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Appendix VI.

**STUDIES AND REPORTS ON
STATISTICAL METHODS**

No. 4

STATISTICS RELATING TO CAPITAL FORMATION

A NOTE ON METHODS

BY THE

COMMITTEE OF STATISTICAL EXPERTS

LEAGUE OF NATIONS

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PREFACE

This pamphlet contains a preliminary study of the problems involved in the compilation of statistics relating to capital formation. The origin and purpose of this study are explained in the Report of the Committee of Statistical Experts on the Work of its Seventh Session, which is reprinted below. The note which follows that report was prepared by a special Sub-Committee, the composition of which is shown on page 5.

League of Nations,
Geneva, July 1938.

A. LOVEDAY,
*Director of the Financial Section
and Economic Intelligence Service.*

REPORT ON FINANCIAL STATISTICS

[Reprint from the Report of the Committee of Statistical Experts on the Work of its Seventh Session (document C.226.M.128.1938.II.A).]

1. On May 13th, 1936, on the recommendation of the Financial Committee, the Council of the League of Nations requested the Committee of Statistical Experts to take up the question of financial statistics, and to study and report upon the methods by which the comparability of financial statistics might be improved. The preparatory study of these questions was entrusted to a special Sub-Committee composed of some of the Committee's own members, to which were added a number of outside experts qualified for this new task.¹

2. In accordance with a suggestion made by the Financial Committee, the work in this field has been directed at the outset to a study of the "statistics relating to the formation of capital and the manner in which that capital is invested". The report presented by the Sub-Committee on this subject will be found in the Appendix.

3. The Sub-Committee's report is to be regarded as preliminary. It differs in character from the reports prepared hitherto by the Committee and its Sub-Committees, inasmuch as it does not contain any draft recommendations on statistical methods. The Sub-Committee felt that, before making any recommendations on the methods of statistics relating to capital formation, it was of particular importance to describe and to define the phenomena which the statistics are intended to measure. The Sub-Committee's report shows that the problem of capital formation is extremely complex and difficult to subject to exact statistical measurements. The Sub-Committee concluded accordingly that all it can do for the time being with reference to this subject is to help to define the problems to be studied, and to endeavour to promote effective discussion of these problems with a view to subsequent recommendations regarding the methods which would be best suited for measuring various factors entering into play in the formation of capital.

4. The Sub-Committee's report also contains an outline of its future programme of work. It has begun the study of statistics of banking, capital issues and insurance, and hopes to continue in the near future with the study of balance-sheets and of profit-and-loss accounts of other business enterprises. In addition, the Committee proposes to study the possibility of using for general statistical purposes the information collected in many countries in the course of making tax assessments.

5. The Committee proposes to deal with these statistics from the point of view of capital formation and also of their other aspects and uses.

6. The Committee hopes that the Council will decide:

(a) To communicate the Sub-Committee's statement on statistics of capital formation to all Governments of States Members of the League of Nations and of non-member States;

(b) To authorise the Secretary-General to communicate it direct to institutions and persons taking a special interest in this subject,

with a view to obtaining comments on the principles outlined and on the definitions adopted in the statement under review.

¹ This Sub-Committee was composed of the following members of the main Committee: Sir Alfred FLUX, formerly Chief of the Statistical Service of the Board of Trade, London, M. E. COHN, Director of the Statistical Department of Denmark, Dr. O. MORGENSTERN, formerly Director of the "Österreichisches Institut für Konjunkturforschung", Vienna; and the following outside experts: Dr. E. ACKERMANN, Head of the Statistical Office of the Swiss National Bank, Prof. H. CLAY, Economic Adviser to the Bank of England, M. J. DENUC, of the National Economic Department, Paris, Dr. E. LINDAHL, professor at the University of Lund, Sweden, M. F. RAVIZZA, Director of the International Thrift Institute, Milan, M. W. W. RIEFLER, of the Institute for Advanced Study, Princeton, New Jersey, M. J. J. VINCENT, Director of the Economic Intelligence Service, National Bank of Belgium. The presence in Geneva of Mr. D. ROBERTSON, Reader in Economics at Cambridge University, enabled the Sub-Committee to avail itself of his assistance at its first meeting.

APPENDIX

STATISTICS RELATING TO CAPITAL FORMATION

INTRODUCTION

By a resolution adopted on May 13th, 1936, the Council of the League of Nations

“ requested the Committee of Statistical Experts to study and report upon the methods by which the comparability of financial statistics might be improved and drew the attention of that Committee to the section of the report of the Financial Committee on the work of its sixty-first session which deals with this question.”

The relevant passages of the above quoted report of the Financial Committee read as follows:

“ In May 1935, the third International Thrift Congress, held at Paris, adopted the following resolution:

“ The International Thrift Institute is requested to study, together with the League of Nations, the statistics of thrift in the various countries and to establish what deposits can be considered as savings deposits. As a result of these studies, the Institute should offer, at the earliest meeting of the Permanent Committee, a proposal for modifications concerning the standardisation of the official statistics on thrift in all countries.”

“ The Financial Committee has given careful consideration to this proposal and, in connection with it, to the whole question of the comparability of financial statistics.”

“ The Financial Committee thinks the Council may consider it appropriate to request the Committee of Statistical Experts to extend its activities to financial statistics. If this recommendation is approved, the Financial Committee suggests that this Committee should deal first with the statistics relating to the formation of capital and the manner in which that capital is invested.

“ The Committee does not feel that, for the purpose of international comparisons, savings deposits as such—or, indeed, banking deposits as a whole—can usefully be treated separately from savings and investments as a whole, and it is for this reason that it thinks that the best method of approach would be the procedure just indicated. ”

Following the suggestion made by the Financial Committee, the Committee began its work on financial statistics relating to capital formation.¹

¹ *Note on the terminology used :*

Throughout this report the term “ capital formation ” is intended to cover the whole process from the constitution of funds by savings, etc., to the acquisition of capital goods, whether the funds are used to provide

In undertaking this study, the Committee was anxious, as a body of statisticians, to remain within the limits of its general mandate, which consists in promoting the international comparability of statistics. In particular, the Committee believes it to be beyond its task to lay down a single scheme for scientific research—national or international—in the field of capital formation. As will be seen from this report, and from the references to the work done in various countries, the problem of capital formation is extremely complex, and difficult to subject to exact statistical measurements. All an international Committee can do for the time being is to help in defining the problems to be studied, to endeavour to promote effective discussion of those problems, and to recommend the methods which, in its opinion, would be best suited for measuring the various factors involved in them.

