) Business enterprises	60	(a) Wages, salaries, etc.	70
(b) Persons	85	(b) Interest	10
(c) Rest of the world	5	148. Purchases of goods and services	20
		149. Indirect taxes	5
		150. Transfer to appropriation account of surplus	45
146. Total receipts	150	151. Total payments	150

(14) Appropriation Account.

152. Transfer from operating account of surplus	45	156. Imputed payments to policy-holders:	
153. Interest	55	(a) Business enterprises	5
154. Dividends	15	(b) Persons	65
		157. Dividends and withdrawals	20
		158. Direct taxes	15
		159. Transfer to capital and reserve of surplus	10
155. Total receipts	115	160. Total payments	115

(15) Capital and Reserve Account.

161. Transfer from revenue account in respect of excess accruing liability	35	165. Net sums deposited with banks and given to banks in return for notes and coin	5
162. Transfer from appropriation account of surplus	10	166. Net purchase of existing securities	20
163. Receipts from redemptions and repayments	5	167. Subscriptions to new issues	25
164. Total receipts	50	168. Total payments	50

PRIVATE PENSIONS FUNDS

(16) Revenue Account.

169. Contributions from employees	20	173. Pension payments	10
170. Interest	5	174. Payments to factors of production:	
171. Dividends	—	(a) Wages, salaries, etc.	5
		175. Purchases of goods and services	—
		176. Transfer to reserve account of surplus	10
172. Total receipts	25	177. Total payments	25

(17) Reserve Account

178. Transfer from revenue of surplus	10	180. Net purchase of existing securities	10
179. Total receipts	10	181. Total payments	10

SOCIAL SECURITY FUNDS

(18) Revenue Account.

182. Contributions	90	187. Claims and benefits	85
183. Transfer from public collective providers	15	188. Payments to factors of production:	
184. Interest	5	(a) Wages, salaries, etc.	10
185. Dividends	—	189. Purchases of goods and services	5
		190. Transfer to reserve account of surplus	10
186. Total receipts	110	191. Total payments	110

(19) Reserve Account.

192. Transfer from revenue account of surplus	10	195. Net purchase of existing securities	5
193. Transfer from public collective providers	—	196. Redemption and repayment of obligations	5
194. Total receipts	10	197. Total payments	10

Sector IV. — Final Consumers.

PERSONS

(20) Revenue Account

198. Wages, salaries, etc.	5,460	212. Payments to factors of production:	
199. Interest	495	(a) Wages, salaries, etc.	105
200. Receipts, actual and imputed, as depositors	255	213. Purchases of goods and services, including bank, etc., charges, actual and imputed, rentals and fees to public collective providers	6,705
201. Imputed receipts as policy-holders	65	214. less Transfers from operating account of business enterprises in respect of bad debts	—25
202. Net return from house ownership	165	215. Insurance premiums	130
203. Dividends and withdrawals	1,505	216. Considerations for annuities	45
204. Transfers from public collective providers	170	217. Imputed charges to policy-holders	65
205. Contingency claims	15	218. Gifts and fines to:	
206. Insurance claims, surrenders and annuities	120	(a) Persons	70
207. Pensions from private funds	10	(b) Public collective providers	5
208. Social security benefits	85	(c) Rest of the world	20
209. Gifts from:		219. Direct taxes	745
(a) Persons	70	220. Contributions to social security funds	45
(b) Rest of the world	45	221. Contributions to private pension funds	20
210. Capital transfers from abroad	15	222. Transfers to capital and reserve account of surplus	545
		223. Total payments	8,475
211. Total receipts	8,475		

(21) Capital and Reserve Account

224. Transfer from revenue account of surplus	545	229. Payments for factors of production:	
		(a) Wages, salaries, etc.	50
225. Bank, mortgage and similar advances	50	230. Purchases of goods and services	210
226. Transfer from house-ownership account in respect of depreciation and obsolescence	50	231. Net purchase of existing assets	—
227. Receipts from redemptions and repayments	5	232. Repayments of advances, mortgages, etc	90
		233. Net sums deposited with banks and given to banks in return for notes and coin	5
		234. Net sums deposited with other financial intermediaries	5
		235. Net purchase of existing securities	—20
		236. Subscriptions to new issues	310
228. Total receipts	650	237. Total payments	650

PUBLIC COLLECTIVE PROVIDERS

(22) Revenue Account

238. Direct taxes	1,080	246. Payments to factors of production:	
239. Indirect taxes	405	(a) Wages, salaries, etc.	800
240. Transfer of surplus from appropriation account of publicly controlled enterprises	10	(b) Interest	25
241. Interest	20	247. Purchases of goods and services	180
242. Dividends	—	248. Contributions to social security funds	15
243. Gifts and fines	5	249. Transfer to social security funds	15
244. Fees	10	250. Transfers to capital and reserve account in respect of depreciation and obsolescence	45
		251. Transfer payments (national debt interest):	
		(a) Enterprises	175
		(b) Persons	170
		252. Subsidies	130
		253. Transfer to capital and reserve account of surplus	—25
245. Total receipts	1,530	254. Total payments	1,530

(23) Capital and Reserve Account

255. Transfer from revenue account of surplus	—25	260. Payments to factors of production:	
		(a) Wages, salaries, etc.	20
256. Transfer from revenue account of depreciation and obsolescence allowances	45	261. Purchases of goods and services	35
257. Receipts from subscriptions to new securities	10	262. Net purchase of existing assets	—20
258. Receipts from redemptions and repayments	—	263. Transfer to social security funds	—
		264. Net purchase of existing securities	—15
		265. Repayment and redemption of obligations	10
259. Total receipts	30	266. Total payments	30

Sector V. — Rest of the World.

ALL ECONOMIC ENTITIES

(24) Consolidated Account

267. Proceeds from sale of factors of production:		277. Payments to factors of production:	
(a) Wages, salaries, etc.	10	(a) Wages, salaries, etc.	15
(b) Interest	25	(b) Interest	165
268. Dividends and withdrawals	20	278. Dividends and withdrawals	60
269. Proceeds from sale of goods and services including existing equipment, gold, etc.	700	279. Purchase of goods and services including existing equipment, gold, etc.	505
270. Insurance premiums	5	280. Insurance premiums	10
271. Insurance claims	5	281. Insurance claims	—
272. Remittances	20	282. Remittances	45
273. Receipts from subscriptions to new issues	25	283. Capital transfers accompanying persons	15
274. Other new lending	—	284. Net sums deposited with banks and given in return for notes and coins	10
275. Repayments and redemptions	10	285. Net purchases of existing securities	—25
		286. Subscriptions to new issues	5
		287. Repayment and redemption of obligations	15
276. Total receipts	820	288. Total payments	820

CHAPTER IV

THE CONTENT OF THE SYSTEM OF ACCOUNTS

The system of accounts presented in the last chapter provides an outline of the problems of definition and treatment in this field. A clearer insight into these problems can be obtained by considering each item in the system of accounts more closely

Sector I. — Productive Enterprises.

The first item of the first account, sales proceeds, might show one of two things: either the amount due and assignable to the accounting period—*i e*, the value of sales in the period, or the amount received whether in respect of goods and services sold in the period or in some other period. The second or "receipt" basis is never used in private accounting and is not followed here, all the items in this example being in principle on a "receivable" basis. To the accountant, the use of the terms "receipts" and "payments" in the totals for each account may appear misleading, as also will the side of the account on which these two types of entry appear. In fact, the changes in debtors and creditors which constitute the difference between a "receivable-payable" and a "receipts and payments" basis of accounting are ignored in this example except to the extent that bad debts incurred by productive enterprises in respect of consumer purchases are entered explicitly. Adjustments required when the period of purchase and the corresponding payment do not coincide can readily be introduced¹ and the mode of presentation here adopted must not be allowed to obscure the fact that a "receivable-payable" system of entries is necessary for social accounting purposes just as it is universally adopted in private accounting.

Sales of goods and services may be made to any operating, revenue or capital account. The operating account of a concern relates to all current activities undertaken as part of the business enterprise. It would be possible, and for some purposes necessary, to show different manufacturing, trading, etc., departments separately.² For simplicity's sake, this has not been done here. Accordingly, sales to the operating accounts of enterprises comprise services of all kinds and goods at all stages of processing required in connexion with current activity. Return on the use of money loaned or invested by productive enterprises is not regarded as a part of sales proceeds, since it is assumed that the lending of money is not part of the business of productive enterprises. Such returns would appear together with the surplus from the operating account and certain other receipts in the appropriation account unless the concern possessed a subsidiary or department regularly engaged in loan business, in which case it would be desirable to class it among other financial intermediaries.

Sales to capital account arise in respect of goods and services comprising capital formation. This item will normally be thought of in terms of construction and equipment of all kinds and the materials needed in connexion with capital works by the individual enterprise's own staff. It is clear also that certain receipts from professional services, rendered for example by lawyers, accountants and surveyors, would also appear here in so far as they are incurred, not in connexion with current output, but for the future benefit of the concern. In the same way, it would seem that other expenses of a non-recurrent character such as certain types of advertising expenditure should appear as sales to capital account in the first instance, which are then written off out of operating revenue over a period of years. It would also seem desirable, though statistically difficult to achieve in a comprehensive way, to show reserve stocks—*i e*, commodities bought as a hedge against the future rather than as an element in current operating programmes as a sale to capital accounts direct. To the extent that this could be done it would make it possible to

¹ Since this memorandum was first drafted, researches have been started at the Department of Applied Economics, Cambridge, into the correct method of formulating the system outlined here from a professional accounting standpoint. See the forthcoming publication entitled "Social Accounts and the Business Enterprise Sector of the National Economy" by F. S. BRAY.

² Detailed specimen accounts for individual enterprises are given in the "Design of Accounts" (1944) by F. S. BRAY and H. B. ШНЕЛСВУ of the Incorporated Accountants Research Committee. London. A second, revised, edition appeared in 1947.

distinguish between intended changes in inventories and those involuntary changes due to consumption failing to keep pace with production.

Subsidies from public authorities are the next item in the account and have already been described on pages 33 and 34 above. The separate item shown here relates most simply to those subsidies which are made in the form of a direct payment to producers. Subsidies taking the form of a differential in the buying and selling prices of the public authority paying the subsidy appear in the sales proceeds of the subsidized enterprise but disappear when the operating account of that enterprise is consolidated with the corresponding account of the government trading undertaking paying the subsidy which must itself be reimbursed from general government funds.

It may be noted that certain payments commonly called subsidies, such as land drainage grants, are not in themselves subsidies in the sense in which this term is used here. They should be credited to capital account and the subsidy element arises only to the extent of imputed interest in respect of the capital sum, plus an additional amount, if it is understood that the public authority will continue to pay for drainage upkeep so that a price can be fixed which does not have to cover the depreciation on the original outlay. In the present instance it will be assumed that no such grants are made.

The remaining item on the receipts side of the operating account of all productive enterprises consists of a transfer from capital account—*i e*, the account concerned with the equipment and other assets employed in the business as opposed to financial provisions and reserves, in respect of unsold goods, work in progress and unused materials transferred to the capital account. Without an entry of this kind the enterprise would appear to make a loss in so far as processed goods were not sold in the period during which the material, labour and other costs of processing them were incurred. They are assumed to be transferred to capital account at their processed cost. This entry is an offset to the cost of goods made but not sold and ensures that the operating surplus reflects the surplus on sales outside the enterprise in the period. Looked at from another point of view, this entry forms part of the measurement of capital formation on inventories, since it shows the change in unsold materials, work in progress and products at the values they acquire in passing through the operating account. From this total there must be deducted an item on the opposite side of the account—namely, transfers to capital in respect of inventories taken over. The excess of the first over the second of these transfers in a period taken over all enterprises shows the value of unsold output and differs from the value which the goods would have had if sold only by the profit which the holder might expect to have gained from sale. This net total, capital formation in inventories, forms part of the national expenditure and is exactly matched when adjusted to a factor cost basis by income accruing to factors of production.

The change of the value of inventories which may be written Δpq may be divided approximately into two parts. The first is the value of the physical change, $p\Delta q$, which represents capital formation in inventories and is the inventory item discussed in the preceding paragraph. The second is the inventory profit, $q\Delta p$, and is assumed in this example to be zero. Such a profit would appear when realized on the capital account and would not contribute to the operating surplus.

The first two main items on the payments side of the operating account of enterprises comprise payments for commodities and services, direct and indirect, of all kinds. Such payments fall within the consideration "something real", but a distinction must be made between payments for factors of production and purchase of goods and services. This distinction is important in classifying product by branches of activity.

The net output (or product) of a branch of activity or an enterprise is equal, broadly speaking, to sales proceeds less sums put to reserve, *e g* to meet depreciation, and purchases from other industries or enterprises—*i e*, to the net earnings, including the operating surplus, of the factors of production engaged in the branch of activity or enterprise. A classification of the national product showing the amount arising in each branch of activity involves therefore two main problems: the definition of a branch of activity and the distinction between a payment to a factor of production and a purchase from an enterprise. The first problem gives rise to a good deal of difficulty in practice, since enterprises frequently contribute to more than one branch of activity. In dividing out the different activities of a complex concern and in allocating costs, and still more

profit, between them, cost accounting methods are unavoidably involved. In practice, these allocations are difficult to handle statistically. For certain purposes, it may be sufficient to use a classification of branches of activity coincident with the main activity of different groups of enterprises. Thus, all concerns making cement might be grouped together in the cement industry, despite the fact that some firms merely manufacture cement, others also quarry their own raw material, and yet others engage in the distribution of their product. Another device which seeks to avoid the difficulty of allocation is to coarsen the categories so that, for example, in the above instance quarries supplying cement manufacturers with no quarries of their own are placed in the cement industry. Such a procedure is unlikely in practice to provide a solution, since a rigorous application of the principle involved would almost certainly lead back to one single branch of activity comprising all enterprises.¹ It will be seen, therefore, that it is not easy in practice to obtain a classification of the national product by branches of activity in such a way that the elements within each branch can be compared with one another on a meaningful basis.

The second problem is also not without difficulty, but is perhaps easier to handle on a conventional basis which is reasonably satisfactory. Payments to employees on operating account are normally regarded as payments to factors of production and the value of this work is regarded as part of the net product of the branch of activity by which they are paid. Such payments are not regarded as payments to enterprises although, as explained on page 43 above, it would be possible to regard them in this way. The same is true of interest on loans, which is usually regarded as a payment to a factor of production and not the purchase of a service from an enterprise. Setting aside for the moment borrowing from financial intermediaries, it is recognized that operating costs are involved in obtaining interest just as they are in obtaining wages and salaries, but they are either neglected as unimportant or an attempt is made so to define the consideration in these cases that the payment is relatively pure, and the payments can be regarded as part of the net product or income generated in the branch of activity which makes them.

While interest payments seem most conveniently regarded as payments to factors of production, rentals are better handled as purchases of services. As explained above, on page 39, rents cannot be made to appear as a separate factor share without resort to cost-accounting methods or the equivalent such as may be provided by valuations for tax purposes. This is probably not of much importance since in the factor share—rent—only land and similar natural resources should be included and then only at their unimproved value so that, from a practical point of view, it is hardly to be expected that a clear distinction can be drawn. So-called rents—*i.e.*, the net return on land and buildings—will appear partly in the operating profits of firms owning their own land and buildings, partly in the operating profits of real estate companies and partly in the operating profit of individual landlords. Only the last can be termed net rent even in the loose sense of the term. Thus rent as a factor share is almost impossible to estimate while the real estate industry as a branch of activity will only include owner-occupied land and buildings to the extent that special steps are taken to estimate the return on them. It is desirable that this should be done since, unless these rentals are valued and included, they will not appear anywhere. In the case of enterprises, these sums will appear but they will be classified as operating profit.

It is of interest to consider what happens if one refuses to treat any payment as a payment for a factor of production and instead requires that all such payments be classed as purchases of services. This is clearly a logical procedure since no payments of the kind normally made represent pure income nor as a rule do they represent the return on a single factor of production. For example, it is usual to treat the payments made to a jobbing carpenter as wages but, in so far as the man supplies his own tools and organizes the work he is engaged to undertake, his income is not really a return to labour pure and simple. The immediate effect of this change would be to restrict the net product of a branch of activity to the sum of the operating surpluses of the enterprises of which it is composed. The next effect would be that what had previously been regarded as factors of production would now become branches of activity whose contribution to the national

¹ In practice, a compromise is sometimes adopted. For example, the Department of Commerce bases its estimates of labour income on data for establishments. Property income, on the other hand, is on a business firm basis, as is found in the case of corporations, for example, in the income-tax records.

product would be measured by their operating surpluses. A breakdown similar to what was previously regarded as a classification by factor shares would now appear as a classification by branches of activity while the old classification by branches of activity would disappear. Thus a refusal to recognize factors of production as distinct from goods and services leads to the disappearance not of the breakdown by factor shares, though this now has another name, but of the breakdown by branches of activity in the ordinary sense. The distinction is therefore important despite the fact that in certain respects it appears to require arbitrary conventions.

Payments to factors of production appearing in the operating account may be grouped under the headings wages, salaries, etc., and interest. The "etc." is intended to take care of the adjustments to the simple figures of cash payments. For example, income in kind such as free board and lodging, free coal given to miners, etc., should be included, as also should employers' contributions to private pension schemes. Conversely, where workmen are required to purchase tools or working clothing out of their earnings, the value of these purchases should be deducted from earnings and charged direct to the employing enterprise. Again, payments of business expenses out of earnings which can be recouped from the employing enterprises, such as payments for business travel, should be considered as charged direct to the enterprise, while certain purchases charged in some cases to business enterprises, such as the use of a business car for pleasure purposes, should be regarded as part of wages and salaries. In practice, adjustments in this field can never be perfect and lack of data usually forces an incomplete treatment. This being so, the important point is to ensure consistency of treatment. For example, suppose it is recognized that business expense accounts contain, in practice, some income items which should be, but for lack of data cannot be, excluded. In such a case, it must be recognized that the expenditure wrongfully so charged must be deducted from consumers' expenditure since being charged to business expense it becomes intermediate goods rather than a final product. Thus, one way or another, an allowance for it must be made if consistency is to be achieved in the treatment of both income and expenditure.

A principle which is useful in deciding where to draw the line is that an expenditure by an enterprise on behalf of an employee should, in order to be considered as part of the employee's remuneration, confer upon him a net benefit and not merely compensate him for a particular disadvantage arising out of his employment. An example illustrating this question arises in employers' premium payments for workmen's compensation. These payments are of course a benefit to the employee and might therefore be considered part of his income. But it is better not to regard them as such, since they are really an expense of earning an income in a specific trade.

It seems clear that what is normally regarded as a net benefit is dependent on social valuations and changes as these valuations change. Thus, for example, the existence of pit-head baths at a coal mine would, a hundred years ago, have been something quite exceptional, in no sense a cost of doing business, and would doubtless have been regarded as a net benefit to the employee rather than as a compensation for the particular disadvantages of his trade. Nowadays, perhaps, the matter would be differently regarded, as such amenities would hardly be regarded as income in kind.

Another type of payment calls for consideration in this connexion—namely, employers' compulsory contributions to social insurance. It can be argued that these sums are equivalent to income in kind since they clearly benefit the employee while they do not offset a specific disadvantage of the work. This is certainly true of payments on account of pensions, since the need for provision in old age is not brought about by the fact of being employed. It is largely true of payments in respect of general health insurance schemes as opposed to special schemes covering specific occupational diseases, but it is hardly true at all of payments in respect of unemployment insurance if one assumes, again a social valuation, that the normal condition of persons seeking to earn a livelihood is one of employment. Thus, in trades in which unemployment is negligible, such payments confer virtually no benefit and on this argument the payments in industries with a higher rate of unemployment are merely an offset to this hazard. This point of view is implicit in the treatment of certain trades in the United Kingdom, where some classes of employee, such as bank and insurance company employees and permanent railway servants, are exempt from the general unemployment insurance scheme and are permitted to form special schemes of their own.

Another argument in favour of including these payments in the income of employees is drawn from an analogy with private pension schemes in which it is reasonable to regard the employer's provision for pension rights as a supplement to earnings.

These arguments will not be followed here. The opposite position can be put by saying that these compulsory contributions are not normally regarded as a supplement to income and that it is unlikely that an employer could induce his employees to accept lower cash payments simply because a general scheme of this kind was introduced. It may also be argued in defence of this position that the precise method by which such a scheme is financed is fortuitous in the sense that it might equally be made a charge on the general budget. If this method of finance were adopted it seems doubtful if the scheme would ever be regarded as a subsidy to wages.

This is a good example of a borderline case in which this whole subject abounds where some will prefer to follow one set of arguments, others another. Institutional differences are frequently such as to lead investigators in different countries to emphasize different aspects of the cases before them. These differences are sometimes sufficiently great to warrant a difference in treatment. In all such cases, the important thing in practice is that the payments should be shown as a separate item so that for comparative purposes they can be treated in either way. It is of course desirable that agreement should be reached on the best way to handle such problems, but in the present state of knowledge it is frequently impossible to find any one uniquely right way. It may be said again that this sort of problem is often not of the first importance and differences of opinion should be regarded tolerantly. For a whole range of problems involving the variation of large aggregates, differences of treatment of this kind make no perceptible difference to the result.

Purchases of goods and services not classed as factors of production is a very wide category and may be made from any operating account. The item includes purchases of raw materials, semi-finished and finished products, services of all kinds, professional charges, fees to public authorities for services rendered, bank charges, actual and imputed, etc. The only exception here is the payment of business insurance premiums which are not simply payments for goods and services. As in the case of sales, all purchases are considered here on a receivable-payable, and not a receipts-and-payments, basis.

Insurance premiums represent purchases of services only to a small extent and are principally a form of provision for contingencies. They are shown here together with the imputed charges to policy-holders described on pages 41 and 42 above. In the case of property insurances on the assets of the enterprise, that part of premium payments which is needed to finance claims is similar in many ways to depreciation and obsolescence allowances. This similarity exists only in a statistical sense for while, under normal conditions, an enterprise will eventually require to use the sums it has set aside for depreciation and obsolescence itself, the sums set aside *via* insurance will be used only by the unlucky firms, insurance necessarily involving a transfer from the lucky to the unlucky. It will be observed that the method of treatment just described preserves a balance in the national income and expenditure account since the premiums paid appear in the value of goods and services purchased or put to stock and are cancelled out except for the incomes generated directly or indirectly in conducting insurance business by the deduction of claims, paid and accruing, which along with depreciation allowances are a negative item in the net national expenditure. The remaining item of cost, including profit of conducting insurance business for enterprises, is matched by an equivalent amount of income on the opposite side of the account except in so far as the cost element contains indirect taxes or similar items which are in turn cancelled out by a negative item in the net national expenditure.