The Committee felt that, before making any recommendations on the methods of statistics relating to capital formation, it is of particular importance to describe and to define the phenomena which the statistics are intended to measure, since in this field—even more than in other fields of economic or financial statistics—the fact that the same terms are frequently used to cover rather different conceptions may result in misunderstanding. For instance, no common agreement so far exists as to the meaning of such basic terms as “savings”, “capital”, or “investments”; their definition depends on the theoretical conceptions of different students and on the practical purposes of the study in which such terms are introduced.

The first part of the present report is therefore devoted to a description of the general features of the process of capital formation, with a view to showing the complexity of the problems involved and to arriving at a first broad subdivision of the whole field. The second part deals with the definitions and with the possibilities of a statistical measurement of the three main aspects of the problem as outlined in the first part. The third part sets out the Committee's conclusions.

PART I. — SUMMARY DESCRIPTION OF THE PROCESS OF CAPITAL FORMATION

A summary description of the process of capital formation appears to be the best manner of approaching a first broad subdivision of the numerous problems involved in its statistical measurement. The fundamental difficulty arises from the fact that “savings” or “capital” or “investments” are not conceptions corresponding to statistical units or physical units in terms of which they can be measured—like quantities of commodities produced or exchanged, or persons grouped according to different characteristics—but are conceptions deriving their bearing from the use which is made of certain amounts of money or goods. It is therefore necessary to bring out the phenomena which might be used as measurable statistical units and thus serve as elements in a numerical expression of savings, or of capital formation or of investments. A simplified picture of the relation between the various elements can perhaps be obtained by the aid of a diagram which will be found on page 9.

The course of the streams of funds from their sources to their ultimate use, so far as they are of interest for a study of capital formation, can be roughly described as follows:

First stage: Savings. — When savings are made in any country (*i.e.*, when individual households or business enterprises or public authorities set aside part of their income), these may

(a) be used for other purposes than investment within the country—*e.g.*, either exported or hoarded or transferred to other persons for purposes of consumption by them;

additions to invested capital or for maintenance and replacement of old capital. The term “capital goods” is intended to cover:

(1) Capital equipment for agriculture, industry, commerce, transport, including buildings and works of construction, etc. (referred to as “Producers' equipment”);

(2) Producers' materials;

(3) Durable equipment for consumers, including houses for private occupation (referred to as “Consumers' capital goods”).

(b) be used directly for the acquisition of capital goods;

(c) become available for investment by business enterprises, public authorities or private households.

Second stage: Funds available for investment. — Out of the three streams of money savings enumerated above, the last two become available for investment. Stream (b) goes directly to investment without passing out of the control of the saver (e.g., investment in the enterprises of the saver himself, purchase of consumers' capital goods). Stream (c) finds its way to investment through the capital market either directly or through the intermediary of banks and similar institutions.

The streams coming from savings do not, however, represent all funds available for investment. Thus the money streams leaving the banks need not be equal to savings put at the latter's disposal, as the funds supplied by banks may, in particular, have been increased as a result of an increase of the credit-base or a reduction in reserve ratios, and by funds accumulated for maintenance or replacement of existing capital goods.

Third stage: The value of newly created capital goods (money outlay for the acquisition of such goods). — The last stage of the process described consists in the actual acquisition of capital goods. Here again the money outlay for the acquisition of these goods need not correspond to the funds available for investment as described above. The difference is partly due to the time-lag between the accumulation of funds and the acquisition of capital goods, as funds may remain idle over a period. Further, parts of these funds may be used for other purposes than for the acquisition of capital goods—e.g., by business enterprises for covering losses or by Governments for paying unemployment benefits, etc.

For these various reasons, it will make a difference whether the money streams are measured at the first, the second or the third stage. This difference is partly due to the time which the various money streams require for their passage from their source to their ultimate use, and partly to the fact that some funds pass out of, and others come into, the field of the process of capital formation. The amount of money covered by statistics relating to the first stage is therefore, as the diagram shows, generally different from that covered by the statistics relating to the second or to the third stage. It should be kept clearly in mind that statistics at those different stages relate to different phenomena which need to be separately defined.

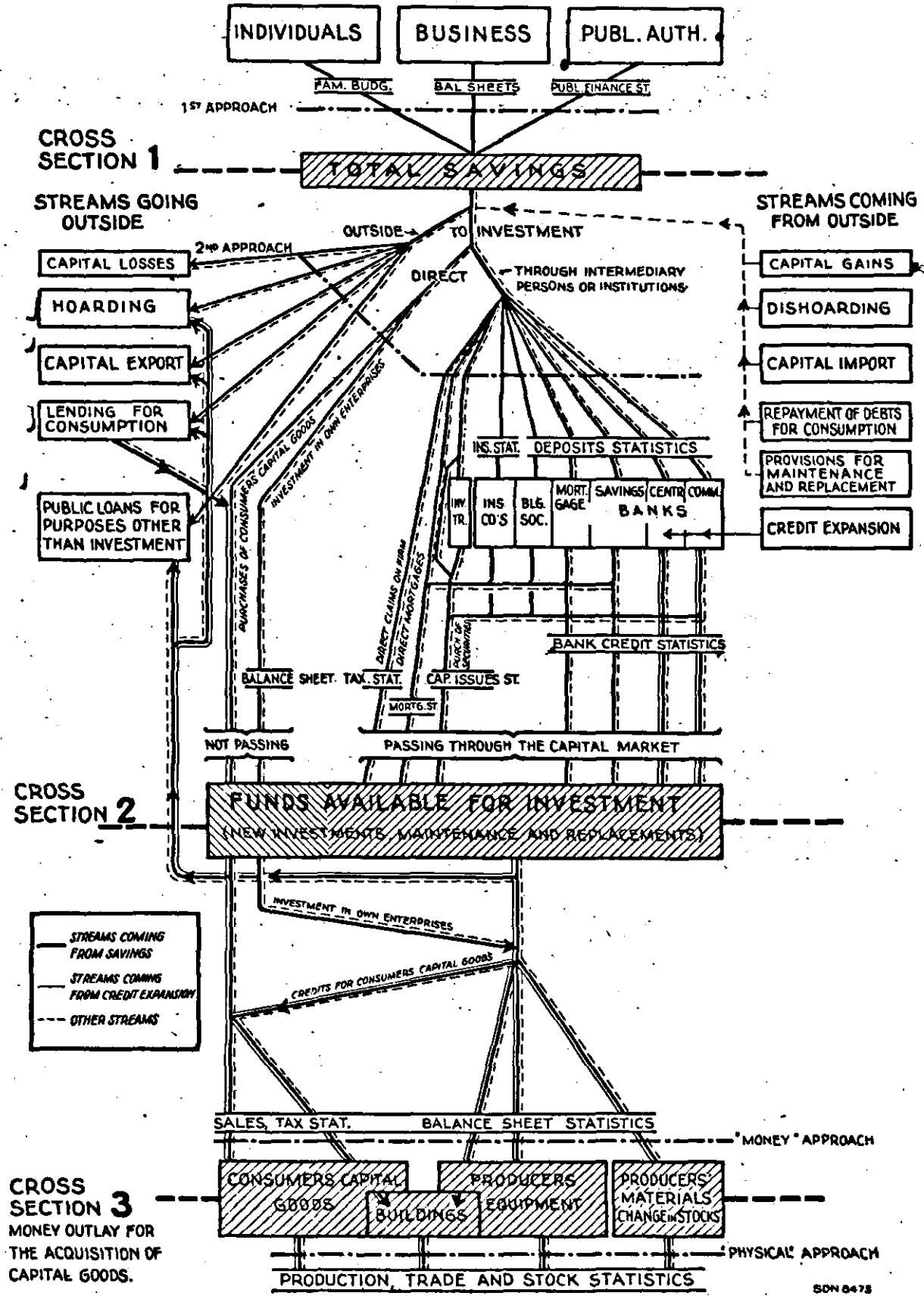
In addition, it may be emphasised that, for different problems, different streams are of importance. In some studies, the matter of primary interest is the relation between individual income and individual saving; in others, it is the total amount of savings, which includes, in addition, business savings and savings of public authorities. For the study of capital formation as a whole, however, it is the net total of all savings that is important. For the problem of the price of credit, it is of special importance to have information regarding the stream of money passing through the capital market; while for the study of capital formation as a whole, the total of funds available for investment, including funds not passing through that market, may be of more interest.

The above considerations show the complexity of the problems involved. They also show that saving and other sources of funds for investment, on the one hand, and the money outlay for the acquisition of capital goods, on the other, are not necessarily the two sides of the same coin. It appears useful, therefore, not to follow the custom of setting over against each other the two notions of "savings" and "investment", but, in accordance with the three stages described above and indicated in the diagram as cross-section "1", cross-section "2" and cross-section "3", to distinguish between the following three categories:

- (1) Savings;
- (2) Funds available for investment;
- (3) The value of newly created capital goods (money outlay for the acquisition of such goods).

CAPITAL FORMATION

SOURCES OF SAVINGS



The first two categories deal with the processes leading to the formation of capital, while the third category relates to the actual formation of capital.

Before attempting to frame any recommendations as to the statistical implements to be employed for measuring these various phenomena, the Committee has thought it desirable to state clearly what facts and problems were, in its opinion, of particular significance when fixing the lines along which statistics should be compiled for the purpose of throwing light on the process of capital formation. The Committee has therefore, in the following list, specified a number of important questions relating to the three categories distinguished in the preceding paragraph.

As capital formation is a process extending over time, all replies to these questions can, of course, only be given for a definite period of time. The most useful period may, for many problems, be the calendar year. For certain problems in which seasonal movements are of interest, shorter periods will be required; for others, longer periods—for instance, a whole business cycle—may be sufficient. The Committee has abstained at the present moment from mentioning any particular length of period in the following list; suggestions regarding the periods will, however, be included, for the relevant branches of statistics, in the final recommendations.

I. Problems of Saving.

- (1) How much is saved by individual households belonging to different income groups or different occupational or social groups?
- (2) How much is saved in business enterprises of different orders of magnitude, in different branches of industry or in different types of organisation?
- (3) How much is saved by public authorities?
- (4) What movements do aggregate savings show from period to period?
- (5) In the records of what classes of institution are savings measurable, and what is the relative importance of the several classes?
- (6) What amount of savings has been diverted to other purposes than the actual formation of capital?

II. Problems relating to Funds available for Investment and to the Capital Market.

- (1) What is the total amount of funds available for investment, and what amounts pass through the capital market?
- (2) What are the different sources of the total amount of funds for investment—*e.g.*, savings, capital imports, expansion of funds made available by banks as a result of increase of the credit base or a reduction in reserve ratios, accumulation of funds for maintenance and replacement of existing capital goods?
- (3) What are the chief agencies through whose services the demand and the supply of capital are brought together, and what is their relative importance?
- (4) How are the amounts made available through the capital market divided according to the various forms of handling capital (*e.g.*, new issues of stock-exchange securities (shares or bonds), advances on the security of real estate, and on other security, by lending institutions such as mortgage banks, building societies, etc.)?

III. Problems of the Acquisition of Capital Goods.

- (1) What are the total amounts expended, from period to period, for capital goods, distinguishing between the expenditure in respect of new investments and expenditure made in respect of maintenance and replacement of existing capital goods?

(2) How much is spent on the different types of capital goods (*e.g.*, producers' equipment, producers' materials, consumers' capital goods), again distinguishing new investments from maintenance and replacement?

(3) What amounts are invested in the different branches of industry, commerce and transport, again distinguishing new investments from maintenance and replacement?