In estimating the national expenditure, a similar treatment must be accorded to the premiums paid and cost and profit arising in other forms of business insurance such as consequential loss and third-party liability. For this reason, the total of insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business policy-holders are shown as a single separate deduction in building up the net national expenditure so that the different types of business insurance are all treated in the same way.

The next payments to be considered are indirect taxes. As explained on page 31 above, these taxes are kept separate from direct taxes in order to distinguish those taxes which affect relative

prices and those which do not. It must be recognized that, in practice, no tax is likely to fall exclusively into either category but it is not feasible in the present state of knowledge to trace the incidence of every single tax. A convention is therefore established that those taxes assessed on gain or property are direct taxes, while those assessed on goods and services and chargeable as a business expense are indirect taxes. The main categories of indirect taxation are therefore customs and excise duties, sales taxes, business licence duties and motor registration dues, certain stamp duties and local rates—*i.e.*, taxes charged against the service of accommodation.

A number of small government receipts not normally termed taxes can conveniently be included under this head. Thus in numerous cases government agencies compel registration, auditing and the like for which a fee is charged far in excess of the cost involved. In the case of registration, it may be argued that no service is rendered and the whole fee may be treated as an indirect tax. In the case of compulsory auditing, etc., where there is clearly an element of service, the difference between the fee charged and the cost of the service may be regarded as a tax.

It could be argued that it should be regarded as a profit—that is, the compulsory auditing service should be regarded as a publicly-owned service trade. This seems a rather exaggerated view since the routine fulfilment of a legal requirement has few of the characteristics of a business. Again, in the cases envisaged, the profit is likely to be almost pure monopoly profit, which is more like a tax than anything else.

The same point may be raised in connexion with the profits of state enterprises such as postal, telephone and telegraph and other utility services. In most cases, these profits are also monopoly profits and might therefore be treated as taxes. On the other hand, these undertakings are much more clearly enterprises than the case just mentioned and, since private monopoly profit is usually treated as profit and not as a privately levied tax, there seems no advantage in choosing a different treatment in the case of public authorities.

Employers' contributions to social security funds are treated here in exactly the same way as indirect taxes. As explained above, they could be treated differently. In particular, they might be regarded as a supplement to wages and, in the disposal of personal income, either as a direct tax or as an insurance premium.

Other insurance or quasi-insurance contributions to public authorities may be considered here; in particular, the war-risks insurance premiums and the War Damage Act contributions and premiums which came into being in the United Kingdom during the war. In the British official estimates, these payments have been classed with taxes. The war-risks premiums, mainly in respect of cover on stocks of goods, cargoes and hulls, are treated as indirect taxes while payments under the War Damage Act, mainly in respect of cover for buildings and structures other than ships, are treated as direct taxes. A contributory factor in the last decision is that such payments are by law chargeable against income and not against business expenses.

The remaining items in the operating account of productive enterprises are transfers of various kinds to capital and appropriation accounts and to the revenue accounts of persons. The transfers to capital account are two in number. The first is in respect of inventories taken over and is a counterpart to a similar transfer already described on page 55 above on the other side of the account. It ensures that withdrawals from stock shall not appear as part of the operating surplus.

The second is in respect of allowances for depreciation and obsolescence. The purpose of such allowances is to provide a fund which will enable the equipment to be replaced by the time it is worn out or obsolescent, it being assumed that the cost of repair and maintenance is charged to operating account principally under payments to factors of production and purchases of goods and services. The basis of valuation of these allowances depends on the meaning attached to maintaining capital intact. If one is concerned with money capital, it is sufficient to set aside each year sums which are expected to add up to the original value of the equipment by the time the equipment is worn out or obsolete, since, in this way, the enterprise is always able to repay its original debt. On the other hand, it is sometimes thought that the maintenance of so-called real capital is the more important concept. If this is so, the allowances must be calculated in such a way that they will provide a sum in due course which will reinstate a certain amount of

capacity—*i e*, will take account of changes in the price of equipment and also perhaps of changes in the design of equipment. In this way, enough money would be available at the end of the life of the equipment to purchase equipment which in some sense is equivalent. This is clearly not an easy matter to define.

From the point of view of an individual firm, it is desirable that it should end up with enough money to repay its original debt. At the same time, if equipment prices are rising this amount of money alone will mean that in the new period it will have to curtail its operations or add to its borrowing, in order to carry on at the same level. It can be argued that this necessity is a sign that an insufficient amount was set aside in the first period. If, on the other hand, the equipment comes to cost less, the original sum will still be needed for repayment purposes but operations on the same scale can now be conducted with less new borrowing than before. If we now combine the borrower and lender, the money repayment becomes an internal transaction and what is important is the ability to replace the equipment. Thus from the point of view of a closed economy it is the maintenance of real rather than money capital that seems most relevant and in fact this is the concept more usually sought in the present connexion. It is not, however, the concept approximated in either business accounts or tax assessments in which interest usually centres on money capital. In the case of business accounts, moreover, conservative habits frequently lead to a bias in favour of heavy allowances.

This discussion of depreciation can be summarized thus. In maintaining money capital intact a firm makes certain of being able to repay its money indebtedness without calling on reserves, although it may be unable to continue its scale of operations in the next period without increased borrowing. Alternatively, if equipment prices have fallen, the new borrowing will not need to be so large. On the other hand, if real capital is maintained intact the firm is ensured of enough money both to repay its debt and to install its new equipment without changing its rate of borrowing. This is obvious where prices have risen and the firm has therefore set aside more than the sum originally borrowed. In the opposite case, the firm has not set aside enough to repay its original debt but by borrowing the same amount again it can both repay the remainder of its debt and replace its equipment.

It may be noted in passing that an attempt may be made to extend the term real capital to mean the capital needed to yield a given return rather than the capital needed to yield a given amount of product, but this extension does not seem to lead to a usable concept of maintaining capital intact.

A similar problem which also leads to difficulties centres round allowances for depletion—*i e*, sums set aside to compensate for the gradual using up of a wasting natural asset, such as coal. On an analogy with the preceding discussion, what is needed is an amount set aside which will enable equivalent assets to be purchased when the existing ones are exhausted. For an individual enterprise, this will be a positive sum of money, but, for the community as a whole, it will be zero, since we are considering the free gifts of nature and not the equipment or improvements needed to exploit them.

In certain cases, enterprises operate on a replacement rather than a depreciation basis—that is to say, renewals and replacements are charged to operating account as they are made and sums for this purpose are not specifically set aside in advance. While this difference of basis may be noted, it does not appear possible in practice to adjust one type of accounting procedure to a different one. This is only one example out of many where different accounting conventions lead to incomparability. At the same time, the incomparability may not in practice be very serious provided a certain type of accounting convention is not applied to cases in which it is unsuitable. It may be supposed that self interest will go some way to check such unsuitable applications.

To take an example, the British General Post Office charges repairs and maintenance to operating expenditure, renewals and replacements, in so far as they do not represent extensions of capacity, to the Post Office Vote and the remaining part of renewals and replacements together with improvements and other new construction to loan account. In the official estimates, sums charged to Vote plus sums charged to loan account are equated to Post Office gross capital formation, while charges to loan account are taken to represent net capital formation.

In certain cases, no allowances for depreciation or renewal are made at all. This is true, for example, in the case of local authority common services in the United Kingdom. What is done in these cases is to charge loan repayments and payments to sinking fund for future discharge of debt against operating expenses on such a basis that there is a reasonable correspondence between the life of the assets and the period over which the borrowing used to finance them is repaid. These sums may be treated as deductions from gross capital formation in lieu of depreciation allowances, although it will be observed that they maintain only money capital intact.

It is frequently said that, in view of the difficulty of defining the maintenance of capital intact in a satisfactory way and the practical impossibility of obtaining such provisions as are made on a common basis of valuation, the concept of net capital formation is precarious, particularly in comparisons between countries. This is true, and it is desirable that particular care should be taken to explain the basis on which such calculations are made so as to avoid misunderstanding. For a less fundamental reason, the concept of gross capital formation may lead to problems of comparison owing to the difficulty of obtaining a uniform line of demarcation between repair and maintenance on the one hand and renewals and replacements on the other.

The transfer to the revenue account of persons is in respect of bad debts. It is thought of as an allowance based on experience and treated as an operating expense. A proper treatment of this item would require the introduction of entries for debtors and creditors throughout the system. This transfer is introduced here in this crude form in order to emphasize the fact that the national income as here defined is equal to the value of net output for which payment is ultimately expected.

The final entry in this account is the operating surplus, which is transferred to the appropriation account. It is intended to reflect the amount gained—subject, of course, to direct taxation arising from the sales in the period of the enterprise's goods and service outside the enterprise. It will be seen that it has been so defined as to exclude as far as possible capital gains of all kinds and also gains derived from sources—*e g*, investments—not forming part of the business in which the enterprise is engaged.

It will have been noticed that the formal rule set out in Chapter II, that any transfer between a pair of accounts in respect of a given consideration must relate to one and only one type of transaction which it is wished to keep distinct, has been broken in the above account in the case of transfers against nothing. In the case of the other classes of transaction, indefinite subdivision is possible by recognising different factors of production, goods and services, etc., as different considerations. In the case of nothing, however, this cannot be done without changing the basis of classification, for example, by recognizing the different purposes for which money is transferred against nothing. It is not, however, necessary to resort to this expedient since it would appear that it is always possible to avoid the difficulty by introducing another account. Thus, the two transfers to reserve from the appropriation account can be distinguished on the original basis of classification by consideration by setting up specific reserve funds, in this case one for taxation, in addition to a general reserve fund. With the object of avoiding complications which do not really give rise to difficulty, additional accounts and transfers have been suppressed in the present system of accounts.

The next account to be considered is the appropriation account of all productive enterprises. The purpose of this account is to bring together the receipts available to enterprises for purposes of distribution or withdrawal. The first and normally most important item on the receipts side is the surplus transferred from the operating account. The next items, comprising investment income, are the returns, actual and imputed, usually in the form of profit and interest on the enterprise's security holdings and other outside investments. Amounts received as bank depositors and policy-holders are included here. These receipts may come from either the operating or appropriation accounts of other enterprises of all kinds, from public authorities or from the rest of the world.

The next item is receipts from insurance claims of all kinds. In the case of property and contingency insurances, corresponding payments appear on the opposite side of the account. This is not the case with claims in respect of consequential loss insurance—*i e*, insurance against

loss of profits following some disaster such as fire. The object of this insurance is to prevent the period of inactivity or under-activity which normally follows such a disaster from adversely affecting the incomes of those dependent on the concern, and receipts from claims therefore rightly appear as a net credit item in this account.

The remaining items represent various transfers within the accounting system of productive enterprises. The first is a transfer from reserve in respect of provision for taxation that events have shown to have been excessive. This transfer might have been treated as a deduction from the opposite side of the account and will be discussed in that connexion.

The final item is of a somewhat different character and represents transfers in respect of net realised capital gains. In so far as these are positive, they may properly be made available for distribution and, where negative, they represent a prior charge on income. It is a question how far they should pass first to reserves which, for some reason or another such as lack of foresight, are insufficient. It is assumed here, however, that such deficiencies are charged straightaway. Thus, for example, this item should include as a realised capital loss the value of unprovided loss sustained on equipment. These are losses not covered by insurance, depreciation or other reserves.

On the other side of the account, the principal outgoings are dividends and withdrawals before taxation. In all cases where the operating surplus is not the sole source of income for the enterprise, these payments cannot rightly be charged to operating account since it is without meaning to regard them as paid out of one form of income rather than another. Payments of this kind may be made to the appropriate accounts of any sector. For example, the surplus transferred by government enterprises to public collective providers will be included here.

An item lower down in the account comprises those transfers to reserve which represent the undistributed profit of the enterprise and form part of business saving. In the case of corporate enterprise the distinction between dividend payments and undistributed profit is clear and a distinct meaning can be attached to business saving in this case. With unincorporated enterprise the case is different since here the distinction between the business and personal account of the owner or owners may be much less clear. In the case of partnerships, for example, the difference is likely to be well defined since the withdrawals are likely to be regulated by agreement and it may well be decided that a part of the income of the period shall not be distributed. In the case of individually owned farms or retail businesses, on the other hand, the line will frequently be vague and the distinction between business and personal saving will be arbitrary even when separate business and personal accounts are kept. Accordingly, in certain types of unincorporated enterprise, it may be best to assume that the whole income is distributed and that any saving done forms part of personal saving. This may not seem satisfactory and is doubtless not a final solution but in handling this problem it is necessary to recognize that the classification of saving recognized by theory into personal and business is blurred in the real world particularly where small-scale unincorporated enterprise is the most important type of business organization.

Another form of payment which might be included under this head is the surplus returned by co-operative and mutual enterprises to their members. An example of this is the British co-operative dividend. This surplus arises to a large extent because co-operative stores prefer to return a part of their surplus to members rather than to charge lower prices in the first instance. One advantage of this procedure is that it avoids price-cutting on standard lines which the co-operative organisation may wish to sell in addition to its own products. But, while this treatment is possible, it may very well be argued that these payments should be regarded not as income but as a deduction from sales. In the instance cited, this alternative procedure would be feasible since the dividend to members is calculated as a certain percentage on sales and the rate does not change greatly from year to year. Thus, in making their purchases, members may be supposed to take account of the fact that they are really paying less than the quoted prices and this will lead them to buy more of the goods that can be bought in this way than they otherwise would. They will act therefore as though the prices of some of their purchases were lower rather than as though they had a larger income and were faced with the same price situation as other consumers.

The next item, direct tax payments, covers only payments in respect of business income as opposed to dividends and withdrawals paid out. It includes, therefore, excess profits taxes,

corporate income taxes and income taxes on undistributed profit. These payments, together with the direct taxes paid by the ultimate recipients of the dividends and withdrawals, make up the total direct tax receipts of public authorities apart from those which are not assessed on income. It will be appreciated that this way of setting the matter out does not necessarily accord with the way in which taxes are assessed, and this is especially true of income tax.

The next two items are payments to third parties and to capital account in respect of insurance claims. The receipts from such claims were included in item 20 on the other side of the account and this deduction is necessary since these sums are not available for distribution nor for addition to free reserves.

The remaining items are transfers to reserve. The first is in respect of tax liability accruing but unpaid. This may be defined in various ways. In the first place, it must include sums due in the period but unpaid. Beyond this, however, there are various forms of provision. This may be restricted to the sums expected to be due in the period but not demanded by the tax authority because of delays in completing a final assessment. Further still it may be desirable to provide for taxes which will become due in the future in respect of the income of the period. This will differ from the amount due in the period if there is a lag in assessment, that is if assessment is based on the income of a previous period.

The amount which is expected in the period to be payable eventually in respect of the income of the period may not be the same as the amount which finally has to be paid. This will arise, if there is a lag in assessment, where tax rates or conditions of tax are different when the assessment of the income of the period takes place from what they were in the period. This will mean that the reserve originally set aside is, in the event, either too large or too small and will lead to the transfer from reserve already mentioned. This transfer may be either positive or negative.

Thus the sum paid in taxes plus the sum put to reserve on account of taxes represents the enterprise's anticipated final liability in respect of its income in the period which is not distributed or withdrawn. As an offset to, or augmentation of, this amount is the return from, or additional payment to, reserve on account of sums set aside in a previous period which have finally proved excessive or deficient. The excess of this total over the tax bill actually paid forms part of the saving of the enterprise in the period.

The remaining item in this account is the undistributed profit of the enterprise. This sum is transferred to reserve and forms an addition to free reserves since by intention at least all claims against the total current receipts of the enterprise have been accounted for elsewhere. In general, however, it cannot all be held in liquid form since a part is counterbalanced by any increase in the holding of inventories including work in progress.

The capital account is concerned with the buildings, equipment, etc., employed in the business as distinct from purely financial reserves unconnected with these assets and transactions in securities and other financial claims. The receipts of this account consist of transfers from other accounts in the enterprise and it could therefore have been combined with the reserve account in this presentation. It has been selected as an example of the way in which the content of payments from one account to another in respect of a given consideration can be narrowed down by increasing the number of accounts. The two transfers from the operating account are in respect of inventories taken over and depreciation and obsolescence, while the transfer from appropriation account is in respect of property insurance claims. These transactions have already been discussed.¹ The transfer from reserve is in this presentation simply a balancing item. A more complicated treatment distinguishing transfers against unprovided loss and unpaid insurance claims from transfers in respect of new development may be thought desirable.

It may be thought that sales of existing equipment outside the enterprise should appear here as a receipt. The only reason it does not is that by convention all existing assets and claims are presented as net purchases. These net sums are easier to measure than their components are and, except in the basis of valuation, accord with the presentation usually adopted. Consideration of what the alternative approach would involve in the handling of bank deposits, a form of

¹ See above pages 55 and 59-61.

financial claim, will indicate its advantages. A gross statement would require that withdrawals, as opposed to advances, would have to be distinguished from deposits. These withdrawals would then appear on the receipts side of personal revenue accounts and business operating accounts, to take only two examples. There is, of course, no harm in keeping the accounts this way, but it is more complicated and does not seem to offer any countervailing advantages.

The two most important items on the payments side are payments for factors of production and purchases of goods and services. These items have already been discussed in detail. Payments to labour comprise those payments of wages, salaries, etc., to the firm's own employees in respect of work of new construction and installation. There are, however, no other payments to factors of production since interest payments are all debited to the operating account.

The next item comprises net purchases of existing equipment. In so far as such purchases and sales take place only within the business system, this item is zero in the combined account for all productive enterprises. But, in fact, these transactions take place between enterprises and other sectors including the rest of the world. In particular, it seems likely that in some economic systems there will be considerable sales of assets—*e.g.*, motor-cars from enterprises to persons through the medium of the second-hand market. Since these sales appear as a negative item in the capital formation of enterprises but as an item of consumers' expenditure in the accounts of persons, they are reflected in the national accounts as negative capital formation. This follows from the different treatment of individual commodities according as they are bought by persons or enterprises and the advantages and disadvantages of this difference will be discussed in dealing with personal expenditure on consumers' goods and services.¹

The treatment of sales to the rest of the world may also be noted briefly. Although the rest of the world is presented here as one consolidated account, the sale of existing equipment is a transfer between capital accounts. It should, however, be treated as a sale of goods, something real in the classification of considerations given above², and entered into exports. In so far as the sales proceeds are not spent, a balance will accrue to the seller which will cancel the loss of equipment and a net loss on capital and reserve accounts taken together will only arise to the extent that this balance is spent. Conversely, the paying country parts with a balance and at this stage the gain of equipment is matched by the adverse cash balance. When this balance is spent by the seller the seller's gain and the buyer's loss of cash is cancelled out, and the selling country shows a domestic loss in assets while the buying country shows a gain. Each country shows, if no other transactions are taking place, a zero balance of payments. This does not disturb the balance of the national income and expenditure. In the selling country, a decline in domestic capital formation is offset by a rise in imports reflected in consumers' expenditure, increase in inventories or elsewhere, which is *not* offset by an adverse balance of payments. Thus, the net effect on expenditure is zero as it is on income. In the case of the buying country, the increase in income due to the sale of exports is reflected not by a rise in the balance of payments which has been shown to be zero but by a rise in domestic capital formation. The desirability of this method of treating sales of existing equipment abroad is perhaps not altogether obvious since if the sale were within the economy but still between capital accounts it would seem natural to regard the transaction as negative capital formation to the seller and positive capital formation to the buyer, without regard to the cash side of the transaction. The difference is, however, illusory and arises from the fact that in considering the internal transactions of an economy it is usual to confine attention to the "domestic" capital formation of each sector to the exclusion of its balance of payments with other sectors. If an enterprise sells a piece of equipment to a public authority and is paid by cheque, and if nothing else happens, neither party to the transaction does either saving or dissaving. The enterprise loses an asset and gains cash which, let us say, it lends to its banker. It borrows nothing. Thus lending—borrowing + capital formation = saving = zero. Similarly, the public authority gains an asset and runs down its balance with its banker—*i.e.*, borrows from him. Its saving is equally zero and so is the banker's. The use of the terms lending and borrowing may be objected to in this sense: the phrases decrease in liability and increase in

¹ See below, pages 73-74

² See above, page 28

liability might be better since lending and borrowing imply departure from zero indebtedness rather than a change from any other position.

The remaining item in this account is a transfer to operating account in respect of unsold goods, work in progress and unused materials and has already been discussed.¹

The reserve account brings together financial provisions not appearing elsewhere and the transactions of the enterprise in financial claims of all kinds. The first two items shown are transfers from other accounts within the accounting system of productive enterprises. They have already been discussed² and need not be considered again here.

Since existing securities, bank deposits, etc., are treated on a net cash payable basis, they appear only on the payment side of the account, and the remaining items on the receipts side relate to new borrowing and to repayments and receipts from redemption of claims held. New borrowing may take the form of receipts from new issues of stocks or bonds as well as receipts from all forms of short-term borrowing such as mortgages and bank advances. It is assumed that charges for flotation, etc., are debited to capital account and financed by a transfer from this account. Accordingly, the receipts shown here are gross—*i.e.*, are equal to the amount subscribed before deduction of expenses. It will be noticed that, in the case of unincorporated enterprise, the finance provided by the owner will have to appear as a receipt into this account. This is the other side of a problem which was discussed above³ in dealing with the distinction between personal and business saving. In treating the surplus of unincorporated enterprise as personal income, it becomes necessary to show as one of the uses of this income the amount ploughed back into the business. It is thus clear that the attempt to avoid one difficulty has only led to another. This is just because it is not easy to distinguish between the personal and business transactions of the owners of certain types of unincorporated enterprises. A dilemma of the same character was noted in connexion with business expense accounts.

On the payments side, the first few items are also transfers to other accounts which have already been discussed.⁴

Net sums deposited with banks or given in return for notes and coin indicate the net increase in the concern's holding of bank money and are matched by a corresponding entry on the receipts side of the reserve account for the banking system.

Subscriptions to new issues shown on this side of the account relate, of course, to the purchase by the given enterprise of the new issues of other entities. The item "net purchase of existing securities" shows the cash payable in respect of existing securities minus the cash receivable from selling them. Commissions and handling charges may be debited to operating account, since they can hardly be regarded as forming part of capital formation. Redemptions and repayments relate to outlays by the given enterprise in redeeming its own outstanding obligations.

It will be noticed that transactions in existing assets and claims have been treated throughout on a receivable-payable basis and no entries have been made for write-ups or write-downs. Such changes of valuation in assets and claims would appear in this system as transfers within accounts: the capital account in the case of equipment, inventories and other assets, and the reserve account in the case of securities and other obligations. Such entries on each side of the account are necessary if for any purpose account needs to be taken of changes in the current valuation of untraded assets and claims.