(4) What are the different sources of the amounts spent for the acquisition of capital goods, again distinguishing new investments from maintenance and replacement (*e.g.*, own savings, funds accumulated for maintenance and replacement, funds obtained through the capital market, etc.)?

(5) What are the changes, from period to period, in the value of the national equipment resulting from the destruction of capital due to other reasons than ordinary depletion and depreciation?

(6) What are the changes, from period to period, in the value of total national equipment and of the equipment of the main branches of economic activity?

PART II. — DEFINITIONS AND POSSIBILITIES OF STATISTICAL MEASUREMENT

In the following three chapters, an attempt has been made to define the principal notions belonging to the three categories specified on page 8—namely:

- (1) Savings;
- (2) Funds available for investment;
- (3) The value of newly created capital goods (money outlay for the acquisition of those goods).

The preparation of these definitions is a task rather for economists than for statisticians. The Committee has therefore avoided, as far as possible, drawing up its own definitions; it has chosen those which it has deemed most practicable for statistical purposes and at the same time most useful for answering the questions enumerated above.

In addition to the definitions given, the possible approaches to a statistical measurement of the phenomena defined have been outlined for each category. The main object of these sketches is to show broadly what items should theoretically be ascertained in order to furnish adequate measures of the phenomena concerned.

CHAPTER I. — SAVINGS

A. *Definition of Savings.*

*A definition of savings is ordinarily dependent on the definition of income. A common definition, which is intended to cover the income of individuals, businesses and Governments, however excellent from a theoretical standpoint, may not be appropriate for practical statistical purposes, and an attempt will be made here to arrive at practical results by defining separately:

- (a) Individual savings (*i.e.*, savings by private households);
- (b) Business savings;
- (c) Savings by public authorities.

(a) *Individual Savings:*

Individual savings are that part of individual income which is not spent on goods and services for current consumption. — By individual income is meant all net remuneration such as wages, salaries, interest, dividend, rents and royalties and (for private entrepreneurs) entrepreneur's withdrawals. Income in kind should be included. In accordance with the principle followed in the statistics of the gainfully occupied population, housewives should not be considered as receiving remuneration.¹

Income in kind should, in principle, include the value of the satisfactions derived from the continued use of consumers' capital goods: this might, in practice, only be ascertainable in respect of the satisfactions derived from the occupation of houses owned by their occupiers.

Expenditure on taxation is to be regarded as current expenditure.

By "goods for current consumption" are meant all consumers' goods (including services) with the exception of "consumers' capital goods".² It appears to be advisable to include in savings the amounts spent on these latter goods. From the point of view of individual savings, for example, facts would be distorted if a household which used part of its income to pay periodic instalments in repayment of a mortgage on a house were regarded as making no savings, and another household, which was putting a corresponding part of its income aside with a view to buying a house outright, as making savings.

(b) *Business Savings.*

Business savings will be defined as the difference between net profits, after deduction of taxes, and profits distributed. — Provision made for meeting actual depreciation and for replacement are not to be regarded as savings.

The definition is wide enough to include "secret" business savings obtained by under-valuation of assets and over-valuation of liabilities. In practice, no information on "secret" savings will be obtainable, so that for practical purposes it will be necessary to regard the difference between net profits declared and profits distributed as business savings.

It may be noted that over-valuation of assets or under-valuation of liabilities, resulting in greater apparent saving than has actually occurred, must also, for practical purposes, be ignored.

Throughout this report, the term "business enterprises" is understood to cover all such establishments regardless of the form of their management. Establishments managed wholly or partly by public authorities or institutions are, accordingly, included.

(c) *Savings by Public Authorities.*

Savings by public authorities may be defined as the difference between current receipts and current expenditure. — The term "current receipts" is used as equivalent to "revenue receipts", and as distinct from "non-revenue receipts" (e.g., from loans or from the realisation of assets). The term "current expenditure" is used in the sense of expenditure for current operations plus charges for interest on the public debt and for maintenance and depreciation of existing capital goods.

Throughout this report, the term "public authorities" is understood to cover all Governments, central or local, within a country, and all public institutions, other than business enterprises, managed by public authorities.

Under the above definitions of savings, "capital gains" should not be included as income.³

¹ A similar definition of income was used by KUZNETS in his income studies for the United States of America: see "National Income, 1929-1932", Senate document No. 124, seventy-third congress, second session.

² This distinction follows the grouping by use adopted by the Committee in the "Minimum List of Commodities for International Trade Statistics".

³ A definition of income including "capital gains" has been used for some purposes by the Brookings Institution; see "America's Capacity to Consume", Washington, 1934, page 163; and especially C. WARBURTON, "The Trend of Savings, 1900-1929", the *Journal of Political Economy*, 1935, page 84.

In these cases, capital gains were included as income for the purpose of measuring the relative ability of different

B. *The Measurement of Savings.*

There are two different approaches to measuring the total amount of savings (see diagram, page 9).

- (1) To measure separately savings of private households, business enterprises and public authorities, each at its source and before they have been mixed in a common stream;
- (2) To measure the different streams which savings follow at some intermediary stage between their original creation and their ultimate use.

I. *First Approach: Measurement at the Sources.*

A measurement of savings at the sources would offer the advantage that the distribution of individual savings over different income-classes or occupational groups, the distribution of business savings over different groups of establishments, etc., could be ascertained. Overlapping and duplication of records could more easily be avoided at the source than at a later stage.

(1) *Individual savings* could be measured as follows:

(a) *By family budget statistics.* — This direct form of measurement is adapted to furnish the most complete results and to allow for all groupings by income classes, etc. It is likewise relatively easy to adapt such budget figures to the definition of savings, more especially as regards expenditure for consumers' capital goods and the exclusion of capital gains. The practical difficulties appear, however, to be enormous, if not insurmountable. The difficulties of obtaining information regarding family budgets for cost-of-living enquiries, even on a very small scale, are well known, and it appears doubtful whether a sampling method would lead to any conclusive results regarding the proportion of savings to income. On the other hand, it would appear to be impossible to undertake family budget enquiries covering the total population.

(b) *With the aid of statistics of individual wealth.* — If, for taxation purposes, recurrent assessments of the wealth of individuals are made, these data could be used for an indirect measurement of savings.¹ It would, however, be necessary that these assessments should be made not only at current market values (which are affected by price movements) but also—in order to render possible the calculation of real changes due to savings—on the basis of nominal or other constant values. The completeness of statistics based on tax records will depend on the lower limit of wealth submitted to taxation. It should be possible to compile these statistics in such a way that groupings by income classes, etc., are feasible.

From the point of view of international comparability, any form of indirect measurement will be faced with the difficulty that taxation statistics—even if the desiderata of economists interested in savings be duly taken into account in their compilation—are always dependent on the national taxation system, of which they are a sort of by-product.

(2) *Business savings* could be measured as follows:

(a) *On the basis of statistics of profit-and-loss accounts.* — This form of measurement would correspond to the system of family budgets. It would have certain advantages as regards the possibilities of some groupings by branches of economic activity, etc., but would also share the same drawbacks as regards incompleteness. Such statistics can, in general, only be obtained for firms which are obliged to make their profit-and-loss accounts public. A further difficulty

income-groups in different regions of the United States to command money resources which might be consumed or invested. The corresponding capital losses of other citizens, it would appear, were not taken into account.

¹ Such a method has been used by H. CLAY in a paper (republished in "The Problem of Industrial Relations", Macmillan, 1929); by G. W. DANIELS and H. CAMPION on "The Distribution of National Capital", *Transactions of the Manchester Statistical Society* 1935/36, Manchester; by FEAVEARYEAR in "Capital Accumulation and Unemployment", the *Economic Journal*, June 1936; and by Mordecai EZEKIEL in "An Annual Estimate of Savings by Individuals", *Review of Economic Statistics*, November 1937. Sir Josiah STAMP, in "British Incomes and Property", London, King & Son, 1927, summarises and discusses the papers of STRUTH and MALLET, in which the method used by Clay, Daniels and Campion was first exploited.

is that the data available relate to *declared* profits, which may differ in varying degrees from the profits actually realised.

Statistics of profit-and-loss accounts exist in some countries in a summarised form for all firms publishing their accounts. Information might also be obtainable for all establishments covered by production censuses by developing the questions on cost factors and value of products in the direction of a complete profit-and-loss account, at the risk, where compulsion is lacking, of losing more or less of the information now secured.

(b) *By statistics of taxation.* — Information on net profits declared and on profits distributed might be obtainable also from taxation statistics for a range of establishments wider than those that publish their accounts. Here again, the differences in national taxation systems will set a limit to the comparability of the statistics, which will also be affected by the varying range of activities carried on by enterprises that are units for purposes of taxation.

(3) *Savings by public authorities* could be determined from statistics on public finance. Comparable statistics on such savings would require international uniformity of public accounting as regards current receipts and current expenditure. Statistics should, of course, cover all public authorities within a country.

II. *Second Approach: Measurement of the Different Streams which Savings follow.*¹

If the attempt were made to ascertain the total amount of savings by measuring separately and adding up the different streams which savings follow on their way from their source to their ultimate use, it would be necessary to obtain statistics for the following items:

- (a) Increases in cash balances (private, business and Government);
- (b) Money outlay for the direct acquisition of consumers' capital goods (houses, furniture, motor-cars, etc.);
- (c) Savings employed directly for:
 - (1) Purchases of stock-exchange securities, long-term bonds, short-term bonds and Treasury bills;
 - (2) Lending for investment purposes:
 - (i) On direct mortgages;
 - (ii) On other bases;
 - (3) Lending to private persons or households for consumption purposes;
 - (4) Investments in own enterprises;
- (d) Savings put at the disposal of intermediary institutions as shown by:
 - (1) Amounts available from premium income for increase of reserves of life insurance companies, pension funds, etc.
 - (2) Increase in savings deposits with banks, building societies, etc. (Certain classes of institutions of this kind are indicated in the diagram.) Interest accumulated should be included;
- (e) Savings employed for the repayment of debts made by private persons or households for purposes of consumption.

In addition to the above-mentioned items, which correspond mainly to the streams of savings towards home investment, the stream of savings on the way to investment abroad should be ascertained.

¹ This subject has been discussed by Paul BEAUVYER, under the title "L'Evaluation globale de l'épargne", in the *Bulletin d'information et de documentation* of the Belgian National Bank of February 28th, 1938.

(f) Exports of capital, as expressed in an increase in holdings of foreign securities and in balances held with foreign banks and correspondents.

The total of the items listed, however, exceeds the total amount of savings as defined above. This is primarily due to the fact that, in addition to "savings", amounts coming from other sources follow the same stream.

In addition, only some of the various items listed above represent "net" savings. In order to obtain "net" figures throughout, it is necessary to deduct at least the amount of funds due to repayments of capital which have entered the stream from the total amount of savings obtained by adding together the above items. For this purpose, it would be necessary to obtain statistics for the following items:¹

(b') Sales by consumers of consumers' capital goods and value of the services rendered by consumers' capital goods.

(c') 1. Receipts from redemption or amortisation of stock-exchange securities.

2. (i) Receipts from redemption or amortisation of mortgage loans.

(ii) Receipts from payments, complete or partial, of other claims.

3. Receipts from repayments of loans granted for consumption purposes.

4. Capital withdrawals from own enterprises.

(d') 1. Benefits received by insured persons from insurance companies, etc.

(e') Increase in debts made by private persons or households for purposes of consumption.

(f') Imports of capital as expressed in the selling of foreign securities and the reduction of balances with foreign banks and correspondents.

The simple enumeration of all these items illustrates, without further comment, the serious difficulties which their statistical measurement will present. Some of the items—for instance, changes in cash balances and in debts of private persons or households for purposes of consumption—may not be measurable otherwise than by the methods of household statistics. But information on other items is also very meagre, and if this information is to be useful for ascertaining the total amount of savings, it would be necessary to exclude all amounts coming from other sources than savings and to avoid all overlapping and duplication of records due to transfers from person to person or from institution to institution and not to new saving. Inter-bank deposits furnish an outstanding illustration of such duplication. It should not, further, be overlooked that banking institutions may use funds resulting from an expansion of the credit base or a reduction in reserve ratios in exactly the same way as additions to savings, so that such funds may become available for any of the purposes mentioned so long as the expansion of cash reserves is maintained and the reduced reserve ratios are justified by the business conditions.