This completes the survey of the four main accounts relating to productive enterprises. It is convenient, however, to include in this sector an account setting out the transactions of persons in their capacity as owners of lands and buildings and the rights appertaining thereto. This account is an operating account: the capital transactions of individual landlords in building, buying and selling houses, etc., appear in the capital and reserve account for persons.

¹ See above, page 55

² See above, pages 63

³ See above, pages 62

⁴ See above, pages 62, 63 and 71

The receipts side of this account shows simply the gross rental received or imputed in respect of the property and it is assumed in this example that such rents may be received either from persons or from productive enterprises though they may of course equally well be received from any sector of the system

The payments side shows the operating costs and leads up to a surplus which is the net rental and is credited to the personal revenue account. The items in this account are all familiar from the preceding discussion of productive enterprises. Payments to factors of production and purchase of goods and services are made in respect of repair and maintenance and also costs involved in effecting transfers, such as payments for advertising, estate agents' fees, etc. Certain fees to public authorities, such as payment for services like running water which are charged for in the gross rental, will also appear here. Mortgage interest and insurance premiums will also appear, while the remaining costs consist of depreciation and obsolescence allowances, transferred to personal capital and reserve account, and local rates paid to public authorities. The sort of taxes to be included here are those based on the value of the property which have to be paid, provided the property is let. Taxes based on realised profit from the leasing of property would appear as a direct tax payment on the revenue account of persons. The final item in this account is the surplus or net rental.

Conceptually, at any rate, this is a useful account to set up though it may well give rise to serious statistical problems. It forms the centre of several problems. One of these is the question of imputation in the case of owner occupation. Another arises from the fact that in setting out consumers' expenditure care must be taken to avoid duplication between landlord's expenditure on repair and maintenance and gross rentals. The distinction between landlord's and tenant's repairs may be difficult to achieve statistically but at least it cannot be overlooked if one of the items appears explicitly on its own.

It will be observed that in setting up an account of this kind restricted to land and buildings, it is implied that these are the only forms of capital equipment as opposed to claims which persons are recognized as holding. This is normally the case, but consideration of the advantages and disadvantages of treating all other consumers' durable goods as current goods will be delayed until consumers' expenditure is discussed in connexion with the revenue account of persons.¹

This completes the first sector of the system, productive business enterprises. It is desirable for many purposes to group enterprises into private and public quite apart from the further subdivision by branch of activity, but for reasons of simplicity this division is not made here.

Sector II. — Financial Intermediaries.

The second sector, financial intermediaries, has much in common with the first sector and many of the items in the accounts will not require further discussion. The system of accounts for the divisions of this sector are contracted, it being thought unnecessary in an example to show capital and reserve accounts separately.

The principal difficulty encountered in dealing with these undertakings has already been discussed.² The operating account of these enterprises is restricted to receipts actual or imputed in respect of the services rendered to depositors and the like. All receipts of interest and dividends are credited to the appropriation account while deposit interest is debited to that account. This treatment automatically prevents deposit interest as such from appearing in the national income since that aggregate is obtained by adding up payments to factors of production and operating surpluses. In the national income there is included all interest paid out with the exception of payments to depositors and similar sums paid by financial intermediaries, together with all wages, salaries and operating surpluses whether arising in financial intermediaries or elsewhere. Government debt interest does not seriously complicate the problem and may be ignored at this stage.

¹ See below. pages 74-75

² See above. page 40-41

The first division of this sector is the banking system which may or may not be wholly privately controlled. Unlike the case of the productive enterprises so far considered, the most important account of these entities is their reserve account. The influence of banking policy on the economic system shows itself largely in variations in the items in this account and it is principally for this reason that it is desirable to regard the banking system as a separate division of this sector.

However, the operating and appropriation accounts must first be examined. The receipts side of the former contains one item: charges to customers, actual and imputed. The amount imputed is equal to the excess of investment income over deposit interest paid out.

The items on the payments side have already been encountered in dealing with productive enterprises as also have the items appearing on both sides of the appropriation account. It need only be noted that payments to depositors actual or imputed are debited to the appropriation account. The amount imputed is equal in value to the imputed charges to customers so that, if the operating and appropriation accounts are consolidated, this item will disappear.

The capital and reserve account also contains few new items. It is simplified by omitting on the payments side any reference to capital expenditure on bank buildings, equipment, etc. Such expenditure has a place in practice but, provided that its existence is not overlooked, it need not be considered further in this discussion.

The only new item on the receipts side is "net sums deposited and received in return for notes and coin" and it appears on the receipts side of the banking system alone.

On the other side, payments for gold and silver bullion and coin may be noted first. A source of confusion is present in these transactions because gold can be regarded on the one hand as a commodity, the product of the gold-mining industry, and on the other as a financial claim, similar to currency or a bank balance.

It will be found that the simplest thing to do is to treat gold like a commodity. If it is mined and sold to a central bank it forms part of the country's capital formation just as if it were a building or piece of industrial equipment. If it is sold abroad it is an export. This is equally the case, as appeared in the discussion of existing equipment on page 64 above, with existing gold. In a country with no gold mining of its own, increases in the stock of gold are equally part of capital formation, but a part against which it is unnecessary to set aside any depreciation allowance in order to maintain physical capital intact. In this way, gold is thought of as an asset, a physical thing, and not as a financial claim. The main objection to this treatment is that it conflicts with the conventional handling of gold, especially in the balance of payments accounts of countries which do not produce gold for themselves. Thus, for example, in the British official estimates a loss of gold abroad is treated not as a fall in domestic capital formation but as a rise in the adverse balance of payments. Following the above argument it would have to be treated in just the opposite way.

The conventional treatment may be defended by stressing the role of monetary gold as a financial claim. If a country parts with gold and gains dollars in a period and has no other economic transactions with the rest of the world, it is usual to consider that the country's balance of payments is zero since one claim has been offset by another. If, however, gold is a commodity, and we follow the first method of treatment, it is necessary to say that the country's domestic capital formation has declined and that it has a favourable balance of payments of equal amount. If we wish to take all gold transactions into account, including the purchase of newly mined gold by banks, and at the same time wish to treat monetary gold as a financial claim, it would appear to be necessary to treat newly mined gold in one way and existing gold in a different one. The purchase of newly mined gold is like the purchase of a bank note from a printer, while transactions in existing gold are like the circulation of existing bank notes. The principal difference is that in the case of gold the cost of production and the value as a circulating medium are of similar magnitude, while in the case of a bank note the first is a trivial proportion of the second.

Thus in considering a complete international system it seems desirable to regard gold as a commodity and not as a financial claim. For a single country whose transactions in gold are confined to international transactions in monetary gold, it is possible and indeed may seem natural,

to treat gold as a claim. This may be done without difficulty provided that it is not necessary to integrate the other end of the transaction into a unified accounting system.

The next item, net sums deposited, etc., will, of course, be zero for the banking system as a whole except to the extent that the banking system deposits money with foreign banks.

The remaining items, discounts and advances, subscriptions to new issues, net purchases of existing securities and redemptions, etc., give rise to no difficulty and do not need to be discussed.

Other financial intermediaries do not in most respects give rise to new problems which have not already been discussed in connexion with the banking system. There is, however, one feature that should be noticed—namely, that in many cases these intermediaries are concerned with the financing of certain types of purchases such as houses, equipment or consumption goods. Examples are building societies and hire-purchase companies. In the event of default, these goods will be sold on behalf of the financing institution which will thus gain a sum of money in place of the instalment payments, which would otherwise have accrued to it. This aspect of the matter must be reflected in the accounts. By way of example, let us consider a consumer who defaults first on his payment to a building society in respect of a house and second to a hire-purchase company in respect of household equipment bought on credit. It is of course understood that an enterprise may find itself in the same predicament.

If a person buys a house and borrows from a building society to pay for it, he neither saves nor dissaves since his increased indebtedness is matched by the increase in his assets in the form of the house. If he is only able to borrow a part of the price of the house this statement is not materially affected since it is now the increase in his indebtedness plus the reduction in his claims (e.g., bank balance or securities) that is equal in value to his additional asset. The saving at the outset has been done by someone else from whom the house purchaser has been enabled to borrow through the medium of the building society. It is only as he saves to repay his debt that his own saving comes to match his capital formation of an earlier period.

Suppose now that the borrower is unable to meet his obligations and that his house is sold. This will appear as a sale of assets on the receipts side of his capital and reserve account and as a lump-sum repayment to the building society on the payment side. Any balances left over may be assumed to be put into a bank. On the side of the building society the capital sum realised from the sale of the house appears as a receipt in the capital and reserve account which takes the place of what would otherwise have been a mortgage repayment. The bulk of this receipt will be put into financial claims, as the proceeds of mortgage repayment would have been, but a part should be transferred to operating account in lieu of the operating income which would otherwise have accrued. Consequently, these entries must appear in the accounts of other financial intermediaries. Assuming that he has made adequate allowance for depreciation, the purchaser is, from a purely accounting viewpoint, exactly back where he started from except that he has paid a certain sum to the building society for its services.

A somewhat similar situation arises in the case of the purchase of other consumers' durable goods under hire-purchase agreements, the principal difference being that these goods are treated as consumption and not as capital goods. When the article, say a refrigerator, is bought it appears as a payment on the revenue and not on the capital account of persons. Consequently, the saving of the buyer is less than it otherwise would be by the value of his purchase but is made up in his capital and reserve account by the loan received from the hire-purchase company. Thus there is no capital formation and also no net saving since the saving of some people has gone through the medium of the hire-purchase company to finance the dissaving of the purchaser. As instalments are paid, however, the saving of the purchaser comes to replace the saving of the original lenders, and to cancel out the purchaser's original dissaving.

Suppose, however, that the purchaser defaults. His refrigerator will be sold and the receipt will appear not on his capital but on his revenue account. It will be most conveniently treated as a negative purchase, that is, as a negative item on the payments side. As a consequence of this sale his saving, transferred from revenue to capital account, will be correspondingly larger than it would otherwise have been and will be required to repay the loan to the hire-purchase company. Thus again the buyer will end up where he started from, with no refrigerator and no

net saving positive or negative, except that he will have paid a certain sum to the hire-purchase company for its services.

The subject of hire-purchase companies raises the question of the treatment of interest on consumer debt which is similar in some respects to interest on certain types of government debt. It is a question whether it should be regarded as a payment for a factor of production, as a transfer payment or as negative income from property to the payer but this whole subject may be put on one side until we come to Sector IV since the way it is treated makes no material difference to the accounts of this sector.

It can be seen that the other items in the accounts of other financial intermediaries are all familiar and need not be considered further.

Sector III. — Insurance and Social Security Agencies.

We come, therefore, to the third sector, insurance and social security agencies. The principal feature of these agencies is that their main receipts, premiums, are neither altogether the payment for a service nor are they a capital transaction. In the case of life assurance they are in each individual case a combined payment for a service, the assurance that hazards are taken care of, plus the equivalent of a payment into a savings bank since each policy-holder is entitled to a fixed sum on maturity. In other forms of insurance this is only true of all policy-holders taken together since no individual policy-holder is entitled to anything back unless he suffers loss, which may never occur.

Thus, to take insurance companies first, the principal receipts and payments, such as premiums and claims, are supposed for reasons already discussed¹ to accrue to special accounts which may be called the revenue accounts and represent the collectivity of different types of policy-holder. These accounts transfer certain sums to an operating account in order to pay for the current expenses of insurance business. The surplus from this account is transferred in turn to an appropriation account out of which the net balance, representing the free saving of the company as opposed to its policy-holders, is transferred to a capital and reserve account. No confusion will arise if, as in the case of financial intermediaries, the capital and reserve accounts are combined.

The first items in the revenue accounts are premiums which will be received mainly from the operating account of enterprises and as revenue transactions from persons and the rest of the world. One small point may be noted. It is a common practice in some countries to pay commission direct to the assured, as his own agent, where the nature or magnitude of the business makes this a worthwhile procedure. Here is a case similar to the returns to members of co-operative organisations already discussed². These commissions, as distinct from those paid to real insurance agents, might be regarded as a return of profit to the assured but for the same reason as was advanced above they are probably better regarded as a deduction from the value of purchases, in this case from the premium paid.

The first item in the first revenue account (12. a) relates to premiums paid out of the operating accounts of enterprises. The second item is equal in amount to the return received in respect of investments held to meet liabilities to business policy-holders. In practice, this sum is likely to be a small but not negligible item. The bulk of the return on the investments of insurance companies will be reflected in account (12. b) since large investment reserves are mainly built up in connexion with life assurance, the holders of policies for which are for the most part individuals.

On the payments side, little comment need be made. Claims and surrenders which appear here as credits to the appropriation account of enterprises have already been mentioned. The third item represents the costs including profit arising from conducting insurance business for enterprises after allowance has been made for reserves against increases in accruing liability as well as claims actually paid.

The second revenue account, relating to persons, is like the first in form. In this example, it contains entries not appearing in the first in respect of annuity transactions. The other ends

¹ See above, pages 41-42.

² See above, page 62.

of these transactions appear on the revenue account for persons. If this seems surprising it must be remembered that that account is not an income and outlay account for persons until it is consolidated with this account and other revenue accounts for aggregates of individuals.¹

The third revenue account, (12 c), shows the transactions between insurers in the country under investigation and policy-holders in the rest of the world.

The surpluses on the three revenue accounts appear as the sole credits on the receipts side of the operating account. No new type of transaction appears on the payments side of this account.

The layout of the appropriation account takes the same form here as in the case of financial intermediaries. The imputed payments to policy-holders are identical with the imputed charges credited to insurance revenue accounts.

The items in the capital and reserve account are likewise all familiar and do not call for comment.

The next division of this sector, private pension funds, is presented in simplified form in order to avoid unprofitable complications. No explanation of the items need be given except to recall that the "premium" payments are made by the employees themselves, equivalent sums being assumed to have been paid to them along with wages from the operating accounts of their employers.

The final division of this sector is social security funds. This heading is intended to include compulsory funds organised by public authorities rather than voluntary schemes which come under the previous heading. It is also convenient to include here all government provision for financial relief and assistance though in practice it may be desirable to put these transactions into a division separate from the accounts of social security funds themselves in a narrow sense.

The first items in this account are contributions paid by employers and employees. As already explained, these payments are treated here as analogous to taxes; employers' contributions are indirect taxes, employees' contributions are direct taxes. Contributions made by public authorities in respect of their employees are like any other employers' contribution. There is nothing unusual in a public authority paying a tax, direct or indirect; in some countries and at some times tax payments from public authorities to themselves are substantial. In the most important case they take the form of indirect taxes appearing in the value of purchases.²

The next item represents a transfer from the main public authority account in Sector IV. It is made up partly of contributions to social security funds in the narrow sense and partly of transfers in respect of other relief and assistance.

The remaining items in this and the reserve account are familiar except for the capital transfer from public collective providers which appears on the assumption that these funds are not directly responsible for borrowing to meet a deficit. It need only be mentioned that the income generated in this division is equal to the salaries and wages paid. Any interest paid by the fund is regarded as a transfer for reasons which will be explained in dealing with the revenue account of persons in Sector IV³ while any surplus is transferred to reserve and used to purchase a financial claim. It thus reduces the net total of government borrowing.

It may be wondered why no distinction is made between the transfer to reserve in respect of net accruing liability and surplus as was done in the case of insurance companies. The difference is simply that, in the present case, we are dealing with a non-profit-making body which does not derive a gain from its activity. Any difference between its current receipts and expenses is to be regarded as saving or dissaving but not as profit or loss. The same would be true for a voluntary association of individuals for organising amenities for their mutual benefit, such as a learned society or a sports club.

¹ See below, page 79.

² According to the official estimates contained in table 34 on page 56 of Cmd 7099, the net indirect taxes included in the value of the expenditure on goods and services by public authorities in the United Kingdom averaged over £200 million a year in the four-year period 1941-1944.

³ See below, page 72.

Sector IV. — Final Consumers.

We come now to Sector IV, final consumers. The entities here are all non-profit-making bodies—that is to say, the balance on their current account is always saving or dissaving and never gain or loss. The first division of this sector comprises persons which may be taken to include not only individuals but also non-profit-making bodies such as those mentioned in the preceding paragraph.

The first item consists of wages, salaries, etc., paid to persons by the operating or capital accounts of previous sectors as already described. It also includes similar payments for wages, salaries, etc., from one individual to another—*e.g.*, in respect of domestic services rendered, from public authorities, in the next division of this sector, and from the rest of the world. For some purposes, it is also desirable to recognize the services of different types of labour as distinct. For example, the distinction frequently drawn between wages and salaries may best be regarded as a rough distinction between the fixed and the variable element in labour costs. Strictly speaking, a distinction of this kind can only be made by means of statistical analysis¹, but an approximation can be obtained by simple classification depending on occupation, period of payment and similar criteria. As already explained, it is desirable to include along with wages, though as a separate item, those adjustments to the money payments necessary to allow for the income issued in kind to employees and the business expenses paid by them. It is a question how far an attempt should be made to allocate to wages, the payment to the factor of production labour, items which will arise more naturally elsewhere, particularly in withdrawals from enterprises. The most obvious example arises in the case of farm enterprise. In the first place, the remuneration of the farmer himself will normally include an amount which may reasonably be imputed to the farmer's own labour in addition to the capital and organization he provides. Further, there will usually be members of the family who work on the farm without specific remuneration and whose income, though really a payment for labour, is included, if no precautions are taken, in withdrawals.

This part of the farm family's income is simply a matter of allocation: whether or not for any particular purpose it is desirable to charge a part of it as a wage payment thereby diminishing withdrawals correspondingly. But there is the additional question of income in kind. The inclusion of this item requires that board and lodging and any other income of a similar kind be added to any cash pay imputed or otherwise. A similar problem arises of course in the case of domestic servants. In order to value their services correctly it is necessary to add to their cash wage an allowance for income in kind: that is to treat the position as though their wage included those items and then debit their expenditure with the same imputed sums.

A similar set of problems arises in connexion with payments to members of the armed forces. In view of the practical importance of this subject, it may be useful to consider it in detail. Payments to members of the armed forces should include cash pay and allowances and also some allowance for income in kind such as food and clothing. A problem arises in drawing a line here between income items and cost items, and a satisfactory boundary is difficult to achieve in practice. The general principle may be followed that only those items should be included which are not offsets to the specific disadvantages of the job. Thus a great part of the medical attention received by soldiers should not be regarded as income in kind, since it is only an offset to the abnormal hazards to which they are exposed.

In addition, there is the question of terminal payments on discharge. It might seem desirable to regard mustering-out pay in all its forms as part of a payment for services in just the same way as discharge pay is treated in cases of private employment. An objection may be raised however on the practical ground that this treatment would involve a very considerable inflation of the national income during the period when demobilization is at its height. Bonuses and capital sums in any event may more appropriately be regarded as transfer payments. If this is done then, to the extent that they are not spent, they will appear in personal saving. An alternative treatment is to regard them as transfers between the capital accounts of public authorities and persons. If

¹ See "Regression Analysis of Production Costs and Factory Operations" (1944), by P. LYLE, for an elaboration of this type of problem.

this is done it must be recognized that personal capital accounts are not made up exclusively of lending, borrowing, capital formation and saving (in the sense of surplus transferred from revenue account) and the simple identities given in the footnote on page 32 above no longer hold without modification. Total saving is, of course, unaffected since the excess of government revenue over expenditure is increased if these transfers are considered to take place between capital accounts.

The next three items comprise commercial interest and the like of all kinds, actual and imputed. National debt interest appears below in item 204. The imputed payments are exactly matched by imputed outlays on the opposite side of the account.

The net return to persons in respect of the ownership of land, buildings, etc., is represented in this example by the return on house-ownership. The net return shown here has already appeared as the operating surplus of account (5).

The next item, dividends and withdrawals, comprises payments made from the appropriation accounts of enterprises of all kinds and from the rest of the world. It has already been noted that unless special steps are taken this item, though normally considered an element of property income, will in fact be made up in part of remuneration for labour and organization. In the presentation adopted here all these sums are before tax.

The first of the transfers comprises transfer payments from public authorities. A large number of miscellaneous transfers, received from the revenue account of public collective providers, are included here of which the travelling and lodging allowances paid to transferred workers and trainees' wages and lodging allowances may be cited as examples. Fireguards' subsistence allowances which were paid during the war are included in this item in the British official estimates.

The principal element of this group which calls for further discussion and the *only* element in this example is interest on the national debt—that is to say, that part of government interest not arising in connexion with government enterprises or the provision of ordinary peace-time services such as education, public sanitation, etc. It may be wondered why the interest on money lent to the government in this way should be regarded as a transfer and not as income from economic activity as is the return on commercial lending. The answer usually given is that this type of debt has been incurred in meeting such charges as the cost of war or temporary deficits on social security funds and as a consequence has little or no counterpart in the form of productive assets. Speaking generally, commercial interest can be paid because the money borrowed is put to a use which yields a measurable return while if the asset purchased with the money becomes worthless or disappears, the interest payments can only be continued from other sources available to the borrower. If such sources are not available the concern will go into liquidation and the interest payments will be discontinued. Since in the case of the national debt almost no assets yielding a measurable return exist, it is thought to be less misleading to treat these interest payments as a transfer than to force the analogy with commercial interest payments.

Certain advantages follow from this method of treatment. For example, the measure adopted for income from economic activity, the national income or product, becomes independent of the measures adopted to finance past wars. If national debt interest were included in income earned from productive activity the level of the national income in, say, 1938 would be made to depend on the extent to which the war of 1914-1918 had been financed by borrowing rather than by taxation, even though this difference had no effect on the economic activity actually going on in 1938.

A variant of this procedure which does not require national debt interest to be treated as a transfer but at the same time excludes it from the national income may seem preferable to the one developed above. It may be said that the national debt is *ex-hypothesi* a loan for consumption purposes and as such gives rise to no increase in the national capital but only to a rise in financial claims. Since there is no net rise in property the positive interest from the positive claim of the lender should be offset by negative interest from the negative claim of the borrower. Thus the positive income from property of the lender is offset by negative income from property of the borrower. This argument applies equally to all forms of consumption loan such as loans between individuals for consumption purposes, and loans to individuals from hire-purchase companies for the purpose of buying consumption goods. It will be recognized that, in the latter case, the

payment to the hire-purchase company will include a considerable service charge in addition to the interest on the loan.

Going back to interest on the national debt, it will be seen that one change involved is that this type of interest payment would appear as a negative component of income from public property on the receipts side of the revenue account of public collective providers rather than as a transfer payment on the payments side of the same account. The national income would also be affected to the extent that interest was paid abroad. If interest is treated as a transfer it is simply omitted from the national income; but if it is treated as income from property it appears as a negative item in its entirety but only as a positive item to the extent that it is received within the economy concerned. The division of private income between that derived from economic activity and transfers respectively and the division of the national income between income accruing to the private and public authority sectors clearly depend on which treatment is adopted.