Business enterprises may use funds accumulated for the maintenance or replacement of machinery—*i.e.*, funds which, under the above definitions, are not to be regarded as savings—for purchasing stock-exchange securities, or they may use part of their working capital temporarily for like purposes. These and many other points will have to be taken into consideration in connection with the compilation of the relevant statistics. The problems presented will become yet more complicated if not only the total amount of savings, but also a subdivision according to savings by individuals, by business enterprises and by public authorities, is aimed at.²

¹ The numbering corresponds with the numbering of the above list.

² One of the outstanding attempts to calculate the approximate total amount of savings by aggregating these different streams is that made for Germany by KEISER and BENNING in "Kapitalbildung und Investitionen in der deutschen Volkswirtschaft, 1924-1928": *Sonderheft 22, Vierteljahrshefte zur Konjunkturforschung*, Berlin, 1931.

CHAPTER 2. — FUNDS AVAILABLE FOR INVESTMENT

A. Definitions.

The term "*funds available for investment*" will cover the total amount of money *available* for purposes of investment regardless of whether the funds will be ultimately invested or will be used for other purposes (*e.g.*, for consumption, increasing liquidity, etc.). These funds available for investment are built up from certain streams coming from savings, and from certain outside streams—*e.g.*, from credit expansion by action of central banks, from capital imports, from resources applied to the maintenance or replacement of old investments and from certain capital gains.¹

Not all these funds, however, pass through the capital market. In the case of one part of the funds, the investors and the persons or bodies which have accumulated the funds are identical (direct investment); in the case of the remaining part they are different persons. It is the latter part the investment of which takes place through the capital market. By "*capital market*" is meant, not a place or an institution, but the complex of relations which brings together borrowers and lenders and by which the price of loans is determined. The term "*capital market*" is intended to cover both the "*capital*" and the "*money*" market.

By "*investment*" is meant the acquisition of "*capital goods*" of all kinds, as defined below in Chapter 3, regardless of whether their acquisition represents "*new*" investment or maintenance or replacement of old investments.

It results from the above definitions and enumeration of the sources out of which the "*funds available for investment*" have been built up that the total amount of the funds cannot correspond with the total amount of savings.

There is, in addition, the time lag between "*savings*" and putting the amounts saved at the disposal of business or of public authorities. For example, important amounts of individual savings are at one time hoarded by the public and at other times dishoarded and invested. Another source of discrepancy is to be found in the increase or decrease of business cash balances. These changes may be seasonal or may spread over periods of more than a year. Thus, during crisis years, a smaller part than usual of the money received by business is devoted to reinvestment, because of a fall in prices and a reduction in stocks of producers' materials, leading to an increase of cash balances that might be the expression, in part, of real savings. This part of the increase is available for investment in later periods.

B. The Measurement of Funds available for Investment.

I. Funds supplied through the "*Capital Market*".

The total amount of funds for investment supplied through the market will be found by adding together the following items:

- (a) The amounts supplied by the floating of stock-exchange securities, less the amounts applied to the redemption of outstanding securities and repayment of other outstanding debts;
- (b) Other mortgage loans, less corresponding repayments;²
- (c) Other loans or participations, less corresponding repayments;²
- (d) The increase (or decrease) of (short- and long-term) bank advances (including discounts).²

¹ As most of the capital gains are counterbalanced by capital losses, only net gains realised by sales of capital assets to purchasers outside the country or outside the geographical, social or economic unit studied will influence the funds available for investment.

² The repayments taken into account in (b), (c) and (d) will be exclusive of such as may have been provided for in (a). The resources obtained under one of the four categories may, in fact, be used for repayments of debts belonging to another category—*e.g.*, the proceeds of a loan may be used to redeem a short-term bank advance.

The difficulties of the statistical measurement of the above items are considerable, especially if an attempt is made to take into account the distinction between new investment and the maintenance and replacement of capital resources that have suffered depreciation. In order to give the necessary information, the following desiderata should be kept in mind:

(a) *Capital issue statistics* should be drawn up in such a way as to show the amounts of new money becoming available for investment. They should, accordingly, show separately:

(i) Issues made to provide funds for the redemption or conversion of old securities, or for the repayment of debts to banks or to other creditors;

(ii) Capital issues for investment trusts, banks, etc., which do not directly provide new funds for investment, though they may release for investment the amounts paid to former owners of securities acquired out of the proceeds of such issues;

(iii) Capital issues which directly provide new funds for investment;

(b) *Statistics of mortgage loans* should distinguish between loans to business enterprises and to private persons and their respective repayments.

(c) *Direct participations, mainly by private persons*, in business enterprises and loans to such enterprises and the corresponding repayments should be known. At present, only a general impression of their importance can be derived from assessments for taxation purposes.

(d) *Statistics of bank advances* should distinguish, *inter alia*, advances to business, to private persons or households, to banks and to public authorities, and also credits for different purposes and terms.

In all cases, home investment and investment abroad should be distinguished.

II. *Funds available out of Own Means (Self-financing).*

The total amount of funds for investment *not* supplied through the market will be found by adding together the following items:

(a) Payments out of own means for consumers' capital goods less corresponding receipts in respect of sales of such goods by consumers;

(b) Funds available for investment in own enterprises, less capital withdrawals from own enterprises:

(1) Funds available out of own means for new investments;

(2) Funds available out of own means for the maintenance and replacement of old investments.

The difficulties of the measurement of the funds available out of own means have already been mentioned in Part I of this report. One of the chief difficulties is that these funds can generally not be measured when they are still "available for investment", but only when they have already been invested.

(a) *Payments out of own means for consumers' capital goods* must often be estimated on the basis of such statistics as are available of the production or sales of these goods, modified to allow for the financing of a part of the payments by borrowing. The ascertainment of "net" figures, however, will present particular difficulties.

(b) *Funds available for investment in own enterprises* can only be ascertained from statistics of business savings and business disboardings (*i.e.*, changes in cash balances), which will have to be based on balance-sheets and profit-and-loss accounts. In addition to visible business savings, the measurement of which has been discussed above in Chapter I, changes

in the amount of business savings which are concealed in the under- or over-valuation of assets or in the over- or under-valuation of liabilities might influence very considerably the estimates of the funds applicable to new investment. It appears impossible, however, to throw sufficient light on these "secret business savings".

The distinction of new investments from investments for maintenance and replacement can only be made on the basis of the information provided in balance-sheets and profit-and-loss accounts.

CHAPTER 3. — THE VALUE OF NEWLY CREATED CAPITAL GOODS (MONEY OUTLAY FOR THE ACQUISITION OF THESE GOODS)

A. Definitions.

The term "value" is intended to mean the amount of money paid for the acquisition of capital goods. The following categories of goods are to be regarded as "capital goods":

(a) Producers' equipment—*i.e.*, capital equipment (including buildings and works of construction) for agriculture, industry, commerce and transport;

(b) Consumers' capital goods—*i.e.*, durable consumers' goods (houses, motor-cars, furniture, refrigerators, aspirators, wireless apparatus, etc.);

(c) Stocks of all goods held by producers or traders—*i.e.*, raw materials, semi-finished articles and finished articles, both capital goods and goods for current consumption. (For the measurement of the money outlay for the acquisition of these goods, only the *changes* of stocks are of importance.)

These categories have been enumerated in order to cover the ground; they should not be considered as groups of an adequately detailed classification. For practical purposes, more details may be wanted according to the nature of these goods, and other distinctions—*e.g.*, that of investments made by public authorities—may be desirable. This is, however, a matter for later recommendations.

The definition covers only investments in physical goods; immaterial investments or investments which become only partly visible in goods—*e.g.*, investment in scientific research, education, advertisement, etc.—are left out of account.

The total amount of goods representing the investment of the available resources considered in Chapter 2 will therefore correspond to the production of finished capital goods minus exports, plus imports of these goods, together with the net increase in stocks of all other goods.

For studies of the problem of investment, particularly with a view to the determination of changes in the capacity of the industrial equipment of a country, the distinction between new investment (= extension of capacity) and maintenance of capacity (= restoration of capacity that has depreciated, or replacement of destroyed equipment) is essential, at least for groups (a) and (b) mentioned above. This distinction is, of course, a very difficult one, as in replacing old machinery by new machinery of a more efficient type it may be found that the same capacity can be secured at a cost less than that of the old machinery, or, by an expenditure equal to that cost, a greater capacity may be secured. The former course leaves a part of the depreciation allowance available for new investment; the latter involves as much new investment as corresponds to the additional capacity.

B. The Measurement of the Value of Newly Created Capital Goods.

Broadly speaking, two ways of approach to such a measurement are possible; they may be described as the "money approach" and the "physical approach".

I. *First Approach: the "Money Approach".*

This approach involves the ascertainment of the money outlay for the acquisition of capital goods from balance-sheets and profit-and-loss accounts or such similar material as may be available from information secured by taxing authorities. This approach may provide also some data bearing on the distinction between new investments and reinvestments.

The calculations made for Germany¹ may be used to illustrate the chief difficulties in the way of the "money approach". These calculations are based primarily on balance-sheets of large firms, and are extended to all enterprises with the help of estimates based on the number of workers and the capital employed. Net production of investment goods has been estimated from the increase of the corresponding items in the balance-sheets, after some checking to ensure that depreciation was adequately allowed for. The figures of changes in stocks have also been derived from this source.

Any measurement of the money outlay for the acquisition of capital goods based on balance-sheets will represent changes in the values of capital goods which need not correspond exactly, on account of price fluctuations, with the value of the physical changes which have taken place in the capital equipment during the period investigated.

In order to furnish the necessary particulars to reply as far as may be possible to the list of questions at the end of Part I of the present report, the particulars given in the *balance-sheet* should permit of the separation of:

- (a) The cost of additions to equipment from that of maintenance and replacement;
- (b) Investments in fixed capital from those in working capital;
- (c) Particulars for the main branches of economic activity;
- (d) The amounts for investment supplied through the capital market on the one hand, and drawn from own means on the other.

The main theoretical difficulty arises in connection with the estimation of depreciation and depletion. As a first approximation, figures from profit-and-loss accounts of joint-stock companies can be used as a basis, as was done in the enquiries mentioned in this chapter. But in countries without uniform rules of accounting for taxation purposes, these figures may lack uniformity and be difficult to appraise. Investigation would be required to discover what rules are in operation. It would, of course, be advantageous if some general principles were adopted internationally. These are not merely statistical questions, however, but questions of general business practice or legislation which fall outside this Committee's mandate and on which the special advice of accountants would be necessary.

The aim of the rules in question would be to define such depreciation and depletion allowances as are necessary to maintain the capacity of the plant, account being taken, *inter alia*, of any changes in the quality and the relative significance of the different classes of goods produced.

A rough, and admittedly not quite adequate, first approximation could be sought in capacity figures, which in any case are interesting in themselves and would, if made available, throw some light on investment problems.

Apart from records of the provision made for depreciation and depletion, the knowledge of *actual* replacement that has taken place is important. It seems, however, to be available only for special categories of producers' equipment and for some types of consumers' capital goods.

II. *Second Approach: the "Physical Approach".*

The method in this case is to ascertain the value of the various groups of capital goods actually invested from statistics of production, of building operations, of trade, of stocks, etc.

¹ KEISER and BENNING: "Kapitalbildung und Investitionen in der deutschen Volkswirtschaft, 1924-1928": *Sonderheft 22, Vierteljahrshäfte zur Konjunkturforschung*, Berlin, 1931, and continued in *Konjunkturstatistisches Handbuch*, Institut für Konjunkturforschung, Berlin, 1936.

It is obvious that this method will only yield figures for total investment, as a distinction of new investment from replacement cannot be achieved on the basis of production statistics. On the other hand, it can yield figures on the cost of consumers' capital goods.