The next group of items comprises all sums received from insurance and social security agencies. They have already been discussed.¹ It may be noted that the personal income concept adopted here permits receipts to be counted as often as they appear as income to the individual recipients. Thus, no attempt is made to remove the "duplication" involved in including both the income corresponding to employees' contributions to social security funds and the benefits which they receive as claimants on those funds.

Another form of transfer is one which takes place within this account—namely, allowances and other recurrent gifts between persons. If it is included as an income item it must, of course, be included in outlay. Similarly, remittances from abroad may be included here or alternatively may be set against remittances paid abroad on the opposite side of the account. On the whole, the gross treatment is to be preferred though it may be difficult to achieve for statistical reasons. Transfers of fortunes from abroad by persons changing their place of domicile are included here in the last item as it is inconvenient to regard them as transfers direct between personal capital accounts. In the account of the rest of the world, they will appear with other remittances on current account and it must be noted that they have to be excluded from the national expenditure in just the same way as these other remittances from abroad.

Another type of payment which is really a transfer may be mentioned in passing—namely, betting gains and losses. If total payments to bookmakers are entered on the outlay side of this account then clearly betting gains must appear as a transfer on the receipts side. Doubtless this gross treatment is to be preferred but it is frequently difficult to make any reliable estimates of the turnover of the betting industry. A net treatment is adopted in this example.

The principal item on the payments side of the personal revenue account is expenditure on current goods and services of all kinds. The main component of this item is sales from productive enterprises although gross rentals to individual landlords, bank charges actual and imputed, payments to persons and fees to public authorities for services rendered must also be included here. Purchases from the rest of the world are also a component but, as a rule, a very small one, since most imports reach consumers as sales from a domestic distributive enterprise.

Personal expenditure on current goods and services or *consumers' expenditure* relates essentially, though with certain exceptions, to acquisitions and in general may be opposed to *consumption* in the sense of the wearing out and using up of goods and services. In the first case, we try to measure the quantity purchased or otherwise obtained in the period, whereas, in the second, we attempt to estimate the sum of the depreciation necessary to maintain the stock of goods or services and the income or gain derived from their use. In the case of perishable goods which are used up over a small portion of the unit period, the distinction is probably of very little importance, but in the case of durable goods with a long life the difference may be considerable. It is perhaps most obvious in wartime when durable equipment continues to yield a service while year after year new purchases are zero.

The principal exception to this mode of treatment both traditionally and in this presentation occurs in the case of dwelling houses and the services they yield. As explained above, houses are

¹ See above, pages 41-42.

treated as capital equipment, not as durable consumers' goods, and their construction accordingly forms part of capital formation. They are represented in consumers' expenditure by the payments made for the services they yield—*i.e.*, gross rentals. These rentals may be thought of as comprising the sums needed to maintain and depreciate the property together with the residual net income accruing to the proprietor who may also be the occupier. In other cases, such as motor-cars or durable household equipment, the article itself is treated as an object of consumers' expenditure and not as a part of capital equipment which yields a service to its user.

The main justification of this procedure is that it seems to follow the line of cleavage between consumers' goods and capital formation that is adopted in the real world. One of the purposes of distinguishing between consumers' expenditure and capital formation is that these two types of expenditure are subject to different broad classes of motivation. Consumers' purchases depend, once tastes and habits are given, on relative prices and income, whereas capital expenditure depends essentially on a comparison between the expected yield of the asset capitalized at the current rate of interest and the cost of production of the asset. From one point of view, we should like to keep separate objects of expenditure which customarily fall into one or other of these categories. If motor-cars, despite their durability and capacity to yield a net gain to their owner, are bought in general by consumers for reasons which motivate the purchase of current commodities, then it is convenient from the point of view of explaining fluctuations in demand to class them in this category and not to treat them as assets. It may turn out that further research into the determination of consumers' behaviour will show that this classification is superficial and that the factors leading to the purchase of motor-cars by consumers are more like the factors which normally operate in the case of assets than in the case of current goods and services. A point of this kind can only be decided by observation.

There is another distinction that ought to be kept in view. The analysis that runs in terms of the provision for current outlay and saving on the one hand and consumers' purchases and capital formation on the other depends to a considerable extent for its importance on the fact that, in the first case but not in the second, provision and expenditure go hand in hand. For this purpose, we require a classification of purchases which follows broadly the distinction between those bought out of income and those for which it is customary to borrow. Again, the best classification from this point of view is a matter of fact and depends on how consumers actually behave.

Before leaving this topic, it is perhaps worth while to consider how an account of the national income and expenditure would be affected if all consumers' goods and services were treated in the way in which dwelling houses are treated, that is, if the gross return from their use were entered in consumers' expenditure and the expenditure on their construction, repair and replacement, less the financial provision for their maintenance and depreciation, were entered in net capital formation. If all consumer goods and services were treated on this basis, income would be increased by the estimated net return on all forms of goods and services in the hands of consumers, consumption would be measured by the sum of this net income, plus the sums necessary to make good the using up and wearing out of consumers' goods and services, and capital formation would have subtracted from it the sums required for maintenance and depreciation included in consumption. The net result of these operations would be to increase the national income by the estimated net gains derived from the possession of consumers' goods and services. In any actual case, the addition might not be very large. But the larger total would be divided in a different way between consumption and capital formation. If the stock of consumers' goods and services was growing, capital formation would be larger and consumption would be smaller than under the more usual system of definitions. In so far as changes in aggregate consumption at constant prices are taken as an indication of changes in the material standard of living, this would be desirable. The fact that in 1938, say, there was a large stock of cars in a given country (not all, of course, in the hands of consumers) whereas in 1900 there were hardly any is reflected in consumers' purchases and not in capital formation under the usual system of definitions adopted here except to the extent that business cars are treated as part of capital formation. Thus from the present point of view the measure of consumption is too high and the estimated increase in the community's assets is too low. On the other hand, if we adopt the alternative treatment we are faced

with a number of services the rentals of which we have no means of measuring, and with concepts which are themselves unfamiliar and therefore perhaps of little use in studying how consumers in the real world distribute their income between different commodities.

It is perhaps unnecessary to state that the expenditure included here relates to all those persons whose incomes appear on the opposite side of the account, irrespective of their location, but excludes the expenditure in the economy studied made out of income of persons normally resident abroad. Further, it will of course be necessary for expenditure here to reflect those adjustments to cash remuneration of the type of income issued in kind. Finally, purchases may be handled most conveniently on a net basis so that, for example, the proceeds from the sale of second-hand equipment will appear as a negative item here rather than as a positive item on the opposite side of the account. In this way, outlay on second-hand goods will be net and reflect only the value of services provided by those engaged in this type of distribution.

The next seven items, insurance premiums, considerations for annuities, imputed charges to policy-holders, gifts and fines, direct taxes, social security contributions and contributions to private pension funds, do not call for much comment except to notice that the problem of tax accruals would arise here in practice as it does in the appropriation accounts of enterprises. Thus, it is desirable to show the increase in taxation accrued but unpaid as a separate transfer to capital and reserve although in the short run such transfers form part of personal saving.

The remaining item is the transfer of the unspent balance to the capital and reserve account and, apart from the complication about tax accruals, represents that part of personal saving which is under direct personal control. It does not include, for example, saving made via insurance agencies and therefore under the immediate control of the agency rather than the individual saver.

The capital and reserve account does not contain any items that have not already been considered. It should perhaps be noted that payments to factors of production and purchases of goods and services in connexion with the construction of buildings, etc., by individual landlords will appear on the payments side of this account.

The second division of this sector comprises public authorities in their capacity as agents for the community in the organization of common services. In this connexion, they have been termed "public collective providers", a not entirely satisfactory term intended to underline two facts. First, that these entities are not producers but rather consumers in the sense that they are in almost all cases the last link in the chain of transactions short of the actual using up and wearing out, and, second, that they cover a part only of the activity of public authorities. As we have already seen, public authorities appear in each of the foregoing sectors.

The revenue account of public collective providers is not very different in its general layout from the revenue account of persons except that in most countries income from economic activity forms a relatively smaller and income from transfers—*i.e.*, taxation—forms a relatively larger part. Also there is a type of transfer on the payments side which hardly has a counterpart in personal accounts—namely, subsidies.

The most important receipts in this account are, of course, taxes. The distinction between direct and indirect taxes and the purpose for which it is made has already been discussed.¹ It will be convenient here to consider the position of taxes paid from abroad in the national income and expenditure.

Indirect taxes do not lead to any difficulty. They appear in the value of exports and are cancelled out in arriving at the national expenditure at factor cost in the general deduction for indirect taxes. Direct taxes, on the other hand, appear as a current receipt, analogous to the proceeds of an export, in the balance of payments. They must therefore be deducted, along with remittances and gifts from abroad, from government expenditure on goods and services unless there is thought to be any advantage in treating such tax payments as a kind of income from property and including them in the national income.

¹ See above, page 31.

The income from economic activity consists of the interest and dividends received from holdings in enterprises including surpluses transferred from publicly owned enterprises. On the second method of treatment of national debt interest outlined above¹, this interest when retained by public collective providers would appear as a positive income when paid and a negative income when received—*i e*, it would cancel itself out. Where national debt interest in general is treated as a transfer payment it may be either included or excluded according as it is included or excluded in transfer payments.

Gifts and fines are species of transfer. They are normally small and do not give rise to any special problems.

Fees to public authorities are usually of minor importance since purchases from public authority enterprises have already appeared as sales proceeds in the operating account of enterprises. The items to be included here are such things as payments of fees in publicly controlled schools, payments for police services or payments to enter a museum. These fees may be paid either by persons or enterprises. In either case, care must be taken to subtract them from government expenditure on goods and services in the national expenditure, since they will already have appeared either as a component in consumers' expenditure or as a part of the value of goods and services sold or put to stock.

It is convenient at this point to mention the treatment of mutual aid of all kinds supplied by one government to another which became such an important item in the second World War. Goods supplied in this way form part of the product of the supplying country and form no part of the national income or expenditure of the receiving country. If, however, it is thought desirable that such transactions should appear in the sector accounts they may be put into the receipts side of the account of the rest of the world in a category analogous to exports and shown on the opposite side as a remittance abroad. In the revenue account of public collective providers, they will appear on the receipts side as a remittance from abroad and on the payments side as a "payment" for goods and services. In the national expenditure only the net figure of government purchases of goods and services will appear so that the value of mutual aid received will be cancelled out. This is the correct result since mutual aid forms no part of the product or the income of factors of production in the receiving country. Conversely, mutual aid supplied will appear in government expenditure on goods and services.

There is one point that should be noticed here. Where goods received under mutual aid, such as foodstuffs, are sold to the general public by the receiving government, the value of the goods sold naturally appears in consumers' expenditure. But, apart from the distributors' margin, this sale does not give rise to any income in the receiving country. Accordingly, it is necessary, in the national expenditure, to deduct an amount equal to the government's proceeds from the sale of goods received under mutual aid from government expenditure on goods and services. This would follow naturally from the treatment suggested above. Of course, nothing needs to be deducted if the government accounts are kept on a net basis, as they are in the United Kingdom, since the deduction has already been made. Thus, where there are receipts from the sale of goods supplied under mutual aid, government expenditure on goods and services measures not what the government spends but this sum less the amount provided indirectly by the supplying country.

Little need be said about the items on the payments side of this account. It may be noted, however, that national debt interest paid abroad does not have to be excluded from total interest received in arriving at the national income since it is not there to exclude. In the national expenditure the negative item in the balance of payments is offset by a positive item in government expenditure or, if net exports of goods and services is substituted for the balance of payments, the item may not appear at all. This is not true if national debt interest is treated as negative income from property; in this case, it must be eliminated *in toto* from income and will only appear in the national expenditure as a negative item in the balance of payments.

¹ See above, pages 72-73.

The final item in the account is a transfer to capital and reserve account—*i e*, the saving of public authorities. This is equivalent, apart from sign, not to what they borrow but to what they borrow minus what they lend and their capital formation.

The capital and reserve account presents no new problems of principle. It will be seen that this method of presentation requires the separation of public authority capital formation from the total of their payments to factors of production and purchases of goods and services. It also presupposes that depreciation and obsolescence allowances can be computed or that some other reasonably satisfactory measure of capital consumption such as the amortization payments already discussed¹ is available.

A problem arises in connexion with military expenditure and particularly the expenditure on factories, machinery, airports, etc., which in one sense may be regarded as capital expenditure. It is usual, however, to confine the concept of capital formation to expenditure which is useful for normal peace-time purposes. If this were not done, total capital formation would be subject to wide fluctuations resulting from war-time expenditure on the one hand and loss and damage on the other.

In practice, what is needed in this field is a detailed breakdown of government expenditure by the goods and services bought, but as a matter of presentation it is perhaps convenient to adopt the convention that all government war expenditure is classed as current expenditure until it is sold or used for some peace-time purpose when it is entered as capital formation at the value which it fetches on sale. Exactly the same procedure would be followed on the methods adopted here if an individual sold a piece of equipment, say a motor-car, to a business.

Sector V. — The Rest of the World.

We come now to the final sector, the rest of the world, which is represented by a single consolidated account. All the items in this account have already been dealt with, implicitly or explicitly, in dealing with the other accounts of the system. Nevertheless, it will be convenient to consider here the general problems to which this account gives rise.

It can readily be seen that it contains information similar to what is set out in a balance of payments table or a statement of transactions of all kinds with the rest of the world. In order to fit into this general arrangement and close the accounting system of the country under investigation it must, of course, be set up as an account of the rest of the world rather than as an account of the home country. The approach adopted here requires a close attention to the definition of the rest of the world and as can easily be seen sets up this definition in terms of a set of accounts. The rest of the world comprises all those accounting entities in the world not included among the accounting entities of the economy under investigation.

We saw in an earlier chapter² that the primary definition of national income adopted here was in terms of the income earned by factors of production possessed by normal residents of a geographical area. Thus, if a normal resident of a country is temporarily abroad, any income which he earns there is part of his own country's national income and appears in the present account as a payment for services rendered to the rest of the world. In a similar way, interest and dividends accruing to normal residents of the home country from their loans to or other participation in the enterprises of other countries is part of the national income of the home country and a payment to the home country in the account of the rest of the world. A criterion is required, however, to define the enterprises of other countries.

The simplest criterion depends simply on geographical location. If this is adopted the income from the country's holdings in enterprises operating abroad controlled by foreigners is treated in the same way as the income from its holdings in concerns operating abroad which are controlled by its own normal residents. This treatment is adopted, for example, in the British official estimates.³ Nothing more elaborate is needed unless it is thought desirable to distinguish between the two types of holding just mentioned by including in the economy of the home country all those

¹ See above, page 61.

² See above, pages 38-39.

³ See, for example, Cmd 7099 (1947) item 12, table 3, page 7.

enterprises and only those enterprises which are controlled by normal residents of the home country. It will be seen that if the first method is used care must be taken to ensure that the capital formation, depreciation allowances, etc., of domestically controlled concerns operating abroad are not included in the totals for these items in the home country's accounts.

Another question which is brought to the forefront by the requirement that the statement of transactions with the rest of the world be made to fit consistently into a comprehensive accounting system for the home country is the distinction between current and capital items. In the presentation adopted here the foreign balance is essentially a lending minus borrowing concept. Accordingly, all payments and receipts in respect of goods and services, whether newly produced or not, which, if made within the home economy, would enter capital formation must be treated as current transactions in the account of the rest of the world. This was made clear in the discussion of transactions in gold and existing assets. Thus the account of the rest of the world will not by itself provide a complete picture of changes in the home country's liquid position in relation to the rest of the world. In order to do this it will, in general, be necessary to look at certain features of the home country's domestic capital formation: in particular, changes in its stock of gold. There is nothing illogical in this conclusion nor does it lead to any inconvenience in practice.

A misunderstanding sometimes arises in connexion with the balance of payment term in the national expenditure. In the usual form of statement which runs in terms of current expenditure by domestic consumers and public authorities, domestic capital formation and the balance of payments, it is usual to define the balance of payments so that it is equal to net foreign lending.¹ By doing this it is possible to add up domestic capital formation and the balance of payments to give a figure of the net capital position of the country at home and abroad. This is a real convenience and from one point of view seems the best method of presentation. The inconvenience arises from the fact that if the balance of payments is shown in the national expenditure account in this way, other items in that account must be adjusted to include net unilateral payments abroad—*i. e.*, remittances, gifts, direct taxes, etc. It will be seen, however, that in terms of the working system all that need appear in the national expenditure accounts so far as transactions with the rest of the world are concerned are payments for factors of production and purchases of goods and services. The reason is that exports are not included in domestic expenditure and must therefore be added in since, when adjusted for indirect taxes, etc., they give rise to income from domestic economic activity while the imports included in the national expenditure as components of consumers' expenditure, etc., do not have a counterpart in the national income. The form of presentation is of comparatively little importance provided the account of the rest of the world is available since it will provide the information required on the foreign capital position without the need for this to be again reflected in the presentation of the national expenditure.

The individual items in this account need not be discussed in detail. It may be mentioned that if the rest of the world sells goods to the home country on a *c i f* basis and if these goods are transported in the home country's ships and insured with the home country's insurance companies, an offsetting item showing the rest of the world's purchases of these services will appear on the opposite side of the account. It should be noted that as presented here no distinction is made between different currencies or different holders of balances although this detail may be of great importance and a greater subdivision of the considerations passing against capital transfers may be necessary for some practical purposes.

In view of possible confusion with the terminology adopted in balance of payments statements, attention is drawn to the fact that terms are used in account (24) of the last chapter in the same sense as in all the other accounts and further that the same simplifying assumptions are made. Thus, for example, the term "withdrawals" in items 268 and 278 relates to entrepreneurial and similar withdrawals and not to withdrawals of capital. The new issues referred to in items 273 and 286 are, of course, capital issues and the remittances referred to in items 272 and 282 are of a unilateral nature.

¹ Or net balance of capital movements.

CHAPTER V

THE NATIONAL INCOME AND OTHER AGGREGATES OF TRANSACTIONS

Having given some indication of the content of the working system of accounts, we shall now consider how the national income and expenditure and other aggregates of transactions for the economy as a whole may be built up by combining appropriate items in the individual accounts. The national income is to be regarded as the sum of a certain selection of transactions taken from the total set of distinct transactions contained in the system of accounts.

Consideration of the set of twenty-four accounts on pages 45-53 above will show that not only does each account balance but so do the entries for each type of transaction when aggregated over all the accounts. For example, the receipts and payments of wages, salaries, etc., may be set out as follows. The bracketed numbers refer to the different accounts. An account is omitted from the list where there is neither receipt nor payment in respect of wages, salaries, etc.

Receipts and Payments of Wages, Salaries, etc. in the Working System of Accounts

Account	Wages, etc., received	Wages, etc., paid
(1)	—	3,975
(3)	—	135
(5)	—	70
(6)	—	95
(9)	—	120
(13)	—	70
(16)	—	5
(18)	—	10
(20)	5,460	105
(21)	—	50
(22)	—	800
(23)	—	20
(24)	10	15
Total	5,470	5,470

In setting out the aggregates of income, product, etc., it is convenient to start with the conceptually simple totals of personal income and outlay. As already explained, the revenue account of persons does not provide a measure of personal income since it contains lump-sum payments from insurance companies. A measure can, however, be obtained by consolidating the personal revenue account with the revenue accounts of insurance companies in their capacity as personal insurers and of private pension funds. By doing this, an income figure is reached which sums in the simplest case to personal expenditure on consumers' goods and services, of which one component is the cost including profit of insurance services to persons, direct tax payments and saving by persons both directly and indirectly through the medium of insurance companies and pension funds. An example of this consolidation based on the working system of accounts is given in the following table obtained by consolidating accounts (12 b) (16) and (20):

Personal Income and Outlay.

Wages, salaries, etc.	5,460	Payments to factors of production and purchases of goods and services, including insurance services	6,900
Interest, rent, dividends and withdrawals, actual and imputed	2,490	less Transfers from enterprises in respect of bad debts	-25
Contingency claims, gifts and all other transfers	400	Gifts and fines	95
		Direct taxes and contributions to social security funds	790
		Saving, direct and through the medium of insurance companies and pension funds	590
Personal income	8,350	Personal outlay	8,350

For purposes of demand analysis it may be useful to deduct from total personal income, first, gifts between persons and capital transfers from abroad and, second, direct taxes. The second of these deductions may make a perceptible difference to the course of the series but the first is hardly likely to do so in practice

Figures for private income and outlay may be obtained by adding to the figure for personal income just described the total of business saving before tax—*i.e.*, the sum of direct tax payments and net transfers to reserve appearing in the accounts of private business enterprises of all kinds.

The next total to be investigated is the national income or product at factor cost and the corresponding expenditure concept. The national income or product at factor cost is obtained by extracting all payments to factors of production and all operating surpluses and adding them up. The sets of components of these two aggregates are essentially alternative classifications of the same set of transactions; the former involves a grouping by type of payment, the latter by the entity making the payment. This can be seen clearly from the two-way classification given in the following table:

Geographical Income and Product and National Income and Product.

Account	Wages, salaries, etc.	Interest	Operating surplus	Product at factor cost
(1)	3,975	500	1,800	6,275
(3)	135	—	—	135
(5)	70	20	165	255
(6)	95	—	50	145
(9)	120	—	40	160
(13)	70	10	45	125
(16)	5	—	—	5
(18)	10	—	—	10
(20)	105	—	—	105
(21)	50	—	—	50
(22)	800	25	—	825
(23)	20	—	—	20
Geographical income	5,455	555	2,100	8,110
—(24)	— 10	— 25	— 20*	— 55
(24)	15	165	60*	240
National income	5,460	695	2,140	8,295

* Dividends and Withdrawals

The totals of the columns show the amount of income of different types arising in the economy as a whole, while the totals in the rows show the amount of all types of income taken together arising in different divisions of the economy. A more complete breakdown by type of income would require principally a more detailed breakdown of the consideration "factor of production". Equally a more complete breakdown by branch of activity would require the recognition of more separate divisions of the economy; in particular, separate operating accounts would have to be set up for different branches of productive activity which, when combined, would give account (1) in the above system.

The table shows the difference between what is here called the geographical income or product of an economic system and its national income. The former includes the return to factors of production belonging to other economies but situated physically in the economy under investigation while it excludes returns accruing to factors of production of the economy under investigation which are physically situated elsewhere. It is assumed in arriving at the geographical product in this example that all labour, for example, employed by the given economy is resident in the territory of that economy whether normally or temporarily.

Thus the national income or product at factor cost is easily extracted from the working system of accounts. As is to be expected, however, the corresponding expenditure total presents more difficulty since expenditures are not made at factor cost and accordingly numerous deductions are needed to obtain a reconciliation. The appropriate transactions may be set out as follows:

Net National Expenditure at Factor Cost.

1. Current domestic expenditure on goods and services:	
(a) Persons:	
Payments to factors of production and purchases of goods and services including payments to meet the cost of insurance and private pension funds, bank, etc., charges, actual and imputed, rentals and fees to public collective providers	6,900
(b) Social security funds and public collective providers:	
Payments to factors of production, purchases of goods and services, contributions to social security funds in respect of employees, depreciation and obsolescence allowances, less fees received	1,070
	7,970
2. Domestic gross capital formation:	
(a) Persons:	
Payments to factors of production, purchases of goods and services and net purchases of existing assets	260
(b) Public collective providers:	
Payments to factors of production, purchases of goods and services and net purchases of existing assets	35
(c) Business enterprises:	
(i) Payments to factors of production, purchases of goods and services and net purchases of existing assets	950
(ii) Net transfer from capital to operating account in respect of inventories	15
(d) Banking system:	
Net purchases of gold and silver bullion and coin	15
	1,275

3. Expenditure by the rest of the world: Payments to factors of production, dividends and withdrawals, and purchases of goods and services including existing equipment, gold, etc.	745
4. less Items included above which do not correspond to domestic income:	
(a) Payments to the rest of the world for goods and services	—755
(b) Depreciation and obsolescence allowances	—535
(c) Insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business insurers	— 60
(d) Allowances by enterprises for bad debts	— 25
(e) Indirect taxes less subsidies	—275
(f) Social security contributions of employers	— 45
	—1,695
5. Net national expenditure at factor cost	8,295

The first two groups of items in this table show total domestic final expenditure whether for the satisfaction of current wants or for gross additions to wealth in the form of construction, equipment and stocks of all kinds. The third item shows the expenditure by the rest of the world on the products of the economy under investigation. Not the whole of the sums shown in these expenditure figures correspond to domestic income and accordingly the elements of reconciliation are deducted in item 4. The need for these deductions can be seen as follows. For example, the elements of the first three items are partly made up of imported goods and services of all kinds, and the value of these goods and services must be deducted from the total value of final expenditure before the value of domestic produce and therefore the income accruing to the domestic factors of production is reached. The same argument can readily be seen in the case of indirect taxes and indeed applies to all the elements of item 4. The only element whose inclusion in item 4 may not be immediately obvious is (c), insurance claims paid to enterprises, and transfers to insurance reserves in respect of the increase in accruing liability to business insurers. The position is that premiums paid by enterprises including imputed charges appear as costs in items 1 to 3 but only the payments to meet the cost of insurance services to enterprises including profit correspond to components of income on the other side of the account. The difference between premiums and insurance costs is just claims plus transfers to reserves—*i.e.*, the components of 4 (c). Of course, not the whole of the costs of insurance business need necessarily correspond to income; a part, for example, may take the form of indirect taxation—*e.g.*, stamp duty. But no allowance for this need be made in 4 (c) since the appropriate deduction will be made separately, in this case in item 4 (e).

It would be possible to make certain changes of presentation which would make the table conform more closely with existing statements. Item 4 (a) could be deducted from item 3 to give net expenditure by the rest of the world on the goods and services of the economy under investigation. The resulting figure would not be equal to the balance of payments owing to the existence of unilateral payments, so that if it were thought desirable to show the balance of payments in the national expenditure statement it would be necessary to make appropriate adjustments elsewhere to take care of the unilateral payments.¹ Alternatively, imports might be deducted from the different types of expenditure so as to show the expenditure on domestic resources, etc., in the different categories.

Again, item 4 (b) could be deducted from item 2 to give net capital formation or alternatively it could be deducted from the different types of expenditure so as to show the expenditure on

¹ See page 78 above

current resources, etc., in the different categories. A similar allocation could be made of indirect taxes, subsidies and the social security contributions of employers.

The present system of accounts does not provide any cost-accounting information which would enable the effect of these adjustments to be seen numerically. It is therefore convenient to illustrate these remarks by means of a table based on the British official estimates¹

Alternative Arrangements of the Components of the Net National Expenditure at Factor Cost, United Kingdom, 1938.

Article	£ millions	Per cent	£ millions	Per cent
1. Consumers' expenditure:				
(a) Private	2,954	63.9	2,685	58.1
(b) Public authority	696	15.1	634	13.7
2. Capital formation:				
(a) Private	121	2.6	410	8.9
(b) Public authority	97	2.1	188	4.1
3. Exports of goods and services, including the net services of capital invested abroad	751	16.3	702	15.2
4. Net national expenditure at factor cost	4,619	100.0	4,619	100.0

In this table, imports of goods and services and indirect taxes, subsidies and employers' social security contributions have been allocated to the three constituents of the national expenditure and have been deducted from (in the case of subsidies added to) them. As a result, the figures show not the amount spent by each group of buyers but the amount of domestic resources absorbed by their expenditure. For example, consumers spent on goods and services in 1938 £4,168 million while public authorities paid subsidies in respect of these goods of £15 million so that the value of the goods was £4,183 million in all. Of this total, £668 million represented the value of imports contained in these goods and services and £561 million represented the value of indirect taxation levied on them. Thus the value of domestic resources represented by this expenditure was only £2,954 million, the figure shown at the top of the left-hand column of figures in the table.

Thus the analysis shows the value of domestic resources devoted to satisfying the five main classes of demand and this value is exactly equal in the aggregate to the national income. The left-hand distribution shows the amount of domestic resources devoted in the case of consumption not only to current production but also to maintaining the capital equipment necessary for maintaining this current production; and similarly for the other categories of expenditure. The right-hand distribution shows the amount of domestic resources devoted to current production plus, in the case of capital formation, the amount devoted to maintaining capital equipment in all branches of activity. The difference between the two is that in the second distribution the allowances for depreciation and obsolescence appearing in each of the categories of expenditure are deducted from their respective categories and added to the two forms of capital formation. The amount added to private and public authority capital formation respectively is, of course, the amount of the allowances arising in respect of equipment owned either privately or publicly.

¹ These figures are obtained by a rearrangement of those given in Cmd 6623 (1945).

Before introducing other aggregates of income and expenditure, it will be convenient to indicate the relationship between the two concepts so far introduced—namely, personal income and the national income. Personal income contains certain transfers which are not received in respect of any contribution to productive activity and must therefore be deducted. On the other hand, there are incomes arising from productive activity which do not accrue to persons but to other divisions of the economy, and this income must be added. The reconciliation of the two totals can be set out as follows:

Relation between Personal Income and National Income

Personal income	8,350
less Transfers contributing to personal income	—400
Income from work and property accruing to persons	7,950
Undistributed income of enterprises of all kinds	510
less Transfers contributing to undistributed income of enterprises	—200
Undistributed income of enterprises of all kinds arising from property	310
Income of social security funds and public collective providers	1,625
less Transfers contributing to the income of public authorities	—1,590
Income from property accruing to public authorities	35
National income	8,295

The rationale of this table can be seen as follows: The economy is divided into three main divisions: persons, enterprises of all kinds and public authorities in the sense of public collective providers and social security funds. For each of these divisions we write down the total income accruing, or, in the case of enterprises, retained, and from each of these totals we deduct that part which is due to transfers. We are left, therefore, with the income received, or, in the case of enterprises, retained, which arises from work or property—*i.e.*, the national income.

The detailed derivation of the table is a little more complicated. As already explained, to obtain personal income the revenue accounts of persons (20) is consolidated with the revenue account of insurance companies and societies concerned with persons (12. b) and the revenue account of private pension funds (16). This gives $8,475 - 120 - 10 + 5 = 8,350$. From this total are deducted components not derived from work or property all of which are to be found on the left-hand side of account (20). In this example, these components total $15 + 85 + 170 + 70 + 45 + 15 = 400$. The undistributed income of enterprises is obtained by first consolidating the appropriation accounts of enterprises of all kinds—*i.e.*, accounts (2), (7), (10) and (14)—and then selecting from the payments side of the consolidated account all items not paid out in dividends, withdrawals and payments, actual and imputed, to depositors and policy-holders. The items so selected are transfers of surplus to reserve, direct tax payments and net transfers to reserve in respect of unpaid accruing tax liability totalling $135 + 335 + 40 = 510$. But this amount is not attributable wholly to the productive activity of enterprises but partly to the receipts from loss of profits insurance claims, which form the difference between insurance claims received, and claims against the enterprises paid out or transferred to other accounts—*i.e.*, $60 - 15 - 35 = 10$, partly to transfers from reserve in respect of realized capital gains equal to 15, and partly to national debt interest included in the interest received by enterprises equal to 175. These three items total $10 + 15 + 175 = 200$. Finally, the income of public authorities is obtained by consolidating the revenue accounts of social security funds and public collective providers, accounts (18) and (22), and deducting transfers. There remain interest, dividends and transfers of surplus from the appropriation accounts of public authority enterprises totalling $25 + 0 + 10 = 35$. The income from work and property accruing to these three divisions of the economy, $7,950 + 310 + 35 = 8,295$, is the national income.

The national income or product at factor cost is easily derived from the system of accounts while the corresponding expenditure concept can only be extracted after numerous deductions and adjustments to final expenditures. The position is reversed, however, in the case of the other aggregate product and expenditure concepts in common use—namely, the gross national product and the gross national expenditure at market prices. The rule for forming these aggregates is given most simply in terms of expenditure which is obtained by adding together all expenditures for factors of production, goods and services less fees received, depreciation and obsolescence allowances, indirect taxes and employers' contributions to social security funds, which arise on revenue or capital but not operating accounts other than those which relate to enterprises or to the rest of the world in connexion with insurance transactions. Expenditures by the rest of the world must be taken net. The calculation can be seen from the following table:

Gross National Expenditure at Market Prices

Account	Payments to factors of production	Purchases of goods and services, less fees received	Depreciation and obsolescence allowances	Indirect taxes and employers' contributions to social security funds	Total expenditure
(12. b)	—	85	—	—	85
(16)	5	—	—	—	5
(18)	10	5	—	—	15
(20)	105	6,705	—	—	6,810
(22)	825	170	45	15	1,055
Revenue accounts	945	6,965	45	15	7,970
(3)	135	830	—	—	965
(8)	—	15	—	—	15
(21)	50	210	—	—	260
(23)	20	15	—	—	35
Capital accounts	205	1,070	—	—	1,275
(24)	185	—195	—	—	—10
All accounts	1,335	7,840	45	15	9,235

This table throws some light on the composition of the gross national expenditure. For example, a comparison of the above table with the table showing the composition of the net national expenditure at factor cost shows that the totals for the rows headed revenue accounts and capital accounts in the former are the same as the totals for items 1 and 2 respectively in the latter. The entry for transactions with the rest of the world in the above table, the total of the row for account (24), is equal to the excess of item 3 over item 4. a, $745 - 755 = -10$, in the table for the net national expenditure. Thus the difference between the net national expenditure at factor cost (\equiv national income) and the gross national expenditure at market prices (\equiv gross national product) is given by the remaining adjustment items, 4. b to 4. f, in the table for the net national expenditure. The relation between the national income and the gross national product may accordingly be set out as follows:

Relation between the National Income and the Gross National Product.

Factor payments including operating surpluses (national income)	8,295
Depreciation and obsolescence allowances	535
Insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business insurers	60
Allowances by enterprises for bad debts	25
Indirect taxes, less subsidies	275
Social security contributions of employers	45
Gross national product	9,235

After this discussion, in terms of the categories of the working system of accounts, of the principal aggregates of current transactions, personal income, national income, gross national product, the associated expenditure concepts, and the relationships between them, we shall turn finally to another important pair of equivalent totals of transactions given by combining all the capital and reserve accounts in the system. This combination leads to a statement of the sources and uses of capital funds and demonstrates that current receipts less current outgoings equals capital formation plus lending after deduction of receipts from repayments less borrowing after deduction of repayments. These relationships are illustrated in the following table.

Combined Domestic Capital and Reserve Accounts.

Account	Receipts to free reserves	Net receipts to other reserves	Lending less receipts from debt repayment	Borrowing less repayment of debt	Capital formation less depreciation and obsolescence allowances
(3 + 4)	110	60	35	390	525
(8)	5	—	60	70	15
(11)	10	—	15	5	—
(15)	10	35	45	—	—
(17)	10	—	10	—	—
(19)	10	—	5	— 5	—
(21)	545	—	295	—40	210
(23)	—25	—	—15	—	—10
All domestic accounts	675	95	450	420	740

The first two columns represent for each division of the system the excess of receipts on current accounts over outgoings from current accounts other than those outgoings which take the form of payments (net) to reserve. They therefore represent saving. The item net receipts

to other reserves may be regarded as drawn from a population of values whose mathematical expectation is zero since if this is not the case it means that reserve funds are being used to disguise free business saving.

We saw above that saving = current receipts — current outgoings was equal to lending—borrowing + capital formation. This is true for each account as can be seen from the above table. The final row shows saving = 770, lending—borrowing = 30, and capital formation = 740. For a closed system lending—borrowing = 0 and the discrepancy here is due to net lending abroad—*i e*, it represents the balance of payments obtained when all purchases of goods and services of a kind which enters capital formation—*e g*, gold and existing equipment and other assets as well as new capital goods—are treated as transactions on current account. Thus the total additions to wealth of the economy at home and abroad in the example is 740 + 30 which in turn is equal to its saving.

The totals of transactions discussed in this chapter have been shown by experience to be useful in applied economic analysis. For certain purposes, one of the very large number of aggregates which have not been described but which could be obtained from the working system may turn out to be useful. However, for purposes of popular presentation it seems desirable to keep the number of distinct aggregate income, product and expenditure concepts small. Some variety is essential but an undue amount may only lead to confusion in the minds of the many users of national income studies whose technical equipment in that field is necessarily limited. A working system of accounts, suitably drawn up, provides the expert with all the combinations of transactions that are interesting. In presenting his results, however, it is desirable that he should restrict himself to a comparatively small number of income, product and expenditure concepts each of which can be clearly seen to have a field of usefulness not provided by the others. The more agreement is reached by experts in different countries on the nature and composition of these basic variants the more helpful will their labours be to the users of national income studies.

CHAPTER VI

METHODS FOR EXTENDING THE SYSTEM IN DETAIL.

The system presented in Chapter III led to a discussion of many of the logical problems involved in ensuring consistent treatment of the items in the separate accounts and in the national aggregates and in observing the implications of alternative treatments that might be proposed. No model that can be written down in a few pages can be expected, however, to deal with all the complexities of the real world. It is therefore necessary to have some means of working out the implications of various possible treatments of new types of accounting entity or transaction and of ensuring consistency in the different national accounts.

A method is at hand in the construction of a still more simplified accounting system which concentrates on the particular problem and simplifies as far as possible all other accounting entities and transactions. In some cases, it is sufficient to proceed in a more summary manner and consider how frequently a given item appears in an aggregate account. If the item appears an equal number of times on each side of the account it is being treated consistently in that account. The element may appear in any entry in an account with a coefficient 1, 0 or — 1. An example will be given of each of these methods.

The first method will be illustrated by the treatment of the banking system which was adopted above.¹ It will be remembered that the fact that banks do not charge directly for their services leads to an underestimation of the income generated in banking if banks are treated like productive enterprises and to an overestimation of total income if they are treated as aggregates of individuals. Accordingly, a different procedure is necessary and the rationale of the treatment adopted can be seen from the following numerical example.

¹ See pages 40-41.

PRODUCTIVE ENTERPRISES

Operating Account

Sales proceeds from:		Wages to persons	647
Banks	4	Imputed banks charges	9
Persons	700	Interest to:	
		Banks	20
		Persons	15
		Operating surplus	13
Total receipts	704	Total payments	704

Appropriation Account

Operating surplus	13	Dividends to:	
Deposit interest	3	Banks	2
Imputed interest from banks	9	Persons	17
		Saving	6
Total receipts	25	Total payments	25

BANKS

Operating Account

Bank charges from:		Wages to persons	7
Enterprises:		Purchases from enterprises	4
Imputed	9	Operating surplus	8
Persons:			
Actual	2		
Imputed	8		
Total receipts	19	Total payments	19

Appropriation Account

Operating surplus	8	Deposit interest to:	
Interest from enterprises	20	Enterprises	3
Dividends from enterprises	2	Persons	2
		Imputed interest to:	
		Enterprises	9
		Persons	8
		Dividends to persons	7
		Saving	1
Total receipts	30	Total payments	30

PERSONS

Revenue Account

Wages from:		Purchases from enterprises	700
Enterprises	647	Bank charges:	
Banks	7	Actual	2
Interest from enterprises	15	Imputed	8
Deposit interest	2	Saving	—7
Imputed interest from banks	8		
Dividends from:			
Enterprises	17		
Banks	7		
Total receipts	703	Total payments	703

From this system of accounts the following table can be constructed:

National Income, Product and Expenditure

Wages	654	Productive enterprises	695	Personal expenditure on the	
Interest	35	Banks	15	product of enterprises	700
Profit (operating surplus)	21			Bank charges paid by persons:	
				Actual	2
				Imputed	8
National income	710	National product	710	National expenditure	710

This example relates to a closed economy with no public authorities and no transactions on capital account. The entry "saving" which appears in three of the accounts is a loose end, since there is no specification of what is done with these sums. This is unimportant, however, since there is no capital formation and accordingly total saving is $6 + 1 - 7 = 0$.

The proposed treatment of banks consisted essentially of imputing a charge to bank depositors and also an equivalent payment to bank depositors equal to the excess of the investment income of banks over the interest paid out by banks. It was also decided to restrict the operating account of banks to their receipts from charges as in the case of ordinary business, and at the same time to show their payments to depositors actual and imputed as a debit to their appropriation account.

The effect of these proposals can now be traced in detail. The operating surplus of productive enterprises is reduced by the imputed bank charges debited to the operating account so that the overestimate of the income generated in these enterprises is avoided. On the other hand, an equal sum is imputed as a credit to the appropriation account of these enterprises so that their saving is unchanged from the figure that would be obtained if no imputations were made.

To turn now to the banks themselves, it can be seen that, had they been treated like ordinary businesses, there would have to appear on the receipts side of their operating account only bank charges paid by persons, 2, while deposit interest would have appeared on the payments side.

As a consequence the operating surplus of banks would have been -14 and the income generated in banking, wages, (deposit) interest and operating surplus would have been equal to $7 + 5 - 14 = -2$. This figure -2 which compares with the figure of $7 + 8 = 15$ in the above system would not have been fully offset by a rise in the profits of enterprises, 9 in this example, which would follow from not imputing a charge for banking services to enterprises. Thus the treatment of banks as though they were exactly like other businesses would have resulted in a smaller figure for the national income than the one given here and also to a different allocation of income generated between banking and other forms of business. Reflection will show that the allocation between interest and profit would also have been different. At the same time, it will be seen that if the two accounts of the banking system are taken together the imputation can be cancelled out.

The "aggregates of individuals" method of treating banks would involve the consolidation of the two accounts of the banking system and the exclusion, as here, of payments to depositors (deposit interest) from the national income. As a consequence of these changes income generated in banking would be unchanged though an interest payment debited to an operating account would, unlike all other interest payments, be excluded from the national income. At the same time, the national income would exceed the figure given here by the imputed bank charges debited to enterprises.

The revenue account of persons is affected on each side by the imputed receipts and payments which are by definition equal, so that personal saving is unaffected. At the same time, it will be seen that the bank charges imputed to persons must appear in the national expenditure. Similar charges imputed to enterprises do not have to be included in this way, since they are already included in the value of sales.

In this case, the answers were known in advance. But it can be seen that there is an unlimited field for the application of a similar procedure to ensure first that a proposed line of treatment does not lead to absurd results—viz., that the net contribution to the national income of a profitable branch of activity should appear negative—and second that any treatment which appears to give satisfactory results in one aggregate shall be dealt with consistently in setting out the components of other aggregates which are by definition equal to the first one.

Doubt will sometimes arise as to whether a particular transaction is being treated consistently and the problem can frequently be resolved without resort to the procedure just described. It may be sufficient to ensure that a particular item appears an equal number of times on either side of an aggregate account.

Suppose we want to make certain that, defining consumers' expenditure and capital formation in the usual way, we are right in entering *net* capital formation in the national expenditure concept which is by definition equal to the national income. Neglecting imports and indirect taxes which are irrelevant to the problem it might appear superficially that the whole of capital formation gives rise to income and that therefore gross and not net capital formation should appear in the national expenditure.

The error of this view can readily be seen as follows. Let renewals and replacements be denoted by x and depreciation allowances by y . It is evident that y does not appear in the national income since it is deducted from the receipts of enterprises before the operating surplus is reached. It can also be seen that it does not appear in the national expenditure since it appears positively, in final purchases, but also negatively in that it is deducted from the purchases of capital goods to give net capital formation. Thus, net and not gross capital formation is correct. However, gross capital formation is made up in part of x , renewals and replacements, and this sum also appears in the national income since this expenditure does give rise to income. Thus, x appears once and y no times on each side of the national income and expenditure account so that net and not gross capital formation is correctly entered in the national expenditure. As explained in the last chapter, it may be appropriate to allocate depreciation allowances and to deduct the amounts allocated from the different types of expenditure rather than to deduct depreciation allowances *in toto* from gross capital formation. This consideration is, of course, irrelevant to the present discussion.

More complicated cases can be handled on similar lines. Suppose a temporary non-resident is sent goods produced in the home country to the value of x , consumes x_1 , and trades the balance valued at x_2 for an amount of money, y . Of this amount he spends y_1 abroad on goods which he consumes and remits the balance y_2 to his bank in the home country. How will these transactions be reflected in the national income and expenditure of the home country? One answer may be set out as follows:

Receipts from the sale of goods	x	Consumers' expenditure	$x_1 + y_1$
Profit from the sale of exports	$y - x_2$	Exports less imports	$y - y_1$
National income	$x_1 + y$	National expenditure	$x_1 + y$

This treatment is consistent. It will be noticed that if nothing is known about the transaction subsequent to the purchase and presumed consumption of x all the elements in the table will be wrong though the inaccuracy, which may be relatively unimportant, will not be detected. The national income will be underestimated to the extent of $(y - x_2)$ while consumers' expenditure is underestimated by $(y_1 - x_2)$ and the balance of payments by $(y - y_1)$, making for the national expenditure $(y - x_2)$ in all. Thus the inaccuracies, due to ignorance, may not lead to any discrepancy and may, in practice, be very hard to detect. On the other hand, if the balance of payments is measured from the capital side by measuring the net change in cash and investments it will be apparent that the true figure is $y_2 = (y - y_1)$ and not zero. Hence, if this measure is used but elsewhere the subsequent transactions are neglected a discrepancy will arise which will be absorbed into any residual item which the table may contain. This sort of difficulty, which is very real in practice and is not so much a matter of defining terms as knowing what definitions are implicit in the statistical material available, can only be avoided by a detailed knowledge of the transactions that are taking place and close attention to the accounting implications of consistent treatment.