Calculations in accordance with this method have been made for the United States,¹ for the United Kingdom,² and for Sweden.³

The American figures are estimates based on the biennial census of manufacturing production, the census of agriculture and the census of distribution, the statistics of income, price indices, and different auxiliary enquiries—*e.g.*, estimates of automobile repairs, etc. These figures primarily concern gross production of durable goods, expenditure on repairs and maintenance, and changes in inventories. Deductions are then made for depreciation and depletion, based on the figures used in the profit-and-loss accounts for the purpose of income-tax returns. Net changes of inventories have been calculated primarily from balance-sheets and from stock statistics. All figures have been calculated in current dollars as well as in dollars of 1929.

In contrast with the results obtained by using the first approach, the figures obtained by this method represent the value of the physical changes which have occurred in the capital equipment and in the stocks, not changes of values.

For most countries, however, evaluations similar to those made by the National Bureau of Economic Research are impossible, because of the lack of censuses of production at sufficiently short intervals. The Committee believes, however, that with intervals of not more than ten years between successive censuses of production and of distribution covering all industries, and with adequate current indices of production, useful estimates of gross production can be made for the intercensal intervals. The indices should, however, include, not only manufacturing industries producing new equipment, but also works of construction and the more important industries working for maintenance and repair.

The "physical approach" is mainly a method for ascertaining the money outlay on "fixed" capital; it is less suitable for ascertaining the changes in "working" capital, which can hardly be obtained from stock statistics. Here again it will frequently be necessary to use balance-sheet statistics as the best source.

When preparing statistics of production, trade and stocks for the purpose of showing the money outlay for the acquisition of capital goods, enough details should in any case be given about the goods produced to allow of the above-mentioned grouping of the goods, according to the uses to which they will be put, into producers' equipment, producers' materials and consumers' capital goods, or of any more detailed subdivision which may be recommended and which permits of calculating the value of the capital goods utilised in the main branches of economic activity.

PART III. — CONCLUSIONS

The above statements on the possibilities of measuring the various aspects of the problem of capital formation have shown the complexity of the task, which is not concerned with financial statistics alone. Indeed, to cover the whole field, it would be necessary to prepare recommendations for the following branches of economic and financial statistics:

- (1) *Family budget statistics* (for savings of private persons or households, debts incurred for consumption, and expenditure on consumers' capital goods).
- (2) *Statistics of balance-sheets and profit-and-loss accounts* (for business savings, investment in own enterprises, funds available for new investment and for maintenance and

¹ National Bureau of Economic Research, *Bulletins 52 and 60*; authors, SIMON KUZNETS and SALOMON FABRICENT.

² "Report on the First Census of Production in the United Kingdom (1907)", Introduction, and COLIN CLARK, "National Income and Outlay", London, 1937.

³ "National Income of Sweden, 1861-1930", by ERIC LINDAHL, EINAR DAHLGREN and KARIM KOCK, London, P. S. King & Son, Ltd., 1937.

replacement, money outlay for the acquisition of capital goods, allowances for depletion and depreciation, changes in stocks—*inventories*).

(3) *Taxation statistics*—e.g., *assessments for tax purposes of individual wealth and of income* (for savings of private households and of business enterprises, for direct loans to and participations in business enterprises, money outlay for the acquisition of capital goods, depletion and depreciation allowances).

(4) *Statistics of public finance* (for savings, funds available for investment, funds used for other purposes than investment, and expenditure of public authorities on capital goods).

(5) *Statistics of capital issue* (for savings, funds available for investment).

(6) *Statistics of savings banks and commercial banks, including all institutions accepting deposits*—e.g., *building societies* (for savings, funds available for investment, bank credits, credit expansion).

(7) *Mortgage statistics* (for savings, funds available for investment, money outlay for the acquisition of capital goods).

(8) *Insurance statistics* (for savings, funds available for investment, value of capital goods).

(9) *Statistics of capital imports and exports* (for savings, funds available for investment).

(10) *Censuses of production and distribution, including building censuses and building statistics* (for value of capital goods produced, changes in stocks).

(11) *Current indices of industrial production, including building, and of stocks* (for value of capital goods produced, current changes in stocks).

(12) *Current statistics of internal trade* (for value of consumers' capital goods).

(13) *International trade statistics* (for value of capital goods imported and exported).

It is obvious that, for practical reasons, the Committee cannot submit recommendations for all these statistics, many of which, in a great number of countries, are very undeveloped or non-existent. In any case, the consideration of branches of statistics for early recommendations will, of necessity, depend on other factors as well as on the relation of such statistics to the problem of capital formation.

The Committee believes that the measurement of the value of capital goods (cross-section 3) offers the greatest promise of practical results in the near future, since where production statistics are available, fewer changes in existing statistics and less creation of new statistics are required for cross-section 3 than for the other cross-sections. It does not think it desirable, however, to over-stress any particular aspects for study or to decide whether it is more important to compile statistics of savings than of funds for investment or of the cost of real investment.

Some narrowing of the field of work is, however, expedient at the outset, and the Committee has taken as a criterion for its choice that the financial statistics to be selected from the above list for further study should be statistics which exist already in a certain number of countries and for which some improvement and standardisation might be obtainable in the near future.

The Committee has therefore commenced the study of the following branches of financial statistics:

- (a) Banking statistics;
- (b) Statistics of capital issues;
- (c) Insurance statistics.

It hopes to continue in the near future with statistics of balance-sheets and of profit-and-loss accounts. In addition, the Committee will prepare a study on the possibility of using, for general statistical purposes, the valuable information collected in many countries in the course of making tax assessments.

When dealing with these statistics, the Committee proposes, not only to prepare its recommendations from the point of view of students of capital formation, but also to take into consideration other aspects of the statistics in question. The Committee's future recommendations will therefore include a plan for such elaboration of the statistics concerned as they may deem feasible, the points which are important for the study of capital formation being duly taken into account.

The problem of capital formation does not, in the Committee's opinion, lend itself readily to exact statistical measurement, but is rather suited for broader scientific research, which requires interpretation in accordance with the circumstances of the countries concerned, and the bridging of inevitable gaps in the available data by judicious estimates.