It need hardly be said that it may seem inappropriate to regard $(y - x_2)$ as part of the national income. In such a case, $-(y - x_2)$ would have to appear in the national expenditure, either in the item labelled "consumers' expenditure" or as a separate item. This requirement might well be missed without some such technique as is described here.

This chapter has been concerned with ensuring consistency of treatment and avoiding discrepancies and errors which are essentially logical in character. The procedures described do not in themselves contribute anything to what may be called the economic as opposed to the logical problems of definition except in so far as a necessary but not sufficient condition of acceptable economic definitions is that they be consistent. The economic problems of definition which are opened up when an attempt is made to go behind familiar accounting concepts are large in number. Some have been discussed in the preceding chapters. More will be said about them in the next chapter, though the treatment given there will be far from complete.

CHAPTER VII

SOME ECONOMIC PROBLEMS INVOLVED IN DEFINING AND INTERPRETING ACCOUNTING SYSTEMS

The decision to adopt an accounting approach to the representation of a system of transactions does not in itself imply much as to how that system is to be represented. The justification of this approach is partly that it is useful in ensuring consistency and seeing that the best use is made of all the available information and partly that it reflects the essential interrelatedness of all

economic transactions. The first of these considerations is important to the compiler of the estimates: the second to their user. The system described in the preceding chapters is intended to be especially suitable for two purposes. First, the testing of economic hypotheses and the estimation of the quantitative effect of different influences on economic change and, second, the provision of a picture of economic structure and change for use in connexion with economic policy. In stressing the importance of economic interdependence, we are doing no more than carrying into this field of statistical work a proposition that has long been a commonplace in pure economics and is at present inspiring some of the best work in a complementary field of statistical economics—namely, the estimation of the coefficients in behavioural relationships. In practical affairs, the interdependence of different factors in the economic situation is perhaps the main problem which requires, where social control is attempted, appropriate information services and administrative arrangements. To attempt any important measure of social control, even if the amount of actual government intervention is not large, with separate departments trying to tackle different problems in a more or less unrelated fashion is to court the difficulties that Alice got into in the game of croquet.

The set of accounts appearing at the end of Chapter III will probably seem reasonably familiar, but it is not to be thought that it is natural in the sense that it could not have been drawn up differently. In fact the system could have been drawn up in an indefinitely large number of different ways and the way selected depends on the application of economic ideas to the kind of problem which the system is designed to illuminate. The economic considerations which led to the treatment proposed in this report have already been set out and the purpose of this chapter is to discuss very briefly certain types of alternative representation, still using the accounting approach, and to indicate the limitations of the comparatively familiar treatment given in Chapter III.

Two variations of the present layout were touched on briefly in Chapter IV. One of these¹ is connected with the distinction between payments for factors of production and purchases of goods and services. This distinction is represented formally in the system of Chapter III in that payments for factors of production are always made to revenue or appropriation accounts while purchases of goods and services are always made to operating accounts. Thus, the obliteration of the distinction in more than name would require that operating accounts be set up for what might be called the labour-providing and money-providing industries. That this is not done here is obvious in the case of the provision of labour but perhaps not so obvious in the case where money is provided by financial intermediaries. It will be remembered, however, that the operating account of financial intermediaries relates to their receipts and payments in connexion with the provision of services other than the lending of money, and that the return on lending—interest—is credited to their appropriation accounts. The word interest as used here means the net return on a loan and not a charge for other services computed as a certain per cent per annum on a capital amount.

The removal of the distinction between payments for factors of production and purchases of goods and services would not affect the total national income but would completely recast the industry breakdown of this total. Thus the preservation of existing notions of the net output of a branch of activity involves the preservation of this distinction. It will be noticed that the distinction between the two types of payment is formally as stated in the preceding paragraph and is not connected with the distinction between payments to consumers and payments to producers—*i.e.*, to different sectors of the economy.

The second variation of the present layout discussed in Chapter IV² is connected with the difference between consumers' expenditure and consumption. The arrangement of the accounts which would permit the introduction of a measure of consumption would require that all purchases and sales of commodities take place between capital accounts. For example, all consumers' purchases of consumption goods and services would be debited to the capital account and this account would be fed from the sums set aside to allow for the depreciation and obsolescence of consumption goods and services as well as from the balance on revenue account—*i.e.*, personal

¹ See above, pages 56-57

² See above, pages 74-75

saving. Thus depreciation and obsolescence allowances would have to be imputed to all goods and services under this method. Provided that no income were imputed to consumers' capital, an unreasonable assumption, the national income would be unaffected by this change but a different and truer picture would be gained of the division of this income between consumption and additions to wealth. The final step in this direction is taken if all factors of production, and particularly labour, are also treated as capital goods.

Another variation, not so far considered, arises in connexion with the treatment of the household. In the ordinary method of treatment, goods are processed and services are attached to them until the housewife takes them out of the shop or they are delivered to her home. The value that they have acquired at this stage is regarded as the value of final consumption. The value of all the services rendered between that stage and the final using-up and wearing-out of the goods is ignored, except where payment is made to an enterprise or employee for such services as repairs or cleaning. This omission may seem quite natural in a predominantly exchange economy where the market place supplies, in most cases, a measure of the first set of values but not the second set. The line is, however, quite arbitrary, being set by the coverage of the market in the whole field of economic activity. In different countries and at different times, the coverage of the market is widely different, so that in many cases a comparison of national income which fails to treat households as a branch of activity will be highly misleading. A topical example, in which the restriction of the calculations to, broadly, market phenomena can be misleading, is given in the effect on the size of the commercially employed labour force and therefore on the size of the national income as usually computed of transfers of labour during war time from households to commercial employment. The treatment of households as a branch of activity would necessitate a number of imputations—for example, of services rendered by durable goods and individuals. The first of these would, however, be covered if all goods were treated as capital goods.

These imputations raise the question of the valuation of substitutes. For example, suppose an attempt is made to value the services of housewives. This might be done first by considering how much the housewife could earn in an alternative occupation less the costs involved in following this occupation; or second by considering the cost of obtaining a similar service on the market. If the two approaches yielded the same answer it would seem reasonable to impute this value to the service of the housewife. It will be seen, however, what great difficulties such measurements involve. The housewife's alternative occupation should require a similar amount of effort to that required by her former activity at home, otherwise the payment will reflect in part the added effort and not the value of her household services. On the other side, how is one to price similar services?

This problem leads on to a related one—namely, how to distinguish between cost items and income items. Under the ordinary system of reckoning, for example, all travel paid for by individuals is regarded as part of consumers' expenditure and has its counterpart in the national income. But the need for such travel, particularly the daily journey to work of those who live in the suburbs of large cities, may be regarded as an indirect cost thrown on to the community by the process of urbanization. There is no reason to suppose that the degree of urbanization attained at any time is in any sense an optimum since the indirect effects do not appear as a cost item in conventional systems of reckoning and therefore do not affect the commercial calculations which largely determine such developments.

This last point goes much further. Accounts are kept by accounting entities and in the case of commercial entities show the receipts and costs of a certain product from the point of view of that entity. There is no reason to suppose that this cost will necessarily reflect the social cost of the product in question. A familiar example is the smoke nuisance. A more fundamental example is that on the assumption that the normal condition of a person desiring gainful work is one of employment, labour costs are from the point of view of the community fixed although in business accounts they are variable.

Thus business accounts do not necessarily reflect the profitability of a particular use of resources. The same is true of the accounts of public collective providers which are treated here as final consumers and are therefore by definition incapable of showing a profit or loss. These

considerations make it impossible to use the social accounts as drawn up here as a guide for social action in the same way as the accounts of an enterprise are used by the directors of the enterprise as a guide for their action. This does not mean that the social accounts are not useful for many purposes, only that they cannot as they stand at present be used in this way. Perhaps the most important step to be taken in this field is to find out in terms of operations which will give rise to measurement just what changes must be made to make this use possible.

Another set of problems arises when an attempt, necessary for many purposes, is made to correct the money values appearing in the social accounts for changes in the value of money. In the first place, there is the difficulty surrounding the difference between price and average value which is particularly acute in the field of personal and professional services. Secondly, there is the problem of interpreting price corrections under conditions of rationing or other forms of controlled market conditions. Thirdly, there is the problem of defining quantities. Normally, the quantity of given consumption goods is expressed in terms of the number, weight, size, etc., of particular products. But these products are bought only to satisfy wants which cannot as a rule be identified with products. The difference is seen clearly if a price-weighted index of the quantity of foodstuffs purchased is compared with an index of the nutritional content of these foodstuffs. It is not, perhaps, to be expected that the two series would move together since the food actually bought satisfies other wants such as display, leisure, etc. This range of problems stands greatly in need of clarification.

Thus, to satisfy all the needs of the economist an enormous amount remains to be done to the social accounts as presented here. The limitations indicated above must be kept in mind in using and interpreting the results of national income studies. They ought not, however, to blind us to the very great contribution these studies are making in the field of both public and business policy nor to the fact that they may be more useful than more recondite systems would be in explaining changes in the real world because they are based on familiar ideas that influence action in practice.

CHAPTER VIII

STATISTICAL SOURCES AND PRACTICAL PROBLEMS OF MEASUREMENT

The working system of Chapter III may be regarded simply as a theoretical arrangement of transactions which is helpful in setting out the national aggregates of Chapter IV. Alternatively, it may be regarded as a form of questionnaire which if successfully completed would enable all the national aggregates to be compiled by simple tabulation.

Such a census of transactions would be highly useful in providing a framework even if very little subdivision of considerations was asked for. A consistent and comprehensive picture might be obtained in this way which could then be filled in in detail by the usual methods. For example, consumers' expenditure on goods and services in so far as these were purchased from enterprises might not be subdivided by product but the total obtained would be defined consistently with the other transactions in the system. The detailed measurement of consumers' expenditure would therefore involve essentially the breaking down of a known total.

If the census could be made to provide a perfectly articulated set of records—that is to say, a set in which the payment from each account to each other account in respect of each consideration was kept distinct—a complete recording would provide two estimates for the value of each distinct transaction. Such articulation can hardly be achieved completely in practice, but even so a good deal of duplication of information could be obtained which would make it unnecessary for all the questions to be completed or alternatively for a greater degree of articulation to be derived.

There is another factor which reduces the need for complete records in the census—namely, the interdependence of the accounts. In a complete system of n accounts ($n - 1$) are independent and accordingly it may be possible to derive the value of as many as ($n - 1$) entries in the whole system from a knowledge of the remainder¹. If as many as ($n - 1$) entries were obtained in this way the estimates would, of course, provide no cross-checks.

Short of a complete census, the accounting layout may be used as a framework into which to fit available information obtained from a large number of different sources official and private. A part of this information will be suitable with comparatively little adjustment for this type of investigation because it is collected on a nation-wide basis as part, let us say, of a census of production or distribution. Even here the coverage may not be complete; for example, small firms may be omitted and, for this reason, additional estimation will be required. Moreover, the reliability of even census returns is likely to vary from trade to trade. Construction, for example, because of the existence of many small firms doing a substantial proportion of the trade and the shifting nature of these firms, offers peculiar difficulties to complete enumeration.

Apart from large-scale economic investigations of this type which are to a considerable extent unconnected with day-to-day administration, there are the enumerable sources of information, many directly associated with administrative requirements, which to a greater or less extent are relied on in all countries in building up estimates of national income and expenditure. Though unavoidable, the use of information from such sources presents many difficulties. In the first place, this information will frequently from its very nature be incomplete because it refers for example only to wages paid to employees coming within some social security scheme and not to all employees. In the second place it may be difficult to know precisely how a series is defined because, as in the case of income-tax data, some discretion is left to the local inspectors. This makes it difficult to compare the available series with the ideal series required and to combine data from different sources. For example, before the introduction of the "pay-as-you-earn" scheme the British official estimates of salaries were based largely on the ordinary assessments under schedule E, but income-tax data could not be used for wages because of the large number of wage-earners below the exemption limit. Consequently, estimates of wages had to be based on statistics of employment and earnings. Salary-earners for the purpose of British income-tax statistics are employees other than "weekly wage-earners employed by way of manual labour". This definition is far from watertight, and it is known that there are differences of interpretation from place to place. Furthermore, since the method of assessment was different for the two classes of employee, it was possible in borderline cases for the taxpayer to appeal against the class into which he was put. This state of affairs is no criticism of tax authorities who have many preoccupations outside the field of statistics, but it does illustrate the extreme difficulty in piecing together information from different sources each of which has its own anomalies arising from its connexion with administration.

Third, there is a serious danger of bias, and this is all the more important since its extent can rarely be assessed. Income tax data illustrate this difficulty very well, since with the most efficient administration there must inevitably be some measure of under-assessment. Bias is a particularly dangerous form of inaccuracy, since with biased statistics margins of error cannot be interpreted in the ordinary way and one cannot expect the usual cancellation of errors that occurs when these are random. This difficulty is particularly great where a number of components of a given total are based on a common biased source.

¹ This is only possible for certain arrangements of the ($n - 1$) unknowns. If the system is represented by a network in which the accounts are nodes and the transactions are directed branches, then the necessary and sufficient condition that the value of each of the ($n - 1$) unknowns can be derived from a knowledge of the remainder is that their network forms a tree—i.e. is simply connected. Thus with n accounts and m considerations, every transaction represented being possible, the number of arrangements of the ($n - 1$) unknowns which satisfies the condition is

$$(2m)^{n-1} n^{n-2}$$

out of the total number of arrangements of ($n-1$) items equal to

$$C_{n-1}^{n-2} m$$

The proportion of the arrangements which satisfies the condition tends to zero as n tends to infinity

These difficulties, and particularly the problem of bias, might to some extent be overcome, short of a complete census of transactions, by the greater use of sampling. The advantage of sampling from a purely statistical point of view and leaving out of account the financial advantages which are in practice very important, is that with proper design it is possible to obtain unbiased results of calculable reliability. It is true that these methods have been developed in their economic applications mainly for the purpose of sampling households, but there is nothing in principle to prevent their application to the sampling of enterprises and other economic entities.¹

Thus, as a general method, we might proceed somewhat as follows: First, we should complete as much of the picture as possible from sources such as a census of activity in which it might be supposed that the definitions conform closely to what is needed. If the greatest possible use had been made of these sources we should then turn to administrative statistics and piecemeal information available from other sources public and private, and should consider in each case the reliability of the estimate of some component in the social accounts as obtained from these sources. We should almost certainly find a wide range of reliability although we should have to recognize that the assessment of this reliability was to a large extent subjective. In some cases, we should find that we had little or no information at all and could therefore, in the absence of a new enquiry, do no more than guess at a suitable figure. Having reviewed the situation in this way we could then attempt to use our sampling organization to obtain estimates, first in those cases for which little or no information was available, and second in all those cases in which the estimated reliability was lower than the reliability of the sampling procedures. In this way, we should make the best use of the various sources and procedures available and in the course of this work we should have performed a useful survey of statistical sources in relation to the requirements of social accounting which would be helpful in indicating the fields in which official statistics stand in most urgent need of improvement.

After this general survey of possible methods it may be helpful to look in greater detail at the kinds of procedures which are at present in practical use. In addition to this it will be convenient to treat the items in a definite order and the order adopted will be that of the entries in the set of specimen accounts given in Section 8 of the Sub-Committee's report.²

In the following discussion, references are given from time to time to reports and studies bearing on particular topics. For the most part these references are to recent official enquiries and no attempt is made at completeness. At this point, therefore, it may be useful to indicate a number of unofficial studies dealing with methods and procedures in this field of enquiry. Again, no attempt is made at completeness, and the references given are simply those with which the writer is most familiar.

The publications of the Conference on Research in Income and Wealth³ provide a mine of information on many topics, theoretical and practical, in this field. Among the many private investigations into the national income and expenditure in the economically more advanced countries especial reference from the present point of view may be made to the work of KUZNETS⁴ in the United States, BOWLEY⁵ and CLARK⁶ in the United Kingdom, and LINDAHL, DAHLGREN

¹ For an interesting discussion of the question of applying sampling methods to the collection of economic data see "The Sampling Approach to Economic Data", by N. KEYFITZ, in *The Canadian Journal of Economics and Political Science*, Vol. II, No. 3, August 1945, pages 467-477. For a technical account of the theory underlying the method of cluster-sampling which has been so successfully developed in recent years by the Bureau of the Census in the United States, see "On the Theory of Sampling from Finite Populations", by M. H. HANSEN and W. N. HURWITZ, in *The Annals of Mathematical Statistics*, Vol. XIV, No. 4, December 1943, pages 333-362.

² See above, pages 9-17.

³ See *Studies in Income and Wealth*, Vol. I (1937), Vol. II (1938), Vol. III (1939), Vol. VI (1943), Vol. VIII (1946) and Vol. X (1947), published by the National Bureau of Economic Research, New York.

⁴ See, for example, "National Income and Its Composition, 1919-1938" (1941), Vols. I and II, by S. KUZNETS, and the many other studies by the same author also published by the National Bureau of Economic Research, New York.

⁵ See, for example, "Wages and Income in the United Kingdom since 1860 (1937)", published by the Cambridge University Press and appearing as No. 1 in the series of economic and social studies issued by the National Institute of Economic and Social Research, London, both by A. I. BOWLEY.

⁶ See, for example, "National Income and Outlay" (1937), by C. G. CLARK, published by Macmillan and Company, London.

and KOCK¹ in Sweden. For economically less advanced countries, in which as a rule statistical data are much less complete, a description of methods and procedures will be found in the works of RAO for India², GRUENBAUM for Palestine³, BENHAM for the British West Indies⁴ and DEANE for certain British colonies in Africa⁵. Although the works of these writers form but a small part of all that has been written on the measurement of income and expenditure, they cover a wide ground and among them provide a fairly comprehensive guide to past literature.

PERSONAL INCOME AND OUTLAY

(See Table I in Section 8 of Sub-Committee's Report.)

I (a) *Wages, Salaries, etc*

These transactions may be built up from tax records, social security records, censuses of activity or statistics of employment and earnings in addition to special information, which varies from country to country, on individual trades and occupations. It is rarely possible to rely entirely on any one of these sources, because as a rule each is incomplete in one way or another. Tax returns in most countries do not relate to incomes below a fixed exemption limit which as a rule is sufficiently high to leave a substantial proportion of the wage bill unrecorded in these returns. Social security payments are in some countries related to the amount of wages paid and so can be used to give an estimate of the wages bill provided that the scheme is comprehensive. In many cases, there will be an upper limit so that the problem here is to obtain information about the higher wages and salaries from some other source in such a way that the two sets of figures can be combined. In other countries, the receipts from the social security contributions will be related to the numbers employed and not to the wages earned, so that in this case only an estimate of employment can be made from these figures. Censuses of activity frequently contain information about wages paid and are a good source for part of the field. It may therefore be possible to use them, not to obtain an estimate of the total wages bill, but to check the estimates of wages in particular branches of activity made from other sources. There will frequently be minor problems of adjustment in using these sources, for example, in making an allowance for wages paid to employees in small firms which are not required to make a full return. There is also the difficulty that in many countries censuses of this kind not only do not cover all branches of activity but are not taken every year. There is therefore the problem of interpolating and extrapolating the census figures for which other sources must be used.

Estimates can frequently be based on information relating to employment and earnings and, in many cases, this information can readily be kept up to date so that it may be used for purposes of extrapolation even if the basic totals are based on census material. It is desirable that the estimates should be broken down as far as possible by industries so that checks can be made on parts of the total through the use of other sources of information. As a rule, it will be found that the statistics, particularly of earnings, are incomplete and estimates have therefore to be made of average earnings in that part of the field not covered by direct returns. This is the case, for example,

¹ See "National Income of Sweden, 1861-1930" (1937), Vols. I and II, by E. LINDAHL, E. DAHLGREN and K. KOCK, published by P. S. King and Son, London, for the Institute of Social Sciences of Stockholm University.

² See "An Essay on India's National Income, 1925-1929" (1939), published by George Allen and Unwin, London, and "The National Income of British India, 1931-1932" (1940), published by Macmillan and Company, London, both by V. K. R. V. RAO.

³ See "National Income and Outlay in Palestine, 1936" (1941), by L. GRUENBAUM, published by the Economic Research Institute of the Jewish Agency for Palestine.

⁴ See the five national income studies relating to the year 1942 for Jamaica, St. Vincent, Barbados, Granada and British Guiana, by F. BENHAM. These were issued as Nos. 5, 8, 9, 12 and 17 of the series of Development and Welfare Bulletins. They are obtainable from the Advocate Co., Bridgetown, Barbados.

⁵ See "Measuring National Income in Colonial Territories" in *Studies in Income and Wealth*, Vol. VIII, and the forthcoming "The Measurement of Colonial National Incomes: an Experiment", to appear shortly in the series of Occasional Papers issued by the National Institute of Economic and Social Research, London, both by Miss P. M. DEANE.

in the United Kingdom where the half-yearly earnings enquiries do not cover all branches of activity. It is necessary, therefore, to resort to special sources of information, for example, for agricultural workers and railway servants, to complete the picture

The Canadian treatment of this item¹ illustrates the use of different sources for different components of the total. As far as possible, estimates of salaries and wages are based on census material, the annual Census of Industry and the Decennial Census being used. The estimates are compiled on an industrial basis and, in most cases, subsidiary data are required to bring the census estimates up to date. In the case of agriculture, sample surveys are used, while in the case of trade a payrolls index is available for the more recent years. For finance and insurance, special returns are received either from trade associations or government departments. Payments to Dominion and Provincial employees are obtained from the public accounts, while payments to municipal employees are based on the Decennial Census and brought up to date by means of returns from a sample of cities. Pay and allowances to the armed forces, including issues in kind, are obtained from the service departments. Supplementary labour income—*i e*, board and lodging allowances, employers' welfare expenditure and employers' contributions to government funds—are based partly on the Decennial Census, partly on sample surveys and partly on statements obtained from the departments administering the government funds concerned.

In Eire the problem² is tackled in a different way. Information received from the Revenue Commissioners forms the basis for estimating income assessed to tax and all income of persons whose total income exceeds £150 per annum. For the most recent years, when tax assessments are not available, estimates are made which are roughly checked by reference to figures of industrial and commercial output. Allowance is made on the basis of information obtained from government departments for income received in kind.

Incomes below the above limit were estimated in a great variety of ways, use being made of various censuses, departmental returns, and a number of special enquiries. In certain cases, information was obtained of all incomes below the limit in a certain branch of activity and a rough allocation was then made between income from work and income from property.

For the United States of America, official estimates are available of wages and salaries combined, classified in considerable detail by branches of activity. A great variety of source material was used and a brief description of the methods employed has been published.³

1 (b) Interest.

Bond interest and other interest paid by business enterprises is sometimes included in censuses of activity, but it is more usual to rely on tax sources for estimates of interest. For present purposes, however, total interest payments are not enough, since it is necessary to separate that part of the total which is paid directly as interest to persons. The remaining interest paid by enterprises will be paid to other enterprises and will only reach persons as dividends. Because of this difficulty it is sometimes not possible to separate out interest and dividend payments⁴ in the income account of persons. This is the case, for example, in the official estimates for the United Kingdom.

In Canada, bond interest was estimated in the following way⁵. A sample of ownership certificates was obtained showing the interest paid to individuals in 1937 on domestic and foreign non-registered bonds and share warrants and in the form of dividends from abroad. To this was added an estimate of federal registered debt and subtracted an estimate of share warrant dividends

¹ See "National Accounts. Income and Expenditure. 1938-1945". April 1946. pages 19-20. This document was prepared by the Central Research and Planning Staff of the Dominion Bureau of Statistics. Ottawa.

² See "National Income and Expenditure. 1938-1944". March 1946. P. No. 7356. pages 56-58. This document was published by the Stationery Office. Dublin.

³ See "Revised Estimates of Wages and Salaries in the National Income. 1929-1943". by E. F. DENISON. in *Survey of Current Business*. June 1945. pages 17-24.

⁴ See item 1(e) below.

⁵ *Loc. cit.*, pages 20-21.

and dividends and interest from abroad, leaving a figure of bond interest received by individuals. This estimate was projected to 1938 and from it was subtracted an estimate of interest on Dominion Government bonds. The remainder was carried forward to 1945 by means of an index of interest paid to residents on certain classes of bond. Estimates of interest from abroad were received from the department concerned with international payments. In the published estimates, separate figures of interest payments are not given.

1 (c) Payments to Depositors and Policy-holders, Actual and Imputed.

These items involve a special enquiry since they require certain imputations and also the subdivision of charges and payments between persons and other economic entities. It may be noted that the imputations appear on both sides¹ and that only the actual receipts, for example of deposit interest, can differ from the payments, for example to depositors. An investigation must be made of the accounts of the financial intermediaries and insurance companies and societies and in addition to this it will usually be desirable to observe the way in which these entities are treated for tax purposes, since in some cases a further adjustment is needed in combining figures based on the accounts of financial institutions with over-all figures of investment income derived from tax sources.

This can be seen from an example from British experience. The inland revenue treatment of financial intermediaries and insurance companies is complicated, but the following example relating to the treatment of investment companies will indicate the kind of difficulty that arises.

The income of these companies may be assumed to be wholly derived from investments and taxable either at source or by direct assessment. The payments, on the other hand, take the form of expenses of management, interest paid out and profits. Since the whole of the income has been taxed a repayment is given in respect of the expenses of management, though these are ultimately assessed elsewhere—*e g*, as the salaries of employees. Finally, the tax on interest paid out is retained by the company.

The net effect of this procedure seems to be that no more income is subject to tax if investment companies stand between "productive" enterprises and investors than if this is not the case, and this is equivalent to assuming that all the services of these companies are rendered to businesses. Since this assumption cannot be justified, an adjustment of the figures is needed for present purposes.

1 (d) Net Return from House Ownership

This item will involve in most countries a substantial element of imputation in respect of owner-occupiers. Further, it is frequently found that comprehensive statistics of rents received from different kinds of property are not available. It may therefore prove useful to attempt to derive this figure by building up an accounting statement on the lines of account 5 in the example in Chapter III². An alternative approach is possible in some countries through the use of tax valuations. On this basis the problem is to estimate first the gross rentals from houses, and in certain cases, as, for example, in the United Kingdom, owner-occupied houses will be included in the returns, and then to deduct from the gross rentals a figure equal to the expenses and charges incurred by the owner. This figure has then to be divided between persons and business enterprises, since in some countries a substantial proportion of dwellings is owned not by individuals but by property companies. It may be objected that this method will not give an accurate reflection of actual rents paid or actual receipts from rents since the basis of valuation for tax purposes is frequently a "normal" rental rather than the rental actually paid. The danger is particularly great if comparisons are to be made for different regions within a country, since, as happens in the United Kingdom, these different regions may vary in their administrative prac-

¹ See items 4(c) and (d) below.

² See above, page 46. This procedure is adopted in the Canadian estimates, though a separate figure is not published. The many sources used are described in detail in *loc. cit.*, page 21. A brief account of American procedures can be found in "Rents in the United States. 1929-1944". by D. B. YNEMA, in *Survey of Current Business*, March 1946. pages 16-20.

tice, some preferring high valuations and low rates of tax and others preferring low valuations and high rates of tax. While this objection is valid, it may be noted that the use of this source of information, which, in some cases, is the only one available, need not lead to any inconsistency in the accounts but only to an error equal to the difference between the valuation and the true rental on each side of the account.

1 (e) *Dividends and Withdrawals.*

This item will usually have to be based either on tax data or on an analysis of company accounts supplemented by separate investigations into the earnings of unincorporated enterprises such as agriculture, retail trade and the professions. In some countries where taxes are levied on dividends rather than on total corporate earnings¹ it will be this figure rather than the figure of total profits which can readily be estimated, but in other cases, it will be necessary to make a separate calculation for profits retained in the enterprise before a figure for dividends can be obtained.

Company accounts present great difficulties of interpretation partly because they do not adopt uniform definitions and partly because the basis of valuation of certain items entering into the calculations of profits is left obscure. There is the further difficulty, which is shared by tax data where assessment is made on profits of an earlier year, that company reports relate essentially to a past period of trading and there is accordingly the problem of ascertaining the current position which can only be done on the basis of sample information from such companies as are willing to co-operate in the enquiry.

Agriculture and, in some countries, other types of unincorporated enterprises provide problems of their own because the basis of assessment for tax purposes is different from that adopted for other forms of business enterprise. For example, until the early years of the recent war, farming profits in the United Kingdom were wholly assessed on the annual value of the farm. Accordingly, alternative information was needed and this was provided by calculations of the operating account for all farms combined. An attempt was made by various investigators to compare sales proceeds and other receipts with the costs and charges of farm operation so as to obtain profits as a residual figure.² An alternative, or perhaps supplementary, method of approach is to collect returns from a sample of farms keeping accounts and to raise the figure of profit derived in this way to a total for all farms by multiplying it by an appropriate factor. There is always the danger in this case that the farms keeping good accounts will not be representative, but it may not be possible to avoid this danger, which in any case may contribute only a small error to the total of income from all sources.

The preceding paragraph relates more directly to a discussion of item 13 (c) below, but it has been included here since it will frequently be necessary to regard all farm profits as entrepreneurial withdrawals. The reason is that there will often be no meaning in an attempt to divide these profits between withdrawals and sums retained in the business since there is no clear line of distinction between the farmer in his personal and business capacities. We have already seen the other side of this problem where an attempt is made to set up a capital and reserve account for different sectors of the economy. Where, however, we are content, as in this example,³ to set up an account of the sources and uses of saving for the economy as a whole no difficulty need arise.

2 (a) *National Debt Interest.*

The total figure of national debt interest can normally be obtained without difficulty from the accounts of public authorities. It should be noted that the interest to be included under this item relates only to interest on so-called dead-weight debt and not to the interest paid in respect of the productive assets of public authorities. In most countries, a difficulty will arise in

¹ As was the case in the Netherlands before the war. See "A System of National Book-Keeping" (1946), page 11, by J. B. D. DERKSEN, being Occasional Paper X in the series of the National Institute of Economic and Social Research, London.

² Official estimates for the United Kingdom have not been published, but the kind of problems involved can be seen from "The Financing of British Agriculture", by M. G. KENDALL, in *Journal of the Royal Statistical Society*, Vol. CIV, Pt. II, 1941, pages 111-135.

³ See table 7, page 15 above.

determining how far this debt interest is paid to persons as opposed to enterprises, for example, owing to the fact that the beneficial ownership of government securities is rarely known. This fact provides a further reason why all property income may have to be shown in a single item in this account as it is, for example, in the British official estimates.

2 (b) *Other Transfer Payments from Public Collective Providers*

These payments can be obtained from the accounts of public authorities provided that one has sufficient knowledge of all the transactions of this kind involved. This knowledge can only be obtained as a rule by the detailed study of the entries in the accounts themselves.¹

2 (c) *Social Security Benefits*

This item can be built up in the same way as the preceding item.

2 (d) *Contingency Claims*

This item, which is principally based on claims which are made by individuals against businesses, is difficult to estimate and will normally have to be based on a study of the accounts of accident insurance companies. It is probably a small item and is recorded in the statement in the report so that its existence shall not be overlooked.

2 (e) *Gifts*

There is usually little solid basis for an estimate of gifts between persons, though some information may be available from taxation records. It will therefore be necessary in some countries to omit these gifts from both sides of the account as is done, for example, in the case of the British official estimates. Remittances received from abroad are frequently available in connexion with balance of payments records, but other gifts to persons, for example from businesses, cannot as a rule be estimated with any precision.

2 (f) *Capital Transfers from Abroad.*

This item is frequently difficult to estimate since, in many cases, it is not shown specifically in balance of payments estimates. In some countries, however, particularly those with a tradition for engaging in business abroad, it may well be of considerable importance.

4 (a) *Payments to Factors of Production*

This item is composed of payments for direct services such as those rendered by domestic servants. It will frequently involve a measure of imputation for income in kind—e.g., board and lodging. The problems of measuring this type of remuneration have been indicated under 1 (a) above.

4 (b) *Purchases of Goods and Services from Productive Enterprises*

It is impossible to give any general prescription for estimating the components of this item.² In some cases, it is possible to make direct estimates of the sales to consumers of certain goods and services, while, in other cases, it is necessary to build up an expenditure figure from estimates of prices and quantities. In most countries, regular returns of sales of the kind needed here will be rare and if sales figures can be used it will usually be necessary to regard them as an index

¹ A detailed statement of transfer payments in Eire is to be found in *loc. cit.* table 28, page 72.

² See "The Impact of the War on Civilian Consumption in the United Kingdom, the United States and Canada" (1945), especially appendices III to X, pages 87-139, for a description of the multiplicity of methods and sources used in compiling the estimates for these countries. This report, which was the work of a special combined committee set up by the Combined Production and Resources Board, has been published in both London and Washington.

to be related to the actual value of sales in some base period as determined, for example, from a census of distribution. The advantage of direct sales records is that it avoids the necessity of making adjustments for changes in stocks which, in principle at least, cannot be avoided if the estimates are built up from production statistics. On the other hand, the sales figures will frequently relate to the total sales or at least the total sales through retail channels of the goods and services in question, and, in some cases therefore, the problem of consumer allocation will arise. This is the case, for example, where statistics of passenger receipts are used as a measure of payment for railway services. In most cases, a considerable part of these passenger receipts will be paid for out of business or public authority income and an appropriate deduction will therefore have to be made from the gross figures.

Where no basic data derived from a census of distribution are available it will in some cases be necessary to build up a base figure from production statistics. This involves both the problem of consumer allocation and also the problem of adding suitable margins to raise the factory price to the average price paid by consumers.

In other cases, estimates have to be based on figures for prices and quantities. In certain instances, this may be a relatively simple matter; for example, in the case of taxed commodities we shall frequently have figures for withdrawals and may not find it difficult to obtain series of average prices. This is the case in many countries with alcoholic beverages and tobacco. It may be noted that estimates obtained in this way are not ideal since expenditure is measured at the point at which the tax is paid rather than the point at which the consumer makes his purchase. In normal times, and if we are interested in annual estimates, this method is not likely to involve great inaccuracy, but at other times, for example in war time, a cumulative change in stocks at the retail level may cause a systematic error in the estimates. Another source of error arises if figures of withdrawals are used to make short period estimates, say on a monthly basis, for, in this case, the trades' expectation about changes in duty may cause the monthly figures to show a great irregularity particularly in the months just before the budget.

Many estimates of expenditure obtained from figures of prices and quantities will involve much more difficult problems. For example, if foodstuffs have to be estimated in this way it will normally be necessary to trace the quantities from their source in production or imports. In the case of production, it will be necessary first to separate out quantities retained by the farmer from quantities sold outside the farming industry, and to divide the first of these amounts between the quantity consumed by the farm household and the quantity used for other farming purposes or converted into other products. The amount sold will then have to be divided between that part which goes direct to final buyers and that part which is used as an ingredient in the manufacture of other products. Finally, a consumer allocation will have to be made of the amount sold to final consumers, and it may even be desirable to divide the figure between the amount sold to consumers' households direct and the amount going to hotels and other caterers. Thus, in the absence of suitable sales statistics, a very elaborate analysis will frequently have to be made, the basis of which will necessarily differ from country to country with the statistical records available.

Certain difficulties arise in attempting to avoid overlapping and double counting. For example, in some countries it is not possible to make a direct estimate of expenditure on certain services such as hotel services. Where this is the case it is necessary to arrange matters so that the purchases of goods and services by hotels are included in their appropriate categories along with purchases by households, and in addition there must be included in the estimates a figure for the service charges comprising wages, salaries and profit arising in the hotel industry itself. This method of estimation is far from ideal, but may be unavoidable owing to lack of data. A problem of a different kind arises in adjusting the figures of sales within a country to sales made out of the consumers' income to the normal residents of that country. This adjustment is important in countries with a large tourist industry since, in this case, the sales of consumer goods and services may greatly exceed the amount of such goods and services sold to normal residents.

The treatment of second-hand goods frequently gives rise to difficulty because of lack of information. The estimate here should include only the cost of handling and repairing these goods and from the gross profits of their sale there should be deducted the amounts paid by the

trade to the persons from whom the goods were bought. In many cases, it will only be possible to make a rough adjustment for these items.

Another method of approach to the measurement of consumers' expenditures is through the collection of family budgets. This method was adopted for example for many classes of goods and services in the estimates for the Netherlands in 1938.¹ The use of budgets in this connexion gives rise to difficulties partly because of the need to form an estimate for the annual period adopted in other connexions, and partly because of the need to derive estimates for the whole body of consumers, a task which is frequently complicated by the extreme skewness of income distributions coupled with the difficulty of obtaining unbiased information, especially from the well-to-do. An example of a large-scale study from which estimates of aggregate expenditure on different classes of goods and services have been derived is provided by the National Resources Committee study relating to the United States in the year 1935/36.² Even where budget studies are not exclusively relied on they will be found of the greatest value as supporting material.

4 (c) *Bank, etc., Charges; Actual and Imputed*

This item can only be derived from the accounts of financial intermediaries of which ordinary commercial banks are the most important in this connexion.

4 (d) *Payments Equal to the Cost including Profit of conducting Personal Insurance Business and Private Pension Funds*

This item will have to be based on an analysis of insurance company and pension fund accounts. In some countries, comparatively little is known about private pension funds, but information is frequently available about insurance companies and particularly life assurance company expenditure which is of special importance in connexion with this item. A practical difficulty which is frequently met is that the records of assurance company expenditure sometimes include sums used to write down the value of securities without these sums being separately disclosed. The adjustment needed in such cases is frequently small, though it may be important in certain years, for example in 1931 in the United Kingdom.

4 (e) *Fees Paid to Public Collective Providers*

This item can usually be obtained from the accounts of public authorities, the principal difficulty being the question of consumer allocation. It is normally a small item since payments to public authority enterprises such as railways or electricity works are not included here.

5. *Transfers from Enterprises in Respect of Bad Debts*

As a rule, very little information will be available on this subject and it will therefore call for a special sample investigation.

6 (a) *Gifts and Fines*

Gifts have already been discussed above, and fines can be obtained from the records of public authorities.

6 (b) *Direct Taxes*

Total direct taxes can be obtained from the records of public authorities and it is only necessary to make a deduction for taxes paid by other sectors of the economy where, for example, a given tax such as income tax is paid both by persons and by businesses. Such an allocation will frequently not be made in the tax records since, for example, in the United Kingdom, companies

¹ *Loc cit.* page 12.

² See "Consumer Expenditures in the United States" (1939), published by the United States Government Printing Office.

are responsible for income tax in respect of their profits independently of whether or not they are distributed. Accordingly, in such a case it is necessary to estimate the tax paid in respect of undistributed profits and to deduct this sum from the total receipt from the tax.

Direct taxes are a good example of the divergence between private accounts which are normally on a payable basis and government accounts which are normally on a payments basis. Because of this the figures of tax receipts will relate to a sum of money received in a period and not necessarily to the amount payable in that period. The difference will in part be due to arrears of payment or advances; but for some purposes it is desirable to take account of a further difference arising from the method of assessment. Thus we may wish to compute what tax is payable on current incomes at current rates of taxation whereas the figures of tax payable are assessed not on current income but on the income of some earlier period. Where this is the case, separate calculations based on tax records will have to be made, but, in general, they should not present any special difficulties.

6 (c) *Contributions to Social Security Funds.*

There should be no difficulty in estimating this item from the records of public authorities.

7 (a) *Direct Saving.*

This is an item which, in many countries, cannot be estimated directly and must therefore be obtained as a residual — the excess of income over outlay. In principle, however, it can be separately estimated from the identity, saving = net capital formation + lending — borrowing. The problem is therefore to estimate the three terms on the right-hand side of this equality, for persons. In some cases, a figure of lending — borrowing through certain channels may be known; for example, we may have estimates of the net sums placed in banks by persons or again of the net purchases of certain government securities by persons. The latter information will normally only be available in cases where a particular type of security can only be purchased by persons because of the difficulty of knowing the beneficial ownership noted above. Again, it will frequently be possible to estimate the net sums invested in such undertakings as building societies but, as a rule, no information will be available of net changes in security holdings or certain other forms of claim, such as mortgages. An attempt to estimate saving in this way calls for information in a field in which in most countries statistical recording has been very little developed. The work done by the Securities and Exchange Commission in the United States indicates the possibilities of direct measurement in this field.¹

7 (b) *Saving via Insurance and Private Pension Funds.*

This item can only be based on an analysis of insurance company accounts which, as explained above, is needed for other items in this table.

RELATION BETWEEN PERSONAL INCOME AND NATIONAL INCOME

(See Table 2 in Section 8 of Sub-Committee's Report.)

II. *Undistributed Income arising from Property of Enterprises of All Kinds*

The possible sources of information on this item have already been discussed in connexion with item I (c) above. Different bases of estimation are usually necessary for corporate undistributed income and the income retained in unincorporated enterprise. The item presents considerable difficulties, particularly where the estimate is based on tax data, because of various adjust-

¹ Data are published quarterly in a special release entitled "Volume and Composition of Individuals' Saving" and in the *Statistical Bulletin*. A description of the method used by the Securities and Exchange Commission in making this estimate of saving can be found in an article entitled "The Volume and Components of Saving in the United States, 1933-1937", by R. W. GOLDSMITH with the assistance of Walter SALANT, in *Studies in Income and Wealth*, Volume III (1939), pages 215-293. This description may not be fully up to date, but it is believed that the present estimates are still compiled on similar lines.

ments which are frequently made in arriving at the assessments of profits as a whole. For example, in the case of the United Kingdom it is possible for an enterprise earning a profit in a year to charge against that profit any accumulated losses made over the preceding six years. If there is no profit, the preceding years' losses are carried forward to a future year. Where a loss is made, the assessment shows not the amount of the loss but simply zero. Accordingly, the figures of the profits contained in British income-tax statistics require to be adjusted by the addition of the excess of current business losses over past losses charged to this year's income. In a similar way, depreciation can also be carried forward if in any year it cannot be fully allowed because insufficient profits have been earned. In addition to difficulties of this kind there is the question of the definition of profits for tax purposes. In the case of the United Kingdom, profits may broadly be defined as receipts minus costs plus the excess of the value at the end of the period over the value at the beginning of the period of stocks and work in progress. Quite apart from difficulties arising from alternative bases for the valuation of stocks it is desirable from an economic point of view that profits should be so defined as to exclude inventory profits—*i.e.*, profits arising through the effect of a rise in prices on the average stock as opposed to a rise in the quantity of stock valued at the average prices of the period. For this purpose, therefore, it is desirable that a separate estimate of inventory profits should be made and this is likely to give rise to the greatest difficulty partly because basic information for such an estimate is, in most countries, inadequate and partly because of the difficulty of knowing precisely what basis of valuation is implicit in the profit figures derived from tax records.¹

12 *Income from Property accruing to Public Authorities.*

It should be possible to obtain this item from the records of public authorities, but, in some cases, it will not appear in at all a straightforward manner.

NATIONAL INCOME, NET PRODUCT AND EXPENDITURE

(See Table 3 in Section 8 of Sub-Committee's Report.)

14 *Income Shares*

The problems of estimating these items have already been discussed above. As they appear in this table, interest and profits should give rise to less difficulty than in the case discussed above, since no problem of the allocation to different sectors of the economy arises.

16 *Net Products*

For any branch of activity the net product is the sum of the incomes received by the factors of production including operating profit. Accordingly, in principle, the items in this column can be obtained from a rearrangement of income shares and, in some cases, it will be possible to obtain a double classification which can be added up in either way. Thus, for example, in the United States income shares and net products are based on essentially the same basic data, so that the two totals agree without further adjustment. In other cases, it will be necessary to build up the figures for different industries by different methods. In some cases, it will be possible to obtain at least part of the information from censuses of activity and, in a few cases, it will usually be possible to obtain all the information required from published accounting data. This will be the case, for example, with public utilities which in the interests of public control are required to publish detailed accounts on a common basis.

An alternative method of approach is to start off with the gross product or sales proceeds and deduct the various items of cost such as materials and services purchased, depreciation, etc., which do not give rise to income within the branch of activity in question for those engaged in it.

¹ A description of inventory statistics and the problems to which they give rise is to be found for the United States in "Outlay and Income in the United States, 1921-1938" (1942), by H. BARGER, appendix C, pages 307-333. This study is volume IV of *Studies in Income and Wealth*, published by the National Bureau of Economic Research, New York. Further information is available in the works of KUZNETS, to which BARGER makes reference.

21 (a) *Domestic Net Capital Formation of Persons.*

In accordance with tradition and as the accounts are drawn up in this example this item relates only to land and buildings and comprises the expenditure on land, buildings and alterations to buildings owned by individual landlords rather than by business enterprises. In many cases, it will not be easy to provide a separate figure for this item and it will therefore have to be included under item 21 (c) below

21 (b) *Domestic Net Capital Formation of Public Collective Providers*

It should be possible to obtain this item from the accounts of public authorities, though additional analysis is necessary where capital expenditure is not shown as a separate item. A further difficulty arises in that, in many cases, public authorities do not provide for the depreciation of their property and accordingly an estimate of this has to be made. For example, local authorities in the United Kingdom do not make any specific allowance for depreciation but they provide for the repayment of loans in respect of capital expenditure over the life of the assets purchased out of these loans. Since almost all capital expenditure by these local authorities is made out of loans in the first instance, the figures of repayments to lenders and transfers to sinking fund can be used as a rough approximation to depreciation allowances. A more satisfactory treatment would involve a direct estimate of the assets of public authorities and the rates at which they were being worn out

21 (c) *Domestic Net Capital Formation of Business Enterprises*

In the absence of complete accounting records of business capital expenditure, it is necessary to build up this total from a variety of sources. In some cases, estimates can be based on accounting records as in the case of a number of public utilities such as railways and electricity works in the United Kingdom. For the remaining part of the field it will usually be necessary to build up estimates of gross capital formation from production or similar statistics and from this total to deduct estimates of allowances for depreciation. In the case of construction, it is frequently possible to arrive at the estimates on this basis but difficulty is often experienced in the case of durable equipment.

Information on the methods of estimation employed in Canada can be obtained from the study already cited.¹ In the case of the United States, also, the procedures are too complicated to be summarized here, but an indication of the methods used in the official estimates, possibly not fully up to date, can be obtained from various sources.² For Eire, an estimate of gross capital formation in fixed capital and inventories is made by first estimating goods available for home use and then deducting consumption goods from this series.³

Inventories usually present considerable difficulty owing to lack of data. Ideally, what is required is an estimate of the change in the quantity of each commodity held in stock and of all

¹ *Loc cit.*, page 24, in respect of depreciation allowances and pages 25-26 in respect of gross private investment at home in durable assets. For further details reference should be made to "Public Investment and Capital Formation" (1945), prepared for the Dominion-Provincial Conference on Reconstruction.

² See "Construction Activity in the United States, 1915-1937" (1938), prepared under the direction of I. J. CHAWNER and issued as No. 99 of the Domestic Commerce Series. A number of articles, listed below in the order of their appearance, are given in the *Survey of Current Business* and deal with estimates of plant and equipment as well as construction:

(a) "Capital Expenditures in Selected Manufacturing Industries", by I. J. CHAWNER, December 1941, pages 19-26
 (b) "The Gross Flow of Finished Commodities and New Construction, 1929-1941" by W. H. SHAW, April 1942, pages 13-20
 (c) "Capital Expenditures in Selected Manufacturing Industries, Part II", by I. J. CHAWNER, May 1942, pages 14-23
 (d) "Plant and Equipment Expenditures of United States Business", by I. FRIEND and I. J. PARADISO, January 1946, pages 17-19. This article deals with the information obtained through the new quarterly surveys inaugurated by the Department of Commerce and the Securities and Exchange Commission

³ *Loc cit.*, pages 28-29

work in progress valued at the average price-level of the period. This information is not as a rule available on a comprehensive basis though it could, in principle, be obtained in part, at any rate, from an annual census of activity. It is necessary, therefore, to base the estimates of this item on the results of sample enquiries.

It may be convenient at this point to link up this inventory item with the complementary item on the other side of the account. If we denote price by p and quantity by q , then the change in the value of inventories may be written as Δpq . This change may be subdivided into two parts. First, there is the one with which we are directly concerned in this section, $p \Delta q$, which indicates the value of the quantitative change in inventories and is an item of capital formation. Second, there is $q \Delta p$, which indicates the total quantity of inventories multiplied by the change in price and represents the element of inventory profit referred to above.¹ Since $\Delta pq = q \Delta p + p \Delta q$, approximately, these two components make up the total change in value, except for a term $\Delta p \Delta q$ which can usually be ignored. It may be noted that each is expressed in current money terms and accordingly is capable, at least in principle, of being reduced to terms of constant prices.

Since continuous records of the type required are not as a rule available, it is necessary to base inventory estimates on information relating to stocks and prices at distinct points of time separated as a rule by the usual accounting period of a year. The component $p \Delta q$ could be measured, for example, by multiplying Δq by the average of p at the beginning and end of the period. A less satisfactory approximation, but one which would probably be easier if the calculations were to be done internally firm by firm, would be to use simply the starting value of p rather than the average.

If the first of the above methods is adopted and if points of time are denoted by 0, 1, 2, ... then the approximate equality given above may be written

$$\frac{1}{2} \sum \Delta q_1 (p_1 + p_2) + \frac{1}{2} \sum \Delta p_1 (q_1 + q_2) = \sum p_2 q_2 - \sum p_1 q_1$$

where the summation is over all commodities and Δq_1 , for example, means the change in q between the time points 1 and 2. Since differences are involved in this expression it will be convenient to use the Marshall-Edgeworth formula. Thus, the price series for the first term might be taken as

$$\frac{\sum q_1 (p_1 + p_2)}{\sum q_1 (p_0 + p_1)}$$

where the complementary quantity series would appear as

$$\frac{\frac{1}{2} \sum \Delta q_1 (p_1 + p_2) \sum q_1 (p_0 + p_1)}{\sum q_1 (p_1 + p_2)}$$

Corresponding quantity and price series for the second term can be obtained by interchanging p 's and q 's throughout.

The basis of valuation used for p may be either cost or market price and for present purposes it is desirable that cost or an average of cost at different dates should be adopted. If, however, an attempt is made to adjust existing profit figures so as to exclude inventory profits, then clearly the basis adopted in the valuation of profits must be followed. This is frequently cost or market price, whichever is lower, and the implied price indices are therefore capable of moving in a very irregular way.²

Some information is available on the methods adopted in Canada³ and the United States⁴ in dealing with these items.

¹ See page 105 above

² See, in this connexion, "Valuation of Stocks and National Income", by T. BARNA, in *Economica*, November 1942, pages 349-358

³ *Loc cit.* pages 26-27.

⁴ See the following two articles in the *Survey of Current Business*:

(a) "Business Inventories in the War Period", by F. C. MURPHY and L. J. PARADISO, June 1942, pages 6-12.
 (b) "Estimates of Annual Business Inventories, 1928-1941", by W. D. HANCE, September 1942, pages 13-19.

22. *Net Expenditure by the Rest of the World on Goods and Services.*

In the absence of any comprehensive records of transactions with the rest of the world, this item will have to be built up from a number of sources of which foreign trade statistics are as a rule the most important¹ In addition to the goods recorded in trade statistics, it is also necessary that services such as shipping services should be included and in cases where it is important that an adequate allowance should be made for the expenditure of tourists from abroad. This last item, though frequently not of great importance, is particularly difficult to estimate. It usually requires a special sample enquiry.

23. *Insurance Claims paid to Enterprises, etc.*

This item requires the analysis of insurance accounts together with information on the allocation of claims paid. Transfers to insurance reserves in respect of business policy-holders will not as a rule be an important item since the greater part of insurance reserves is built up in connexion with individual life assurance.

25. *Indirect Taxes Net of Subsidies*

It should not be difficult to obtain this item from the accounts of public authorities

26. *Social Security Contributions of Employers*

It should not be difficult to obtain this item from the accounts of public authorities. It may be noted that the contributions of public authorities in their capacity as employers should be included here whilst their general contribution to social security funds should not.

INCOME PAYMENTS

(See Table 4 in Section 8 of Sub-Committee's Report)

The items in this table do not give rise to problems of estimation additional to those which have already been discussed in connexion with earlier tables.

RELATION BETWEEN NATIONAL INCOME AND GROSS NATIONAL PRODUCT

(See Table 5 in Section 8 of Sub-Committee's Report)

34. *Depreciation and Obsolescence Allowances.*

Several problems of estimation arise in connexion with this item. In the first place, it is necessary to distinguish renewals and replacements, for which these allowances are required, from maintenance and repairs, the cost of which is charged direct to current operations. It can be seen that by including producers' goods of shorter and shorter durability the total for this item can be extended almost without limit. It is difficult to fix a division based purely on the durability of the equipment and for practical reasons it will usually be necessary to adopt the basis either of company accounts or tax records, since these form the principal source from which these allowances can be estimated, at least for the private sector of the economy. The use of tax records leads to difficulties in international comparisons in so far as different countries adopt different bases on which to reckon the allowances. In the United Kingdom, for example,

¹ Estimates of transactions with the rest of the world have been brought to a high degree of excellence in Canada. For a discussion of problems and methods, which is by now out of date in some respects as a guide to current procedures, see *The Canadian Balance of International Payments* (1939), issued by the Dominion Bureau of Statistics. See also the more recent official statements of the Canadian balance of international payments issued by the Ministry of Trade and Commerce.

a wear-and-tear allowance varying with the type of asset is granted in the case of plant and equipment. In the case of buildings, on the other hand, no such allowance is granted, but instead a percentage of the gross return is allowable in respect of maintenance and repair. It is probable that the actual sums allowed are more than is required for year-to-year maintenance purposes and this allowance therefore in effect makes provision for the ultimate replacements as well.

Apart from the difficulties of international comparison, problems also arise in comparing the year-to-year changes where tax records are used. In the case of the United Kingdom, for example, the figure for wear and tear allowances reflects only the allowances which can be charged, because there is a profit against which to charge them. If in any year there is no profit, that year's allowances are carried forward and charged against profits earned within the next six years. As a consequence of this, the actual figures of allowances for wear and tear reflect not what is chargeable in any year but what is actually charged, and there is a systematic difference between the two depending on the extent to which losses are being made. Again, increases in the rates at which allowances are granted were given in 1930/31 and in 1938/39 on such terms that they represent not an increase in the sums ultimately allowed but a reallocation over time of the total deductions in respect of the assets in such a way that more is allowed in the present and less in the more distant future. Such changes introduce discontinuities in the series of allowances which are due to administrative changes and not to underlying conditions.

Income-tax allowances are usually based on the written-down value of the assets and provide over the lifetime of the assets a sum of money equal to the original cost. From the present point of view, it may be thought that this is an inadequate measure of depreciation since it takes no account of the fact that a different sum of money may be needed to replace the original equipment when it wears out. This may be due either to a change in the price of the equipment or to technological changes which affect the way in which the equipment is replaced. An attempt is sometimes made to adjust allowances on a cost basis so that they reflect changes in replacement cost, but this can only be done by means of a special enquiry into changes of the prices of equipment and the dates at which equipment has been installed¹.

Company records, apart from the fact that they will not as a rule cover the whole field, also present difficulties partly because the allowances will sometimes be unduly conservative and partly because other payments to reserves may be included in the figure for depreciation. Thus, it will frequently be found that an attempt to calculate net capital formation from company records will lead to unduly low figures, although, of course, this may not be true for certain individual companies. It must always be realized that depreciation accounting is not universally adopted and some enterprises allow for capital wastage on a replacement basis—that is to say, they make no annual allowances for the wearing out of equipment but charge replacements direct to current operations. In the United Kingdom, at any rate, this is a fairly common practice among public utility undertakings, and, in their case, it is not possible to change the basis of allowances from the one adopted both in their accounts and for purposes of income tax.

A further difference in the basis on which allowances are calculated occurs in the case of many public authorities—for example, in the United Kingdom local authorities do not depreciate their assets nor do they distinguish replacements in their accounts.² Another example is given by the British General Post Office. In this case, additions to capital equipment are charged to loan account. Where a new piece of equipment is partly in replacement of one already in existence, an allocation is made of the capital expenditure between that attributable to the replacement of the old equipment and that which represents a net addition. The former is charged not to loan account but to the Post Office Vote. In addition, maintenance and repair expenditure is shown separately and charged against current operations. Thus in the accounts of the General Post Office it is possible to separate replacements both from maintenance and from net additions, and these replacements are the best estimate that can be made from the published figures of the wearing-out of equipment. Thus it can be seen that differences in accounting procedure make it impossible to achieve a perfectly uniform estimate of this item for all parts of the economy.

¹ For a detailed treatment of this subject see "Capital Consumption and Adjustment" (1938), by S. FABRICANT, published by the National Bureau of Economic Research, New York.

² See page 61 above.

In Canada, several different methods are used.¹ For some sixteen major industrial groups information is available for the years 1941-1943 from a questionnaire on capital expenditures and depreciation. These figures are projected backwards on the basis of a sample of corporate accounts. In the case of a number of utilities and certain other branches of activity, special information is available. No attempt is made to estimate depreciation on government non-commercial assets.

EXPENDITURE CLASSIFICATION OF THE GROSS NATIONAL PRODUCT

(See Table 6 in Section 8 of Sub-Committee's Report)

The items in this table do not give rise to problems of estimation additional to those which have been already discussed in connexion with earlier tables.

SAVING, CAPITAL FORMATION AND NET LENDING TO THE REST OF THE WORLD

(See Table 7 in Section 8 of Sub-Committee's Report)

44 (a) *Saving by Enterprises of All Kinds*

This item is principally composed of the undistributed profits of enterprises and, in the light of arguments already given, should perhaps be confined to corporate enterprises since as a rule it will not be possible to split the surplus of unincorporated enterprise between business and personal saving. Allowance, however, must also be made for certain other additions to reserves which will enter into the year-to-year changes in saving, though over long periods they will tend to cancel out.

An alternative approach to the estimation of this item through the measurement of lending, borrowing and capital formation has already been indicated in the discussion of personal saving (item 7 (a) above). This will normally present difficulties even though corporations, unlike private individuals, show the changes in their assets and claims on their published balance-sheets. The reason is that these balance-sheets reflect changes in valuation as well as cash gained or lost through the sale or purchase of assets and claims and accordingly the differences in balance-sheet values will not reflect saving as it is defined here.

47. *Net Lending to the Rest of the World*

This item may, in principle, be measured in one of two ways: either through an estimate of the net balance of current transactions with the rest of the world, or through an estimate of the net capital balance or net change in capital movements. In the United Kingdom, the first method was adopted before the war when an estimate of the balance of payments on current account was regularly made. Under war-time conditions, however, it proved impossible to continue on this basis, but the control of capital movements made it possible to prepare estimates on the second basis. As a rule, transactions with the rest of the world give rise to particular difficulties and it is therefore desirable wherever possible to attempt a calculation on both bases. Where this is done, it will frequently be found that further research is required to reconcile the figures, and this will lead to special enquiries aimed at filling the gaps. These gaps will differ from country to country, and it is difficult to offer any general observations on this topic. It may be noted, however, that one source of difficulty arises from the fact that it frequently happens that some of the estimates are on a receipts-and-payments basis whereas others relate to the transmission of goods and services and therefore accord with the receivable-payable basis required. This problem, which arises in other cases and, in particular, in integrating the accounts of public authorities which are usually on a receipts-and-payments basis, will often be found in an extreme form in dealing with foreign transactions.

¹ *Loc cit.*, page 24.

COMBINED OPERATING ACCOUNT OF ENTERPRISES OF ALL KINDS

(See Table 8 in Section 8 of Sub-Committee's Report)

The importance of this account is that it brings together all the transactions involved in the current operations of enterprises and this provides information on an important sector of the economy which is not represented in a pure form in the national aggregates so far considered. It will be seen that if an account on the lines of this table can be drawn up for each branch of activity which it is wished to distinguish then the contribution of productive enterprise both to income payments and to the national product can be calculated. The account, however, goes beyond what is needed for this specific purpose.

49. *Sales Proceeds, etc.*

The total for this item can usually be built up for different branches of activity from accounting records or from censuses of activity. The principal difficulty arises in attempting to divide these proceeds between the different types of purchaser and, in particular, in separating sales of domestic enterprises from other sales. Thus, in many cases, censuses of activity will show materials purchased but they will not show how far these materials are imported. Further, in most cases, no information will be recorded in respect of services purchased. This is a gap which will have to be made good if a table of this kind is to be drawn up.

CONSOLIDATED ACCOUNT OF SOCIAL SECURITY FUNDS AND PUBLIC COLLECTIVE PROVIDERS

(See Table 9 in Section 8 of Sub-Committee's Report)

In principle, it should be possible to build up the items in this table from the accounts of the public authorities. The problem which usually arises in this connexion is that public authorities normally keep their accounts on a receipts-and-payments as opposed to a receivable-payable basis as normally used by other sectors of the economy. This gives rise to a problem of integrating public authority accounts into the system.

In some cases, the normal government accounts will relate to receipts into and payments from the exchequer rather than to the transactions of the government with other sectors of the economy; for example, in the United Kingdom there appear, under exchequer payments, payments made by the exchequer to departments who then, out of these monies, pay for the goods and services they purchase from enterprises and individuals. In so far as the balances of the departments are changing, exchequer payments do not fully reflect government expenditure when this term is taken to include the aggregate of government agencies rather than the exchequer itself. Accordingly, the estimates of expenditure can be improved by adjusting the exchequer figures for changes in departmental balances.

The resulting figure is, however, still on a payments basis and does not necessarily reflect the value of work done as opposed to the value of work paid for by government departments. In normal times, no doubt, the difference between the two is likely to be small, but where the level of government expenditure is changing rapidly it will frequently happen that there is a considerable difference between work done and work paid for. In the early stages of the war, inevitably delays of one kind and another ensured that payments would be made some time after the work was completed, and even the introduction of progress payments did not completely close the gap. In this period, therefore, work done for government departments exceeded work paid for. At the cessation of hostilities, however, contracts were terminated and arrears paid off, so that at the present time work done is less than work paid for and government departments are gradually reducing their outstanding liabilities to contractors.

Any estimate of this difference between work done and work paid for will normally have to be made as a special enquiry from government departments. Where estimates relate to a period of rapidly changing government activity it is likely to be an important element in the integration of the government sector into the whole accounting system.

In a similar way on the receipts side it will be desirable where possible to show the receipts into the revenue department rather than the payments by the revenue department into the exchequer. In addition, however, it is desirable in principle to make an adjustment for arrears of tax liabilities so that these can be shown on a receivable-payable basis. As mentioned above, however, it is desirable in some cases to go further than this and show the increase in accrued taxation—*i.e.*, the difference between taxes payable in a period and taxes payable in respect of the income of the period. This last adjustment is not, however, necessary in putting government accounts on a receivable-payable basis, since the increase in accrued taxation in the above sense is not due in the period, the amount due being by hypothesis based on a previous year's earnings.

The principal difficulty arising in the construction of this account comes from the mass of detailed accounting records which has to be understood in drawing up a complete consolidated account. The details of all transactions into which public authorities enter is as a rule only known to specialists in the different departments concerned. In view of the great importance of public authority expenditure in connexion with employment policy, it is greatly to be hoped that Governments will be willing to arrange for a consolidated statement to be made of receipts and payments classified on economic lines as in Table 9. This is essentially a fairly straightforward business, if transactions are allocated to economic categories department by department, but becomes of the greatest complexity if this subdivision has to be made at a late stage in the published accounts by persons not directly connected with the transactions involved.

CHAPTER IX

THE ADVANTAGES OF A SOCIAL ACCOUNTING APPROACH

The advantages of a social accounting approach to national income studies may be summarized as follows:

First, even if no attempt is made to measure all the items in the working system of accounts, it enables the structure of transactions to be set out in a consistent way and therefore enables problems of logical consistency in the national aggregates to be seen clearly. It also exhibits the dependence of the definition of any money flow concept on a given system of accounts and on a given rule for combining the entries in these accounts. Most of the arbitrariness which arises in this field can be traced to the fact that a system of accounts can be drawn up in a large number of ways. It is important to realize that any particular way will not be equally suited to all the purposes for which a system of accounts may be used.

Secondly, it indicates the cross checks which arise from the inter-relatedness of sets of transactions and thus makes possible the most efficient use of the statistical information available by bringing to light the many equivalents to any given set of transactions. Thus, in the elementary example in Chapter II, a total identically equal to the national income can be obtained by forming the sum: consumers' expenditure + direct taxes + personal saving + business saving — transfer payments. In a country with good family budget material and good statistics of changes in financial claims, this approach might be more reliable than either of the more obvious ones suggested in Chapter II.¹

It can be seen that by arranging the figures in this way it is possible to reach the required total without measuring a number of transactions which are difficult to measure and which enter into the more straightforward arrangement.

Thirdly, the fact that certain relationships connect sets of transactions means that, in general, a statistical problem of adjusting discrepancies arises wherever all the items in an account or set

¹ See page 35 above

of accounts are measured directly.¹ An accounting approach indicates the nature of this problem in its most general form. By making the necessary adjustment, a consistent set of measurements is presented which is a great convenience in subsequent analysis. The importance of a set of measures is clearly apparent in connexion with both theoretical and practical problems. In investigating dynamic problems in economics by means of systems of equations it is highly inconvenient if the measurements of transactions which to a large extent form the variables for these equations are inconsistent. Again, in handling problems of economic policy it is usually necessary to see how some proposed course will react on different parts of the economic system. For this purpose, single unrelated measures, for example of the national income, are of very little value.

Fourthly, it indicates what problems of measurement must be faced if consistent treatment is to be achieved and can readily be adapted to show the implications throughout the system of any alteration of treatment.

Fifthly, it provides the groundwork for a systematic collection of information on transactions which, if adopted, would greatly increase the reliability of the estimates. This is of particular importance where up-to-date measures are needed for policy purposes. By providing a framework into which all the information has to be fed it is possible to review the whole of the material available and ensure that all the relevant evidence is used.

Sixthly, it provides a meeting-point for economic theory and practical measurement. To be satisfactory, the representation of a system of transactions must preserve certain basic theoretical distinctions and, at the same time, be drawn up in a way which permits of measurement. Thus, quite apart from subsequent analysis, the distinctions of economic theory are brought into direct contact with measurable phenomena, while the whole field of measurement is organized in terms of the concepts of economic theory.

Seventhly, the structure of transactions brought out by this approach is particularly useful in connexion with forecasting which inevitably involves a large measure of estimation and guesswork. Experience shows that, even if the system is much simplified, an attempt to fill in a complete set of accounts for a future period restricts very considerably the values of different transactions that can be expected simultaneously. A still greater restriction can, of course, be obtained if anything is known about the behaviour of the system in addition to its formal properties.

Eighthly, international comparisons are aided by the explicit writing-down of the structure of transactions since this makes possible a comparison of the main purpose of the definitions adopted and the adjustment of the estimates for different countries to a common basis of definition, at least in broad outline. At this level, the current official estimates for Australia, Canada, Eire, the United Kingdom and the United States are drawn up in more or less comparable terms and, in a rough way at any rate, any one set of figures can be adjusted to the basis of the others. Further detailed investigation on the same lines would make it possible to compare the precise content of the measure adopted for each transaction. Such a process would involve a very detailed knowledge of the method by which the estimates in different countries are compiled and would throw a great deal of light on the institutional differences which form so important a bar to true international comparability.

¹ A method for effecting the adjustment for any given system of accounts in a single period was given in *The Review of Economic Studies*, Vol. IX, summer 1942, pages 111-125. This method will shortly be extended to the more practical case of adjusting simultaneously the entries in a set of accounts over a series of years.

DEFINITION AND MEASUREMENT OF THE NATIONAL INCOME AND RELATED TOTALS

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